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# Domestic Security: The Holmes Burglar Alarm Telegraph, 1853-1876

Karen C. S. Donnelly  
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## **Disciplines**

Historic Preservation and Conservation

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DOMESTIC SECURITY:  
THE HOLMES BURGLAR ALARM TELEGRAPH, 1853 - 1876

Karen C. S. Donnelly

A THESIS

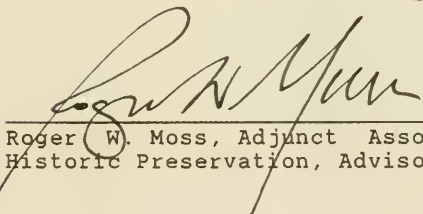
in

The Graduate Program in Historic Preservation

Presented to the faculties of the University of Pennsylvania  
in Partial Fulfillment of the Requirements for the Degree of


MASTER OF SCIENCE

1992



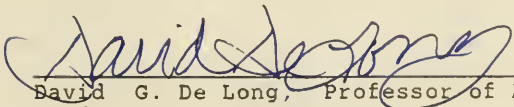
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## INTRODUCTION

In the past, when preservationists were faced with restoring or interpreting the interiors of historic American buildings, the finishings and furnishing were of primary concern. More recently, there has been a move toward developing a complete picture by studying all aspects of material culture. Understanding construction technologies and building systems now plays an important role in documentation and interpretative plans.<sup>1</sup> In addition to offering a more accurate representation of an interior, the study of domestic technologies can shed new light on cultural attitudes and values. Despite the emerging trend of considering mechanical and electrical systems such as lighting, plumbing, and heating - the examination of domestic security measures remains completely neglected.

Concern for personal safety and protection of property is widespread today, yet, this security consciousness is not a new phenomena. Historically, protection of property was provided by the use of watchmen, dogs, fences, or locks, among other things. Each of these, however, were subject to problems. Locks and fences, although valuable deterrents, could be breached; and watchmen, then as now, are subject to



human failings which prevented the proper performance of their duties. Also, because of the expense watchmen were not widely used.

During the nineteenth century the population in American urban centers was growing rapidly. The first preventative police forces were organized in an attempt to deal with the problems of crime and security on a public level.<sup>2</sup> However, the variety of security options available for the protection of an individual residence remained limited. The introduction of an alarm sounding apparatus automatically to detect and to announce an undesired event marked the beginning of modern security systems.

Midway through the nineteenth century security was electrified. By adapting the recently developed telegraph technology, electricity entered the home in the form of a local burglar alarm. The first burglar alarm to make use of these technologies was patented by the Reverend Augustus Russell Pope (1819-1858) of Somerville, Massachusetts, in 1853. In 1858, this patent was purchased by Edwin Holmes (1820-1901) who began distributing the system in the New York City area. Holmes's Burglar Alarm Telegraph Company had, by 1868, over 1200 subscribers. Shortly thereafter a variety of other alarm companies began to market competing systems.

This paper will discuss the origins and early development of domestic electric security systems. The alarms of



the Holmes company, in use prior to 1876, will be the primary focus of this investigation. Competing companies will be identified, and, where possible, comparisons between the products will be made.

In order to understand the development of early burglar alarm systems, research using a variety of primary sources was undertaken. These included the examination of patents, trade catalogs, business credit files, and extant system remnants.



CHAPTER 1  
ANTECEDENTS

Social and Historical Context

Security is defined, in part, as the condition of being protected from or not exposed to danger; or something that gives or assures safety, tranquility or certainty.<sup>3</sup> Absolute protection is not possible. However, environments can be altered so that harm or loss is less likely. Generally there are two broad categories of security; depending upon the source from which the service originates -- public or private. Public law enforcement -- such as police agencies, jails and courts -- are community based. These afford benefits to the individual but in themselves do not assure security. Consequently, the need for private security exists, and this is broadly defined as all measures undertaken by individuals or businesses that are intended to give protection to persons or property.<sup>4</sup>

For centuries, the lock was the standard method of private security. Exactly when and where locks were invented is not known. However, by about 2000 B.C. the Egyptians and others were using wooden mechanical locks. Since then,





numerous improvements in form and materials have been made, and today, locks continue to play a vital role.<sup>5</sup>

In the colonial era, methods of public security continued English and European traditions. The constabulary and marshals, who guarded the cities during the day, carried the burden of law enforcement. Constables directed the "hue and cry" to take into custody criminals and other disorderly persons, and they were responsible for enforcing local ordinances.<sup>6</sup> In all these duties, the constabulary oversaw and was supplemented by the watch. Male residents were required to serve regular turns as watchmen, patrolling from dusk until dawn. The purpose of the watch was to guard the town by limiting noisy drinking, dancing, and other forms of unacceptable behavior. Watchmen were also charged to be on the lookout for fires. Despite the limited scope of these tasks, watchmen were ineffective -- they often reported for work intoxicated, slept on duty, or refused to make their rounds.<sup>7</sup>

This unprofessional behavior, which in the colonial city had been tolerated, quickly became unacceptable after 1800. In the early decades of the nineteenth century riots and civil disturbances shattered the tranquility of many major cities. Industrialization and urbanization were taking place concurrently. The growth in geographic size and populations of cities was unparalleled. The substantial in-



creases in the resident population was compounded, beginning in the 1820s, by a period of mass immigration.<sup>8</sup>

The number of homes and businesses worth plundering increased dramatically. Industrialization resulted in more specialized use of land. This trend, together with urban growth caused spatial changes in the organization of persons and activities within the city. The wealthy had, in the preindustrial society, occupied the most central locations of the city. Deterioration of these once fashionable areas -- together with the advent of mass-transit -- changed the class distribution. Affluent residents began moving to the periphery, out of the urban centers.

The changes wrought by urbanization presented opportunity for criminals and compounded the problem of controlling them. In 1789 New York had 33,000 inhabitants and was protected by only 32 night watchmen and fewer daytime constables and marshals. By 1843, the population was estimated at 350,000 permanent residents and 50,000 transients. The city employed 34 constables, 100 marshals, and 1,012 watchmen to serve this tremendously increased population.<sup>9</sup> Although crime and disorder were not new, there was a change in perception of these issues between 1800 and 1860. David R. Johnson points out that "during the first three decades of the century, criminal behavior increasingly seemed to disturb the prevailing tranquility of urban society; in the



next three decades, many people became convinced that crime was about to undermine their society."<sup>10</sup>

Preventing crime had different meanings to different people. The three major categories of crime which community leaders wanted controlled were: professional theft, street crime, and illegal or immoral enterprise (drinking, gambling and prostitution).<sup>11</sup> Various theories on how to encourage proper behavior and social order resulted in different proposals. Some critics advocated temperance, others thought the answer was education, either through the introduction of a viable and broad-based public school system, or through houses of refuge that would address offenders one at a time. All of these proposals required a long-term commitment to the reformation of people who displayed socially unacceptable or criminal behavior.

In the interim, the basic problem of controlling crime remained. Many citizens advocated a more immediate solution: an overhaul of policing practices. They proposed that cities adopt the idea of crime prevention, a theory which "emphasized centralized direction of a large body of men whose collective efforts to suppress crime depended upon their ability to establish a pervasive, visible presence in all areas of a city at all hours of the day or night."<sup>12</sup> Slowly gathering support over several decades, the advocates of crime prevention finally succeeded in supplanting the outmoded watch and constabulary. New York, in 1844, was



the first city to establish a public police force.<sup>13</sup> Over the next several years police departments staffed with paid, full-time officers capable of handling the complexities of the evolving urban society emerged in most major American cities.

The preventative approach to policing curtailed gang activity and reduced street crime. Nonetheless, while progress in these areas was certainly commendable, preventative policing did not adequately confront the particularly sensitive issue of crimes against property. While a visible police force might act as a deterrent to the "house-breaker," "sneak thief," or "second story climber," it did little to curtail the activities of those who occupied the pinnacle in the criminal social hierarchy -- the night raider or professional burglar.<sup>14</sup> In fact, Johnson remarks, "during the 1850s property crimes not only continued; they spread geographically as cities expanded, and they appeared to increase in number."<sup>15</sup>

The development of a comparatively anonymous and complex urban society was a benefit to the professional thief whose methods and tools had become more sophisticated. The thief had the upper hand in the ancient contest between those who stole and property owners. Given time and secrecy the burglar was generally successful in his desired goal. Consequently, the introduction of a reliable device which automatically detected and announced a break-in and alerted





the would-be-thief that his actions were discovered could make a significant contribution to domestic security.

Mechanically operated burglar alarm systems had been introduced in England in the early 1700s. These pull-wire alarms mechanically linked a set of chimes to a door or vault lock. Reportedly, a bank in Plymouth, Massachusetts, was the first application of a mechanical alarm system in an American building. A wire from the vault door ran underground to a set of bells located in the cashier's home next door. Although mechanical alarm systems certainly could have been installed in a domestic setting, no references to, or evidence of residential American applications have been discovered. Regardless, these systems could not have been particularly effective. Cutting the wire which connected the chime or bell to the lock or vault was, for the burglar, a simple method to circumvent these pull-wire systems.<sup>16</sup> Wealthy property owners needed a more effective method to protect themselves from illusive skillful professional thieves. A new concept of protection, which overcame the limits inherent from relying on man or his mechanical systems was necessary.

#### Telegraph Technology

The telegraph, which was both the first practical and commercial application of electricity and magnetism only became possible after these forces were understood and



controlled. This harnessing of electricity as a long distance messenger was also the crucial innovation in the development of alarm technology. An understanding of basic telegraph components is therefore essential.

Although electricity was known for many centuries, it was not until the closing decades of the eighteenth century that man learned how to produce steady currents of electricity by chemical means. Building on the experiments of Luigi Galvani (1737-1798), Alessandro Volta (1745-1827), produced the first true source of continuous electricity -- the electric cell -- in 1801.<sup>17</sup> A battery was created by linking two or more cells. These cells consisted of plates of dissimilar metals -- generally zinc and copper or zinc and silver -- brought together in a conducting solution such as a weak acid. When the upper ends of the metal plates were connected by a wire, a current of electricity passed from the copper to the zinc through the connecting wire, and from the zinc to the copper through the liquid. Current flows continuously until the battery is exhausted, unless the wire is disconnected, or the circuit is broken, in which case, the current immediately ceases; but instantly resumes whenever the connection is remade.<sup>18</sup> (Figure 1)

Practically all early batteries were constructed of the same simple elements. These one-fluid galvanic cells in which both electrodes were immersed in the same fluid could produce an electric current; but because they were subject



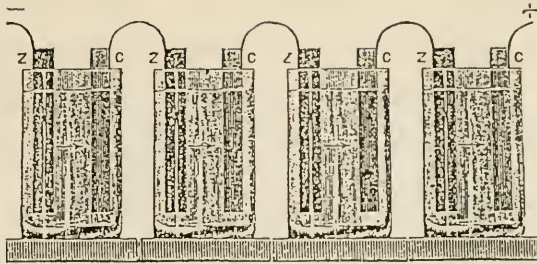


Figure 1: Cells linked to form a battery. Reprinted from Frank L. Pope, Modern Practice of the Electric Telegraph (New York, 1869), 11.

to the defect of polarization, it was impossible to draw a large current from a battery for more than a few seconds before its power was seriously impaired.<sup>19</sup> Preventing polarization would, therefore, finally render a constant current, enabling the cell to maintain the same strength for a long time.

The difficulty of polarization was finally overcome in 1836 when J.F. Daniell, an English electrician, invented the cell which bears his name. The Daniell Cell was the first of the so-called constant batteries which employed two liquids instead of one: one in contact with the zinc, and one with the copper plate. These batteries were not inexhaustible; power would diminish if the circuit was kept closed for long periods of time. However, these cells were more steady than those previously available and could be rejuvenated.



The second step towards advancing electricity to the status of a major social force was the discovery of electromagnetic induction. Progress was rapid once scientists had a readily available source of electricity. In 1819, Danish scientist Hans Christian Oersted (1777-1851) discovered that there was a direct relationship between electricity and magnetism; he observed that a compass needle would move when brought near a wire in which an electric current was flowing. William Sturgeon (1782-1850) of England is generally credited with construction of the first electromagnet in 1825. This device successfully converted electrical energy into energy in the form of mechanical motion.<sup>20</sup>

An electromagnet is produced by enclosing a soft iron bar within a spiral coil of insulated copper wire through which an electric current is transmitted. When a current of electricity is passed through the coil of wire, the iron bar within becomes, temporarily, powerfully magnetic. The bar will remain magnetic as long as the current continues to flow, and will exert its force on another bar of iron which is called the armature. The process by which the electromagnet converts electricity into mechanical motion is represented in Figure 2. The key is raised so no current is passing to the coil, and the bar is not a magnet. However, when the key is depressed the current from the battery, circulates through the coil; the core becomes a magnet, and attracts its armature as indicated by the dotted lines. If





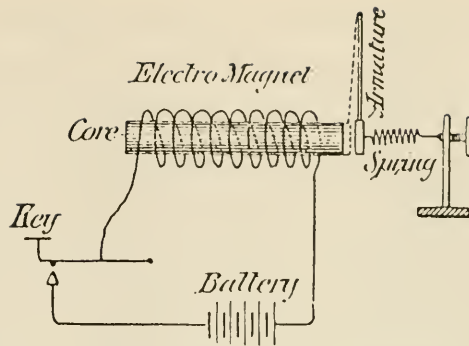


Figure 2: Producing mechanical motion with an electromagnet. Reprinted from, Park Benjamin, The Age of Electricity (New York, 1888), 81.

the circuit is broken, the armature, no longer attracted, will be drawn back by the spring.<sup>21</sup>

These two discoveries -- the battery and the electromagnet -- are the foundation stones of the system of telegraphy which was to develop. By 1837, several inventors used these discoveries and applied them to the development of a practical and successful telegraph. Telegraphs transmit information by producing intelligible signals, consisting of a succession of instantaneous electrical impulses. These signals are, by previous arrangement, intended to indicate the letters of the alphabet. Because Morse's system became preeminent, he is often incorrectly credited as being the sole developer of telegraph technology.

In its simplest form, a telegraphic circuit consists of a contact or sending device [or key] that makes and



breaks the connection between a current source [or battery] and the line which carries (or conducts) the current. The pulses of current pass to the distant end of the line and activate the receiving device [or sounder] by causing its electromagnet to attract or release its armature so that it makes a clicking noise. In Morse's apparatus, the armature of the electromagnet on the receiving device was attached to a lever carrying a steel point which embossed a mark upon a paper strip moved along by clock-work. The duration of the current, and consequently the length of the noise or the mark was regulated by making the period of contact by the key short or long. Whether signals were audible or visual, the armature at the receiving end of the line copied the movement of the key at the sending end.

Telegraphs can start with either an open circuit or closed circuit. If an open circuit is chosen, during the idle condition, no current flows in the line. Every time the key is moved into contact with the opposite part of the wire, the current passes; therefore the battery is engaged only when a message is being sent. In the other, or closed-loop system, current travels continuously in the line. Interrupting the current by moving the key out of contact with the line will produce a mimicking action on the receiver.

The first commercial telegraph line in America became operational in 1844 between Baltimore, MD, and Washington,



D.C. -- a forty-four mile distance. Following this successful installation, the telegraph was rapidly adopted as a means of communication. In addition to linking distant communities, the telegraph could be used on a municipal level -- to communicate specific concerns within a city or town. As early as 1839, William F. Channing (1820 - 1901) conceived the notion of using telegraphy to transmit fire alarms.<sup>22</sup> During the 1840s he promoted this idea to the public. In several published articles he urged the City of Boston to construct a central station fire alarm system.<sup>23</sup> The previous prevailing fire alarm technique of using watchmen in towers to detect and church bells to announce fires was time consuming and failed to assist firefighters in locating the blaze -- a major concern in any fair sized city. Channing proposed that the City be divided into districts and that signal boxes connected by telegraph to a central station be placed throughout each district. The unique signal from each box would allow the monitoring staff at the central station to determine the specific district and box from which the alarm originated. Then an electric impulse would be transmitted from the central station to cause the appropriate district bells to be rung indicating an alarm. Additionally, the central office could communicate the number of the box within the district from which the alarm originated and thereby quickly direct the engines



to the part of the district where the fire was located. Because it took Boston until 1851 to act on Channing's suggestion, New York, became the first city to enact an ordinance to change from a mechanical to an electric fire alarm system in 1847. However, the system introduced in New York was much less sophisticated than that proposed by Channing.<sup>24</sup>

Even as the fire alarm system was being perfected in the early 1850s, others saw additional potential for electricity. Not only did it signal an alarm, but it could, without human intervention, detect the emergency that caused need for the alarm. Electricity was able effectively and automatically to carry intelligible messages and at the same time make all mechanical bell and chime based alarm systems obsolete.





CHAPTER 2  
PATENT ANALYSIS

In an attempt to document and establish a framework for illustrating how electric burglar alarm technology [developed over time, United States patent documents were searched to identify the primary patents. While this search attempted to be thorough, it almost certainly did not identify every relevant patent. The alphabetical section of the Subject-Matter Index of Patents for Inventions Issued by the United States Patent Office from 1790-1873, Inclusive, lists the principals, Pope or Holmes, only nine times. After 1873, the patent office began issuing yearly rather than cumulative indexes. Here, Holmes appears as recipient or assignee of a patent an additional twelve times before 1900. Appendix A lists the twenty-one patents issued between 1853 and 1893 with which Holmes was known to be associated. Only nine of these patents (appearing in italics) are directly related to the burglar alarm. Because patents were not identified for several major components of, or improvements to the system, it is suspected that Holmes owned more than these few patents. Attempts to identify additional Holmes controlled patents were unsuccessful.



Therefore, information provided by trade literature or supported by extant remains has been used to bridge gaps to produce a development chain or chronology for this unexplored aspect of America's technological heritage.<sup>25</sup>

Development of the Domestic  
Burglar Alarm Telegraph

Little is known about the early life of Augustus Russell Pope. Born January 25, 1819, in Boston, and educated at Harvard (Class of 1839; and Divinity, 1842) Pope moved from Kingston, Rhode Island, to Somerville, Massachusetts, where he was installed as the second pastor of the First Congregational [Unitarian] Society on November 25, 1849. He remained in this position until his death, on May 24, 1858. According to one account, Pope was a man of "great energy, rare talent, and more than ordinary ability. These qualities, combined with noble sympathies and heartfelt aspirations for human welfare, led him to engage in every good work designed to promote the well being of his fellow men. He entered with ardor into his parochial duties, and by his kindly interest won the cordial esteem of his parishioners." Also, it is known that "scientific investigations and the rural and mechanic arts engaged a large share of his attention."<sup>26</sup>

In October of 1850, Pope drew his first plan for an electromagnetic burglar alarm. Two successful models were made and he subsequently applied the apparatus to his own



home in Somerville. His son Lemuel recalled, "when not employed in his pastoral duties he was occupied in experimenting with his invention in order to make it successful."<sup>27</sup> On October 27, 1852, Pope filed a patent application for an "Improved Magnetic Alarm" and on June 21, 1853, was granted patent 9,802.<sup>28</sup> (Appendix B)

An electromagnetic bell device had been previously patented for use in fire alarm systems, however, Pope's was the first application of the new telegraph technology adapted for use as a burglar alarm.<sup>29</sup> Although it is unlikely that Pope's exact catalyst will ever be known, it is difficult to imagine that he developed his system in total isolation. Somerville was located just two miles from Boston, which at the time was the major American center for telegraphic manufacturing.<sup>30</sup> Also, as the nation's premiere scientific center, Boston led in making all manner of scientific apparatus and "had plenty of skilled artisans, inventors, electricians, machinists, engineers -- the technological elite of the nation" in residence.<sup>31</sup> Pope, whether prior to, or as a result of his endeavors, knew two of the most prominent figures. First, Moses Gerrish Farmer (1820-1893), a telegraph inventor who originally met Pope in 1851 or 1852 and claimed to know him very well.<sup>32</sup> Farmer invented many of the components of the fire alarm system installed by William F. Channing in Boston and was, until 1853, superintendent of that system.<sup>33</sup> The second figure was Charles



Williams, Jr. (? - 1908) of Hinds and Williams, (later succeeded by Charles Williams, Jr.), a telegraph manufacturer who first became acquainted with Pope between 1848 and 1850.<sup>34</sup> The workshop of Charles Williams, Jr., where Pope came for production of his alarm apparatus, was a place where electrical inventors congregated. One of only a handful of similar concerns in the country, this shop employed about twenty-five men and occupied the third floor and attic of a building at 109 Court Street in Boston. This manufacturing shop served as a place where inventors could study telegraph technology and have their designs for electrical instruments and apparatus made to order.<sup>35</sup> At that time Williams's and the other small mechanical shops constituted the entire electrical industry of the United States. It is therefore likely that Pope's association with both Farmer and Williams during his development period favorably influenced the system he eventually patented.

Pope's magnetic alarm was "to be applied to either a door or a window, or both, of a dwelling-house or other building, for the purpose of giving alarm in case of burglarious or other attempts to enter the same through said door or window."<sup>36</sup> Although, operated on the same principle, and by the same power, that operated the communication and fire alarm telegraphs, this system was different in terms of human involvement. For the first time the burglar alarm





telegraph automatically registered an event in addition to announcing it.

Pope chose to employ an open circuit system. (Figure 3) The circuit consisted of contact switches [equivalent to the telegraph key] applied to each door and window, these were connected by concealed wires [the line], charged from a battery [the power source], that led to an electromagnetic alarm bell with a spring circuit breaker [the receiver]. In this arrangement the battery was connected to the bell only when door or window movement closed and completed the normally open circuit. The advantage of the open circuit plan is that when not in use the battery is not required to supply current to the line. This meant there was no constant drain on the battery, which was only capable of supplying limited power. The downside in an open circuit arrangement -- a break in the line or malfunctioning contact switch was relatively undetectable.

The most important feature of the system was its electric bell. Here the electromagnet rather than signaling audible or visual dots and dashes was used to activate a loud alarm bell. (Figure 4) The hammer of the bell is attached at one end to the armature of the electromagnet. Between the other end of the armature and the electromagnet is a spring circuit breaker which is connected to one of the battery wires and is in contact with the second battery wire. Opening a window or door completes the battery



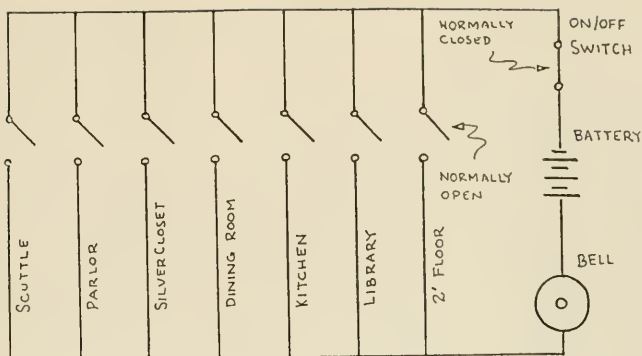


Figure 3: Electrical schematic, open circuit alarm system. Drawing by Herbert M. Schoen

circuit. As soon as this takes place -- current flows -- the magnet becomes charged and draws the armature towards it, causing the hammer to strike the bell. During the movement of the armature towards the magnet, it throws or moves the circuit breaker out of contact with the second battery wire. This breaks the circuit, demagnetizing the magnet and allowing the armature to fall back so that the circuit-breaker again comes in contact with the second battery wire. The contacts close again, and the cycle repeats itself for as long as the window is open.<sup>37</sup>

After Pope was granted his patent he set about marketing the system. He installed the device into several houses in Somerville, some without charge, so that it might be tested and its merits made known to the community. He



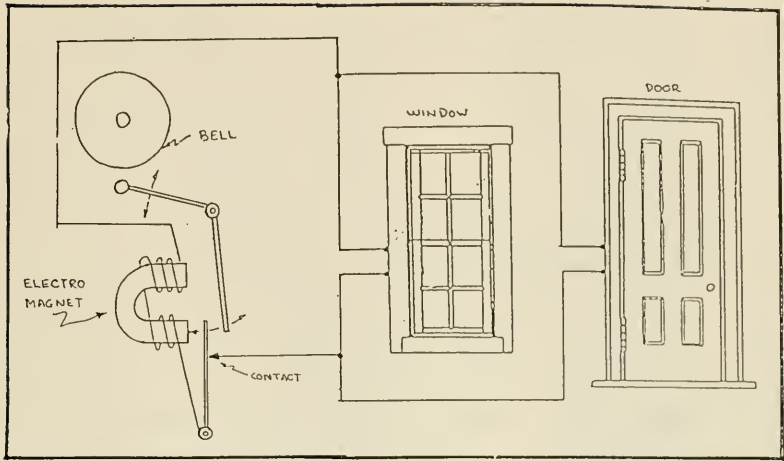


Figure 4: Operation of bell with spring circuit breaker. Adapted from patent no. 9,802. Drawing by Herbert M. Schoen.

advertised in several newspapers, put a traveling salesman into the field, and, in 1856, he exhibited his new system at the Fair of the Mechanics Charitable Association of Boston where he received a diploma and a silver medal. Although he installed the system in a large boot and shoe factory near Boston, commercial success eluded him. Pope's "duties as a Clergyman would not permit him to do more, and being very much out of health he found it necessary to dispose of his patent." For the rights to his patent he received \$1800 in cash and \$8,000 in notes.<sup>38</sup> The purchaser was Edwin Holmes who would go on to pioneer the electric burglar alarm industry.



This transfer of patent rights was not, as expected, recorded in the patent assignment digest. Although Holmes reportedly met Pope in 1857, the transfer was probably executed in early May, 1858. On May 6, 1858, just weeks before his death [on May 24] Pope had applied for his patent to be reissued.<sup>39</sup> He believed the original patent to be, "inoperative and invalid by reason of a defective specification and claim, which defect has arisen from inadvertence and mistake." The defect to which Pope refers was the use of the word elastic to refer to a circuit rather than the intended use of the word electric. Obviously, a potential purchaser of the patent would wish to have any errors corrected in conjunction with a transfer.<sup>40</sup> The patent office granted the request and reissue 566, dated June 8, 1858, revised the patent's underlying text. (Appendix E)

Holmes, who had been born in West Boylston, Massachusetts, in 1820, had moved to Boston in 1849 and opened a notions store with his brother John "selling thread, needles, thimbles and other sewing paraphernalia."<sup>41</sup> (Figure 5) Their shop was located at 17 Tremont Row close to the electrical shop of Hinds and Williams. After acquiring the Pope patent rights, Holmes relocated his family and new business from Boston to New York. According to his son, Holmes felt "that all the burglars there were in the country were in New York."<sup>42</sup> Holmes, like Pope before him, and most telegraph inventors of the day, was self-taught in electricity.





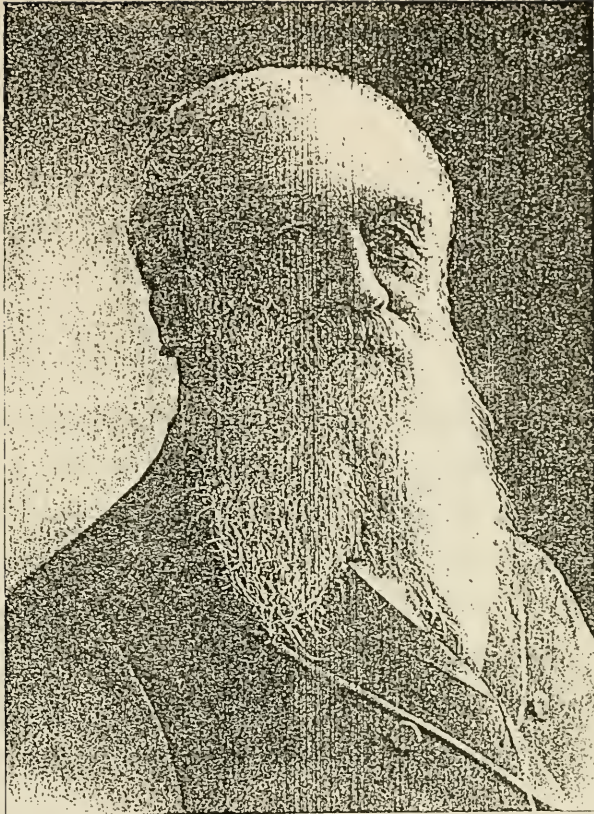


Figure 5: Edwin Holmes (1820 - 1901) Reprinted from Edwin T. Holmes, A Wonderful Fifty Years (1917), 9.

The development and marketing of the Holmes Burglar Alarm Telegraph are recounted by Edwin Holmes's son Edwin T. Holmes in A Wonderful Fifty Years. At first, sales orders were slow; to most people electricity was still a foreign concept. And, "business men were loath to believe that a



bell could be rung in the second floor of a house, at the opening of a door or window in the basement."<sup>43</sup> In order to gain believers, Holmes constructed a model house with an alarm, which he carried to prospective clients as a means of demonstrating how the system worked. (Figure 6) He also advertised. However, Holmes soon "found by experience in introducing this protection, that advertising a 'Burglar Alarm,' does not attract the attention of that large class of property holders who would gladly avail themselves of any decidedly valuable method known to be such, of protecting their dwellings from the midnight murderer and assassin. It has also been learned that this attention cannot be gained by canvassers with the instrument in hand to exhibit."<sup>44</sup> Therefore in 1861, in an attempt to increase appeal and respectability of the system, Holmes published A Treatise Upon the Best Method of Protecting Property From Burglars, and Human Life From Midnight Assassins.<sup>45</sup> (Appendix F) This pamphlet lists over seventy subscribers and recounts several testimonials regarding the effectiveness of the system.

Over the next several years Holmes worked to perfect his product, and he appears to have achieved acceptance; "the demand for burglar alarms in private residences increased very rapidly." A second compilation of testimonials titled, Your Attention is Respectfully Requested to the Following Testimonials, (Appendix G) was published in 1868.<sup>46</sup> It contained 200 glowing testimonials and a list of



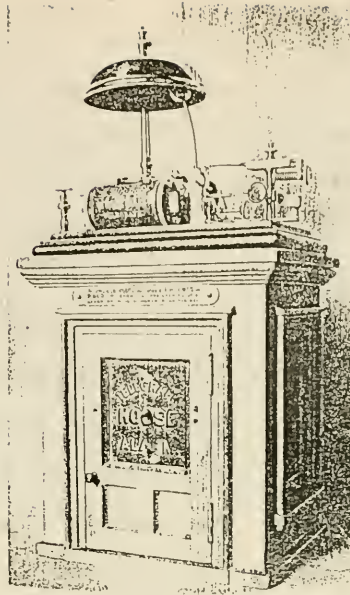


Figure 6: Portable model of Telegraph House Alarm. Reprinted from Edwin T. Holmes, A Wonderful Fifty Years (1917), 15.

over 1000 subscribers. The client list reads like a veritable who's who of the day. (Appendix G, pages 182-190) The majority were from New York, Connecticut, and New Jersey with a few from Philadelphia and as far west as Detroit and Chicago. In addition to his office in New York at 201 Broadway, Holmes had, in order to service these subscribers, opened offices in Chicago (114 Dearborn St), Troy, NY (205 River Street), and Philadelphia, PA (no address given).<sup>47</sup>

The original Pope patent simply produced the ringing of a bell when any of the connected doors or windows were



opened. Holmes improved the system by placing an annunciator, which indicated the point from which the signal originated, in the circuit. The annunciator designated the room in which a window had been left open when the house was closed, or, in case of an alarm, would show in which room an opening had been made.<sup>48</sup> A sketch from the 1868 catalog and extant remains of his systems give a clear indication of the annunciator's appearance. (Figure 7) This type of indicator was called a switch annunciator. It operated "for the purpose of locating the part of the house operated upon by the burglar...it is not automatic, [yet it] still serves an excellent purpose...when the alarm sounds the master of the house can, by moving the different handles in succession, quickly determine which belongs to the endangered room by finding which one is moved to stop the ringing of the bell."<sup>49</sup> These switch annunciators could come with a different number of knobs -- each customized with appropriate room identifications. (Figure 8)

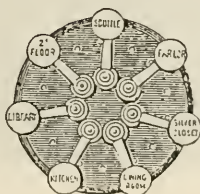


Figure 7: Switch annunciator. Reprinted from Edwin Holmes, Your Attention (New York, 1868) 52.





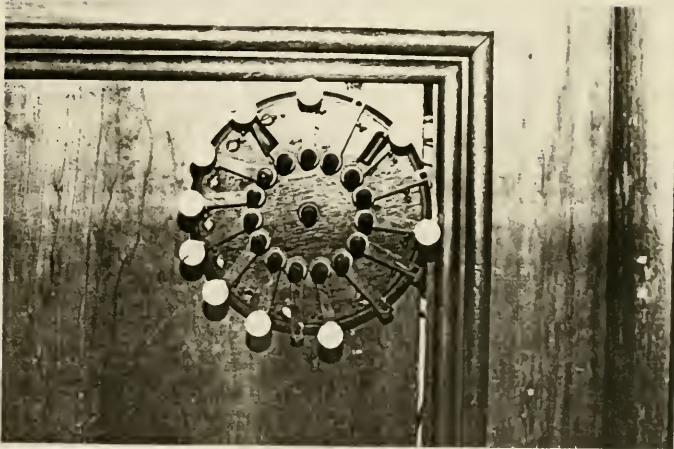
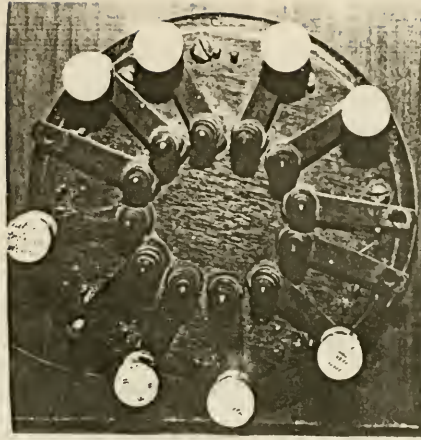


Figure 8: Switch annunciators. Top: 12-knob variety, Beechwood, Newport, RI; Bottom, 15-knob variety. Lockwood-Mathews Mansion, Norwalk, CT.



Only one bell was required for the entire house and it, along with the annunciator, was usually located in and controlled from the owner's bedroom. The bell apparatus was manufactured in the Boston shop of Charles Williams until 1876 when "a Machine Shop was also put in operation uptown in New York for the exclusive manufacture of all of our [Holmes] electrical instruments and appliances."<sup>50</sup> No remains of the bell used in a Holmes system has been discovered; however, Holmes's 1861 and 1868 pamphlets contain detailed sketches. (Figure 9) Switch "G" is the on/off control which attached the entire house at night and detached it in the day-time. A review of Holmes's city directory advertising from 1867 to 1900 (Figure 10) suggests that at least outwardly the appearance of the bell used in the system did not change much from that depicted in the 1868 booklet.

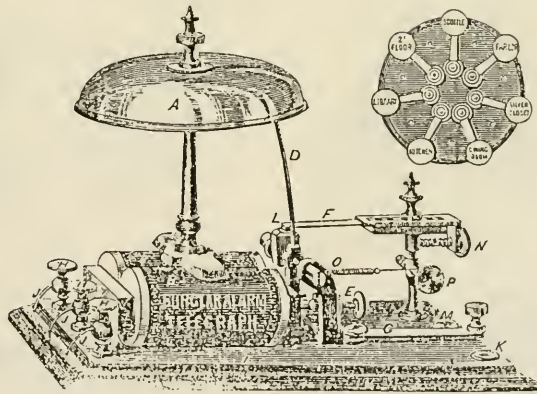
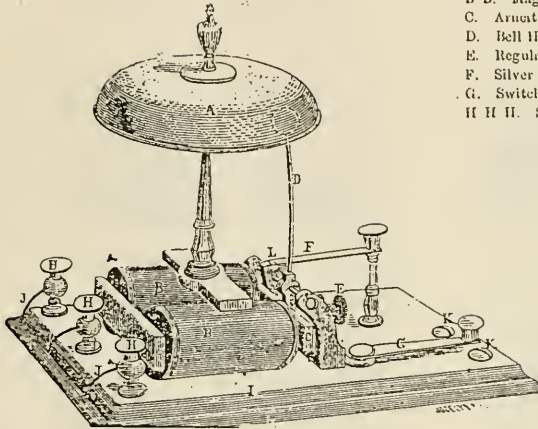
Because its noise is produced by a series of blows in rapid succession, this bell is given the name trembler.<sup>51</sup> Although this bell will ring constantly while there is a completed circuit, it is not a continuous ringing bell and this is a drawback of consequence. In other words, if someone opens a door, quickly enters, and closes the door again, the bell will ring briefly and stop. Only for the duration of the ringing could the annunciator be utilized to determine the area of the house in which the disturbance occurred. In the previous scenario, for example, was it a servant or child opening a door without realizing the system



# ALARM BELL

DESCRIBED.

- |                            |                           |
|----------------------------|---------------------------|
| A. Alarm Bell.             | I. Black Walnut Base.     |
| B B. Magnets.              | J J J. The several wires  |
| C. Armature.               | from about the house      |
| D. Bell Hammer.            | terminating at the bell   |
| E. Regulating Screw.       | K. Screws connecting with |
| F. Silver Circuit Breaker. | wires underneath.         |
| G. Switch.                 | L. Ivory Circuit Breaker. |
| H H H. Screw Cups.         |                           |



This one bell located in the sleeping room, rings upon the opening of each window and door of the house. It is a watchman that has but one house to protect, is always on the spot, never goes to sleep, cannot be bought off, and an experience of seven years without a failure proves that it is perfectly reliable.

Figure 9: Bell apparatus from the Holmes Burglar Alarm Telegraph system. Reprinted from Top; Edwin Holmes, A Treatise (Brooklyn, 1861), 37. Bottom; Edwin Holmes, Your Attention (New York, 1868), 52.



Holmes Edwin, telegraph, 254 B'way, h 153 La  
fayette av. B'klyn

**EDWIN HOLMES,**  
BURGLAR  
ALARM  
TELEGRAPH,  
254 BROADWAY.



1867

Holmes Edwin, alarm, 201 B'way, h 153 Lafayette  
av. B'klyn

**EDWIN HOLMES,**  
BURGLAR  
ALARM  
TELEGRAPH,  
201 BROADWAY.



1868

Holmes Edwin, alarm, 201 B'way, h 153 Lafayette  
av. B'klyn

**EDWIN HOLMES,**  
BURGLAR  
ALARM  
TELEGRAPH,  
201 B'WAY.



1869

Holmes Edwin, telegraph, 7 Murray, h 153 Lafay-  
ette av. B'klyn

**EDWIN HOLMES,**  
BURGLAR  
ALARM  
TELEGRAPH.  
7 MURRAY STREET.



1870

Holmes Edwin, trans, 571 B'way, h 150 Lafayette  
av. B'klyn



**HOLMES'**  
BURGLAR ALARM  
TELEGRAPH CO.  
Electric Hotel and House Annunciators.  
No. 571 BROADWAY.

1875

Holmes Burglar Alarm Telegraph Co. 618 & 194  
B'way & 36 E. 14th



**HOLMES'**  
BURGLAR ALARM  
TELEGRAPH CO.  
Electric Hotel and House Annunciators,  
'Holmes' Electric Time Lock.  
No. 518 BROADWAY.  
1880

Holmes Burglar Alarm Telegraph Co. 618 B'way



**HOLMES'**  
Burglar Alarm  
Telegraph Co.  
Electric Burglar Alarms,  
Hotel and House Annunciators, 'Holmes' Electric  
Time Lock. EDWIN HOLMES, Trans.  
No. 518 BROADWAY.

1885

Holmes' Burglar Alarm Telegraph Co. 618  
B'way



**HOLMES'**  
Burglar Alarm  
Telegraph Co.  
Electric Burglar Alarms,  
Hotel and House Annunciators, 'Holmes' Electric Time  
Lock. EDWIN HOLMES, Trans.  
No. 518 BROADWAY.

1891-1892



**HOLMES'**  
Burglar Alarm  
Telegraph Co.  
Electric Burglar Alarms,  
Hotel and House Annunciators, 'Holmes' Electric Time  
Lock. EDWIN HOLMES, Trans.  
26 Cortlandt Street.

1895-1896



**HOLMES'**  
Burglar Alarm  
Telegraph Co.  
Electric Burglar Alarms,  
Hotel and House Annunciators, Electric Gas Light  
ing and Wiring.  
26 Cortlandt Street.

1899-1900

Figure 10: Holmes City directory listings, 1867 - 1900.





was activated -- or a burglar entering? By the time the house is searched the burglar, if he is the culprit, will have come and gone.

Generally, basements, as well as first floors and second floors were alarmed. Every exposed door and window had to be connected with the annunciator/bell. Insulated wire was needed to maintain the integrity of the electrical circuit and to protect the conductors from damage. Reportedly, "the only insulated wire to be had at this period was a very fine copper wire wound with silk, such as was used for the making of magnets in the various telegraph instruments" while what Holmes needed was a "large size insulated wire." Holmes's solution was to have "no. 18 bare copper wire braided with cotton" and coated with green paint. It was by this same process that Holmes was supplied with insulated wire until 1870.<sup>52</sup> Patrons are assured that, "not a wire, or spring, or machinery of any kind, but the bell, can be seen in the house." However, the method of installing the wire is never explained except to say, "it can be introduced into any house without defacing it in the least; not a board is removed, not a mark or scratch can be seen in consequence; it occasions no inconvenience whatever."<sup>53</sup>

Extant remains confirm use of 18 gauge copper wire wrapped, not braided with a green tinted thread. These wires were led from the main annunciator (Figure 11) in grooves cut in the floor boards to the window or door opening



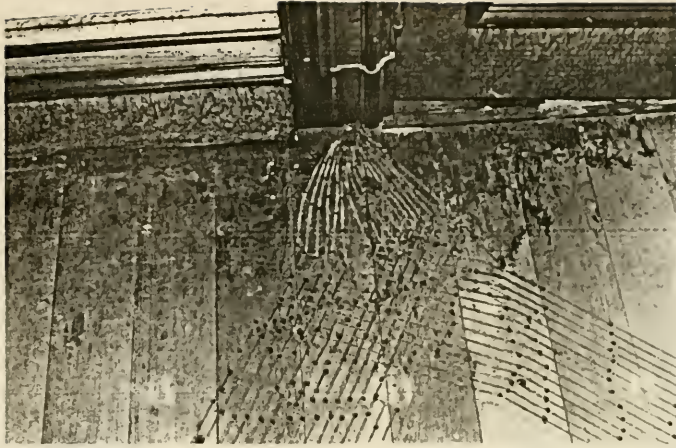


Figure 11: Wires exit from the point on the reverse of the main annunciator panel and begin their journey to encompass the perimeter of the house. (Lockwood-Mathews)

(Figure 12) where they then go behind paneling or trim to reach the contact switch or key. These grooves are so true and regular (Figure 13) they appear to have been cut using a specially designed tool. To date, the only image of a floor groover is from the 1887 E.S. Greeley catalog. (Figure 14) Grooves have only been found in plain wood floors, which, between 1850 and 1875 were usually fully carpeted in houses of the wealthy.<sup>54</sup> Therefore, one may assume that any floors with visible wiring today, were, at the time of alarm installation, carpeted. The manner of applying wires to rooms with decorative flooring (inlaid or stone) which was meant to be exposed has not been determined.



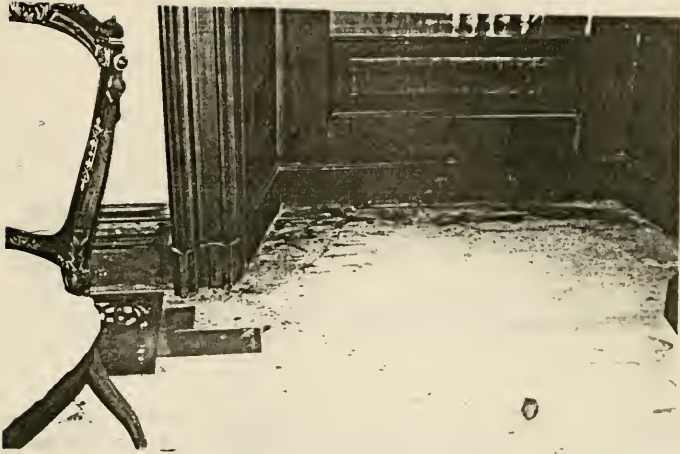


Figure 12: Wires led behind window molding. (Lockwood-Mathews)

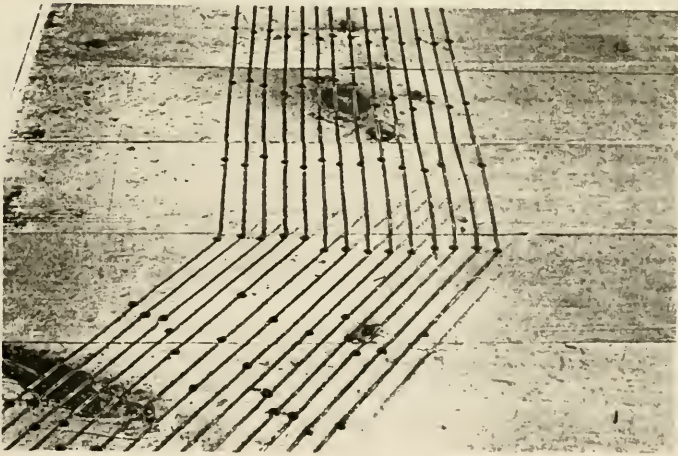


Figure 13: Regularity of floor-embedded wires. (Lockwood-Mathews)

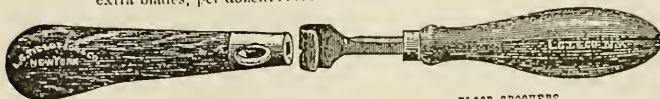


ELECTRIC BURGLAR ALARM SUPPLIES ETC. (CONTINUED).



NEW STYLE FLOOR GROOVER WITH REMOVABLE BLADES.

Price each, complete with handle..... \$0 75  
 " extra blades, per dozen..... 4 50



IMPROVED PISTOL HANDLE FLOOR GROOVER HOLDER.  
 Price, each ..... \$1 25  
 Heavy Rosewood Handle with Brass Socket and  
 Set Screw to hold Groover firmly in its place.

FLOOR GROOVERS.  
 Best Cast Steel, Sharpened ready for use  
 Price..... \$0 40  
 In Common Handle, complete, price..... 75

Figure 14: Floor groover. Reprinted from E.S. Greeley, Catalogue and Price List of Telegraph, Telephone, Electric Light (New York, 1887)

Contact switches, or "keys" were applied to all alarmed doors and windows. Because this is the place where the two circuit wires were brought into contact with each other to complete the circuit the proper action of the key was crucial to the successful operation of the system. Pope's original patent explains the form and function of the key in some detail. When applied to a door (Figure 15) the key consisted of a small fixed metal plate [L], attached to the door frame; and a metallic spring [M] secured to the door and housed in frame recess [N]. One of the wires [K] leading from the battery ends at metallic plate [L]. The second battery wire [P] is connected to the spring [M]. On the inner edge of the door, is a small stud or pin [O] projecting from the door. Because pin [O] projects against





the spring [M] it forces or presses the spring away from plate [L]. With the door closed the circuit was broken. Opening a door causes the metal spring [M] connected to the battery wire [P] to move against the plate [L] connected to the circuit wire [K], which completes the circuit by connecting the battery to the bell.<sup>55</sup>

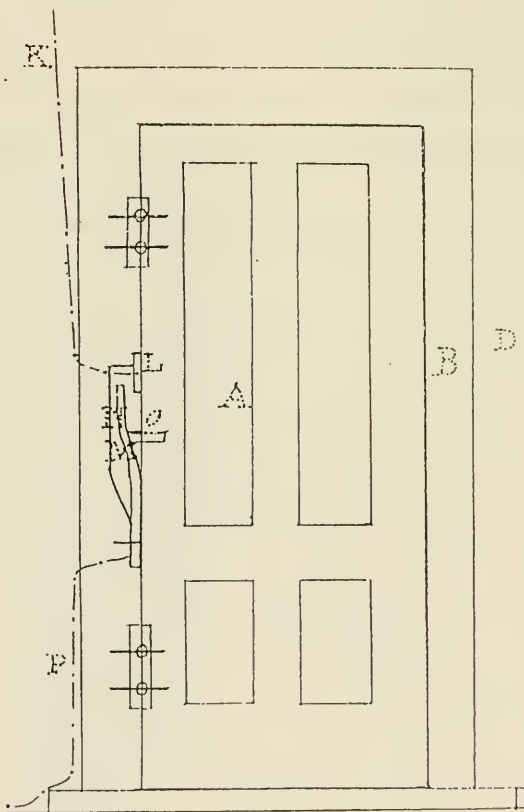


Figure 15: Door contact or key. Reprinted from Augustus R. Pope UK patent no. 1795 specifications, August 1, 1853.



As applied to the window (Figure 16) the key is described in the following manner: [E] and [F] are window sashes of window frame [G]. Wire [P/X] is led from the battery and extended into the window frame and connected with the lower end of metallic spring [b]. This spring [b] is located on the pulley stile of the frame and rests against the edge of the sash. The edge of the sash is shaped in a manner so that when the window is raised the spring [b] is pressed against the end of the second battery wire [Y].

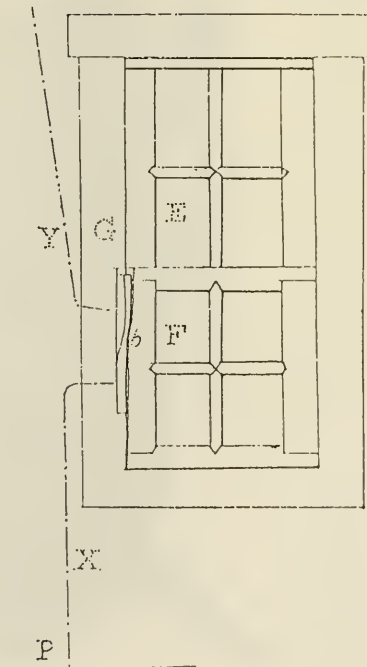


Figure 16: Window contact or key. Reprinted from Augustus R. Pope UK patent no. 1795 specifications, August 1, 1853.



Three known circa 1868 installations, however, show that the key used on both doors and windows had changed in appearance since 1853. Holmes's window and door springs were made, until 1876, at a little shop in Chatham Square.<sup>56</sup> Door and casement window contacts are a single self-contained unit applied to the frame. (Figure 17) These are called dotting contacts. (Figure 18) The key is inset into

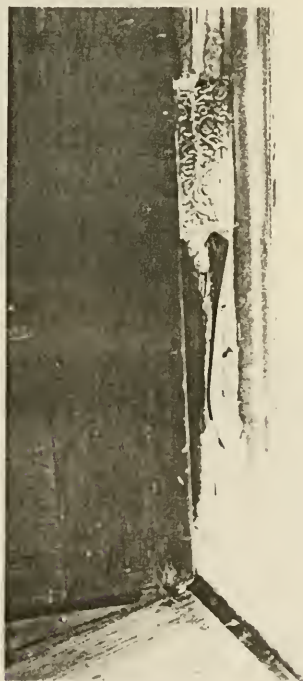


Figure 17: Visible portion of door contact (dotting). (Armour-Stiner).



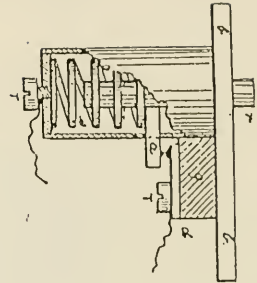
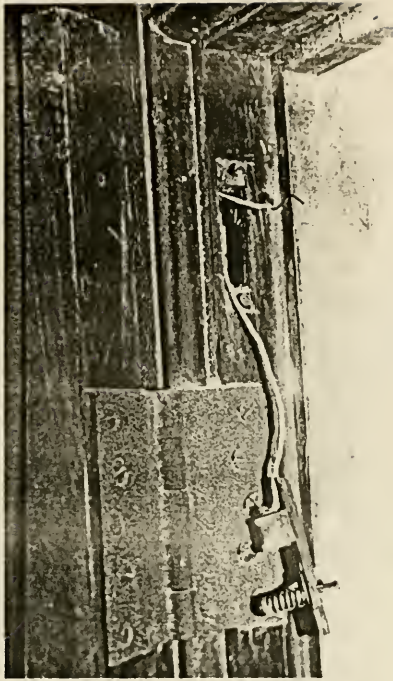


Figure 18: Dotting contacts. Left: Armour-Stiner; Right: Reprinted from F.C. Allsop, Practical Electric Bell Fitting (London, 1890), 20.

the frame until just plate [b] is flush with the wooden surface. When the sash or door is closed it pushes rod [r] in against the pressure of the spiral spring [s], which causes the arm [a] to break contact with plate [d] which is insulated from the framework. When the door or window is opened, even slightly, the rod is released and the circuit closed by arm [a] moving up and into contact with plate [d]





each of which are connected to circuit wires [t]. When fixed in the rebate of a closed door or window the points of contact are kept apart; but as soon as it is opened, the stud passes outward through the hole, and the points of contact come together and complete the circuit of the wires in connection with the bell.<sup>57</sup>

When extant systems on double hung windows were studied, accessibility and visibility made it impossible to do a complete examination. In the best case scenario it was possible to examine a portion of the key let into the frame. For lack of an official name, these will be referred to as plate-type contacts. A small square plate of metal (1/2" by 1/2") affixed by two screws (Figure 19) is attached to the



Figure 19: Window plate-type contact. (Lockwood-Mathews)



window frame on the sash weight side. This is the contact point for one of the circuit wires. It is located at the point just below where the top rail of the bottom sash rests when in a fully closed position. It is only visible when the bottom sash is fully raised. This feat, because of design or age, is often not possible. (Figure 20) The second

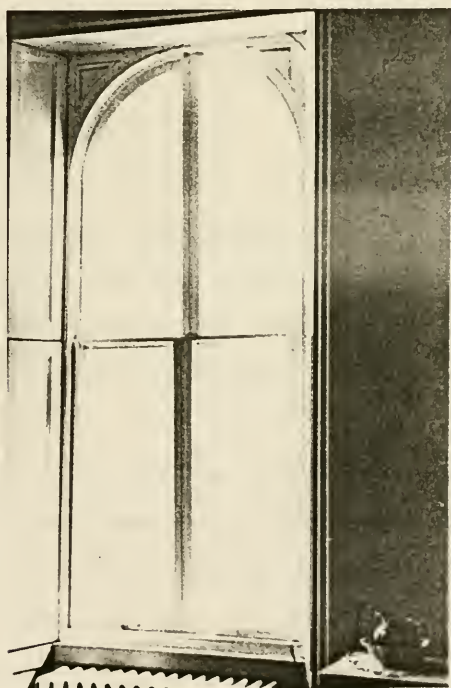


Figure 20: Window design does not permit window contacts to be seen. (Beechwood).



circuit wire and contact point is 1 or 2 inches above the first. It is placed in such a manner that it is hidden by the top rail (of the bottom sash) when the window is closed and by the bottom rail when the window is open. Occasionally, when the sash has adequate play the wire leading to the second contact plate can be seen. Although it was not possible to remove a window sash to examine a complete key -- it is fairly evident how the system worked. One would expect to find some sort of a metal plate let into and running the length of the side of the sash corresponding to the circuit wires in the frame. This plate would begin on the sash just below the point corresponding to where the upper wire terminates. Therefore, when the window was fully closed the circuit was not complete. Raising the window, even slightly would cause the plate in the sash to bridge the gap and effectively connect the two circuit wires. (Figure 21)

The power supply for the entire system was an electric or galvanic battery, protected from damage by an enclosure twenty inches long, nine inches high, and six inches wide secured by a lock and key. (Figure 22) The box was not offensive, and it could stand in any out of the way closet or pantry. Maintenance consisted of the addition of a few cents worth of vitriol in the battery six times a year. Because it was necessary to inspect the batteries from time to time, boxes were specially made -- with double hinged top



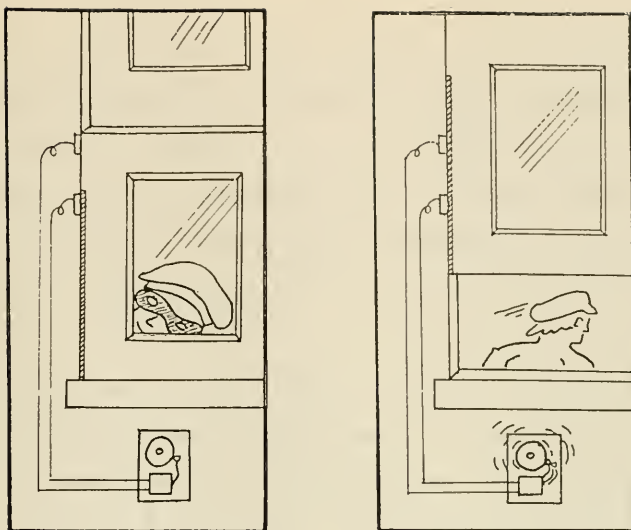


Figure 21: Completing the window circuit. Drawing by Herbert M. Schoen.

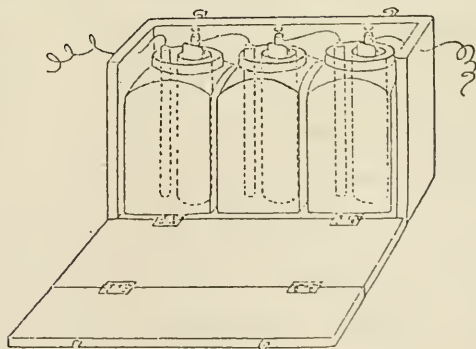


Figure 22: Battery box. Reprinted from S.R. Bottone, Electric Bells and all About Them (New York, 1890), 43.





and sides, so that when the catch was released these fall flat allowing access to or removal of any individual cell. In fact, Holmes reports, "it is so simple and so easily taken care of that a child can do it." Although Holmes fails to name the specific battery type recommended for use in the system, by the 1860s certainly it was a two fluid wet cell battery.<sup>58</sup>

Holmes's publications make no mention of the cost of the system. Family names associated with wealth and social prominence predominate on the subscriber list. The grandeur of most of the case study homes supports the notion that in the early years, at least, only the most affluent could avail themselves of this technology. Patrons are told "it requires from four to sixteen days to apply one to a house."<sup>59</sup> Several subscribers indicate that the piece of mind was well worth the financial outlay. However, only one testimonial suggests a price for the system: "It is the most satisfactory hundred dollars I have spent about my house."<sup>60</sup> The writer does not indicate if this was a fully installed price and, the number of days required.

This completes the review of the basic alarm package offered to subscribers. Subsequent changes to the system were either options, or improvements to a feature of the basic Holmes system. The basic alarm outfit available to subscribers consisted of an electromagnetic bell, a battery, insulated copper wire, an annunciator, and a key (or



contact switch) for each window and door.<sup>61</sup> Over the next few decades, in addition to the introduction of new features, each of these basic components were refined.

The first positively dated improvement to the system came on March 26, 1867, when Holmes was issued patent number 63,158 for an "Improvement in Electric Circuit-Breaking Clocks." (Appendix H) This mechanism could disconnect a circuit at any designated time of the day and leave it unconnected for a predetermined period of time. Additionally, it could reconnect at a predetermined hour. The attachment was introduced into the circuit attached to the doors and windows used by servants as they went about their early-morning chores. By breaking only this particular circuit the sounding of the alarm which would awaken the residents of the house was prevented. However, opening of any other door or window would, as usual, activate the alarm.<sup>62</sup> (Figure 23)

Several other improvements or options are described in the 1868 Holmes booklet. First, the ability to divide a house into two zones was introduced. "The alarm can be set for a part of the house, and not the whole, if desired."<sup>63</sup> Although no substantiating patent has been found, it is suspected that, at least initially, zones were established at the time of the system installation. For example, a household might be divided into upstairs and downstairs







Second, Holmes claims, "windows can be left open sufficient for ventilation, and the alarm given if they are moved from their respective places."<sup>64</sup> No patent associated with this improvement to the key portion of the apparatus has been identified. However, this feature was probably accomplished simply by making a break in the metal strip affixed to the sash. Originally, this piece would have run the entire length of the window sash, but by installing two strips of metal with a space between them -- the window could be opened to this point -- enough to provide air -- but not enough for a person to crawl through. Any subsequent movement of the sash would activate the alarm.

Holmes also reports the effectiveness of the system in unoccupied residences. "This alarm is particularly valuable during the temporary absence of the family, as the bell makes so much noise, that no burglar will risk himself in the house while it is ringing, or the wires can be extended and the bell placed in a neighbor's house."<sup>65</sup> This practice of having a neighbor remotely monitor an unoccupied premises, was at least upon one occasion, undertaken.

Our readers will probably remember the tragedy at Bay Ridge, where two burglars - who turned out to be the abductors of the child Charlie Ross - lost their lives in attempting to rob an unoccupied dwelling. The alarm having been arranged so as to sound in the residence of a neighbor, he, with his coachman and gardener, surrounded the house and awaited their exit, utterly unsuspected by them.<sup>66</sup>





The next improvement in alarm technology was the introduction of an automatic annunciator, which instantly identified the location of a disturbance. Although on July 20, 1858, William Whiting was issued patent number 20,970, for an "Improved Electro-Magnetic House-Alarm" (Appendix I) which includes an automatic annunciator, there is no evidence to show that he or anyone else marketed it at this time.<sup>67</sup> Practical automatic annunciators were developed in the 1870s, although it is uncertain who was responsible for introducing the first model.

Trade catalog searches show that three general classifications of annunciators existed: switch, drop, and needle. (Figure 24) Variations on the manual switch annunciator previously described remained in production until at least 1893, presumably because it was inexpensive. The automatic varieties worked principally by the movements of a needle over a dial or by the falling of a drop. In a needle annunciator the arrows lie horizontal when in normal position, and when activated, point to room(s) indicated above them. In the drop annunciator, cards drop down in front of apertures arranged in rows on the annunciator face, or the name of a room is uncovered by a piece falling away. Trade catalogs advertise that these annunciators could be used interchangeably either for a burglar alarm or for a maid call system. The difference would be window contacts rather than a push button.





ANNUNCIATOR CHRONOLOGY, 1853 - 1897

Figure 24

SWITCH OR MANUAL

1866



Holmes Burglar Alarm  
Telegraph Company



1873



Patrick, Bunnell & Co.

1886



Patrick & Carter's



1887



The E.S. Greeley & Co.

1893



Patrick & Carter Co.

NEEDLE

1871



Holmes Burglar Alarm  
Telegraph Company

1877



Western Electric

1886



Patrick & Carter's

1887



The E.S. Greeley & Co.

1893



Patrick & Carter Co.

DROP

1872



Holmes Burglar Alarm  
Telegraph Company

1887



The E.S. Greeley & Co.

1892



J.H. Bunnell & Co.

[1896]



Manhattan Electrical  
Supply Co.

1897



Owen Walsh

Western Electric Manufacturing Co., in 1877 claimed "the substitution of the Automatic Annunciator for the switch..(an improvement which we believe was first successfully and publicly introduced by ourselves)."<sup>68</sup> This needle style instrument was developed by Elisha Gray and patent 118,231 for an "Improvement in Electro-Magnetic Annunciators" (Appendix J) was issued on August 22, 1871. This patent was improved upon and reissued (Appendix K) before the annunciator assumed a final form. It could come with or without a circuit breaking clock attachment. (Figure 25) A small switch at one side completes or opens the circuit, and on the other side, a knob controls the connection with the bell. A row of studs at the base allows for any desired group of openings to be disconnected. Therefore each circuit also represented an independent zone. By manipulating the lower row of keys alarm coverage could be adapted to a variety of situations giving increased flexibility over the two zone system Holmes offered in 1868. Besides giving an alarm with a burglary attempt the annunciator can also show whether a building is properly secured. A forgotten window or door will be pointed out, an important feature in large business establishments with many openings. By disconnecting the bell, this test can be made silently.<sup>69</sup> (Appendix L)

Holmes's earliest confirmed availability of an automatic annunciator came on February 20, 1872, when Charles E.



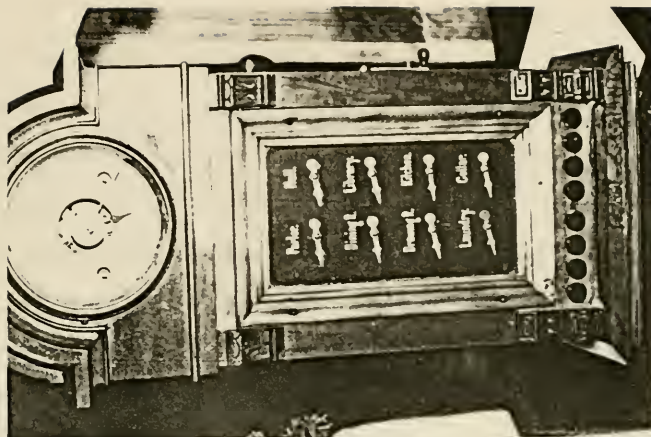
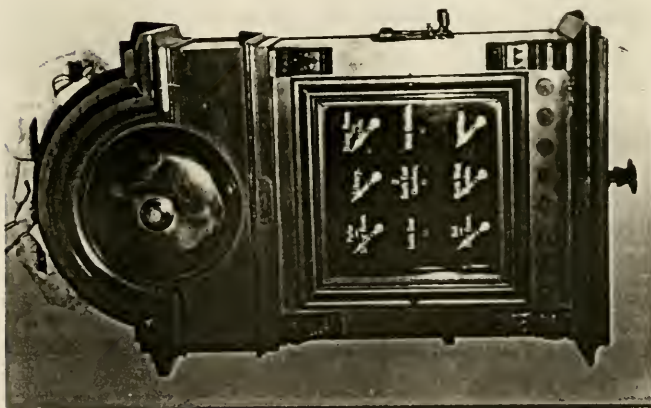


Figure 25. Western Electric needle annunciators with (right) and without (left) clock attachments. (Right: Wilderstein; Left: Maish House)





Chinnock of New York assigned to Edwin Holmes patent 123,808 for an "Improvement in Electro-Magnetic Annunciators." (Appendix M) This annunciator face resembles Holmes's earlier switch annunciator but rotating from the center is a needle which points to the room in which entry is made. A Philadelphia circular of the early to mid-1870s indicates that Holmes also offered a drop style annunciator. (Appendix N). On August 17, 1875, after the death of William Whiting, his 1858 patent 20,970 for Electro-Magnetic House-Alarms, which described a drop style annunciator was reissued and simultaneously his executors assigned it to Edwin T. Holmes, son of Edwin Holmes. (Appendix O)

An improvement over the earlier trembler bell was a continuous ringing bell, where the ringing action, once started, continued either until the battery was exhausted, or until it was stopped by resetting the system. Holmes's November 7, 1871 patent 120,744, (Appendix P) for an "Improvement in Circuit-Closers for Electrical Burglar-Alarms and Signals," produced a "continuous alarm" by activating an independent circuit into which the bell was placed.

Up until this point, the most obvious indication of an alarm system is the presence of floor-embedded wires. Perhaps this method of wiring was unique to Holmes, but even so, at some point it became obsolete. Because of limited system remains from the 1870s and 1880s it is not possible



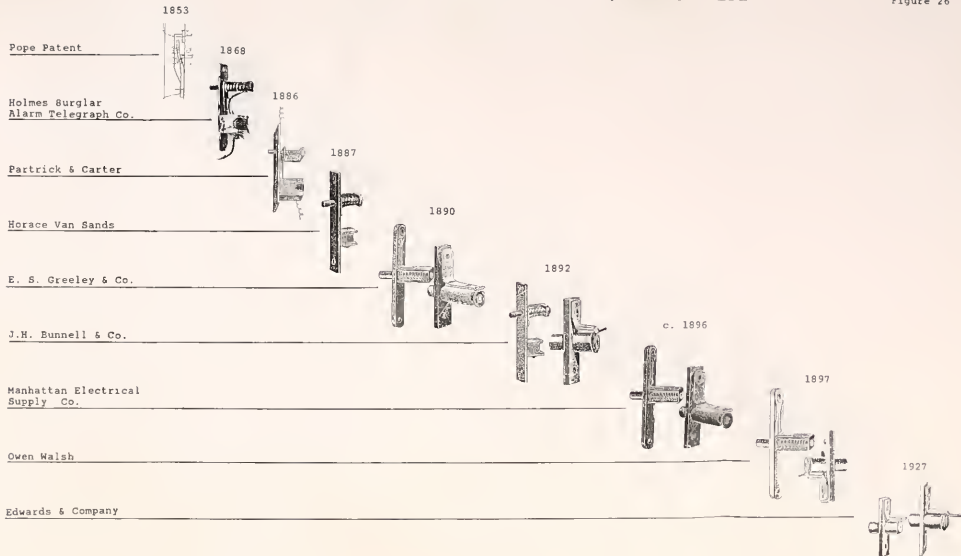
to say when wiring practices began to adapt to the current practice of concealing all electrical wiring in wall chases. As an intermediary step floor-embedded wires were replaced by wires fixed to the walls, "they may be concealed in the mouldings, cornices, or corners". "To keep the wires in position, bone insulators, may be used nailed into the wall," designed to meet various needs. Silk or cotton covered wires of which "all shades may be obtained to match the wall-papers and other furniture" were available.<sup>70</sup> The 1889 Bell Hangers' Handbook reports "it looks better to "fish" the wires under the floors, above ceilings, and between the lathing of the walls."<sup>71</sup>

A review of trade catalogs reveals that the window and door contact switches continued to evolve over the next decades. Door contacts (Figure 26) outwardly, at least, retained a very similar dotting contact profile, while window contacts (Figure 27) experienced more pronounced changes. Window contacts, as designed, up to this period were not without potential problems. The contacts were only found applied to the lower sash. A burglar-in-the-know could lower the upper sash and climb over, or, breaking the pane of glass could enter without raising the sash at all. Western Electric's 1877 catalog is the earliest example discovered to date where the first issue is addressed. While the catalog does not show an image of the contact, it does offer the option to connect only one sash of a window (two



DOOR CONTACT CHRONOLOGY, 1853 - 1927

Figure 26







1853

WINDOW CONTACT CHRONOLOGY, 1853 - 1927

Figure 27

Pope Patent



1868



Holmes Burglar Alarm Telegraph Co.

1886



1887



Partrick & Carter

1890



Horace Van Sands

1892



E. S. Greeley & Co.

c. 1896



J.H. Bunnell & Co.

1897



Manhattan Electrical Supply Co.

1927



Owen Walsh

Edwards & Company







dollars per window) or both sashes (three dollars per window).<sup>72</sup> Extant remains from Western Electric systems shows that their contacts were in the form of single or double compressible points. (Figure 28).

Patent 120,875 (Appendix Q) issued November 14, 1871, to Edwin Holmes and Henry C. Roome for an "Improvement in Electro-Magnetic Burglar-Proof Curtains" addressed the second concern. The curtain, connected to the alarm apparatus was suspended behind the window or in other suitable places and when moved or pierced, it would sound the alarm bell. In this case where there are no trade catalog promotions or extant remains, it is questionable if this alarm curtain was actually ever marketed, certainly, its success must have been less than spectacular.<sup>73</sup>

Through the 1860s and into the early 1870s, Holmes was apparently the only provider of electric burglar alarm protection. The first evidence of competition with Holmes in the delivery of local burglar alarm protection is an 1872 circular issued by George E. Cock and J.H. Guest of the Electro-Magnetic Fire and Burglar Alarm Telegraph office. (Appendix R) Mr. Guest, claims, "ten years of practical application and study, has brought to a perfect system the arrangement of an Electro-Magnetic Alarm, and we confidently offer it as free from the annoying defects of the older efforts."<sup>74</sup> If one assumes the claim of ten years experience is truthful, that would indicate Guest had been involved in



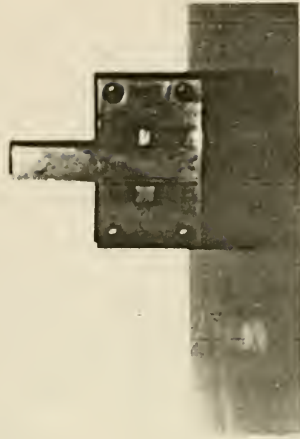


Figure 28: Western Electric window contacts. Left: Single-sash version (Wilderstein); Right: Double-sash version (Maish House).



the alarm industry since 1862. To date, no hint of competitors with Holmes has surfaced before 1868.<sup>75</sup> Additionally, the description of the system in the 1872 circular bears a tremendous resemblance to the Holmes descriptions, so much so that it is difficult to imagine that it was developed independently. Therefore the most likely source of Guest's experience would have been as an employee of Holmes. J. H. Guest of Brooklyn receives his first patent no. 79,973 (Appendix S) for an "Improved Electro-Magnetic Burglar and Fire Alarm" on July 14, 1868. Guest and Cock had evidently, by 1871 formed a partnership and begin to market their system in earnest.<sup>76</sup> The earliest patent registered jointly to Cock and Guest is no. 118,199 for and "Electro-Magnetic Burglar Alarm" on August 22, 1871 (Appendix T).

#### Development of Central Station Alarms

Although the overwhelming majority of alarm installations were in private residences, a number of banks and businesses were listed in Holmes's 1861 and 1868 publications as clients. "The Telegraph House Alarm can be connected with any shop, office, store, or public building in New York, in such a manner, that the opening of any door, window, office or desk-drawers of the premises will ring a bell so situated that it can be heard by the police in almost any part of his beat."<sup>77</sup> In such commercial premises the bell rather than being placed in the sleeping quarters, was made





larger and was mounted on the outside of the protected premises. If the establishment was burglarized an alarm would be rung, and if the sound itself did not scare away the intruder, hopefully the alarm would be responded to by anyone who heard it. While an external bell might effectively frighten off a first time intruder, such criminals were apt to attack again. Because high risk business subscribers could not be assured the alarm bell would generate the desired response they needed a more effective system to protect their premises. A preferred tactic would be to capture the burglar, eliminating a threat and discouraging others tempted to try their hand. The solution for these business houses, banks, and jewelers who were generally empty at night lay in circuits that could be continuously supervised and responded to from a central point.<sup>78</sup> However, it would be several years before this central station concept, which was developed for other applications was applied to burglar alarms.<sup>79</sup>

As it is commonly known, central station protection originated with the municipal fire alarm telegraph systems of the 1850s. The next protection related application of the central station began on October 5, 1871, when Edward A. Callahan organized in New York City a company named "The American District Telegraph Company" (ADT) to market public district messenger or dispatch service. Callahan devised a system based on the Channing-Farmer fire alarm. Special



signal boxes (Figure 29) installed in homes and business establishments enabled the subscriber to transmit a coded signal to a central station and thereby obtain specific services. By rotating a pointer, the subscriber could select the type of service needed, initially either messenger or police, others were added later. The signal received at the central station indicated which box the call came from, and the desired service could be dispatched. ADT divided Brooklyn and later New York City into small districts each served by a central station whose location was arranged so that no call box within the network was more than four blocks in distance or more than three minutes running time from the district office.<sup>80</sup> The service was extended almost immediately to other cities; Chicago, Philadelphia and Baltimore being among the earliest.<sup>81</sup> Although all the companies were patterned after the New York organization, none of them were directly affiliated with it.

As a method of alarm security, the district telegraph call box was little competition to Holmes, and while district messenger services spread, Holmes was not idle. The next major advance in alarm technology developed as a result of the needs of the commercial subscriber. On December 20, 1870, Holmes, with Henry C. Roome was issued patent number 110,362 for an "Improvement in Electro-Magnetic Envelopes for Safes and Vaults & c." (Appendix U) In this system the



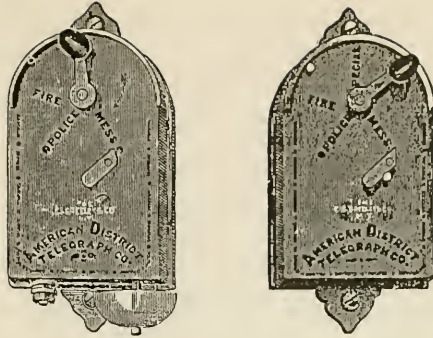


Figure 29: ADT signal boxes. Reprinted from E.S. Greeley, Catalogue and Price List of Telegraph, Telephone (New York, 1887), 277.

interior of a jeweler's cabinet or safe was lined with an electric envelope connected to a battery and alarm apparatus. Included in the alarm was a galvanometer, a device which detected changes in current levels of electric circuits. The lining is made of two pliable sheets of metal imperfectly insulated from each other, (by a coating such as gum-shellac and paper) or the sheets of metal are connected with each other by a resistance coil of metallic ribbon arranged in convolutions on the face of the sheet. In either arrangement, when the sheets are connected to the battery a slight current of electricity will pass from one to the other. A change in resistance in the closed circuit registered on the galvanometer monitoring it and if the movement was above or below established levels, the alarm would sound.<sup>82</sup> Attempts to perforate the envelope or lining would,



because the current no longer has to pass through the resistance coil or the imperfect insulator membrane, establish a perfect electrical connection between the metal sheets. Increased electricity flow produces a corresponding movement in the needle of the galvanometer causing the alarm to sound. If the battery connection was severed the electricity flow ceased, also causing the alarm apparatus to give a signal.<sup>83</sup> In this arrangement, when attacked, the safe or vault might sustain substantial damage or injury before the lining is reached and the alarm given. Therefore Holmes next designed a wooden cabinet to cover or surround bank vaults. (Figure 30) By applying the electric lining to the cabinet the alarm would sound before the thief could reach and damage the safe. Patent 120,874 for an "Improvement in Electric Linings for Safes" (Appendix V) was issued November 14, 1871. The company began to market the system in 1872 and it was an immediate success. "Our protection met an urgent

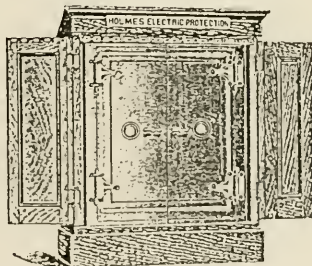


Figure 30: Holmes Electric Protective's electric-lined cabinet. Reprinted from Edwin T. Holmes, A Wonderful Fifty Years (1917), 36.





want and many Banks and nearly all the jewelers of Maiden Lane were ready to place their orders with us for our protection and the Holmes Burglar Alarm Company became quite a factor in the business life of New York."<sup>84</sup> (Appendix W) Holmes's son describes, an

electric-lined cabinet with panels so exposed, that you could puncture the metal with a pin or any kind of a tool, and when one panel was ruined we could put a new one in, and this we exhibited in a large vacant room, the cabinet at one end and our galvanometer apparatus at the other end of the room with a copper wire running between. . . . Such experiments and exhibitions rapidly brought business and before we were ready to take it. It was not as difficult to obtain orders as it had been fourteen years previous.<sup>85</sup>

"Of course it is to be understood that the galvanometer and alarm, as well as the battery, are to be placed at any required distance from the structure to be protected."<sup>86</sup> Instead of connecting the vault sensors "with a bell on the outside of the building" Holmes decided "to run the wires into a central office" equipped twenty four hours a day with guards who upon receiving an alarm signal would be dispatched to investigate. The first central station service for burglar alarms was established in 1872 by Holmes on the top floor of 194 Broadway, New York, and shortly thereafter the Holmes Company opened a central station in Boston at 342 Washington Street.<sup>87</sup> (Figure 31) Holmes was awarded a diploma for the safe and vault invention in 1872 and received additional recognition when he exhibited the safe cabinet at the 1876 Centennial Exhibition in Philadelphia.<sup>88</sup>



The exact date at which central station alarm protection was added to the residential roster of alarm services is uncertain. By 1875 The Telegrapher reports the beginnings of residential applications utilizing the local alarm connected with a district call box. "The ordinary domestic burglar alarm, which is now so extensively used, is often connected with the American District system, so that if any attempt is made to enter the house thus protected, whether occupied or unoccupied, an alarm is instantly sounded and recorded at the district office by the ever vigilant sentinel."<sup>89</sup>

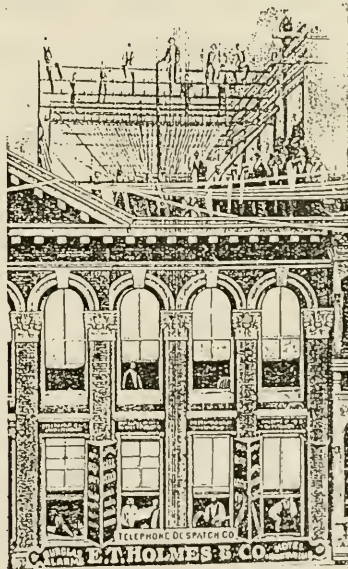


Figure 31: Holmes Central Station roof fixture for wires. Reprinted from Edwin T. Holmes, A Wonderful Fifty Years (1917), 54.



CHAPTER 3  
CASE STUDIES

In order to clarify patent and trade catalog descriptions, inspection of actual system remnants was essential. Examining a variety of houses with different versions of the Holmes system and of competing companies' systems would have been ideal. However, identifying a representative group of case studies was to prove impossible. Although Holmes's publications referenced more than 1200 customers, these listings are limited to installations done during the ten year period between 1858 and 1868. During the course of research, no comprehensive listing for the competitors was found. The case studies presented therefore, were selected not because they are the most appropriate remnants in existence, but because they were identified at all.<sup>90</sup> Some of the case studies are private homes, others museums or public buildings. All of the owners/caretakers permitted, to varying degrees, investigation of the physical remains, and provided copies of archival materials when they existed.

Three of the case studies are known to be Holmes systems installed between 1861 and 1868: Lockwood-Mathews Mansion, Norwalk, Connecticut; the Bowne House, Flushing, New York; and the John Fraser House in Riverton, New Jersey.



Beechwood, in Newport, Rhode Island, while not positively identified, is almost certainly a Holmes system of this same period. The Armour-Stiner (Octagon) house, in Irvington-On-Hudson, New York, is post 1872, and was probably installed by one of Holmes's early competitors. Wilderstein in Rhinebeck, New York, and the Maish house in Des Moines, Iowa, are both Western Electric systems of the 1880s.

In addition to the problem of selection there are other shortcomings. First, there were limits in terms of intrusive tactics. For example, removal of a window sash to determine the form and features of the key applied thereto, and dissection of a dotting key would have been desirable but was not realistic. Second, archival material about each house and its various development stages was often non-existent or spotty. Searching for site-specific documents might have been helpful in developing a broader understanding of the system but was not possible because of time constraints.

In spite of these limitations, the case studies do reveal information about the system and in some instances raise important questions. In light of the fact that each of these houses is quite outstanding, the case studies begin with a review of the information regarding the house and its inhabitants. Following is a synopsis of the extant system remnants and their implications.





Lockwood-Mathews Mansion Museum  
Norwalk, Connecticut

The building known today as the Lockwood-Mathews Mansion Museum was the largest private residence designed by architect Detlef Lienau (1818-1887) (Figure 32). Elm Park, as the estate was originally called, was constructed between 1864 and 1868 for LeGrand Lockwood (1820-1872). The house, consisting of over fifty rooms, was described by one newspaper article as "the most magnificent country seat in America."<sup>91</sup> When constructed, it was outfitted with many innovative building systems and features including numerous bathrooms, a central steam heating system, a 2000 gallon water tank in the attic as well as a theater, a bowling alley, and, of course, an electro-magnetic burglar alarm.

LeGrand Lockwood was born in Norwalk, Connecticut, in 1820, and moved to New York City in 1832. At the age of 18, Lockwood began his career as a clerk in a Wall Street brokerage firm. In 1843, he became a partner in the firm Genin and Lockwood (1843-1856). When Genin retired, in 1857, Lockwood was left as senior partner of the then Lockwood and Co., (1857-1873) Brokers at 22 William Street. The firm financed and managed several emerging railroads, sold stocks, and during the Civil War, government bonds. Lockwood and Co. was noted for "its prominence and stability during the war, and its large subscription to national loans established its position as the leading stock house of the



country and thereafter its business assumed the additional character of a private banking firm."<sup>92</sup>

In 1863, Lockwood began purchasing land in Norwalk along West Avenue.<sup>93</sup> It was on this land that the mansion was constructed. The New York Times of August 5, 1867, said it would "cost, with grounds, nearly two millions of dollars, and when completed, will stand with scarcely a rival in the United States." In addition to the main house, the thirty-acre parcel had twelve outbuildings, including: a gate lodge, several greenhouses, a carriage house, and a stable. (Figure 33) The estate stood as an impressive monument to a new class of men who were responsible for America's transition into industrial greatness.



Figure 32: Lockwood-Mathews Mansion Museum, exterior.





Figure 33: Elm Park, South Norwalk, Conn., grounds plan.

LeGrand had married Ann Louisa Benedict (1823-1882), also a Norwalk native, in 1842. The Lockwoods had six children who survived to adulthood; five boys and a girl. (Appendix X) The Lockwood family moved into the unfinished estate in 1868.



The attempts of Jay Gould and James Fisk to manipulate the gold market were to result in Black Friday, on September 24, 1869. The precipitous drop in the price of gold bankrupted Lockwood and Co., along with many other brokerage houses. As part of the effort to reestablish Lockwood and Co. and to satisfy his creditors, Lockwood mortgaged the uncompleted Elm Park on November 5, 1869. Although successful in reestablishing the firm, Lockwood's premature death, at the age of 52, on February 27, 1872, and the panic of 1873 ultimately resulted in the failure of the firm. After his death, his widow sold his substantial art collection, and in 1873 the estate was put up for sale. Mrs. Lockwood, Henry and the three youngest children then moved back to New York City to live with LeGrand, Jr., and his family. In 1874, when Mrs. Lockwood was unable to make the final mortgage payment, the Lake Shore & Michigan Railroad foreclosed on the property, ending the Lockwood era.<sup>94</sup>

It is from the several sale announcements placed in papers of the day that much of the information regarding the original outfitting of the completed mansion can be ascertained. Of specific interest are the various comments regarding the security system. Statements ranged from the incorrect "there is a Burglar Alarm connecting with every door and window in the house,"<sup>95</sup> to the more precise "there is an electric burglar alarm connected with all the exterior doors and windows on principal and second floors. It has





two indicators, one at the door of chamber "c" on the second floor, and one at the end of the hall on second floor of servants' quarters."<sup>96</sup> (Figure 34)

The house was sold to Charles Drelincourt Mathews (1821-1879), a prominent New York importer. Fortunately, "while Mathews occupied the mansion they made no structural changes in the building."<sup>97</sup> The Mathews family occupied the house until 1938. In 1941, the City of Norwalk purchased the estate for park purposes. The mansion was then used as city offices and for storage space. In the early 1960s it narrowly escaped demolition and in 1969 was opened to the public as a museum.

Although construction began on Elm Park in 1864, the family did not take up residence until 1868 and therefore the system is believed to date from the latter year. As LeGrand Lockwood is listed among the Holmes subscribers in the 1868 brochure, the system is certainly no later.<sup>98</sup>





The remnants at Lockwood-Mathews Mansion are the most intact of the case study group. This house has two 15 knob switch annunciators which each measure 5 1/2" in diameter. (See Figure 8, page 29, bottom) The first is located in the second floor hall between the master bedrooms and the second in the hallway of the servants' wing. Each knob appears to represent a group of contiguous rooms. (Appendix Y)

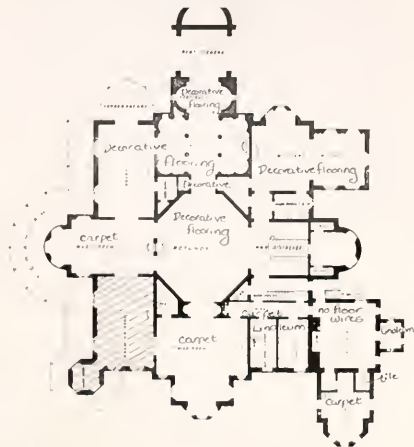
The bell/annunciator station at the master bedroom location was built into a cabinet which measures 5' 7" tall



Lockwood-Mathews Mansion Museum

KEY

Floor wires visible	
MSK indicates wires (currently covered)	
Contact switch	
Annunciator	



FIRST FLOOR



SECOND FLOOR

Figure 34: Remnants survey first and second floor plans indicating type and location of system evidence



by 18" wide. (Figure 35) In the servants' quarters the annunciator is applied directly to the wall, above a shelf and its supporting bracket. (Figure 36) The dimensions of this shelf matches a ghost image which appears on the main panel. The bell at the main panel is not original and there is no bell at the second location.<sup>99</sup> The lone knob on the left side of the main control panel was almost certainly used to control zoning. (Figure 37) The system is attached to first and second floor windows and exterior doors. Plate-type contacts are applied to the double hung windows and dotting type keys are found on the casement windows and doors. (See Figure 34, Page 73) Because there are bars on the basement windows these, as might be expected, are not alarmed. Room indicators on the annunciators tell us (although no evidence remains) that the wine cellar and the exterior cellar doors were alarmed.

The first names on the annunciator are Florence, Arthur and Willie, all Lockwood children. The appearance of these names raise questions regarding previously assigned room use. Although the third floor is not restored, interpreted or open to the public, it is believed that these rooms were "bedrooms for the younger children and their governess."<sup>100</sup> While the second floor suites "were used by the older Lockwood sons and by guests."<sup>101</sup> If this were the case, since the third floor is unalarmed, one would not



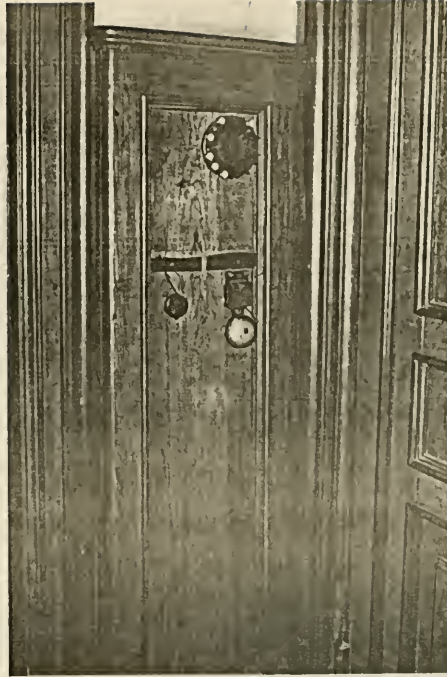


Figure 35. Main annunciator and bell station.

expect to find the names Florence or Arthur on the annunciator. This, therefore suggests, that these children must have had designated rooms on the second floor.

Additionally, because the names on the annunciator remain to this day it is concluded that during the Mathews family occupancy (whose children were named Lillian, Harry, Florence and Charles) the system was either not used or it





was no longer functioning. This assumption is made for two reasons. The Mathews family certainly could have, and probably would have changed the annunciator knobs to reflect the uses and names of their period. The continued existence of the Lockwood children names, indicates this was never done. Secondly, in a written reminiscence by Florence Mathews she writes about the second summer in the house (1878), and reports a successful robbery.<sup>102</sup> If the alarm system had malfunctioned or contrary to general practice, was not on at the time, one would expect Florence to mention that fact, which she does not.

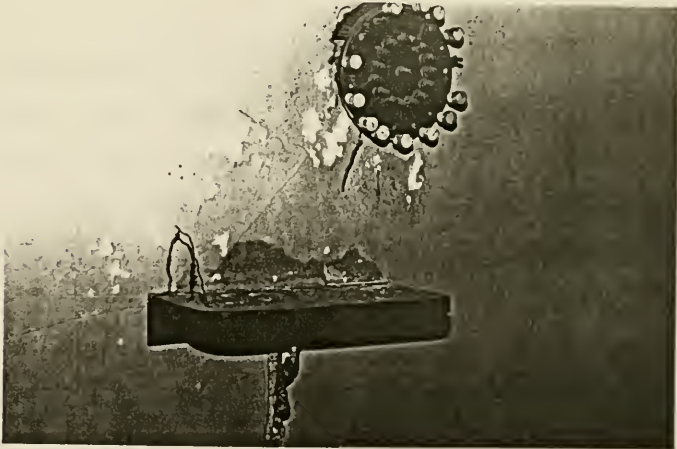


Figure 36: Servants quarters annunciator, shelf and supporting bracket.



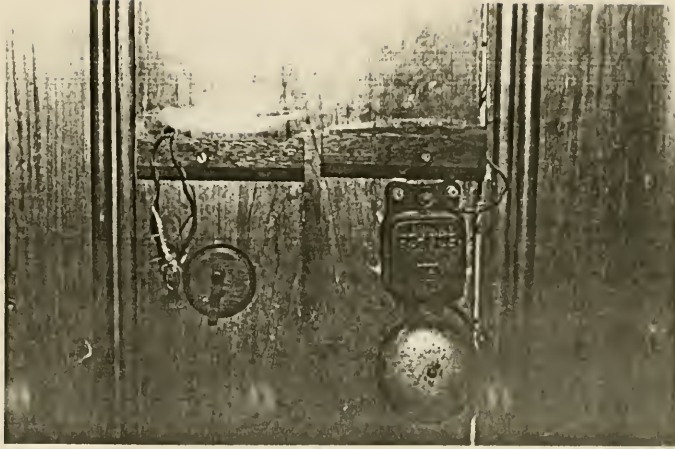


Figure 37: Zoning control knob and ghost image of annunciator shelf.

Annunciator knobs suggest a second, minor inconsistency in room usage theory. On the first floor, opposite the main stair to the basement is a small room, now the Education Curator's office, called 'estate office or breakfast room'. No such title appears on the annunciator. What does appear is "Billiard and Lunch Room." The billiards rooms are in fact a neighbor, therefore it is proposed that this room's original function was as a lunch room.

Except where there are highly decorative floors or where wall-to wall carpeting is currently installed - floor embedded wires are apparent throughout the building. At two locations in the house Roman numerals are carved in floor-



boards. (Figure 38) First, below a window in Mr. Lockwood's bedroom the numerals I, II, III and IV are carved in the floor. At this point each of the three wires disappears into a hole in the floor. Presumably, they go down to service the first floor and basement. The second marking, IX is in the room which today is referred to as the Moorish room. These types of markings were not found at any of the other sites and their significance is unknown.

Bowne House  
Flushing, New York

Bowne house is one of the few remaining examples of a vernacular building type combining a mixture of Dutch and English characteristics, common in Long Island at an early date. The original eastern wing, built around 1661 and enlarged circa 1669, joins the larger western wing, (built 1680, added to 1695 and altered around 1830) by an irregular sloped two and one-half foot wide roof. (Figure 39) Formerly part of a 200 acre farm, Bowne House located in Flushing, in what is now the borough of Queens stands on a lot less than one-half acre in size. The house survived massive urbanization in the late 19th and early 20th centuries, when little else did, and today is one of the few relatively open spaces in a area dominated by multi-story apartment blocks. John Bowne (1627?-1695), an early settler on Long Island, was an important, although today, little known figure in the early history of America. After his death the house passed



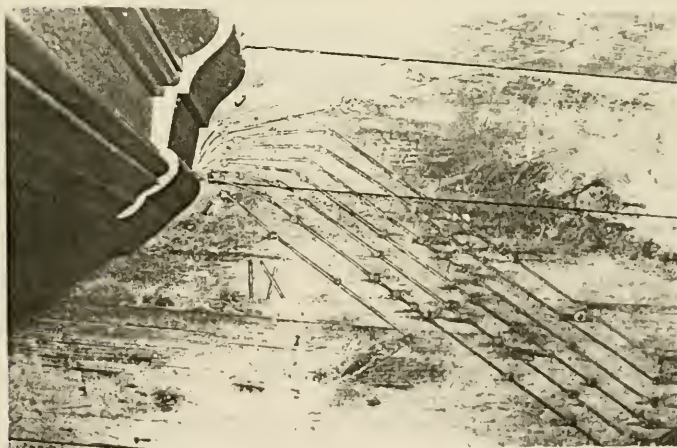
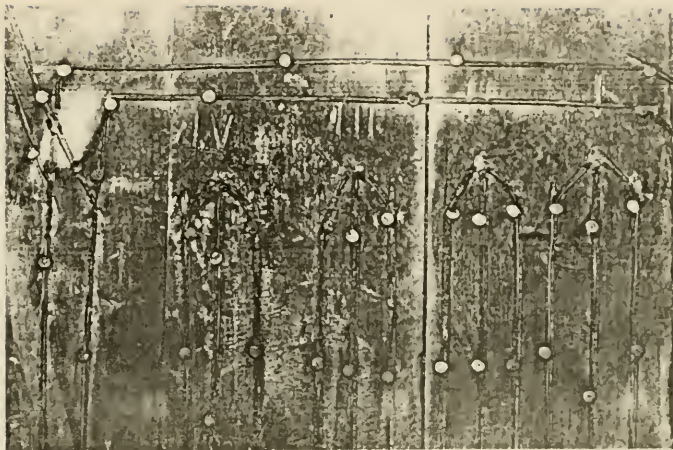


Figure 38: Top: Roman numerals I, II, III, IV carved into floor below window in Mr. Lockwood's bedroom. Bottom: Roman numeral IX (or XI) carved into floor of Moorish room.





through several generations of the Bowne family and into the Parson's name, until it was sold to the Bowne House Historical Society on May 2, 1946.<sup>103</sup>

Holmes's 1868 booklet lists Samuel B. Parsons, Flushing, LI, as a subscriber therefore it is fairly certain he was responsible for the installation of the system.<sup>104</sup> However, during the 1860s there was shared ownership of the property and the identities of other family members/owners who may have resided at the house and for which years is uncertain.<sup>105</sup>

Window and door contacts outwardly appear to be identical to those at previous case studies. The evidence of floor wires at Bowne House however, differs. In spite of the absence of decorative flooring, wires only appear in a limited number of rooms.<sup>106</sup> (Figure 40) This suggests that floorboards and windows have been replaced since the system was installed. Or, perhaps, this location illustrates a system applied to only portions of a house. This practice is suggested by Holmes when he states, "it is particularly valuable to connect with the doors of private rooms, bedrooms, drawers in your furniture, closets where silver ware, jewelry and other valuables are kept, because when the door is shut and the alarm set, visitors, servants, relatives or domestics cannot open them without giving the alarm."<sup>107</sup> Because of the shared ownership of Bowne House at this time, the configuration of the wires suggest that there might have



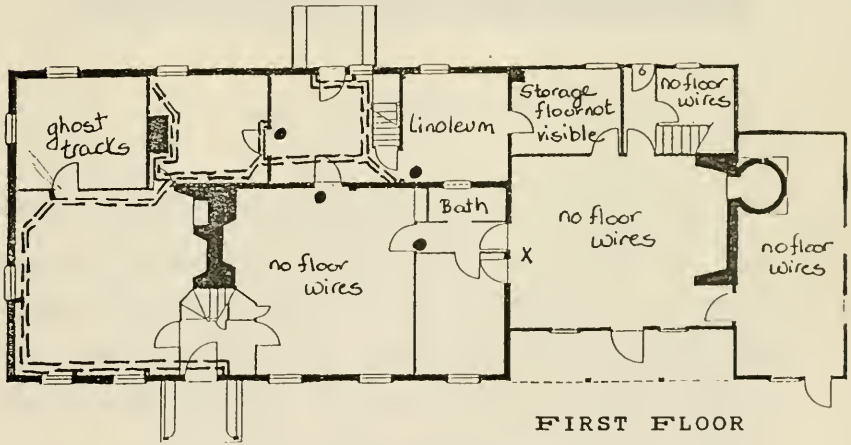
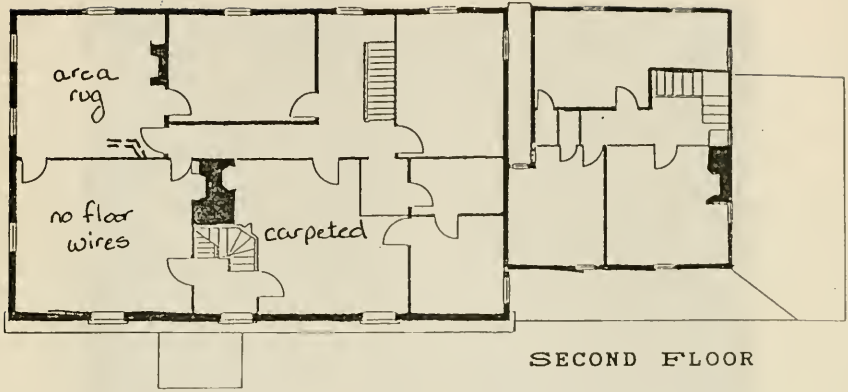


Figure 39: Bowne House, exterior.

been two independent households in residence and perhaps, the way in which they divided the house. Although no Bownes or Parsons appear in the 1861 Holmes list, it is suspected that this house represents a fairly early installation, possibly between 1861 and 1863. First, floor grooves are not nearly as regular (Figure 41) as at the other sites.<sup>108</sup> Second, rather than concealed wires traveling between floors, at the Bowne House a set of exposed tracks is carved into the wall. These two pieces of evidence -- although not conclusive -- suggest lower level skills on the part of the installer. This may be understandable for a house in the hinterlands, away from the most competent and experienced



Bowne House



KEY

Floor wires visible	---
Contact switch	●
Wall wires	X

Figure 40: Remnants survey, first and second floor plans. Location of accessible system remnants indicated.





Figure 41: Bowne House floor wiring.

technicians. However, Bowne house is in fact the case study closest to Holmes's home office, and therefore, it is suggested that the quality of the workmanship is as a result of reduced collective (or corporate) skills and techniques, rather than a single installer's lack of competency.

John Fraser House  
Riverton, New Jersey

The small rural community of Riverton, New Jersey, was founded in 1851 by ten men who engaged architect Samuel Sloan to design a village of summer houses. This community was the first wholly planned residential sub-division in America. Its proximity to Philadelphia -- only thirty





minutes by train and forty-five minutes by steamboat -- made possible commuting to Philadelphia and points beyond.

An Italianate villa (Figure 42) was constructed for James Clothier, a founder of Strawbridge and Clothier, but was actually occupied by his brother, Caleb. The house, one lot away from the yacht club and the Delaware River was built in 1853 and is also believed to have been designed by Samuel Sloan. Evidence suggests that by 1860 the house was rented to the architect John Fraser, and subsequently (1866) it was purchased by him. At that time, Fraser was reported to have made extensive improvements to the property.<sup>109</sup>



Figure 42: John Fraser House, exterior.



John Fraser's architectural career spanned some fifty years, from the mid-nineteenth century to the turn of the twentieth. Fraser began practicing in Philadelphia in the early 1850s. He was, for a short time, in partnership with Andrew Palles and was a founding member, in 1861, of the Pennsylvania Institute of Architects, an organization which fell apart because of the Civil War.

Following the Civil War, Fraser was joined, first by George Hewitt and later Frank Furness, to form, in 1868, the firm of Fraser, Furness and Hewitt. The firm only lasted until 1871. At the beginning of the 1870s Fraser maintained offices in both Washington and in Philadelphia. In 1873, he apparently was working exclusively out of Washington, D.C., and continued to do so throughout the 1880s until he returned to Philadelphia in 1890 to practice as John Fraser and Son.

Although Fraser's work was centered in Washington, his personal life continued to be centered around his Riverton house. After the death of his only son in 1895, Fraser grew despondent and his health deteriorated. In 1897 the Fraser property was sold at a sheriff's sale to F.H. Hallowell, although the Fraser family (he, his wife and an only remaining daughter) continued to reside there as tenants until around 1903 when they moved to Philadelphia. Fraser died there in 1905.



In 1907 the house was sold to Maclean Jones who made extensive repairs and improvements. The house was broken up into apartments in 1925. Currently the owner, Louise Love, resides on the first floor and the second and third floors are divided into two apartments each.

In the section of Holmes's 1868 brochure dedicated to "Philadelphia Names" is found this testimonial from John Fraser:

430 Walnut St., Philadelphia, April 27th, 1868

Mr. E. Holmes, Esq., -Dear Sir: - I consider your Burglar Alarm Telegraph a very important protection to my house.

The time required to take care of it I think would not exceed one hour in the course of a year.

It was neatly, carefully, and without damage or inconvenience, applied to my house at Riverton, N.J., and is applicable to all first-class houses.

It has given me entire satisfaction, and is the best Burglar Alarm that I know of.

Yours Respectfully,

John Fraser, Architect

It is suspected that the alarm was installed in 1866, after Fraser actually purchased the house. Certainly, the installation was prior to April 1868, the date of Fraser's testimonial letter. Although it is certain that this house had had an alarm applied to it, the current owner did not recall ever seeing any of the component hardware. After subsequent correspondence and conversation she became intrigued with the project and invited the author to visit. As it turns out, the system remnants at the John Fraser House are so totally obscured (more so than at any of the other



case studies) that unless a specific search is diligently conducted, evidence of the system would be easy to overlook.

Through the years, this house has undergone extensive remodeling and repairs. On those windows and doors which are original multiple paint layers very nearly succeed at obscuring evidence of the contact switches. Close examination did reveal that most of the first floor doors, and several windows on the first and second floors did still carry their hardware -- plate-type contacts on the window frames and dotting switches in the door frame. The third floor, as expected, revealed no evidence of a system.

Generally, the most obvious indication of a system is the floor embedded wires. At the Fraser house virtually every floor surface is covered with tile, wall-to-wall carpeting or linoleum. One second floor room has just a large area rug and still, in the visible flooring - no evidence.

In the living room, bench type seating is built into the bay window alcoves. The seats lift up and underneath is storage space. Here, finally were found the two tell-tale wires leading to the window. (Figure 43) If floor covers were removed it is suspected that examination of wiring patterns would suggest original room configuration. The lack of visible installation evidence shows just how easy it is to obscure system remnants.





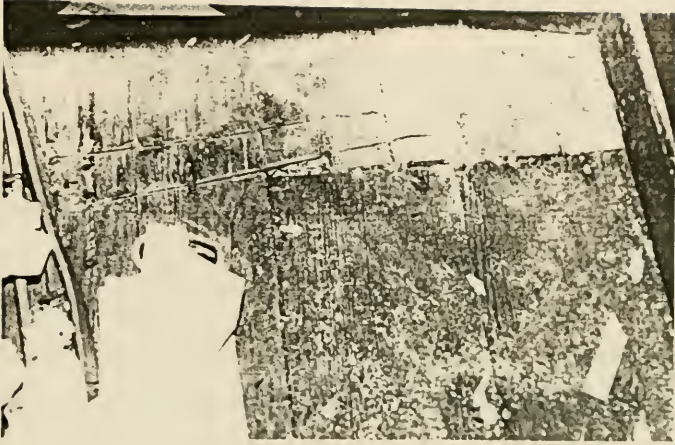


Figure 43: Evidence of floor wiring hidden by built-in bench storage.

Beechwood  
Newport, Rhode Island

The bustling port City of Newport, Rhode Island, had its economy devastated during the Revolution, only to rebound just prior to the Civil War when it became a popular summer resort. The forces of urbanization and industrialization which introduced a rising class of industrialists elsewhere in the first half of the nineteenth century largely passed by Newport. The elite of Newport society were still playing the role of the eighteenth-century gentry whose wealth was based on commerce and local activities and not on new industry.



The new wealth which did come to Newport, beginning in the second quarter of the nineteenth century, was attracted by pleasant climate and superb beaches. Investments were made in resort-related activities rather than in manufacturing. After 1845, Newport was increasingly involved in speculation and building associated with the rise of its resort business, catering to wealthy vacationers from New York, Boston and the South.

In 1851, the local speculators Smith and Baily, purchased 140 acres of land which would become Bellevue Avenue, Newport's street of millionaires. In 1852 Daniel Parish ( ? - 1879) was among the first twelve persons to purchase a lot and to erect an expansive and impressive summer cottage.

Daniel Parish was a New York merchant. Between 1852 and 1853 Parish engaged Andrew Jackson Downing and Calvert Vaux to design a house for him on Bellevue Avenue overlooking the ocean. This house, pictured in Villas and Cottages was totally destroyed by fire in 1855. Vaux subsequently rebuilt the house, duplicating the original plans, however, locating it closer to the sea and away from Bellevue Avenue on the site. (Figure 44) This home was just a summer residence for Parish.<sup>110</sup>

After Parish's death in 1879, the house was purchased by William Bachouse Astor, Jr. for \$190,991.50. Between 1888 and 1890 the house was substantially remodeled and redecorated by his wife Caroline. When Mrs. Astor died in



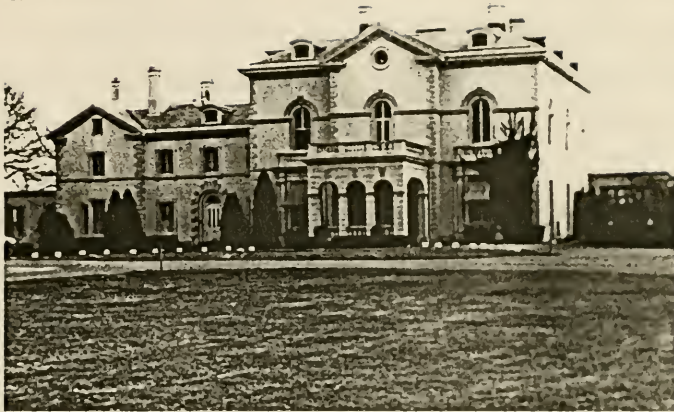


Figure 44. Beechwood, exterior.

1908 the house was inherited by John Jacob Astor IV and remained in the Astor family until 1937. It has subsequently changed hands several times, before becoming the home of the Beechwood Theater Company. While currently open to the public for tours it is not operating as a museum. The resident theater group recreates the Astor's life style of the 1890s. They incorrectly interpret what remains of their alarm system as a maid call device.

In the Beechwood installation, the floor wires follow patterns similar to those at the previous sites. The switch annunciator is not in its original location, it has been mounted on a board which is hung like a picture in the



second floor hallway. (Figure 8, page 29, top) This twelve knob version measures 4 3/4" in diameter and still has eight of the room indicator knobs in place. These read as follows: Parlor and Dining room; Laundry; Basement Doors; Library and Recreation Room; Our Room; Mr. P. Jr's Room; Nursery; and NE Spare Room.

Dotting type contact switches were present on casement windows but because of design (See Figure 20, page 42) it was not possible to examine the switch on the double hung windows. Although Daniel Parish does not appear on the subscriber list, because these features match so precisely the known Holmes installations it is almost certainly a Holmes installation. The system was probably installed after the Your Attention booklet was published in 1868 and before Holmes introduced his drop annunciator in the 1870s. An inventory prepared at the death Daniel Parish, shows a third floor room as the "burglars alarm storeroom." However, nothing listed in the room contents is related to the alarm. Because this floor is currently used for actors' housing it was not available for examination. If this third floor area is alarmed it would be unique among the case study houses.

Armour-Stiner (Octagon) House  
Irvington-On-Hudson, New York

The five-story, twenty-five room Armour-Stiner (Octagon) House is perched on a hill overlooking the Hudson River





in the Town of Irvington-On-Hudson, New York. This area and the surrounding hills were, beginning in the mid-nineteenth century, a popular summer retreat. Situated on the east bank of the Hudson River, the location is just twenty miles north of New York City, an hour away by train.

Here, in 1853, Paul J. Armour (1830?-1886) purchased four plots of land on West Clinton Avenue. Armour was a banker and broker with offices in lower Manhattan. Between 1858 and 1860 he constructed a two-story octagon house. Octagon houses had become a popular form of construction following the publication of Orson Squire Fowler's The Octagon House, A Home for All (1848). Fowler claimed that eight-sided houses, in addition to being more efficient and economical, were healthier. Armour's house, a modest two-story structure was originally built five feet above ground level and therefore, the basement was made a fully functional space through numerous windows which provided light and ventilation.<sup>111</sup> The main entrance faced Clinton Avenue.

Armour died in 1866, but his family remained in the house until 1872, when the house was sold to Joseph H. Stiner (1827-1897). Stiner, a prominent New York City tea and spice merchant, purchased the house as a weekend retreat. He immediately undertook extensive renovations and expansion of the house. The present-day structure was created by adding the dome with cupola and verandah as well as reorienting the entrance to the house.<sup>112</sup> (Figure 45)





Figure 45: Armour Stiner, exterior.

These alterations were so extensive that the entire structure was effectively rebuilt and therefore the house is considered an 1872 construction. Although hundreds of octagon houses were built, the Armour-Stiner House was quite distinctive and is thought to be the only fully domed octagonal residence in the world.



In 1881 Stiner suffered a series of financial reverses which led, in 1882, to the sale of the house to George W. Dibble (1848-1917). The house once again became a year-round residence. There were several additional owners before the house was purchased, in 1979, by its current owner, Joseph Pell Lombardi. Lombardi, a preservation architect has spent much of the ensuing time researching and restoring the house to its 1872 appearance.

While the exact date of this alarm installation is unknown it is expected that the system was added as a part of Stiner's major remodeling in 1872. Windows and doors which were first introduced during this remodeling are alarmed so the installation certainly is no earlier than 1872. Floor-embedded wires identical to those previously seen are found throughout much of the first floor. According to the owner, wires were only present at one spot on the second floor. This area was the sitting room of the master suite, and therefore, the expected location of the annunciator -- which is no longer present. Because of the raised basement configuration, this second floor is effectively equivalent to the third floor at the other houses and therefore would not be expected to be alarmed. Examination of windows for confirmation was not, however possible.

Dotting contact switches, in addition to being found on the exterior doors, and casement windows in the basement were also found on several interior doors in the basement.



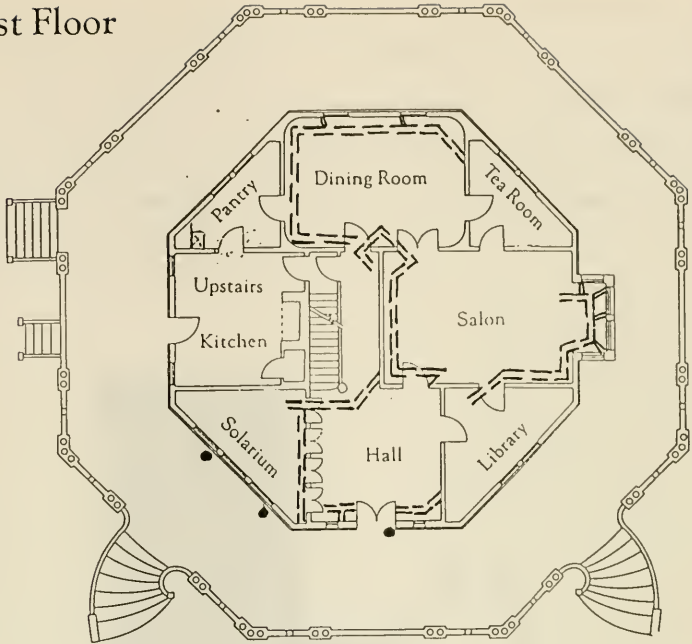
The original room usage -- as a wine cellar and as the mechanical or furnace room helps in understanding the placement of these contacts. (Figure 46) Alarming the door to the wine cellar allowed for monitoring access of the servants. The mechanical room with its coal shoot might have permitted entry to the building. By alarming the interior door an intruder could proceed no further without detection. These door switches, although identical in appearance to those in the previously discussed case studies, differed slightly in their application. Where previously the contacts are located approximately six inches above the floor, at Armour Stiner all the basement contacts are found about six inches from the top of the door. Presumably the wires were snaked through the wall to this contact point from above. Certainly, it would have been easier to locate the contact at the top of the door frame rather than the bottom.

The most perceptible difference at this installation is the window contact switch. Although located in the same position as the plate type contacts, here, the appearance differs. A piece of springy metal approximately 1/2 inch wide by 2 1/2 inches long is affixed at its lower end by two screws. (Figure 47) The thread wrapped wire can be seen leading to these screws. No patent has been found for this type of contact. However, this form of the contact switch appears to be similar, if not identical, to that described in the 1853 Pope patent. (Figure 16, page 38) Although this

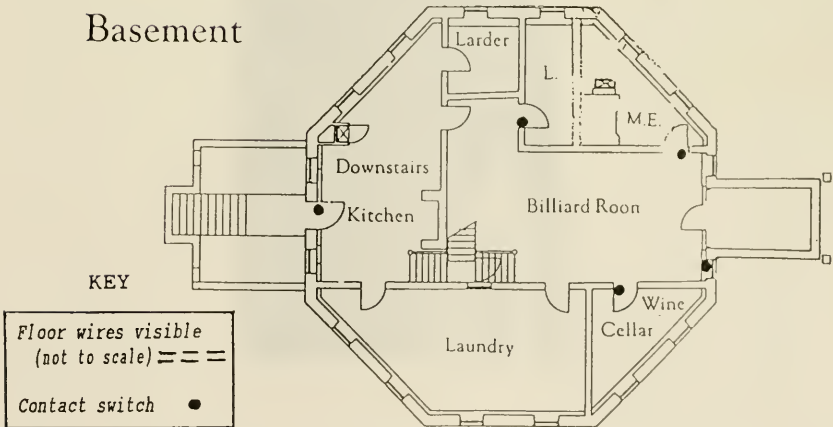




## First Floor



## Basement



### Armour-Stiner Octagon House

Figure 46: Remnants survey, basement and first floor plans. Location of accessible system evidence indicated.



installation is undoubtedly post-1872 the technology of the window contact bears more of a resemblance to the earliest contact forms than to the latter versions. For this reason, it is suspected that this particular system was installed by a competitor of Holmes who might still have been using an older form of the technology.

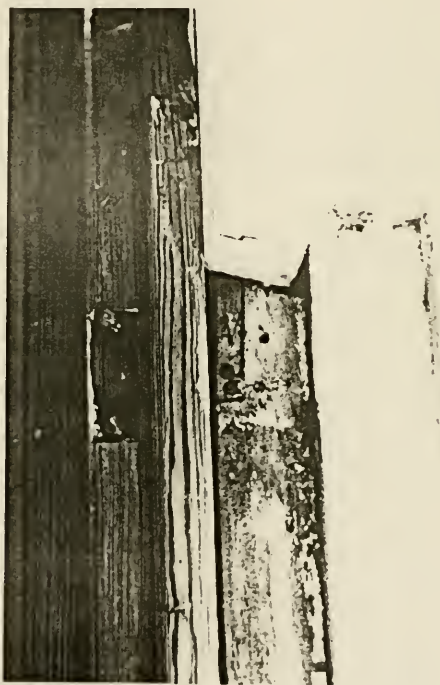


Figure 47: Window contact switch.



Maish House  
Des Moines, Iowa

In 1870 George H. Maish (1835-?), recognizing "conditions and opportunities in different parts of the country" moved from Pennsylvania (where he was born), to Des Moines, Iowa. He was determined "to try his future in the west, where he believed superior advantages were offered." At first, he was engaged in the drug business with his brother-in-law Charles A. Weaver, and in 1875 he was among the group of men who organized the Iowa National Bank of Des Moines and was elected to the position of Cashier. He went on to become prominent in the financial and business circles of the city.<sup>113</sup>

In 1882 Maish completed the construction of a new house for his family. The two story house with a cellar is believed, to be the first house in the area with a burglar alarm. Georgia Elizabeth Maish, daughter of George recounted, "how she was awakened one night by the bell, jumped out of bed and ran to the window. From the window she saw a man running thru the backyard away from the house. The family were very pleased to know the alarm really worked."<sup>114</sup>

The house, at 1623 Center is currently owned by Ralph Gross and has the remains of a Western Electric alarm system. It is suspected that this system was installed at the time the house was constructed, in 1882. The 9-needle annunciator with bell (See figure 25, page 52, left) is virtu-



ally identical to the annunciator depicted first in the 1877 Western Electric catalog and again in their 1883 catalog. Room titles (or zones) appearing on the annunciator are: Parlor and Sitting Room; Library; Dining Room and Kitchen; Inside Door; South East Chambers; West Chamber; Bed and Baby Room; Northwest Chamber, and Back Door. The system is connected to all the windows and doors including the internal doors. Contact switches in the doors are brass dotting contacts 3 1/4" high by approximately 3/4" wide. The window contacts are double sash compressible triangles. (See figure 28, page 58)

Unlike all of the previous case studies, the connecting wires are not floor-embedded; they travel instead to the attic and then descend to the various levels of the house. The wire is 18 gage wrapped in thread and color coded, one white (the common), one black, with positive leads connected in the attic to one white wire leading to the annunciator. In order to accommodate passage between floors holes 3/8" wide are bored through the flooring for each wire which are then stapled along interior studs. There are nine circuits throughout the house, delineated primarily by room.<sup>115</sup>

Two of the circuits have been recently repaired. The others have been tested, and in the majority there are shorts. The most common shorts are in the switches at the windows. The springs that hold the contacts out (open) are broken and thus short those circuits.





Wilderstein  
Rhinebeck, New York

In 1846, Thomas Holy Suckley received a substantial inheritance from his father George Suckley, who made a fortune investing in Manhattan and New Jersey real estate. Joining the rich and fashionable in their up-river migration, Thomas Suckley, in 1852, built a house on a 35 acre site set high on a bluff overlooking the Hudson River in Rhinebeck, New York. The house, known as Wilderstein, was designed by architect John Warren Ritch. This modest Italianate villa was "two stories high and had a low Tuscan roof resting on moulded right-angle brackets."<sup>116</sup>

Upon Thomas's death in 1888, Robert Bowne Suckley, his second, and only surviving son, took possession of Wilderstein. Within a year he had transformed it into the Queen Anne mansion seen today. "The roof was taken off and the walls raised with an overhanging third story and gabled attic. An entrance porte cochere, a tower, and a service wing were added, and the verandahs extended and profusely decorated."<sup>117</sup> (Figure 48)

Robert and his wife, Elizabeth Philips Montgomery had seven children. Their eldest daughter, Margaret Lynch Suckley (born 1891) resides at Wilderstein. In 1983 a non-profit organization, Wilderstein Preservation, dedicated to saving the house was incorporated. Miss Suckley gave the house and property to the organization while retaining a life tenancy.





Figure 48: Wilderstein, west elevation, 1975 HABS. Reprinted from Cynthia Owen Philip, *Wilderstein: The Creation of a Hudson River Villa*, The Hudson Valley Regional Review (September, 1990), 22.

Family records indicate that in December 1888 Robert Suckley himself directed the installation of the heating, burglar alarm and bell systems for the main house making this the latest (or youngest) of the case studies.<sup>118</sup> The alarm system chosen was Western Electric and like the Maish house, wiring was not exposed; door contacts appear unchanged. Both double and single sash window contacts are



present, although only the single was available to the author for examination. The exposed surface indicates it was patented December 23, 1884. There is no patent number or patentee name so the exact patent has not been identified. However, it bears a resemblance to a contact manufactured by E.S. Greeley in 1890. (See Figure 27, page 56)

Wilderstein has two annunciators, similar, although not identical in appearance to each other. One was for the burglar alarm and the second for the maid call. The maid call device remains mounted in the present day pantry and bears the names of each first floor room. The burglar alarm annunciator was at some past time disconnected and is currently stored in the attic. It is an 8-needle variety with clock attachment. (See figure 25, page 52) There is a separate, wall-mounted bell in the second floor landing which was presumably attached to the alarm system. Annunciator titles read: Hall, Dining Room, Library, Drawing Room, Kitchen, Laundry and Cellar -- indicating that the cellar was alarmed while the second floor was not. Although still battery powered, this Western Electric system was evidently supplied by Leclanche Batteries.<sup>119</sup>

#### Efficacy

At its inception alarm technology, like any other, had room for substantial improvement -- there were numerous flaws to be corrected before a mature and reliable product



evolved. In 1881, when reporting about electric burglar alarms, Popular Science Monthly, summarizes the industry's development up to that point. "In its earliest forms there were many defects, but in a development of twenty years these have been mostly corrected. It has now attained a simplicity of construction and certainly of action that make it one of the more useful and trustworthy of man's servitors."<sup>120</sup> Through patent analysis, examination of extant remains and trade catalogs this paper has sought to enumerate the technological progression which this building system underwent during its formative years.

Patent analysis reveals what was developed, when, and how it worked; it does not however, show if an "item" ever went beyond research and development and into commercial production. By using these seven case studies and trade catalogs from the 1860s through the 1880s, the development chain was expanded beyond what patents alone can reveal. The resulting hardware chronology, although not comprehensive, revealed that some alarm system components stayed the same while others evolved dramatically.

Understanding how early electric burglar alarms worked and how the hardware developed can, in conjunction with archival documentation, be used as a tool to either answer or suggest interpretive questions. This tool seems particularly well suited to understanding space utilization and changes over time. The degree to which this happens appears





to have a direct correlation to the extent of the archival documentation available.

Unfortunately, despite all of the historic materials uncovered, the true effectiveness of these early alarms (those of the first generation; 1850s, 60s and 70s) has yet to be adequately documented. How well or effectively the earliest systems worked or how quickly they were integrated into daily life, is still unknown but it is an important part of the story, deserving additional research.

The Holmes pamphlets list over two hundred testimonials. Only a small fraction of these specifically mention actual alarm incidents. Many of these letters were solicited, those published were probably hand chosen and edited. The accuracy and representative nature of these incidents can not be assured.

Anecdotal episodes reported in other sources might go a long way towards explaining at what point the systems became consistently reliable and effective. Unfortunately, to date, besides those appearing in the Holmes testimonials, very few references to activated alarms have surfaced. Two, however, should be mentioned. P.T. Barnum had a Holmes system in his Bridgeport, Connecticut home.<sup>121</sup> In his autobiography, Struggles and Triumphs he briefly mentions an instance when his alarm went off and he was able successfully to scare off the intruders.



My house was provided with a magnetic burglar alarm and one night the faithful bell sounded. I was instantly on my feet and summoning my servants, one ran and rung the large bell on the lawn which served in the day time to call my coachman from the stable, another turned on the gas, while I fired a gun out of the window and I then went to the top of the house and set off several rockets. The whole region round about was instantly aroused; dogs barked, neighbors half-dressed but armed, flocked over to my grounds, every time a rocket went up, and I was by no means sparing of my supply; the whole place was as light as day, and in the general glare and confusion we caught sight of the two retreating burglars, one running one way, the other another way, and both as fast as their legs could carry them; nor do I believe that the panic-stricken would be plunderers stopped running till they reached New York.<sup>122</sup>

Unfortunately, the successful sounding of the alarm is only used in this story to set the stage for P.T. Barnums' recounting a somewhat unrealistic fireworks extravaganza.

The experiences recounted by Mark Twain in his short story "The McWilliamses and the Burglar Alarm" (Appendix Z) were not nearly as complementary. A Readers Guide to the Short Stories of Mark Twain, claims that all three stories written about the McWilliams family between 1875 and 1882, were actually a reflection of Twain's own domestic life. This particular story greatly embellishes the difficulties of a mechanical system which never seems to work right. Because this story takes a frustrating situation and turns it into comedy, suggests that it has a basis in fact, to which the reading public could relate.



## CHAPTER 4

### CONCLUSION

Preservationists have been slow to acknowledge "security" as a building system worthy of their attention. However, it should be recognized that to the degree permitted first, by technology and second, by an owner's financial means, builders have provided for protection of possessions and persons throughout history. Since the colonial era these domestic security measures have taken a variety of forms. Included are architectural means: doors and shutters; mechanical means: locks and bells; landscape techniques: including fences and planting patterns and finally, electrical devices. While this examination of electric burglar alarms represents only a small portion of the complete chronology, the scholarly evaluation of building systems from any period should consider security provisions.

Patent review and case studies have been used in the preceding analysis to provide an understanding of how alarm devices worked and evolved. This detailed knowledge is essential to the process of interpreting or preserving a surviving system. Edwin Holmes refined and improved the methods both for detecting and reporting burglaries. Although the technology has improved substantially, the range



of burglar alarm services which he developed are still in use today.

However, without a basic understanding of the larger social context or cultural environment in which these devices were used, it is easy to ignore or misunderstand system remnants. The last half of the nineteenth century was thought of by many as a crime free, idyllic time. Where hardware is present, the tendency has been to mistake it as belonging to a different system or to a later period.

This examination of the Holmes electro-magnetic burglar alarm telegraph has provided evidence clearly indicating that electric burglar alarm technology was more wide spread and existed at an earlier date than is generally expected. In fact, the introduction of this type of system into the home is an example of an early, if not the earliest, use of electricity in a domestic application. This technology predates, by almost thirty years the advent of electrical lighting.





## Holmes Controlled U.S. Patents, 1853 - 1893

NAME	PATENT	DATE	TITLE
Augustus R. Pope	9,802	June 21, 1853	Electro-Magnetic Alarms
reissue	566	June 8, 1858	
extension		June 20, 1867	
William Whiting	20,970	July 20, 1858	Electro-Magnetic House-Alarm
extension			
reissue	6,599	Aug. 17, 1875	
[assigned to Edwin T. Holmes]			
Edwin Holmes	63,158	Mar. 26, 1867	Electric Circuit-Breaking Clocks
reissue	9,209	May 18, 1880	
Edwin Holmes & Henry C. Roome	87,674	March 9, 1869	Billiard-Game Registers
Edwin Holmes & Henry C. Roome	110,362	Dec. 20, 1870	Electro-Magnetic Envelopes for Safes, Vaults & c.
reissue	8,949	Oct. 28, 1879	
[assigned to Holmes Burglar Alarm Telegraph Co.]			
reissue	8,950	Oct. 28, 1879	
[assigned to Holmes Burglar Alarm Telegraph Co.]			
Edwin Holmes & Henry C. Roome	120,744	Nov. 7, 1871	Circuit-Closers for Electrical Burglar-Alarms and Signals
Edwin Holmes & Henry C. Roome	120,874	Nov. 14, 1871	Electric Linings for Safes
Edwin Holmes & Henry C. Roome	120,875	Nov. 14, 1871	Electro-Magnetic Burglar-Proof Curtains
Edwin Holmes	121,620	Dec. 5, 1871	Electric Indicators for Elevators
Charles E. Chinnock	123,808	Feb. 20, 1872	Electro-Magnetic Annunciators
[assigned to Edwin Holmes]			



NAME	PATENT	DATE	TITLE
Isaac & Abram Herzberg reissue [assigned to Holmes Burglar Alarm Telegraph Co.] reissue [assigned to Holmes Burglar Alarm Telegraph Co.]	125,679 8,753	April 16, 1872 June 17, 1879	Apparatus for Automatically Regulating the Flame of Gas-Burners
Edwin Holmes & Edwin T. Greenfield	221,170	Nov. 4, 1879	Telephonic Conductors
Edwin T. Greenfield [assigned half interest to Holmes Burglar Alarm Telegraph Co.]	239,766	April 5, 1881	Mechanism for Laying Telegraph-Wires
Edwin T. Greenfield [assigned to Holmes Burglar Alarm Telegraph Co.]	244,590	July 19, 1881	Telephonic Transmitting-Instrument
Edwin T. Greenfield [assigned half interest to Holmes Burglar Alarm Telegraph Co.]	246,756	Sept. 6, 1881	Telephone
Edwin T. Greenfield [assigned half interest to Holmes Burglar Alarm Telegraph Co.]	252,294	Jan. 10, 1882	Telephone
Edwin T. Greenfield [assigned half interest to Holmes Burglar Alarm Telegraph Co.]	256,432	April 11, 1882	Telephone-Exchange System
Edwin T. Greenfield [assigned half interest to Holmes Burglar Alarm Telegraph Co.]	316,260	April 21, 1885	Telephone
Edwin M. Carhart [assigned half interest to Edwin Holmes]	324,225	Aug. 11, 1885	Support for Electric Cables
Frank G. Lyon [assigned to Holmes Electric Protective Company]	316,376	April 21, 1885	Electric Burglar-Alarm
Charles V. Knowles [assigned to Edwin Holmes]	495,047	April 11, 1893	Electrical Indicator for Rudders



Appendix B

U.S. Patent No. 9,802

Augustus R. Pope, of Somerville, Massachusetts

Improvement in Electro-Magnetic Alarms

June 21, 1853



UNITED STATES PATENT OFFICE.  
AUGUSTUS R. POPE, OF SOMERVILLE, MASSACHUSETTS.

IMPROVEMENT IN ELECTRO-MAGNETIC ALARMS.

Specification forming part of Letters Patent No. 9,802, dated June 21, 1873.

To all whom it may concern:

Be it known that I, AUGUSTUS R. POPE, of Somerville, in the county of Middlesex and State of Massachusetts, have invented a new and useful or Improved Magnetic Alarm, to be applied to either a door or a window, or both, of a dwelling-house or other building, for the purpose of giving an alarm in case of burglars or other attempts to enter the same through said door or window by opening said door or window; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

Of the said drawings, Figure 1 represents an elevation of a door and window and my apparatus as applied thereto. Fig. 2 is a vertical and transverse section-taken through the spring circuit-breaker to be hereinafter described. Fig. 3 is a vertical section of the apparatus hereinafter termed the "key" as applied to the door. Fig. 4 is a section of the same as applied to the window.

In the said drawings, A represents a door, of which B is the frame, the same being shown as fitted into the wall. D E and P are window-sashes of a window-frame, G.

It is an electro-magnet, fastened to the side of the wall in a convenient position, and having a bell, J, arranged over or near to it. One of the pole-wires leading from an electric battery is seen at K. It extends to and winds around the magnet and passes upward over the bell and window-frame, and thence downward into the door-frame, where it is connected to a small stationary metallic plate, L, as seen in the drawings. The plate L is fastened in the door-frame and forms a part of the apparatus which I term the "key." The said key is otherwise composed of a metallic spring, M, one end of which is made to bear against the plate L, while the other or lower end is fastened to the door-frame, the spring being fixed in a recess, N, made in the door-frame.

In Fig. 5 a transverse section of the door-frame is given, with the door represented as open. The inner edge of the door has a small stud or pin, O, projecting from it, which constitutes a part of the key, and when the door is closed presses against the spring M of the key and bears it away from contact with the plate L. As soon as the door is opened a very

short distance the stud will be so moved away from the spring as to allow the spring to come in contact with the plate L. From the lower part of the spring a wire, P, extends nearly to the lower pole of the magnet and toward and against what I term the "spring circuit-breaker," which consists of a metallic spring, Q, extended upward from the other battery-circuit wire, R.

To the magnet there is applied a movable pendulous armature, S, which vibrates on a pin, T, and has a hammer, U, extended upward from it and toward and within a short distance from the under side of the bell. When this hammer is at rest or down to its lowest position it is retained there by a stop-pin, V, against which the lower part of the armature of the magnet rests under such circumstances.

The form and shape of the circuit-breaker and its relative position with respect to the armature and the wire P that leads from the spring of the key are in the drawings.

The top of the spring circuit-breaker is formed with a small projection, a, which extends into part of the armature, so that when said armature is moved toward the magnet the projection of the circuit-breaker will be struck by the arm so as to move the circuit-breaker out of contact with the end of the wire P.

The above constitutes the alarm apparatus as applied to a door. In the application of it to a window the wire P or another wire, X, leading up from it, may be extended into the window-frame and connected with the lower end of a metallic spring, b, arranged on the inside or pulley stile of the frame and made to bear against the edge of a sash, the said edge being so formed or shaped that while the window is in the act of being raised it shall press the spring toward and against the end of another wire, Y, extended down from the wire K before named, or is an extension of said wire when the apparatus is to be applied to a window alone. The spring and contrivance for moving it, as above described, as applied to a window, constitute what I term the "key."

The operation of the apparatus is as follows: While the door is closed or the window-sash down the magnetic circuit is broken, because the spring of the key is thrown out of connection with the upper wire of the door or window frame; but as soon as the door is opened





or the window-sash is closed so as to allow the spring of the key to come into contact with the upper wire or the metallic plate at the lower end thereof, the circuit will be closed, the current of electricity being made to flow through the circuit-breaker and around the magnet. As soon as this takes place the magnet becomes charged and draws the armature toward it, and thereby throws the hammer of the bell against the bell. During the movement of the armature toward the magnet it throws or moves the circuit-breaker out of connection or contact with the wire P, whereby the circuit will be again broken, so as to demagnetize the magnet and allow the armature to fall back until the circuit-breaker again comes in contact with the wire P, and thereby closes the electric circuit and produces another blow of the hammer on the bell. Thus a constant succession of blows of the hammer on the bell will be produced.

By my apparatus I dispense with the use of

clock-work or any apparatus to ring the bell through the agency of the falling of a weight or uncoiling of a spring, the hammer being kept in action on the bell while the battery continues to furnish electricity and the door or window is open.

I claim—

For the purpose of ringing the bell, the combination of the movable or vibrating armature and the spring circuit-breaker with the hammer of the bell, the same to be used in connection with the electro-magnet circuit-wires and a key, as described, applied to a door or window, the whole being made to operate together substantially in manner and for the purpose as specified.

In testimony whereof I have hereto set my signature this 27th day of October, A. D. 1852.

AUGUSTUS R. POPE.

Witnesses:

R. H. EDDY,

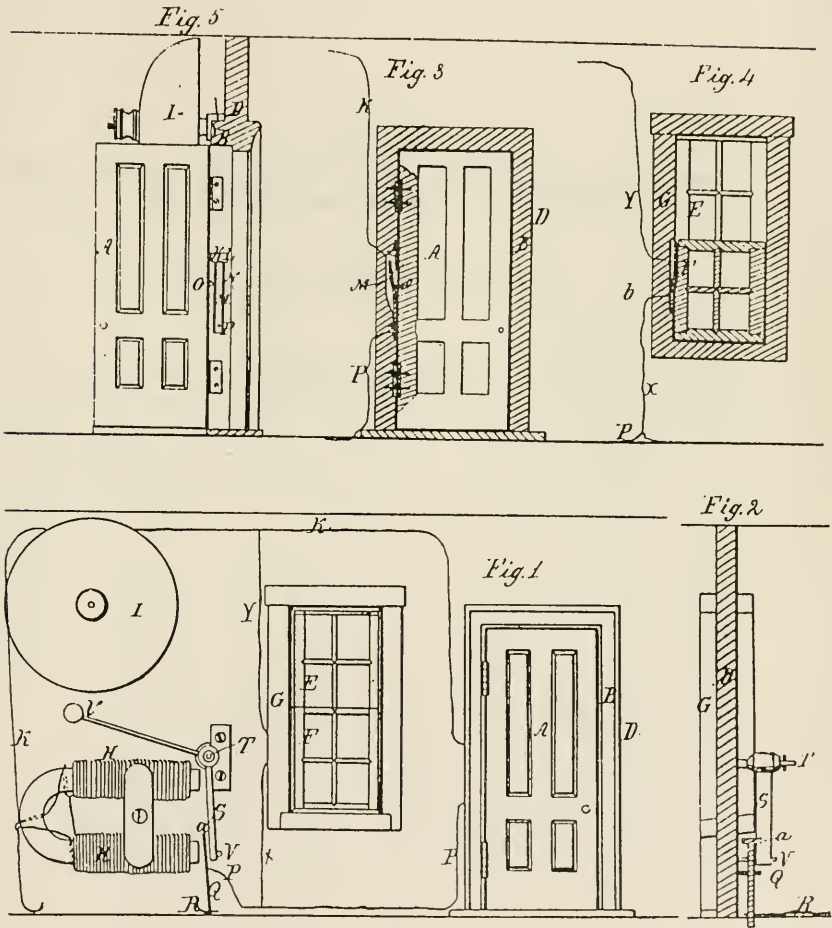
GEO. W. CUTLER.



A. R. POPE.  
BURGLAR ALARM.

No. 9,802.

Patented June 21, 1853.





Appendix C

U.K. Patent No. 1,795

Augustus Russell Pope, of the State of Massachusetts,  
of the United States of America

Electro-Magnetic Alarm

August 1, 1853





A.D. 1853 . . . . . N° 1795.

Electro-Magnetic Alarm.

LETTERS PATENT to Augustus Russell Pope, of the State of Massachusetts, of the United States of America, for the Invention of "A NEW AND USEFUL OR IMPROVED ELECTRO-MAGNETIC ALARM APPARATUS, TO BE APPLIED TO A DOOR OR WINDOW, OR BOTH, OF A DWELLING HOUSE OR OTHER BUILDING, FOR THE PURPOSE OF GIVING AN ALARM IN CASE OF AN ATTEMPT TO OPEN SAID DOOR OR WINDOW."

Scaled the 6th October 1853, and dated the 1st August 1853.

PROVISIONAL SPECIFICATION left by the said Augustus Russell Pope at the Office of the Commissioners of Patents, with his Petition, on the 1st August 1853.

I, AUGUSTUS RUSSELL POPE, of the State of Massachusetts, of the  
5 United States of America, do hereby declare the nature of my  
Invention of "A NEW AND USEFUL OR IMPROVED ELECTRO-MAGNETIC  
ALARM APPARATUS, TO BE APPLIED TO A DOOR OR WINDOW, OR BOTH, OF A  
DWELLING HOUSE OR OTHER BUILDING, FOR THE PURPOSE OF GIVING AN ALARM  
IN CASE OF AN ATTEMPT TO OPEN SAID DOOR OR WINDOW," to be as follows,  
that is to say:—





*Pope's Improvements in Electro-Magnetic Alarm Apparatus.*

My said apparatus consists of an automatic or self-acting key applied to the door or window, a set of circuit wires, an electric or galvanic battery and an electro-magnet connected together and with the said key by such circuit wires, an alarm bell hammer, and an armature for the magnet, such armature being attached to the hammer or a projection therefrom, and finally a spring circuit breaker; the said key to be so made and applied to the door or window as not only to cause the electric circuit to be completed or closed whenever the door or window is in the act of being opened, but to cause it to be broken or opened whenever the door or window is closed. The circuit breaker consists of a spring extended up from the end of one of the battery circuit wires, and made to rest against the end of the other wire. It has a projection on it which is extended into the path of movement of the armature, so that when the armature is drawn towards the magnet it shall move the circuit breaker out of contact with the circuit wire against which it rested.

The armature of the magnet is a pendulous one, and so connected with the bell hammer that when such armature is drawn towards the magnet it shall cause the hammer to strike the bell. The operation of the apparatus is as follows :

While the door is closed, or the window sash down, the magneto-electric circuit is broken, because the spring of the key is thrown out of connection with one of the circuit wires. But as soon as the door is opened, or the window sash moved, so as to allow the spring of the key to come in contact with the circuit wire to which it is not connected, the circuit will be closed, the current of electricity from the battery being made to flow through the circuit breaker and around the magnet. As soon as this takes place the magnet becomes charged, and attracts or draws the armature towards itself, and thereby causes the hammer to strike the bell. During the movement of the armature towards the magnet it is carried in contact with the circuit breaker, or a projection therefrom, and moves the circuit breaker away from the circuit wire against which it rested. This breaks the circuit and demagnetizes the magnet. In consequence of this, the armature is permitted to fall or move away from the magnet, the weight and fall of the hammer



*Pope's Improvements in Electro-Magnetic Alarm Apparatus.*

causing it to do so, until the circuit breaker springs back against the circuit wire, and thereby closes the circuit, and causes another blow of the hammer on the bell to take place. Thus a constant succession of blows of the hammer on the bell will be produced, the same serving to  
5 sound the alarm.

I not only claim as my Invention the combination of the moveable or vibrating armature and the spring circuit breaker with the bell hammer, and applied and used for the purpose of ringing a bell, but I claim the combination of the automatic or self-acting key, the  
10 circuit wires leading therefrom, the electric battery or a generator of electricity, an electro-magnet bell hammer and armature, and a circuit breaker, as applied and used in connection with a door or window, or other contrivance for the purpose of sounding an alarm when an attempt is made to open the same.

15 SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Augustus Russell Pope in the Great Seal Patent Office, on the 12th January 1854.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, AUGUSTUS RUSSELL POPE, of the State of Massachusetts, of the United  
20 States of America, send greeting.

WHEREAS the Queen of Great Britain and Ireland, by Letters Patent, bearing date the First day of August, of the year of our Lord Eighteen hundred and fifty-three, in the seventeenth year of Her reign, did grant unto me, the said Augustus Russell Pope, my heirs, executors,  
25 administrators, and assigns, an exclusive property or right for fourteen years to make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and the Isle of Man, an Invention of "A NEW AND USEFUL OR IMPROVED ELECTRO-MAGNETIC  
30 DWELLING HOUSE OR OTHER BUILDING, FOR THE PURPOSE OF GIVING AN ALARM IN CASE OF AN ATTEMPT TO OPEN SAID DOOR OR WINDOW," upon the condition (amongst others) that I, the said Augustus Russell Pope,



*Pope's Improvements in Electro-Magnetic Alarm Apparatus.*

by an instrument under my hand and seal, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office, or Office of the Commissioners of Patents for Inventions, within six calendar months next and immediately after the date of the said Letters Patent. 5

**NOW KNOW YE**, that I, the said Augustus Russell Pope, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following Specification and the accompanying Drawings, letters, figures, and references thereof: 10

Of the said Drawings, Figure 1, represents an elevation of a door and window, and my apparatus as applied thereto. Figure 2, is a vertical and transverse section taken through the spring circuit breaker, to be herein-after described. Figure 3, is a vertical section of the apparatus, herein-after termed the key, as applied to the door. Figure 4, is a section of the same as applied to the window. 15

In the said Drawings A, represents a door, of which B, is the frame, the same being shewn as fitted into the wall D; E, and F, are window sashes of a window frame G; H, is an electro-magnet fastened to the side of the wall in a convenient position, and having a bell I, arranged over or near it. One of the pole wires leading from an electric battery is seen at K. It extends to and winds around the magnet, and passes upwards over the bell and window frame, and thence downwards into the door frame, where it is connected to a small stationary metallic plate L, as seen in the Drawings. The plate L, is fastened in the door frame, and forms a part of the apparatus which I term the key. The said key is otherwise composed of a metallic spring M, one end of which is made to bear against the plate L, while the other or lower end is fastened to the door frame, the spring being fixed in a recess N, made in the door frame. In Figure 5, a transverse section of the door frame is given, with the door represented as open. The inner edge of the door has a small stud or pin O, projecting from it, which constitutes part of the key, and when the door is closed presses against the spring M, of the key, and bears it away from contact with the plate L; as 20 25 30 35



*Popé's Improvements in Electro-Magnetic Alarm Apparatus.*

soon as the door is opened a very short distance the stud will be so moved away from the spring as to allow the spring to come in contact with the plate L. From the lower part of the spring a wire P, extends nearly to the lower pole of the magnet, and towards and against what  
 5 I term the spring circuit breaker, which consists of a metallic spring Q, extended upwards from the battery circuit wire R. To the magnet there is applied a moveable pendulous armature S, which vibrates on a pin T, and has a hammer U, extended upwards from it, and towards and within a short distance from the underside of the bell. When this  
 10 hammer is at rest, or down to its lowest position, it is retained there by a stop pin V, against which the lower part of the armature of the magnet rests under such circumstances. The form and shape of the circuit breaker and its relative position with respect to the armature and the wire P, that leads from the spring of the key, are shewn in the  
 15 Drawings. The top of the spring circuit breaker is formed with a small projection *a*, which extends into the path of the armature, so that when said armature is moved towards the magnet the projection of the circuit breaker will be struck by the arm so as to move the circuit breaker out of contact with the end of the wire P. The above  
 20 constitutes the alarm apparatus as applied to a door.

In the application of it to a window the wire P, or another wire X, leading up from it, may be extended into the window frame, and connected with the lower end of a metallic spring *b*, arranged on the inside or pulley stile of the frame, and made to bear against the edge of a  
 25 sash, the said edge being so formed or shaped that while the window is in the act of being opened it shall press the spring towards and against the end of another wire Y, extended down from the wire K, before named, or is an extension of said wire when the apparatus is to be applied to a window alone. The spring and contrivance for moving it as  
 30 above described, as applied to a window, constitutes what I term the key. The operation is as follows :

While the door is closed, or the window sash down, the magnetic circuit is broken, because the spring of the key is thrown out of connection with the upper wire of the door or window frame. But as soon as  
 35 the door is opened or the window sash moved so as to allow the spring





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*Pope's Improvements in Electro-Magnetic Alarm Apparatus.*

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of the key to come into contact with the upper wire or the metallic plate at the lower end thereof the circuit will be closed, the current of electricity being made to flow through the circuit breaker and around the magnet. As soon as this takes place the magnet becomes charged, and draws the armature towards it, and thereby throws the hammer of 5 the bell against the bell. During the movement of the armature towards the magnet it throws or moves the circuit breaker out of connection or contact with the wire P, whereby the circuit will be again broken so as to demagnetize the magnet, and allow the armature to fall back until the circuit breaker again comes in contact with the wire P, 10 and thereby closes the electric circuit, and produces another blow of the hammer on the bell. Thus a constant succession of blows of the hammer on the bell will be produced.

By my apparatus I dispense with the use of clock work or an apparatus to ring the bell through the agency of the falling of a weight or 15 uncoiling of a spring, the hammer being kept in action on the bell while the battery continues to furnish electricity, and the door or window is open.

I not only claim as my Invention the combination of the moveable or vibrating armature and the spring circuit breaker with the bell 20 hammer, and applied and used for the purpose of ringing a bell, but I claim the combination of the automatic or self-acting key, the circuit wires leading therefrom, the electric battery or a generator of electricity, an electro-magnet bell hammer and armature, and a circuit breaker, as applied and used in connection with a door or window, or 25 other contrivance for the purpose of sounding an alarm when an attempt is made to open the same.

In testimony whereof I have hereunto set my hand and seal.

AUGUSTUS RUSSELL POPE. (L.S.)

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LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,  
Printers to the Queen's most Excellent Majesty. 1854.







Appendix D

U.S. Patent No. 8,920

Moses G. Farmer, of Salem, Massachusetts

Improvement in Electro-Magnetic Alarm-Bells

May 4, 1852



# UNITED STATES PATENT OFFICE.

MOSES G. FARMER, OF SALEM, MASSACHUSETTS  
IMPROVEMENT IN ELECTRO-MAGNETIC ALARM-BELLS.

Specification forming part of Letters Patent No. 8,920, dated May 4, 1852.

To all whom it may concern:

Be it known that I, MOSES GERRISH FARMER, of Salem, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement on Machines for Striking Bells by Electro-Magnetism; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure I is a perspective view of that part of the machine which constitutes my invention, termed in the subjoined description the "liberating apparatus." Fig. II is a perspective view of the machine, showing the position of the bell, the hammer, the striking apparatus, and its connection with the liberating part of the machine.

My invention consists of mechanism of peculiar construction, which is put in operation by electro-magnetism, and so combined with a train of wheel-work, cams, spring, weights, and a hammer, as to cause successive blows to be struck upon a bell any required number of times, the main feature of the invention consisting in this, that I am enabled by its use to bring into action any desirable amount of force, either of gravity, of a spring, of currents of air, or of steam, and control the duration of the same by the electro-magnet.

In Figs. I and II the frame of the machine is shown at II. An electro-magnet, *L L'*, Fig. I, is placed in a horizontal position near to one end of the machine. An upright bar, *c*, having its center of motion upon the rocker-shaft *J* is attached to the armature *K* of the magnet. The top of the bar *c* is made sufficiently broad to allow the end of the arm *N* to rest upon it at *b*, the opposite end of the arm *N* being firmly affixed to the rocker-shaft *O O*, which is supported by the upright stands *C C'*. To the same shaft *O O* there are also affixed three arms or levers, *A*, *P*, and *f*. *A* is an arm which may be about ten inches in length, having a weight, *a*, at its upper end. This ball or weight is not vertical with the rocker-shaft *O*, to which it is attached, but is inclined at such an angle as to insure its fall whenever the horizontal bar *N* is not supported by the upright bar *c*. The distance through which the bar *a* is allowed to fall is regulated by the rest *W*. The

arm *P* may be two or three inches in length, and is affixed to the rocker-shaft *O* in such a position as to act upon the end of the horizontal latch-shaped detent *d* and raise it from the pin or stud *e*. The detent *d* is supported at one end by a stud, *V*, upon which it turns. The opposite end carries a pin, *Q*, which falls upon another pin or stop, *H*, attached to the stand *C*, and prevents the detent *d* from falling lower than is necessary. The arm *f*, also firmly fastened to the rocker-shaft *O*, has at its lower end a stud or pin, *D*, placed in such a position as to come in contact with the cam *g g*, as hereinafter described.

The horizontal shaft *E E*, which is supported in the stands *F F*, placed upon opposite sides of the frame *I I*, carries the dog *S*, the pinion *G*, the gear *T*, and the cam or wiper *g*, all of which are firmly secured to the shaft by splines or other suitable device. The cam *g* may be of about the same form shown in the drawings, its shape being such as to insure (by the intervention of the stud *D*, the bar *f*, and the rocker-shaft *O*) the elevation of the arm and ball *a* to the required height, and at the same time allow it to fall upon the rest *W*.

The pinion *U*, placed below the gear *T* and driven by it, gives motion, by means of the horizontal shaft *r*, to the vane or fan *h h'*, which may be placed outside of the frame *I*. The bar *i i*, to the opposite ends of which the vanes *h h'* are fastened, turns freely upon the shaft *r*. It carries a pawl, *Y*, and spring *X*, so placed that the pawl may play in the ratchet *Z*, which is firmly fixed to the shaft.

The pinion *G* forms a connection between the mechanism above described and the common striking apparatus of a tower-clock. Upon the latter machine I claim no improvements, as my invention relates exclusively to the liberating apparatus, as hereinbefore stated.

In Fig. II, which shows the general construction and relative position of the principal parts of the machine, *B* represents a section of the lip of a bell; *H*, the hammer; *M*, the weight; *n*, the crank, by turning which the weight is wound up.

The pinion *G*, Fig. I, plays in the gear *T*, Fig. II, by which a connection is established between the striking part of the mechanism and the liberating apparatus.

The action of the weight *M* causes the shaft





E and the attached dog S to revolve in the direction of the arrow m.

When the machine is adjusted and in readiness for action the detent *d* bears upon the stud *e* in the dog S, and prevents the weight M, which moves the striking-hammer, from falling. The velocity of rotation of the dog S is such as to allow time for one stroke of the hammer upon the bell at each of its revolutions.

To set the mechanism herein described in motion a current of electricity, generated by a suitable battery, is passed through the coils of the magnets L L', the armature K is attracted to the magnet, the upright arm *c* moves with it, the horizontal arm N is no longer supported, and the weighted arm A falls over until stopped by the adjustable rest W in front of it. In falling the lever P raises the latch-shaped detent *d*. The dog S, carrying the pin *e* attached to the same axis with the cam *g*, and connected with the train of wheels of the striking machinery, is thus liberated and begins to revolve. In so doing the cam *g* revolves and swings forward the bar *f* attached to the axis of the falling arm A, which is thus raised to its original position. The horizontal lever N catches again at *b* if the armature has been released, the detent *d* falls and comes in contact with the pin *e*, thus arresting the dog S at the end of one revolution. This occupies one or two seconds, and in the meantime the weight M has fallen a short distance and a single blow has been struck by the hammer upon the bell. If the armature K were not released from the attraction of the electro-magnet the horizontal

lever N would not catch at *b*, and the machine would continue to strike until the circuit-influencing electro-magnet was interrupted.

The red lines in the drawings show the position of a spring, 4, of India-rubber or other elastic material, one end being attached at 5 to the falling arm A, and the other end fastened to the frame of the machine, as at 6. As the arm rises the spring is extended. As it falls its velocity is increased by the contraction of the spring.

It is obvious that either the weight *a* or the spring 4 may be used separately, or their action may be combined, as above described.

I claim as my invention—

The combination, substantially as herein set forth, of the electro-magnet and armature, or its electro-magnetic equivalent, with the falling ball or spring and the detents, and the lifting-cam or its equivalents, so arranged that when the ball is supported by the armature a slight force only of the electro-magnet is required to trip the ball, which ball in falling requires sufficient momentum to produce much greater mechanical effects than the magnet alone, the velocity of the ball in falling being still further accelerated by the force of a spring, if desired. The power thus obtained I use in the manner and for the purpose herein described.

MOSES G. FARMER. [L. s.]

In presence of—

FRANCIS L. BATCHELDER,  
SAML. BATCHELDER, Jr.



M. G. FARMER.  
ELECTROMAGNETIC BELL

No. 8,920.

Patented May 4, 1852.

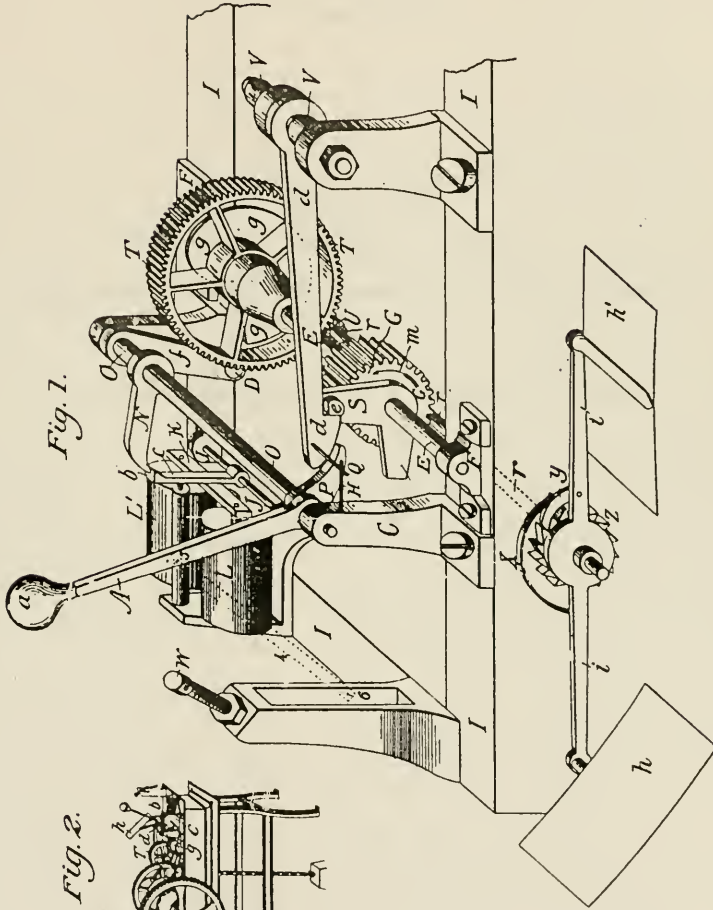


Fig. 1.

Fig. 2.

Inventor.  
M. G. Farmer.



Appendix E

Reissue 566  
of  
U.S. Patent No. 9,802

Augustus R. Pope, of Somerville, Massachusetts

Improvement in Electro-Magnetic Alarms

June 8, 1858



# UNITED STATES PATENT OFFICE.

A. R. POPE, OF SOMERVILLE, MASSACHUSETTS.

## IMPROVEMENT IN ELECTRO-MAGNETIC ALARMS.

Specification forming part of Letters Patent No. 9,802, dated June 21, 1853; Reissue No. 566, dated June 8, 1858.

*To all whom it may concern:*

Be it known that I, AUGUSTUS R. POPE, of Somerville, in the county of Middlesex and State of Massachusetts, have invented a new and useful or Improved Magnetic Alarm, to be applied to either a door or a window, or both, of a dwelling-house or other building for the purpose of giving an alarm in case of burglarious or other attempts to enter the same through said door or window by opening said door or window; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, of which—

Figure 1 represents an elevation of a door and window and my apparatus as applied thereto. Fig. 2 is a vertical and transverse section taken through the spring circuit-breaker to be hereinafter described. Fig. 3 is a vertical section of the apparatus hereinafter termed the "key" as applied to the door. Fig. 4 is a section of the same as applied to the window.

In the said drawings, A represents a door, of which B is the frame, the same being shown as fitted into the wall D.

E and F are window-sashes of a window-frame, G. H is an electro-magnet, fastened to the side of the wall in a convenient position, and having a bell, J, arranged over or near to it. One of the pole-wires leading from an electric battery is seen at K. It extends to and winds around the magnet and passes upward over the bell and window-frame, and thence downward into the door-frame, where it is connected to a small stationary metallic plate, L, as seen in the drawings. This plate L is fastened to the door-frame and forms a part of the apparatus which I term the "key." The said key is otherwise composed of a metallic spring, M, one end of which is made to bear against the plate L, while the other or lower end is fastened to the door-frame, the spring being fixed in a recess, N, made in the door-frame.

In Fig. 5 a transverse section of the door-frame is given with the door represented as open.

The inner edge of the door has a small stud or pin, O, projecting from it, which constitutes

a part of the key, and when the door is closed presses against the spring M of the key and hears it away from contact with the plate L. As soon as the door is opened a very short distance the stud will be so moved away from the spring as to allow the spring to come in contact with the plate L.

From the lower part of the spring a wire, P, extends nearly to the lower pole of the magnet and toward and against what I term the "spring circuit-breaker," which consists of a metallic spring, Q, extended upward from the other battery circuit wire R.

To the magnet there is applied a movable pendulous armature, S, which vibrates on a pin, T, and has a hammer, U, extended from it and toward and within a short distance from the under side of the bell. When this hammer is at rest, or down to its lowest position, it is retained there by a stop-pin, V, against which the lower part of the armature of the magnet rests under such circumstances.

The form and shape of the circuit-breaker and its relative position with respect to the armature and the wire P, that leads from the spring of the key, are shown in the drawings.

The top of the spring circuit-breaker is formed with a small projection, a, which extends into the path of the armature, so that when said armature is moved toward the magnet the projection of the circuit-breaker will be struck by the arm, so as to move the circuit-breaker out of contact with the end of the wire P.

The above constitutes the alarm apparatus as applied to a door. In the application of it to a window the wire P, or another wire, X, leading up from it, may be extended into the window-frame and connected with the lower end of a metallic spring, b, arranged on the inside or pulley stile of the frame and made to bear against the edge of a sash, the said edge being so formed or shaped that while the window is in the act of being raised it shall press the spring toward and against the end of another wire, Y, extended down from the wire K before named, or is an extension of said wire when the apparatus is to be applied to a window alone.

The spring and contrivance for moving it,





as above described, as applied to a window, constitute what I term the "key."

The operation of the apparatus is as follows: While the door is closed or the window-sash down the magnetic circuit is broken, because the spring of the key is thrown out of connection with the upper wire of the door or window frame; but as soon as the door is opened or the window-sash moved, so as to allow the spring of the key to come into contact with the upper wire or the metallic plate at the lower end thereof, the circuit will be closed, the current of electricity being made to flow through the circuit-breaker and around the magnet. As soon as this takes place the magnet becomes charged and draws the armature toward it, and thereby throws the hammer of the bell against the bell. During the movement of the armature toward the magnet it throws or moves the circuit-breaker out of connection or contact with the wire P, whereby the circuit will be again broken, so as to demagnetize the magnet and allow the armature to fall back until the circuit-breaker again comes in contact with the wire P, and thereby closes the electric circuit and produces another blow of the hammer on the bell. Thus a constant succession of blows of the hammer on the bell will be produced.

By my apparatus I dispense with the use of clock-work or an apparatus to ring the bell through the agency of the falling of a weight or uncoiling of a spring, the hammer being

kept in action on the bell while the battery continues to furnish electricity and the door or window is open.

I do not claim the communication of intelligence by the electric circuit and magnet as a part of my invention, or the vibration of the armature for this purpose; but

I do claim—

1. The mode of breaking and completing the circuit, or vice versa—that is, by the spring circuit-breaker operating to cause the vibration of the armature.

2. So combining a hammer and bell with the self-vibrating armature that the vibrating of the latter shall produce a continued ringing of the bell under circumstances substantially as described.

3. The combination of these parts—viz., the circuit-breaker, hammer, bell, and vibrating armature—or their equivalent or equivalents, with a self-acting spring or key in a door or window, to operate so as not only to bring them automatically into action when the door or window is open, but maintain a continuous or continued ringing of the bell by the interruption of the electric current without the intervention of other machinery.

In testimony whereof I have hereunto set my signature.

AUGUSTUS R. POPE.

Witnesses:

R. H. EDDY,  
F. P. HALE, Jr.







5149 title

IMPORTANT  
 TO EVERY HOUSEHOLD  
 —X—  
 A TREATISE  
 UPON THE BEST METHOD  
 OF  
**PROTECTING PROPERTY**  
 FROM BURGLARS, —  
 AND  
 HUMAN LIFE  
 FROM  
 MIDNIGHT ASSASSINATIONS

By  
**W. HOLMES,**  
 107 Canal St., New York.

A model, occupying a space about 12 inches square, and containing all the necessary information, may be obtained by a single purchase, at any house or office in New York or elsewhere, by addressing the publisher.

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 107 Canal St., New York.

ROBBERY DAILY TIMES PRINT.



**YOUR WORK**

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FROM ARMED BURGLARS,

**AND HUMAN LIFE**

FROM THE MIDNIGHT ASSASSIN ;

And to all who can appreciate and desire to enjoy

**A QUIET NIGHT'S SLEEP.**

**THIEVES OUTWITTED!**

**THEIR TRADE DESTROYED!**

WE SLEEP IN SAFETY.

**MORE THAN \$200,000 SAVED ANNUALLY**

BY THIS INVENTION.

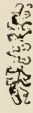




TK 7251  
H22

At the present time, when there is so much lawlessness and such a thieves' propensity manifesting itself in the community, this "Alarm" is rendered doubly valuable and indispensable to the perfect protection of property and life, and is the most reliable "Home Guard" that can possibly be introduced.





## A FEW MOMENTS ATTENTION

Is earnestly requested

TO THE CANDID PERUSAL OF THIS WORK.

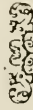
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Do not throw it aside as soon as the title is seen, but give it a fair examination. The reader is assured that it treats of FACTS and has to do not only with the Protection of Property, but of Human Life.

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## THIS INVENTION

Is not presented to the public by a stranger only, but is recommended by Scores of Citizens of New York over their own signature.





HOLMES,

PATENT TELEGRAPH

OR

ELECTRO MAGNETIC

Burglar and House Alarm.

The wish is repeated that this work will not be laid down after looking at the title, without giving it a candid examination.

THE DIFFICULTY

which the proprietor has experienced in gaining attention to this truly valuable invention, its success in saving property from theft, and its exceeding popularity with those who use it, warrant this in urging upon the community with strong emphasis the unequal merits of his invention. It has been found by experience in introducing this protection, that advertising a "Burglar Alarm," does not attract the attention of that large class of property holders who would gladly avail themselves of protecting their dwellings from the midnight murderer and assassin. It has also been learned that this attention cannot be gained by convulsion with the instrument in hand to exhibit. This *inference* is not supposed to result so much from there existing no necessity or acknowledged demand for such an invention, as from the fact that there are so many useless things advertised, and so many "jim cracks," hawked about the streets, that it has become a universal rule with



business men to say *no* to everything. In view of the above facts the reader is assured that this invention is not an experiment, but has been thoroughly tested for the last three years; its merits are certified, as will be seen by the pages of this book, by scores of our best citizens, and it is worthy of a candid consideration, and careful examination by all. Those who desire after reading this book, to see or understand more fully this wonderful apparatus, are again requested to *address a note* to the proprietor, making an appointment. When the entire thing in operation, occupying a space about eighteen inches square, will be shown at any house or office in New York or vicinity. Parties making such an appointment will not be considered as committing themselves to the purchase of the article in the least. It will be cheerfully shown whether purchased or not.

E. HOLMES, Proprietor,  
260 Canal Street,  
New York.

Please read the following Testimonials as only a few of the many that the Proprietor is constantly receiving in its favor.

#### TESTIMONIALS.

*New York, March 27th, 1860.*  
I have had in operation at my house, at Jamaica, Long Island, for nearly two years last past, the "Electric House Alarm" of Mr. Edwin Holmes. The design is one of great practical utility, and both simple and ingenious in construction. I regard its presence in a house as indispensable to its complete protection from burglars. It has already once saved me from these gratry. At midnight, one of the windows of my house had been pried open about half an inch, when the faithful bell gave the alarm, and the unwelcome hearing its voice, at once made swift tracks from my premises.

The "Electric House Alarm" is all that it professes to be. I unhesitatingly recommend it.

RICHARD HUSTVED,  
217 Broadway.





MR E. HOLMES,  
*New York, February 26th, 1860.*

*Dear Sir:*—Your note requesting my opinion of your "Burglar Alarm" is received, and I reply with pleasure. Your alarm has been in operation in my house about four months, and it has not failed to act as promptly and efficiently as when first put up, and I have had no occasion to examine any part of the work. Others may not appreciate the luxury of a quiet night's sleep, unaccompanied with fears of prowling housebreakers, but I feel free to say, that I would not do without your "alarm" for five times the cost.

There is now no necessity for "the good man of the house keeping watch to know at what hour the thief would come, and not suffer his house to be broken through," for the thief is compelled to be his own informer, and with a good "Colt's" at hand, he would not be likely to get off with a whole head, to say nothing of his body.

Yours truly,  
A. S. JEWELL,  
27 Water Street.

*New York, March 27th, 1861.*

I have had the Alarm Bell of Mr. E. Holmes in my house at Bergen, about a year, and it has given me every satisfaction. It gives but little trouble in comparison to the sense of security and protection it affords. I can recommend it to my friends as the best defence against burglars that I know of.

JOHN RUDDERROW.

MR. W. HOLMES, Esq.

Sir:—I have had your "Burglar Alarm" in my house now for a year, and consider it a very ingenious and useful invention, far more secure than bolts, bars or watchmen. You can retire with the perfect assurance that the lightest fingered burglar in the world cannot tunc door or window, without the faithful electricity sending its current as if by magic to your waiting bell.

Yours respectfully,  
CHAS. A. TOWNSEND,  
101 Henssen Street,  
Brooklyn.

*New York, March 2d, 1861.*

MR. W. HOLMES,

*Dear Sir:*—The "Electro Magnetic Alarm Bell" which you put in my house and saddle on Staten Island more than six months ago, continues to act admirably. It is very little trouble to attend to its proper working, and the satisfaction one feels on retiring at night, that neither door nor window to which the "alarm" is attached can be opened without giving due warning, fully compensates the expense of the apparatus. I also find it a great convenience in the daytime as a means of communication between house and stable.

Yours truly,  
GEO. W. JEWETT,  
182 Front Street,



New York, February 12th, 1861.

Mr. E. HOMANS,

*Dear Sir*—It gives me great pleasure to bear testimony to the value of the "Burglar," or "Magnetic House Alarm," which you recently arranged for me. It has worked to my entire satisfaction, and so far as I can judge, is the best protection yet devised against burglaries. I cheerfully recommend it to all who desire, at a moderate cost, to attain the highest degree of safety in their dwellings.

Yours respectfully,

EDWIN C. LITCHFIELD,  
18 William Street.

No. 505 Broadway, New York, March 19th, 1861.  
*Office of the Wheeler & Wilson Sewing Machine Co.*

Mr. E. HOMANS,

*Dear Sir*—I have used your "Burglar Alarm" in my house, and consider it admirably adapted to the purpose designed. It operates moreover, as a capital Index and Registrar of the movements of those within the house. I regard the cost as a good investment for the feeling of security afforded, and take pleasure in recommending its general introduction.

Yours truly,

N. WHEELER.

New York, March 16th, 1861

Mr. HOMANS,

*Dear Sir*—I know not which must to admit, the certainty of action of your instrument, or the promptness with which it gives the alarm.

An opportunity was offered us several weeks since of testing both these qualities. Very early one morning before daylight, my family were suddenly aroused by the bell ringing an alarm. On examining the bell-tower, I discovered there was something wrong in the basement, and proceeding thither, amply enough, I found a window had been opened. I could find no other traces of my morning visitor, and whether he was frightened away by the noisy monitor above stated, or restrained by the silent monitor within himself, I will not take it upon myself to decide. But one thing I know, that ever since the occurrence, my family have duly appreciated your useful invention.

Respectfully yours,

EDWARD H. LADD,  
699 Broadway.

Ladd & Webster,  
Sewing Machine Co. }

Brooklyn, January 16th, 1861.  
Every dwelling house should have "G. Holmes' Electric Magnetic Burglar Alarm."

E. S. ROBERTS, Architect.



Wilmington, January 21st, 1861.

E. HOLMES, Esq.,

*Dear Sir:*—It is with pleasure that I express my entire satisfaction with the "Magnetic House Alarm" which you put up for me in July last.

It works admirably, gives the alarm at the slightest opening, and has thus far agreeably disappointed my apprehension that it might be liable to get out of order.

With it I feel entirely secure from burglars, and having been visited by some of "that gentry" before I had your alarm, I should now be unwilling to be without it.

Yours truly,

S. M. MEKLER,

18 South Seventh Street.

Brooklyn, February 4th, 1861.

Mr. E. HOLMES,

*Dear Sir:*—I have had your "Alarm" in my house about four months, and feeling that no premises are complete without one, I am recommending it to all my friends. I consider it the chief of modern improvements.

Very respectfully,

H. B. SCHOLLES,

Bedford Ave. & Krap St.

Brooklyn, February 15th, 1861.

Mr. E. HOLMES,

*Dear Sir:* The "Telegraph House Alarm," placed by you in my house last summer, is all that you claimed it to be. It has worked to my entire satisfaction. Since its introduction we have felt a degree of security such as we have never felt before. It is a faithful sentinel and does not fail to give the alarm on the approach of danger. It is in my opinion, far better than watch dogs, bolts or locks. I think that no exposed houses should be without it. It was introduced into my dwelling so skillfully that I could not find that the paint, walls or wood work had been in the least disfigured. I cheerfully send you this testimonial.

Very truly yours,

JEREMIAH JOHNSON, Jr.

Newark, N. J., February 13th, 1861.

E. HOLMES,

*Dear Sir:*—I take pleasure in saying I am perfectly satisfied with your "Burglar Alarm Bell," and would not now feel safe if it was not in my house.

It also regulates the movements of servants, if they are in the habit of keeping late hours, and prevents the admission of their friends at late hours.

Yours respectfully,

SPENCER SCOTT.



Newark, N. J., December 27th, 1860.

E. HOLMES, Esq.,

Sir.—The "Electric Alarm Bell" which you put into my house, works to my entire satisfaction. I have confidence in its utility.

Very respectfully,

W. A. MYERS.

New York, January 16th, 1861.

E. HOLMES, Esq.,

Dear Sir.—It gives me pleasure to say that I am perfectly satisfied with the "Burglar Alarm," which you put into my house some three months since. It gives but little trouble and works well. With it I feel perfectly secure, and also find it useful in knowing the hour at which my domestics arise and retire. I recommend it to all.

Respectfully,

SAMUEL D. ADDISON.

Jersey City, January 25th, 1861.

E. HOLMES, Esq.,

Sir.—I have now used your "House Alarm" for the last six months, and it never has failed in performing the work you agreed it should, and I consider it valuable for the purpose it was intended.

Yours truly,

B. F. WOOLSELY.

New York, February 1st, 1861.

E. HOLMES, Esq.,

My house having been entered by robbers Oct. 30th, 1860, and again about two weeks afterwards, when an attempt was made by four of them to remove an "Iron Safe," as may well be supposed my family was in an excited state.

I think we can speak knowingly of the feeling of security we have experienced since you put up the "Electric Inglear Alarm." It operated to our entire satisfaction. The manner in which your men did the necessary work, pleased my family much.

Respectfully,

DANIEL McLEOD,

111 Franklin Street.

New York, March 12th, 1861.

Mr. EDWIN HOLMES,

Dear Sir.—It affords me a great deal of pleasure to testify to the punctuality of your "Maguetic Alarm" which you put in my house.

The security which I feel upon retiring fully repays the outlay.

Yours truly,

CHAR. HARRIMAN, Sugar Refiner,  
33 Vandam St., and 101 Wall St.





New York, March 15th, 1861.

E. HOLMES, Esq.,

Dear Sir:—You wish my opinion of your "Burglar Alarm." It has been in my house some nine months during which time it has continued in the most complete "working order," requiring once in about three months a supply of a little vitrol and water. I frankly admit that I consider it one of the best and most simple inventions of the age. I go to sleep nights with the most comfortable assurance, that no burglar can enter my domicile without my hearing him; no person can enter or leave my house at night, without the alarm being given.

No burglar has attempted to do so, but several times windows have been left open, and would have remained so all night, had it not been for the "Alarm." I would not be without your apparatus on any account.

Very truly,

R. C. BRAINARD,

Surrogate of Kings County,  
41 Wall Street.

New York, March 24th, 1861.

E. HOLMES, Esq.,

Dear Sir:—It gives me pleasure to state that the "Burglar Alarm," which you placed in my house nearly a year ago works to my entire satisfaction. I would not be without it for five times its cost.

Yours respectfully,

J. H. CUNNINGHAM,  
59 and 61 Reade Street.

New York, March 16th, 1861.

MR. E. HOLMES,

Dear Sir:—I must willingly add my testimony in favor of your "Burglar Alarm." I have had it in my house about eight months, and it has given entire satisfaction. It is not only a perfect safeguard against burglars, but will also give warning at once if any door or window is left open through carelessness.

Truly yours,

N. SOUTHWICK;  
107 Liberty Street;

New York, March, 1861.

MR. E. HOLMES,

Dear Sir:—(The "Telegraph House Alarm," which you placed in my house is all that you engaged it should be. The work of putting it in was performed to my entire satisfaction. I now understand how they are introduced without having machinery, wires, or marks and scratches to be seen about the house in consequence. It is particularly adapted to wire houses, as it has no complicated machinery, and does away with that prison like appearance occasioned by a multitude of bolts and bars, locks and grates, all of which are not so effectual in preventing burglaries, as this simple invisible "Telegraph Alarm." It is invaluable for the purpose intended.

JOHN SPAINTHROU,  
67 Warren Street



*New York, March 12th, 1861.*

E. HOLMES, Esq.,

I am very much pleased with the operation of my "Burglar Alarm." It is perfect in every particular. I can think of no way it can be improved. It is wonderful how easily my whole house is made completely burglar proof, by the simple touch of a small spring in my room. As it requires no machinery to be seen in the house, it is adapted to all houses however nicely finished. It needs only to be known to be adopted.

HENRY M. BEARNS,  
31 Old Slip.

*New York, March, 1861.*

Mr. E. HOLMES,

The "Electro Magnetic House Alarm" which you put into my house on Clinton Avenue, Brooklyn, several months since, is giving entire satisfaction. It is so simple in its arrangements, so easily taken care of, so efficient in its operation, introduced with so little inconvenience, and is so perfectly adapted to our best houses that it must become an indispensable household fixture. I can unhesitatingly recommend it as a valuable invention.

FOSTER PETTY,  
136 Water Street.

*New York, March 12th, 1861*

EDWIN HOLMES, Esq.,

Dear Sir.—I take much pleasure in recommending your "Electro Magnetic Burglar Alarm," which you placed in my house at Irvington some time since, finding it has fully realized all the benefits you claimed for it. Respectfully yours,

WILLIAM MOLLER, Sugar Refiner,  
No. 39 Wall Street,

*New York, March 16th, 1861.*

I have had in use for one year the "Pelograph House Alarm," and during that time it has always worked well, and has given me no trouble whatever. I would have no hesitation in going to bed and leaving the doors unlocked, believing that no one could enter without my being awakened. I would not be without it for five times its cost.

R. G. CLARK,  
11 Canal Street

*New York, March 16th, 1861.*

Mr HOLMES,

In answer to your request as to how I am pleased with the "Alarm Bell," you placed in my house about a year and a half ago, I have simply to say that it works finely, and I must add that I would not be without it under any consideration.

Respectfully,  
PETER BEEVE,  
162 Water Street



*Taddy Hook, 12th Ward, New York, February 1st, 1861.*

E. HOLMES, Esq.,

*Dear Sir:*—Some three years ago, I examined your "Burglar Alarm," and thought of having it put into my house, but finally thinking it would be more trouble than profit, I remained without it.

Night after night have I got out of bed thinking I heard some one in the house, or trying to break in, which would prove to be the noise of the wind in the trees around the house, or clear imagination. I was in this way deprived of many a quiet night's rest.

But finally after a night of sound sleep, I found the thieves had broken in, and made a clear sweep of every article of value.

I then came to the conclusion I would have your "Burglar Alarm," which was put up about three months ago. I find it is more than I expected, for it is no damage or inconvenience to the house, but rather an ornament to the chamber in which it is placed; and with a little attention is kept in perfect order. It is impossible for any one to get in or out of the house at night when the "Alarm" is set, without its waking one out of the deepest slumber. For country houses especially it is a perfect treasure. I would not do without it for ten times its cost, and recommend it to all.

Yours respectfully,

ROBERT WHITE,

39 Broadway.

*New York, February 11th, 1861.*

E. HOLMES, Esq.,

*Dear Sir:*—The "Burglar Alarm" put up by you has been in operation for seven months. I can cheerfully recommend it to all that wish to rest quiet, with a certainty that they will be wakened on the arrival of any person disposed to enter without consent.

Respectfully,

HENRY A. LYMAN,

1 Calverge Place.

*New York, March 30th, 1861*

E. HOLMES, Esq.,

*Dear Sir:*—It gives me pleasure to state that the "Burglar Alarm" which you placed in my house nearly a year ago, works to my entire satisfaction. As I have had my house twice entered by burglars before I became acquainted with your Alarm, I fully appreciate its advantages, and now feel perfectly secure from further molestation.

Trusting that the merits of the Alarm may be duly appreciated by the public, I am

Yours respectfully,

A. G. WILLIAMS,

69 and 61 Beudo Street.



*New York, March 14, 1861.*  
 Dear Sir:—The "Telegraph Bughlar Alarm" you put into my residence last summer, gives entire satisfaction. I esteem it a very ingenious way of converting electricity, at a trifling expense, into a sleepless sentinel that will faithfully apprise you of any hostile demonstration on the property placed under its care. Its general adoption would indeed prove a terror to burglars. Science may point with pride to this truly useful invention.

EDWARD EVANS,

66 and 68 Fulton Street.

EDWIS HOPKINS, Esq.,

*Boston, April 20th, 1860.*

Dear Sir:—It gives me pleasure to add my testimony in favor of the "Electric Bughlar Alarm."  
 You will recollect it is applied both to my house and stable, and for the six months it has been in operation, it has given perfect satisfaction; not only in the many instances when I have left doors or windows unclosed, especially to exhibit the perfectness of the invention to friends, but also whenever they have been inadvertently neglected. It is not liable to disarrangement, and but little expense, and attention only at rare and regular intervals, is required to keep it in working order.

Yours truly,

E. S. CONVERSE.

*Brockton, January 16th, 1860*

EDWIS HOPKINS, Esq.,  
 Dear Sir:—The "Bughlar Alarm" you put in my house recently, is a complete and indispensable article to every residence in and about large cities. The thing has come when Architects, Builders and owners of houses should know the real merits of this machine. Could I not get another, I would not part with it for five times its cost.

Very truly yours,  
 WM. H. ELY.

*New York, April 27th, 1860.*

E. HOPKINS, Esq.,

Sir: It gives me pleasure to say that with the "Bughlar Alarm" which you have so successfully put into my house at Elizabeth, N. J., I am perfectly satisfied. It works to a charm. I consider it one of the most useful inventions of this inventive age. The satisfaction of referring, certain that if an attempt is made to break into your house you will be warned, is a consideration that every one must appreciate. Your apparatus needs but to be known to be generally adopted. My fears that you would disfigure either my home or furniture in its application were groundless; all is perfectly satisfactory. I look upon its inventor as a POUND BREAD FACTOR.

Truly, Your Obedient

W. H. TOWELL,

238 Broadway.





*New York, April 26th, 1860.*

E. HOLMES, Esq.,

Dear Sir:—I feel it a duty and a pleasure to announce to you and the public, the satisfactory and complete working of your "Electric Buzzer Alarm," being always wide awake, and ready to ring out its own story upon the slightest excuse or invitation. Surely it needs only to be seen in its operation to be appreciated.

Respectfully yours, E. WARD.

*New York, April 17th, 1860.*

MR. E. HOLMES,

Dear Sir:—The "Magnetic House Alarm" which you arranged for me some months since, with which from my house to ring the bell in my stable, a distance of about 500 feet, has given me entire satisfaction. I consider it a most convenient and valuable arrangement for the purpose for which it was intended.

Respectfully yours,

JOHN T. TERRY.

*Astoria, November 3d, 1859.*

My Dear Sir:—I will very readily bear testimony to the practical working of your "Buzzer Alarm." I had, it is true, some trouble with it in the first instance, but since every thing has been properly adjusted, it has worked with all desirable regularity and efficiency. I can very confidently recommend it.

Very truly yours,

R. S. HOWLAND.

*New York, April 11th 1860.*

MR. HOLMES,

I most cheerfully say a word in favor of your "Home Alarm" or Buzzer Telegraph. I esteem it a great protection from depredations in the night season, an also a most convenient means of communication to the stable and other outbuildings, capable of intelligent interpretation as well as for an alarm.

Yours truly,

N. D. MORGAN,  
31 Nassau Street

*New York, April 21th, 1860.*

MR. E. HOLMES,

Dear Sir:—I learn that you are about to issue a circular to bring into more general notice your "Buzzer Alarm," and I willingly comply with your wish to state my knowledge of your useful article.

It is some four or five months since you placed the Alarm in my house, and I find it to be all that was represented, as on door or window can be opened even an inch, without the signal being instantly given.

I therefore cheerfully recommend it as a most useful and reliable article. It cannot fail to give loud and warning of the opening of any door or window to which it is attached.

M. ARMSTRONG, JR.,  
17 and 19 Ferry Street



*Astoria, L. I., April 5th, 1860.*

E. HOUSE,

The "Burglar Alarm" which you put into my house four months ago, works like a charm. I should say that the invention was a complete success in preventing Burglary. The whole thing is so simple, so easily managed, requires so little attention, is introduced with so little inconvenience, and nothing of the entire arrangement to be seen about the house but the bell, it must be adopted by every one who desires a perfect protection to their premises; it is a better protection than bolts and locks.

DANL. K. HEMSON.

The Proprietor also refers, by permission, to the following gentlemen, as a few only among the many who are using it.

M. McGRATH, 101 Chambers Street.  
 E. C. IRAMHALL, 108 Duane Street.  
 J. G. CRADHEAD, 6 Beekman Street.  
 W. R. BRIDGEMAN, 31 Madison Avenue.  
 S. D. BRADFORD, Jr., 32 Vesey Street.  
 JOHN W. MASON,  
 Wm. M. RICHAUS, 30 Barclay Street.  
 JAMES HASTENBER, 18 Vesey Street.  
 H. F. CLARK, 95 Chambers Street.  
 ESSO RICHARDSON, 23 Maiden Lane.  
 HENRY HARRAU, 72 Beekman Street.  
 JOSEPH WILDS, 9 Dutch Street.

HAROLD DOLAN, Building Slip.  
 A. BISHOP, 101 West Street.  
 A. GIBKINS, 322 Broadway.  
 J. O. SKYMOOR, 21 Nassau Street.  
 HENRY W. BAKER, 229 Front Street.  
 M. B. CASE, 229 Front Street.  
 WILLIAM H. THAFROS, 85 Broad Street.  
 WALTER T. KINGS, Boss Street, Brooklyn.  
 CLAYTON SCHOLDS, Brooklyn.  
 W. N. HENNECK, Newark, N. J.  
 JAMES THORLE, Astoria, L. I.  
 JOHN HODDINGTON, 29 Park Row.  
 EDWIN HOYT, 66 Park Place,  
 (Shot a burglar in his house.)  
 GEORGE VAN VENTER, Mayor of Jersey City.  
 (House saved from burglary.)  
 JOSEPH BROWN, Jr., Cashier Market Bank, Boston, Mass.  
 MOSES G. FARRAR, Esq., Telegraph Engineer, Boston, Mass.  
 W. F. CHASSING, M. D. Boston, Mass.  
 Messrs. HINES & WILKINS, Manufacturers of Telegraph Instruments, Boston, Mass.  
 Messrs. PALMER & HAY, Manufacturers of Telegraph Instruments, Boston, Mass.  
 The following names are those attached to certificates:  
 RICHARD BUSTON, 237 Broadway.  
 A. S. JEWELL, 27 Water Street.  
 C. A. TOWNSEND, 101 Remsen Street, Brooklyn.



JOHN RUPPENHOF, 21 Park Row.  
 GEO. W. JEWETT, 182 Front Street.  
 EDWIN C. LITCHFIELD, 18 William Street.  
 N. WHEELER, 605 Broadway.  
 EDWARD H. LAOD, 600 Broadway.  
 E. S. ROBERTS, Architect, Washington Avenue,  
 Brooklyn.  
 S. M. MEXER, Williamsburgh, L. I.  
 JEREMIAH JOHNSON, Jr., Lee Avenue, Brooklyn.  
 H. B. SCHOLLS, Bedford Avenue.  
 SPENCER SCOTT, Newark, N. J.  
 W. A. MYERS, Newark, N. J.  
 SAMUEL D. ADDISON, 306 Canal Street.  
 B. F. WOOLSEY, Jersey City.  
 DANIEL McLEOD, 116 Franklin Street.  
 CHARLES HARRMAN, 93 Vandam Street.  
 R. C. BRANARD, 31 Wall Street.  
 J. H. CONNINGHAM, 61 Rendu Street.  
 N. Southwick, 107 Liberty Street.  
 JOHN SPANTHOFF, 67 Warren Street.  
 HENRY M. BARNES, 31 Old Slip.  
 FOSTER PERRY, 136 Water Street.  
 WILLIAM MOLLER, 99 Wall Street.  
 B. G. CLARK, 41 Courtland Street.  
 PETER RICE, 162 Water Street.  
 ROBERT WURTS, 39 Broadway.  
 H. A. LEHMAN, 1 College Place.  
 A. G. WILLIAMS, 69 Rensselaer Street.  
 EDWARD EVANS, 65 Fulton Street.

E. WARD, Washington.  
 JOHN T. TRACY, 51 & 55 Exchange Place.  
 R. S. HOWLAND, Arcolia, L. I.  
 DAN L. K. LEASON, Astoria, L. I.  
 N. D. MONIAS, 31 Nassau Street.  
 M. ARMSTRONG, 19 Ferry Street.  
 W. H. FOWELL, 248 Broadway.

*From the Boston Courier, Boston, Mass.*

PATENT EXTERIOR MAGNETIC BELLAR ALARM. This highly useful contrivance is now for sale at the office of the Proprietor, and should be examined by all. The Alarm can be put up at a small expense, and without injury to the house, and for the purpose intended it is much better than extra bolts and bars or a dozen watch dogs. Should a window or a door of a house in which one of these Alarms are in operation be opened, a bell attached to the apparatus will ring and continue ringing while the door or window remains open. The value of such a contrivance is manifest.

*From the Boston Evening Journal, Boston, Mass.*

Every Man's House his Castle. Amongst a multitudinous variety of preventives against housebreakers, none strikes us more favorably than the patent electric magnetic burglar alarm. We have witnessed with great satisfaction the operation of this novel and valuable invention, and desire to express our unqualified



approbation of its utility, confident that others will, on examination, arrive at the same conclusion. By the introduction of this simple apparatus, every man's house is virtually rendered burglar-proof—a complete fortress—capable of repelling the assaults of the most daring and adroit housebreaker. It is constructed on strictly philosophical principles; is always reliable, never getting out of order, and is applicable, with the slightest inconvenience, to dwellings already erected. We can recommend the invention, of which Mr. E. Holmes is the Proprietor, to the attention of our readers, confident that it will bear the test of practical use, and prove its utility to the satisfaction of all. Even the most incredulous cannot fail to appreciate the ingenuity and utility of the invention.

*From the Brooklyn Daily Times.*

TELEGRAPH HOUSE ALARM.—The ingenuity of inventors has for more than one hundred years been called into requisition to contrive locks and keys for the security of property from burglars and thieves. Although the ancient Egyptians used locks, and the Chinese are said to possess considerable skill in their construction, it was not until the famous Bramah lock was invented in England, in 1784, that doors were considered secure by this mode of fastening. After resisting all attempts of picking for a period of 67 years, Hobbs, from the Hub of the Universe, picked the Bramah lock, and ob-

lained 200 guineas that had long been a standing offer to any one who would pick or open it. While lockets can afford the expense of costly locks, and jewelers can purchase safes to secure their goods from the plunderer, the occupants of dwellings are compelled to depend on other devices for security. Windows and doors are no means, and their form so ill-adapted to resist skillful operations, that an ingenious mechanic arranged a series of wires connecting with a bell and spring, which would give the necessary alarm when intruders present ed themselves. But as burglars usually keep pace with the plans provided to defeat their schemes, the doors and windows were not long proof against the thief's ingenuity. Holes and bars on a massive scale proved useless, for with saw and auger they could be soon disposed of. Private watchmen have been sadly tortured by neighbors, but as they are not omnipresent, their watchfulness is sometimes at fault. In the suburbs and small villages, the most serious robberies have been committed, for in such locations the means of escape is mainly in doors, whose locking is often no indication of an approaching scoundrel. Until within two or three years, people had made up their minds that there was no protection against invasion, and believed they must do the best they could.

But there is always a coming man for every emergency, and for this too it appears to be Mr. E. Holmes, who invented and patented an Electro Magnetic Alarm





lar or House Alarm Bell. It works on the same principle as the magnetic telegraph apparatus, having its magnets, armature, circuit breaker, switches, &c. The doors and windows are connected by concealed wires, charged from a battery and leading to a bell, on which the ringing is commenced the moment the circuit is completed by opening a door or window to the smallest space. The strikes on the bell are so rapid, and the sound so loud and distinct, that the strongest sleeper would be instantaneously aroused. One of the novelties of the alarm is, that it can be introduced in any dwelling without defacing it in the slightest manner. This we know from its introduction into our own premises. It cannot be disturbed by children or mischievous persons as it is concealed from view, and its operation is so simple that a child may learn the mode thereof in a moment. It is usually placed in the middle thereof in a room at the head of the household, and in case of an alarm, a contrivance is attached which will indicate in what part of the house the cause of the disturbance exists. It is not complicated, cannot get out of order, and requires but an addition of a few cents worth of vitriol to the battery six times a year. Burglars cannot enter premises where this alarm is set up; and indeed they will not attempt it, when they know this little monitor will announce their smallest demonstration. A Mr. Hoyt, in Park Place, N. Y., shot a burglar through the timely warning of this electro-magnetic M. P., and the Mayor of Jersey City saved his premises from

a heavy robbery by the same means. We are fully satisfied of the protection it assures our own premises, and can give it a hearty commendation. The inventor may be addressed at 260 Canal Street, N. Y.

*New York Evangelist August 16th, 1860,*

We have been induced to give so extended a description of this invention, because of our conviction of the great utility. Having had one of these "Alarms" in successful operation in our own house since May last, we can with confidence recommend it to all. We have found it to answer the representations of the Proprietor, in that it is simple and easily managed, economical, and in the way, and affording the most complete insurance of protection -- far preferable to all the bars and bolts that can be placed on any door or window.

A note addressed to Mr. R. Holmes, 260 Canal Street, of this city, will secure a circular containing the address of a number of gentlemen whose residences are protected by the "Burglar Alarm Bell."

The "Electro-Magnetic Buzzer or Home Alarm," cannot be better described than by stating a few facts respecting it.



And we wish it understood that every statement made about it is a *fact*, and can, and will if desired, be substantiated.

*One Bell only* is required for the entire house.

The Bell is located in the sleeping-room, and is operated upon the same principle and by the same power, exactly, that operates our telegraphs throughout the country.

Every exposed door and window of the house is connected with this bell by wires and springs.

The two following facts are very important.

It may not be understood without investigation, how this alarm can be so nicely applied to a house; but that does not alter *the fact*.

But, not a wire, or spring, or machinery of any kind but the bell, can be seen in the house.

It can be introduced into any house without defacing it in the least; not a board is removed, not a mark or scratch can be seen in consequence; it occasions no inconvenience whatever.

The whole arrangement is controlled in your room, by the switch G on the bell, which attacks the entire house at night and detaches it in the day-time.

The bell gives instant alarm if a door or window is accidentally left open at night.

It is particularly valuable during a temporary absence of the family.

As a means of communicating to a stable or other outbuilding, it is superior to any and all other means used.

The simple touch of a small spring, arranged in your sitting-room, or any, or several parts of the house, rings the bell at the stable.

The battery is placed in a box twenty inches long, nine inches high, and six inches wide, with a lock and key.

It is in no way offensive, and can stand in any stable or pantry where most out of the way.

It is always in operation and needs only about five minutes attention once in two months.

It is so simple and so easily taken care of that a child can do it.

The expense for supplies is but a few shillings per year.

This invention is cheap, simple, and acknowledged by all who use it, as a complete protection from burglars.

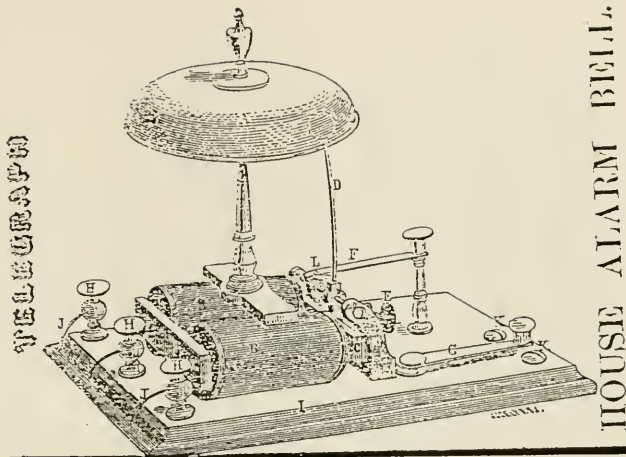
It has been in successful operation for the last three years; during that time many attempts have been made by burglars upon houses, offices, stables, &c. protected by this invention, but in no case has it failed to give the alarm, consequently saving property and perhaps lives.



### Operation of the Bell and Battery explained.

The ringing of the bell is caused by a current of electricity passing through a complete circuit of wire around the house, connecting with the several doors and windows and the machinery of the bell, from the positive to the negative pole of the battery. Thus, when the bell is in communication with the battery, by the wires J J, and the circuit is made complete through the house, by one or more of the doors or windows being open, the magnets H H become charged with electricity and attract the armature C, which causes the hammer D to strike the bell A. The instant the armature C is attracted to the magnets H H, it brings the spring F upon a piece of ivory, L, which breaks the current; causing the armature and bell hammer to resume their former position, when the same action takes place again, and is repeated with such rapidity as to cause a continual ringing, so long as the circuit is made complete by a door or window remaining open.

When all the doors and windows which are connected in the circuit with the bell are closed, the circuit is broken in each, consequently, there is no action on the bell. The switch G is also a circuit breaker; when a screw upon the screw K the circuit is complete in the bell for the night, or window completes the circuit, and that instant the motion of the bell commences. In the day-time, when the doors and windows are opened, the circuit is broken by the switch G being removed from the screws K K. The screw H is for regulating the distance of the armature C from the magnets B B.



HOUSE ALARM BELL.



HOLMES'  
ELECTRO MAGNETIC  
Guard or House Alarm,

which is now so popular with those who use it, is recommended to every one who has property of any kind to protect. The necessity which calls so loudly for this protection, is growing daily more imperative. The pages of this book set forth in some degree the alarming frequency of theft, and what might be in a majority of cases a remedy. The need of something better than locks for doors and the usual fastenings for windows, is evident from the great loss of the citizens of every State, and the liability of every body to suffer from burglary. It will be shown that the universal use of this invention will save the people of this vicinity more than

~~25~~ \$200,000

ANNUALLY.

By consulting the  
REPORT  
OF THE

Superintendent of the Metropolitan Police,  
For the year ending July 31, 1860, it will be seen that

\$191,015 64

Worth of

STOLEN PROPERTY

Came to the knowledge of this department during the year.

If this amount with the very large sum which is stolen, but never reported to the police, is lost in this one city, what a

SURPRISING AMOUNT

Is lost in the whole Country by Stealing!





## The most Complete Invention

OF THE KIND

EVER OFFERED TO THE PUBLIC.

ANY door or window connected with this "Alarm" is proof against thieves, for a thief cannot open them without giving the alarm. In his attempts which will ring as long as the door or window is open. Thieves will be deterred from any attempts upon houses known to have this alarm. It is particularly valuable to connect with the doors of private rooms, bedrooms, drawers in your furniture, closets where silver ware, jewelry and other valuables are kept, because when the door is shut and the alarm set, visitors, SERVANTS, relatives or domestics cannot open them without giving the alarm. Housekeepers troubled with pilfering help, those who keep wines, cordials, pastry, cakes, &c., will find this of great value.

REGISTERED

## ELECTRO MAGNETIC

### "Burglar or House Alarm"

is very complete, ornamental and beautiful. The bell and its mountings being silver plated, and in addition to the protection which it affords to property, is the more important protection which it affords to the lives of the innocent. Burglars and assassins are always armed, and if once an entrance is effected, they will not hesitate in accomplishing their purpose to sacrifice life. But under the protection of this Alarm, the inmates are aroused the moment a door or window is moved, the burglar being upon the outside of the house, and his operations will be arrested by making a light, or the slightest movement about the house.



## Notes from 20 State Prisons.

The following table shows the alarming frequency of burglary, larceny, robbery, and stealing, above all other crimes. It is compiled from the reports of the Wardens and Inspectors of the following prisons:

STATES.	No. convicted for burglary, larceny and stealing.		Convicted for all other crimes.		Per cent. for burglary, larceny, robbery & stealing.		Whole No. of criminals.	
	No. convicted for burglary, larceny and stealing.	Per cent.	Convicted for all other crimes.	Per cent.	Per cent. for burglary, larceny, robbery & stealing.	Whole No. of criminals.		
New Hampshire.....	11	95	71	59	100			
Massachusetts.....	333	121	71	29	457			
Maine.....	161	80	55	48	191			
Missisquoi.....	203	64	70	30	273			
Ashburn, N. Y.....	193	88	07	53	281			
Clinton, ".....	111	220	76	24	337			
New Jersey.....	539	170	05	35	239			
Pennsylvania, E. F.....	233	157	62	38	410			
Maryland.....	132	108	40	34	310			
Virginia.....	67	143	21	33	249			
Alabama.....	44	33	45	31	105			
Mississippi.....	166	189	30	01	355			
Louisiana.....	68	90	50	50	182			
Illinois.....	135	105	71	53	332			
Kentucky.....	1029	505	67	33	1564			
Tennessee, 21 Years.....	03	48	06	34	141			
Arkansas.....	24	29	43	55	79			
Total.....	4344	2463	1401	1430	6304			

From the above table the criminals in 20 State Prisons numbered.....6304.  
 For burglary, larceny, robbery and stealing.....1401.  
 All other crimes.....1911.  
 Per cent. for burglary, larceny and stealing.....22.1.  
 Per cent. for all other crimes.....30.3.

Thus it appears that the conviction for burglary, larceny, robbery and stealing are about twice as frequent as for all other crimes. But *one-half* the burglary are *never detected*. The number of housebreakers and robbers still at large and being daily discharged from our prisons is *fourfold to tenfold*. The facilities for escaping detection in the night, by the display of deadly weapons, and the facts of the victim, &c., render escape with deadly easy and nearly certain.



### SAVE YOURSELVES FROM ROBBERY.

There is no crime so frequently committed as robbery. The Journals of the day are full of accounts of house-breaking, larceny, burglary, breaking and entering, and burglary and murder.

Housekeepers or inmates cannot retire for the night with any assurance that the midnight robber armed to the teeth, and ready for murder and arson, will not crepe the dawn prowl around their beds and ransack the house.

The use of the "Electro House Alarm" removes all this fearful uncertainty, and takes away all this terror.

A Family who left a lamp burning at night for protection, were surprised in the morning to find that a burglar had lighted himself about the house with it, gathered up jewelry and other valuables, and left the lamp at the door as he passed out.

Rev. Charles Spear, in a lecture on crime, delivered in the Beecher Street Church, New York, August 11, 1877, estimates the number of criminals in all the prisons of the United States at 60,000. If the ratio for burglary and theft exists everywhere as in the twenty State Prisons reported in Table on page 42, the number of criminals in all the prisons of the United States for burglary, robbery, larceny and stealing, is 32,000, while all other criminals number 18,000.

INSURANCE AGAINST THEFT IS AS WISE AN  
INSURANCE AGAINST FIRE.

A FEW WEEKS SINCE

EIGHT OR TEN BURGLARIES,

AMOUNTING TO

\$ 113,500

Were reported from Saturday until Monday morning,  
All of which might have been prevented by using

THE ELECTRO MAGNETIC  
BURGLAR OR HOUSE ALARM.



By consulting the Report of the Superintendent of the Metropolitan Police for the year ending July 31, 1860, it will be seen, that

47-2189-23

### DWELLINGS AND STORES

(Mostly Dwellings) have been found open and secured. How many were left open that they did not find?

### WHEN THE HOUSE ALARM

Is set for the night, it will give instant alarm if a door or window has been carelessly or accidentally left open.

## The Telegraph House Alarm

Can be connected with

ANY SHOP, OFFICE, STORE, OR PUBLIC BUILDING

In New York, in such a manner, that the opening of any door, window, office or desk-drawers of the premises will ring a bell so situated that it can be heard by the police in almost any part of his beat.

The proprietor would be pleased to explain this protection fully to any one.

### BUILDERS,

who are erecting houses for sale, will find, that by introducing this invention it will advance the sale of their property more than five times its cost.

### ARCHITECTS,

who wish to recommend to their customers all modern and valuable improvements should give it an examination. In building its cost could be saved in bars and bolts and such protections which are comparatively needless.

Every door and window of the stable without regard to distance, can be, and is often connected with this same bell in the sleeping room.

Any person wishing some means to communicate with the coachman at the stable, cannot find a better or more economical method.

### LET NO ONE

who would like a really valuable and perfect protection to his dwelling, or to any and all parts of his premises, say or think that he understands all about this invention,

UNTIL HE HAS SEEN AND EXAMINED IT!





### "THIS HOUSE ALARM"

Is an **INVALENCE** and **INVALENCE** witness against burglars; testimony is rendered the instant the door or window is moved.

§37 A man may as well doubt the successful operation of our Telegraphs, as the operation of this Telegraph Burglar Alarm; both are operated in precisely the same way.

### PARTIES,

not in the habit of looking for such news, would be surprised to know the number of burglaries daily reported in the papers.

§38 Who will deny that there is more property lost from houses of any character, by burglars than by fire. Who ever heard of a house being burnt.

### NO OBJECTION

can be imagined against this invention that is not overcome when understood.

§39 When burglars are about, human life is always in jeopardy.

§37 A Gentleman who hired a house in a suburb town, was asked, if he knew the Telegraph Alarm was in it when he hired the same, replied: "I'll bet I did. I should not have hired it without."

§38 One invariable reply:

### PERFECT SATISFACTION.

§39 This alarm is particularly valuable during the temporary absence of the family, as the bell makes so much noise, that no burglar will risk himself in the house while it is ringing, or the wren can be extended and the bell placed in a neighbor's house.

§40 A child's jewelry and presents were a short time since saved from burglars by this Alarm.

§41 A LADY IN BROOKLYN was waked from her sleep by some noise and thinking she heard some one in the room arose to light the gas. The first watch went out, also the second and the third; as the fourth was struck, she perceived some one over her shoulder attempting to blow that out. A lusty scoundrel from the holy waked her husband, who sprung to his feet, but was as soon knocked down by the burglar, who made good his escape with his booty. The Telegraph House Alarm would have saved this SMALL PARTNER.



**HEAVY ROBBERY BY MEANS OF CHLOROFORM.**—Isaac Johnson of Upper Pittsgrove, N. J., was robbed of \$7000 Saturday night, by some burglar, who entered the house, administered ether to him, stole the key of the iron safe, got the money and made good his escape. The money belonged to a person for whom Mr. J. was acting as guardian, and was to have been paid over on Monday.

**THE BURGLAR ALARM** was recently put upon a house which was broken into, there being three small dogs in the very room that was entered. The inmates heard nothing of the burglars or dogs, but lost between three and four hundred dollars worth of silver ware.

It is often said that no one can come near my house without I hear them, and my wife sleeps always with one eye open.

**HEAR SUCH A ONE!**

'I want to look at your House Alarm.—Last night my house was robbed of all the drapery curtains from three rooms directly under my sleeping room. The burglar passing through the house into the yard for a small ladder.'

**ONE MORE.**—Last night the door of my room was unlocked from the outside, my watch taken from under my pillow, and my wallet from my pocket. Now I will have your Alarm.—(Wise conclusion!)

**The only real protection for a dwelling in New**

**THE ELECTRO MAGNETIC**

**BURGLAR OR HOUSE ALARM,**

*New York Times.*

**HEAVY BURGLARY AT HAVESWON.**—On Tuesday morning last the house of Mr. Armstrong, at Haveswond, was entered by burglars and robbed of \$1,000 worth of jewelry, consisting of gold watches, diamonds, pearl necklaces and \$500 worth of silver plate.

About 2 o'clock in the morning the servant girl, who slept in the inclement, was awakened and saw three men in her room, one of whom had in his hand a knife, with which he threatened to kill her if she made any noise. The two others then proceeded to ransack the house, and, entering the sleeping apartment of Mr. and Mrs. Armstrong, administered chloroform to them, and then helped themselves to the jewelry and other articles. When they were gone, the servant girl aroused Mr. and Mrs. Armstrong, but no trace of the robbers could be found.

**The ELECTRO MAGNETIC BURGLAR ALARM**

will have saved the property and chloroform.



*New York Times.*

BUGLARS AT JAMAICA.—The residence of Mr. H. Hartant, at Jamaica, was entered by burglars, on Tuesday evening, and about 40 dollars worth of goods stolen. (He did not have the "Telegraph Alarm.")

The same party attempted to enter the dwelling of Mr. B. Buskeel, but the doors and windows of the house had "Telegraph Burglar" alarm-bells attached, the noise of which frightened the burglars, and they made their escape, without taking any booty.

*New York Tribune.*

ASHTON.—During the past week, several of the pitiable residences at this place have been burglariously entered, and property taken, without the parties having been detected. In one instance, the scamps had left behind them a small miniature, which was found the next morning on the entry floor, and recognized as belonging to the family of the Rev. Mr. Howland, whose house had been plundered about four weeks ago, of communion plate, and which occurrence was published at the time. (Has since had the Alarm. *Prop.*) For some days, a man who represented himself as a German, in very humble and poor circumstances, went from house to house to get employment, under pretext of tuning pianos and falling in, this, framed some other excuses by which he could obtain access to the house.

In some cases the impostor was successful in the stratagem, but a few nights ago disclosed the object of his visits. A gentleman being awakened in the night last week by a bell (The Telegraph Burglar Alarm, *Prop.*) in his room, so arranged that the movement of a door or window indicated the approach of a person, took a revolver, and on descending his staircase, saw distinctly three fellows in the entry hall, one of whom he thought was the German who had been loitering around that quarter for some days. The surprise was so unexpected that they fled hastily, leaving their lanterns, &c., behind them, and so rapid were their movements that they failed to carry anything away, except a bullock which took refuge in the leg of one, occasioning some groans and the loss of a few drops of blood.



## EXPRESSIONS

That have been and are frequently heard respecting

### THE BURGALAR ALARM.

#### A LADY ON MADISON AVENUE.

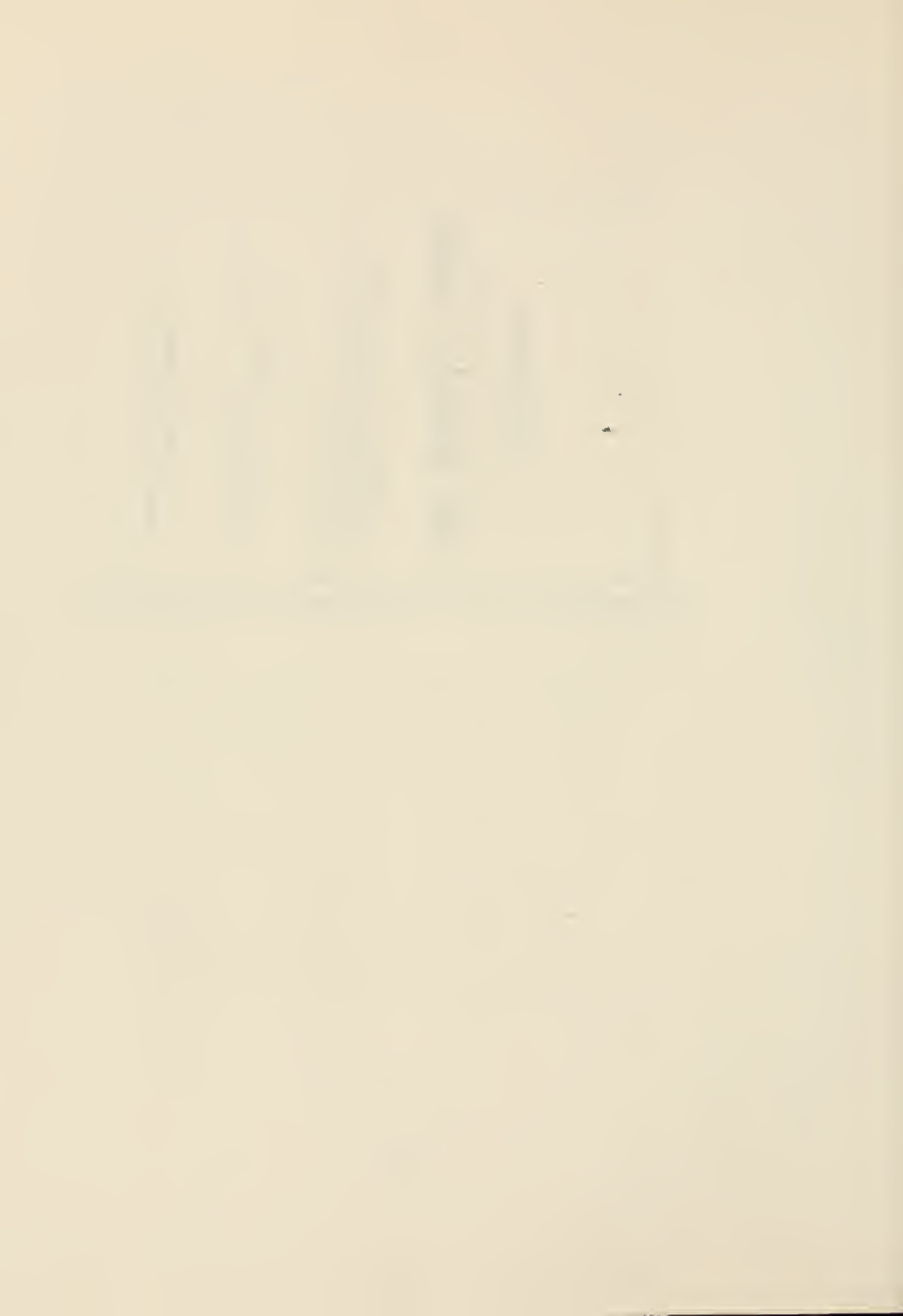
You don't know how much I enjoy your bell, I could not keep house without it. I should think every family in New York would want it.

#### A LADY IN BRIDGEPORT, CONN.

I am perfectly delighted with my bell. I would not be without it for any price.

#### A LADY IN BROOKLYN.

It has become a necessity in the household arrangement.





**A LADY,**

Who did not agree with her husband about introducing the Alarm, but afterwards repented: her house having been saved from burglars by it.—Mr. Holmes, I am sorry I was so opposed to having your Alarm, I could not now keep house without it. I feel perfectly safe.

**A GENTLEMAN IN BROOKLYN.**

It is the most satisfactory hundred dollars I have spent about my house.

**ANOTHER.**

My house will bring five hundred dollars more in market to day, for having the Telegraph House Alarm.

**ANOTHER.**

I would not have it taken out of my house for \$1000.

**ANOTHER,**

Who has had it a year.—You must go out to my house to day, (a slight repair necessary,) or my wife will not go to bed, she will watch all night.

**ANOTHER,**

To his "bridgect," who had a late breakfast. "You need not tell me when you got up. I know just what time it was."

**ANOTHER.**

Mr. Holmes,—the house I have vacated is in the market for sale, I think your Alarm will assist essentially in the sale of it. How soon can you put it in? (*the man.*)

**ANOTHER**

Gentleman who was met on the Brooklyn ferry boat: "How soon can you go to Philadelphia and put that in my house?"

**ANOTHER.**

A bank Treasurer—My sleep does me twenty-five per cent. more good, than it did before.

**ANOTHER,**

Whose hell (unnecessarily) one night was not in operation—I don't think I slept twenty minutes last night. I felt as though all the doors in the house were open.

3 1 2 1 1 1 1

6

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3 2 1 3

**ANOTHER,**

Whose bell alarmed him in the night,—I thought *Game* was in my house last night, but a front window had blown open.

**ANOTHER,**

After he had lost by a burglar three times as much as the bell would cost,—I will act according to the rule, and as the horse is stolen will lock the door. How soon can you put in your Alarm?

**ANOTHER.**

It is a great family regulator, all know that they must be in their places at my bed time.

**ANOTHER.**

Now I know how long the young gentlemen stay with my daughters.

**ANOTHER.**

I don't lock my doors; if they (burglars) wish to come in, let them come, without breaking my house. I am sure to know it.

**ANOTHER**

Mr. HOUSES,—I would not be without your Alarm, if I had to pay for having it put in every year.

**WHAT A BOY SAID**

When he saw the bell ring with no one near it, upon the opening of a door and window. How does that bell know when the floor opens?

**WHAT THE YOUNG MEN USUALLY SAY**

After seeing how nicely the bell rings upon opening the door or window, when the house is closed and bell set for the night: "Well, we don't want that in our house."

**WHAT THE "BRIDGETS" ALWAYS SAY.**

And shure that bell o' yours is a grate ba' catcher; I'm thinkin' you'd better be takin' it out o' this house. We must be lookin' out sartinly, and after sendin' our la' in home as soon as ever the chack struck mine; a bodherin' bell is that for a bit of a door can we get open sartinly, that the Missus don't know it; you had better be takin' it along with ye, and not leave the bodherin' bell here.



**THE BURGLAR or HOUSE ALARM**

is a first class invention, and acknowledged as one of the best in use.

**THE BURGLAR or HOUSE ALARM**

has received a silver medal and diploma at a late exhibition of the Massachusetts Charitable Mechanics' Association.

**THE BURGLAR or HOUSE ALARM**

has received the approbation of large numbers of scientific gentlemen who have examined it.

**THE BURGLAR or HOUSE ALARM**

is a perfect protection to your houses and property.

**THE BURGLAR or HOUSE ALARM**

is applicable to the best house in this city.

**THE BURGLAR or HOUSE ALARM**

recently saved a gentleman's mansion from pillage by burglars.

**THE BURGLAR or HOUSE ALARM**

will give an instant alarm if your servants are giving away coal or provisions.

**THE BURGLAR or HOUSE ALARM**

is a perfect protection to your stable or other building.

**THE BURGLAR or HOUSE ALARM**

recently saved a \$2,000 horse from burglars.

**THE BURGLAR or HOUSE ALARM**

has given perfect satisfaction to every one who has used it.

**THE BURGLAR or HOUSE ALARM**

is the best protection you can leave in your house while out of town.

**THE BURGLAR or HOUSE ALARM**

is warranted to operate perfectly.

**IN ITS APPLICATION**

it does not deface the house in the least

**IN ITS APPLICATION**

not a wire, nor a scratch, nor a mark, is seen in the house.

**IN ITS APPLICATION**

the only thing exposed to view in the house is a very ingenious alarm-ball arranged in the sleeping room.

It needs no winding up; will not get out of order; is always ready to operate. It does not ring in daylight (unless you wish.) Battery is not offensive; can stand in any closet.

Needs only three or four minutes attention once in six or eight weeks.

A child at an expense of fifty cents per year can take care of it.



#### THE BURGLAR or HOUSE ALARM

will be shown at any place in New York or vicinity by addressing a note to the proprietor 200 Canal Street.

#### THE TELEGRAPH HOUSE ALARM

has been in successful operation in New York and vicinity three years, during that time many attempts have been made by burglars upon houses, offices and stables, but in no case has it failed to give the alarm.



#### LET NO ONE THINK

the facts herein mentioned are isolated cases, they are of every day occurrence.

#### BURGLARY IS STUDIED AS AN ART.

Schemes of a stupendous magnitude are laid, planned, and executed with a boldness and skill that chokes all vigilance.

#### ALARM BELL

DESCRIBED.

- A. Alarm Bell.
- B. B. Magnets.
- C. Armature.
- D. Bell Hammer.
- E. Regulating Screw.
- F. Silver Circuit Breaker.
- G. Switch.
- H. H. I. Ivory Circuit Breaker.
- I. Black Walnut Base.
- J. J. J. The several wires from about the house terminating at the bell
- K. Screws connecting with wires underneath.
- L. Ivory Circuit Breaker.
- M. M. M. Screw Cups.





TK7251

H74

**YOUR ATTENTION**

IS RESPECTFULLY REQUESTED TO THE FOLLOWING

**TESTIMONIALS.**

They are from our best citizens, and first business men of New York and vicinity.

THEY HAVE A PECUNIARY INTEREST

And are of interest to every prudent party or



**HUMAN LIFE INSURANCE SOCIETY**

FROM THE "MIDNIGHT ROBBER AND ASSASSIN."

**OF HOLMES.**

OFFICES  
201 BROADWAY, NEW YORK.

155 DEARBORN ST., Chicago, Ill.

141 Madison Pl., New York

202 MYER STREET, Temp. N. Y.







*National Iron Bank, Fairly Ellipse, Conn., July 6th, 1886.*  
**E. BROWN—Dear Sir:**—I have your Burglar Alarm Telegraph, you placed in my house and in the coat of the hall; it works admirably, and it has not only protected me and my family from burglars, but I, with you, would not have thought of trying to do without one.  
 Very Truly Yours,  
 A. G. RANDALL, Cashier.

*Hingham National Bank, Hingham, Mass., July 2, 1886.*  
**E. BROWN, Esq.—Dear Sir:**—Your Burglar Alarm Telegraph which we have had in use about eight months, has given us great satisfaction, and we believe it will prove to be an entire proof against burglars.  
 Yours Truly,  
 JNO. O. LOVETRY, Cashier.

*Poughkeepsie National Bank.*  
 We have your Burglar Alarm Bell and believe it to be a judicious investment, as a protection to our Bank.  
 R. NORRIS.

*The National Bank, Canton, N. Y., Canton, July 14th, 1886.*  
**E. BROWN, Esq.—Dear Sir:**—The circular is at hand. In reply would say that the alarm has given us perfect satisfaction. It has run four months without the least trouble, and accomplishes all you claim for it. EDWIN H. ORRIFITH, Cashier.  
 Very Respectfully,

*The American National Bank of New York, New York, June 26th, 1886.*  
**E. BROWN, Esq.—Dear Sir:**—This trial of your Burglar Alarm Telegraph in my home and stable has given me entire satisfaction in its construction, and I do not believe we will ever purchase any other alarm for which it is intended. My advice to every one is to try it.  
 Very Truly Yours,  
 CHARLES S. BROWN.

*Fair National Bank, Fairport, N. Y., July 11th, 1886.*  
**Mr. E. BROWN—Dear Sir:**—In answer to your letter of the 7th inst. I do not know that the alarm pleased me as much as you say, but in saving my home from being burglarized, I am pleased to say that it gives us every assurance that we need not be worried. We feel the utmost security with it, and we are glad to have it for the small amount of cost. I think that it is a very good thing, and the purpose for which it is intended is amply supplied.  
 Yours Truly,  
 JOHN J. BROWN.

*J. N. Perkins & Co., Stock and Bond Brokers, No. 60 Wall St., New York, July 11th, 1886.*  
**E. BROWN, Esq.—Dear Sir:**—After some two years experience in the use of your Burglar Alarm Telegraph, it gives me great pleasure to say that it most completely affords the want of every household, and is a most valuable and reliable protection. An alarm was given very soon after the Alarm was put in, but the burglar fled, and we were glad to have a heavy retreat, not liking the noise which he emitted, but that of the alarm which he made. I could not live without it, and have accordingly recommended it to all my friends.  
 Yours Truly,  
 E. A. BENNETT, Jr.

The following are the names of a few  
**BANKS AND PUBLIC BUILDINGS**  
 Protected with this Telegraph:

- BANK OF AMERICA.....Wall St.
- GREENWICH SAVINGS BANK.....59th Ave.
- GREAT WESTERN MARINE INSURANCE CO.....Madison St.
- N. Y. GUARANTY AND INDEMNITY CO.....Broad St.
- HINGHAM BANK.....Hingham, Mass.
- FAIRFIELD COUNTY BANK.....Northwell, Conn.
- IRON NATIONAL BANK.....Canton, N. Y.
- NATIONAL BANK.....Falls Village, Ohio.
- HONESDALE NATIONAL BANK.....Honesdale, Penn.
- FORT PLAIN BANK.....Fort Plain, N. Y.
- OFFICE MICHIGAN CENTRAL R. R.....Dearb, Mich.
- REGURS BANK.....Dover, N. Y.
- BANK OF PoughKEEPSIE.....Poughkeepsie, N. Y.
- NATIONAL BANK OF FORT JERVIS.....Fort Jervis, N. Y.
- FAIRMEN'S NATIONAL BANK.....Bristol, Pa.

**Not a Safe has been blown open,**

Not a Bank has been Robbed,  
 in New York or vicinity during the last seven years, that the

**Burglar Alarm Telegraph,**

properly applied, would not have saved.

**No Bank Officer or Watchman**

should sleep with the keys of the Bank under his pillow, or in his room or house,

**WITHOUT SOME MEANS TO AWAKEN HIM**

upon the approach of robbers

Life has no value if the burglar is allowed an advantage.













*Phil & Tucker, 35 Park Row, N. Y.*  
*New York, July 20, 1886.*  
 Mr. E. Holmes—Dear Sir—The experience I had with your Burglar Alarm leads me to say that I would not be without it, as it saves all watching the night time.  
 Yours respectfully,  
 JAMES M. BURT.

*Newburgh, Orange Co., N. Y., July 16th, 1886.*  
 Mr. Holmes, Esq.—Dear Sir—Through I am slow to embrace new things, there are few to say it pleases me much. If the merits of this burglar alarm could be made known, you would be sorely unable to supply the demand. Since having the alarm in my house, I have been able to sleep peacefully, and I can recommend it in every respect.  
 Yours,  
 H. H. STEVENS

*New York, July 12, 1886.*  
 Mr. Holmes, Esq.—Dear Sir—I have used your Burglar Alarm Telegraph for not do without it for twice the cost. I do not think it safe to live in a house without one.  
 Yours respectfully,  
 CHAPPELL HADEN.

*Pennsylvania Coal Company, Office, 111 Broadway, New York, Jan. 31, 1887.*  
 Mr. Holmes, Esq.—Dear Sir—The Burglar Alarm Telegraph put into my house works finely and economical to prevent it from being broken into by anyone without my knowledge. It was very carefully put in, and with the best of success. I have been able to sleep peacefully and on as desired. No house has all the modern improvements if without it.  
 Yours truly,  
 E. H. MEAD

*Brooklyn, N. Y., July 11th, 1886.*  
 Mr. E. Holmes, New York—Dear Sir—I am perfectly satisfied with the Alarm Telegraph in my house. It is a most excellent and effective protection against burglars.  
 If I could not procure another, I would not dispose of it for ten times its cost.  
 Very respectfully, &c.,  
 E. D. WHITE.

*Brooklyn, July 20, 1886.*  
 Mr. E. Holmes—Dear Sir—It gives me pleasure to bear testimony to the valuable qualities of your Burglar Alarm Telegraph, secure satisfaction, and I consider it a most excellent and effective protection against burglars.  
 Yours Truly,  
 ROBERT W. MASTERS, No. 9 First Place.

*Brooklyn, July 20th, 1886.*  
 Mr. Holmes—Dear Sir—I have used your Burglar Alarm Telegraph in two different residences, and would not be without it on any consideration, short of absolute necessity.  
 Respectfully,  
 AUGUSTUS E. MASTERS, Gibson, cor. Colton St.

*No. 31 Redwing Street, Brooklyn.*  
 Mr. E. Holmes—Dear Sir—Your Burglar Alarm has been in operation in my house for the past eight months, has worked admirably, and has given the perfect satisfaction. I am so convinced of its security that I have no hesitations in recommending it to my friends, and I have no doubts as to its being the most satisfactory investment on the market.  
 Yours respectfully,  
 A. T. HANES.

*New York, Nov. 24, 1886.*  
 Mr. Holmes, Esq.—Dear Sir—I feel perfectly secure in saying that I have, in the event of a burglar alarm, I would not take a thousand dollars and be compelled to be without it. I have used your Burglar Alarm Telegraph for some time, and I can recommend it in every respect.  
 Yours,  
 W. M. TUTTLE.

*New Rochelle, Dec. 8th, 1887.*  
 Mr. Holmes, Esq.—Dear Sir—I have not seen you personally since your Burglar Alarm has been introduced into my house. I take this opportunity of telling you how much I like the working of the same. I take the opportunity of telling you how much I like the working of the same. I take the opportunity of telling you how much I like the working of the same. I take the opportunity of telling you how much I like the working of the same.  
 Yours respectfully,  
 CHARLES O. VAN BENSCHOTEN.

*Friday Morning, Jan. 6th, 1888.*  
 Mr. Holmes, Esq.—Dear Sir—Your Burglar Alarm Telegraph, during the night, has relieved the mind from all anxiety for the stability of the house. I am perfectly satisfied with the value of the Alarm Telegraph in my house. I am perfectly satisfied with the value of the Alarm Telegraph in my house. I am perfectly satisfied with the value of the Alarm Telegraph in my house.  
 Yours,  
 S. B. CALDWELL, 30 Old Slip.

*Roseton, July 4th, 1886.*  
 Mr. Holmes, Esq.—Dear Sir—Your letter with reference to applying your Burglar Alarm Telegraph as a commercial is received, and I will be glad to place before you the same. I will be glad to place before you the same. I will be glad to place before you the same.  
 Yours truly,  
 J. W. TOWNLEY.

*New York, Feb. 18th, 1888.*  
 Mr. Holmes, Esq.—Dear Sir—Your letter with reference to applying your Burglar Alarm Telegraph as a commercial is received, and I will be glad to place before you the same. I will be glad to place before you the same. I will be glad to place before you the same.  
 Yours truly,  
 CURTIS W. FIELD.

*New York, June 27th, 1886.*  
 Mr. E. Holmes, Esq.—Dear Sir—Your Burglar Alarm Telegraph saved my house from being entered and plundered. I am so convinced of its security that I have no hesitations in recommending it to my friends, and I have no doubts as to its being the most satisfactory investment on the market.  
 Yours Truly,  
 WM. TUTTLE.

*New York, July 20th, 1886.*  
 Mr. E. Holmes—Dear Sir—I would say in regard to your Burglar Alarm Telegraph, that I have used it for some time, and I can recommend it in every respect. I am so convinced of its security that I have no hesitations in recommending it to my friends, and I have no doubts as to its being the most satisfactory investment on the market.  
 Yours respectfully,  
 A. D. BISHOP.







99 Park Place, New York, Jan. 7th, 1867.  
 K. HOWARD, Esq., Dear Sir.—The Burglar Alarm is all that you represented and I would not now be without it in my house. It works well and was very carefully put in without damage or inconvenience.  
 Yours Truly,  
 WM. WATSON.

Mr. HOWARD.—Dear Sir.—Since my husband's death two attempts at entrance have been made, and both your valuable Alarm have arrested them.  
 Elizabeth H. DENMAN.  
 425 Broad Street, Newark, May 17th.

Mr. DEAN Sir.—I consider Your Burglar Alarm Telegraph one of the greatest inventions to the house, and would not be without it at any cost.  
 Your man who introduced it in my house is the man in which I have the most confidence, and it is worth as much as anything else in the world. I have no hesitation, however, in saying that the alarm gives you ample time in case of a burglar's attempt, and that the alarm is the best thing that has ever been invented for the protection of the house.  
 K. HOWARD, Esq., 2nd Broadway, N. Y.  
 Respectfully Yours,  
 L. WATZ.

Mr. HOWARD, Esq., Dear Sir.—I consider the Burglar Alarm Telegraph one of the most certain and cheapest protection for my house that I could have. It saves me all anxiety lest doors or windows may be left open, or unobserved through intention or carelessness, and it gives me ample time to get ready in case of a burglar's attempt. I have no hesitation in saying that the alarm gives you ample time in case of a burglar's attempt, and that the alarm is the best thing that has ever been invented for the protection of the house.  
 K. HOWARD, Esq., 2nd Broadway, N. Y.  
 Respectfully Yours,  
 DE. W. J. BLOAN.

Office of the Hoopland Wrecking Company, 115 Broadway, Room 8.  
 New York, Jan. 1867.  
 K. HOWARD, Esq.—Dear Sir.—An experience in my house for six years has rendered me perfectly reliable as to the value of your Burglar Alarm, taking in all the years and half an hour's time to install the same, and the fact that it has saved me from robbery and fire, and that it has given me ample time to get ready in case of a burglar's attempt, and that the alarm is the best thing that has ever been invented for the protection of the house.  
 K. HOWARD, Esq., 2nd Broadway, N. Y.  
 Respectfully Yours,  
 JAS. W. LAMSON, Agent.

New York, July 11, 1866.  
 K. HOWARD, Esq.—Dear Sir.—The Burglar Alarm Telegraph is the best thing that has ever been invented for the protection of the house, and I have no hesitation in saying that the alarm gives you ample time in case of a burglar's attempt, and that the alarm is the best thing that has ever been invented for the protection of the house.  
 K. HOWARD, Esq., 2nd Broadway, N. Y.  
 Respectfully Yours,  
 GEORGE W. COOPER, Agent.

New York, July 11, 1866.  
 Mr. K. HOWARD.—Dear Sir.—I have had your Burglar Alarm Telegraph in use in my house this past six years, and on one occasion it saved me from being robbed, and I would not now be without it in my house. It works well and was very carefully put in without damage or inconvenience.  
 Yours Truly,  
 J. H. CUNNINGHAM, 645 Broadway.

No. 11 Park St., N. Y., July 10, 1866.  
 Z. HOWARD, Esq.—Dear Sir.—The Burglar Alarm Telegraph is the best thing that has ever been invented for the protection of the house, and I have no hesitation in saying that the alarm gives you ample time in case of a burglar's attempt, and that the alarm is the best thing that has ever been invented for the protection of the house.  
 Z. HOWARD, Esq., 2nd Broadway, N. Y.  
 Respectfully Yours,  
 WILLIAM FULLERTON.

Mr. K. HOWARD.—Dear Sir.—Your Burglar Alarm has been in operation in my house during four years, and I have no hesitation in saying that the alarm gives you ample time in case of a burglar's attempt, and that the alarm is the best thing that has ever been invented for the protection of the house.  
 K. HOWARD, Esq., 2nd Broadway, N. Y.  
 Respectfully Yours,  
 W. DECLAY.

Mr. K. HOWARD.—Dear Sir.—I very cheerfully commend your Burglar Alarm Telegraph to all my friends, and I have no hesitation in saying that the alarm gives you ample time in case of a burglar's attempt, and that the alarm is the best thing that has ever been invented for the protection of the house.  
 K. HOWARD, Esq., 2nd Broadway, N. Y.  
 Respectfully Yours,  
 JACOB B. JEWETT.

New York, June 29, 1866.  
 Mr. K. HOWARD.—Dear Sir.—I give you my pleasure to say to you that I have used your Burglar Alarm for three years, and I have no hesitation in saying that the alarm gives you ample time in case of a burglar's attempt, and that the alarm is the best thing that has ever been invented for the protection of the house.  
 K. HOWARD, Esq., 2nd Broadway, N. Y.  
 Respectfully Yours,  
 A. DONNELL, 104 West St.

New York, July 8, 1866.  
 Mr. K. HOWARD.—Dear Sir.—I have tried your Burglar Alarm for over a year, with great satisfaction. Several burglars have attempted to enter my house, and the confidence of my family and mine was not shaken. I have no hesitation in saying that the alarm gives you ample time in case of a burglar's attempt, and that the alarm is the best thing that has ever been invented for the protection of the house.  
 K. HOWARD, Esq., 2nd Broadway, N. Y.  
 Respectfully Yours,  
 JOHN T. DENNY, 39 Wall St.

New York, July 14, 1866.  
 Mr. K. HOWARD.—Dear Sir.—I have used your Burglar Alarm in my house for over a year, and I have no hesitation in saying that the alarm gives you ample time in case of a burglar's attempt, and that the alarm is the best thing that has ever been invented for the protection of the house.  
 K. HOWARD, Esq., 2nd Broadway, N. Y.  
 Respectfully Yours,  
 Z. A. DOUGHTY, 13 Pine St.

West Farms, Westchester Co., N. Y., July 14, 1866.  
 Mr. K. HOWARD.—Dear Sir.—I have had your Burglar Alarm in use in my house for over a year, and I have no hesitation in saying that the alarm gives you ample time in case of a burglar's attempt, and that the alarm is the best thing that has ever been invented for the protection of the house.  
 K. HOWARD, Esq., 2nd Broadway, N. Y.  
 Respectfully Yours,  
 W. H. SMITH BROWN, 51 Chambers St.





Office of the Knickerbocker Life Insurance Co., 151 Broadway, New York, July 27, 1886.

Mr. Holmes, Esq.—Dear Sir: Your circular is received. In reply, I have to report that the Burglar Alarm Telegraph put in my house by you is in perfect order, and has always worked admirably, and though, in that case, I have never had occasion to call on you, I have full faith that should such ever be the case, the alarm would be given in the most reliable manner.

Though such a test of its power has not yet been attempted me, and perhaps never will be, I have no doubt that the alarm would be given in the most reliable manner, in the very act of dealing with the burglar, which has resulted from the installation of the alarm, which was probably the best known to me.

Yours Truly,  
OEO. SNIFFEN

H. C. COE, Banker, 215 William St.  
New York, January 27th, 1887.

Mr. Holmes, Esq. Dear Sir—I have in use your patent Burglar Alarm Telegraph. It is a most reliable and valuable invention, and I am glad to publish its merits in fact, I place your name prominently and judiciously on the door, and I have no doubt that it will be of great service to the public. I remain, Sir, your truly,  
H. C. COE, 231 Lexington Ave.

Monticomb, July 11th, 1886.

To E. Holmes, Esq.—Dear Sir—The operation of the Burglar Alarm Telegraph has far exceeded my expectations. It is truly the only safeguard against Burglary. No window or door can be left open without this "rattle tale" will give due notice. The security implied by always having this faithful watchman at your bedside is a most valuable and reliable one. I am glad to see that you are so satisfied with the alarm, and I trust that you will keep it in use. I remain, Sir, your truly,  
D. W. C. VAN TUYL

Brooklyn Heights, July 24th, 1886.

Mr. Holmes, Esq.—I consider the "Burglar Alarm Telegraph" worth twice its cost to the ordinary family. The burglar's profession, from the mere possession, will be of great service to the public. I am glad to see that you are so satisfied with the alarm, and I trust that you will keep it in use. I remain, Sir, your truly,  
R. CORNELL WHITE, 129 Columbia St.

34 Chamberland St. Brooklyn, New York, Feb. 15th, 1887.

Mr. Holmes, Esq.—Dear Sir—The Burglar Alarm Telegraph was applied to my house five months since, and I have found it all the better claim for it. I can and do cordially say it is a true and reliable invention, and I am glad to see that you are so satisfied with the alarm, and I trust that you will keep it in use. I remain, Sir, your truly,  
B. G. RUFF

New York, July 26th, 1884

Mr. E. Holmes, Esq.—Dear Sir—I find your bell has been rung on Friday night, and I am glad to see that you are so satisfied with the alarm, and I trust that you will keep it in use. I remain, Sir, your truly,  
L. COOKE, Jr. West 24th St.

Seneca Falls, July 9, 1886.

Mr. Holmes, Esq.—The Burglar Alarm Telegraph put in my house by you is in perfect order, and has always worked admirably, and though, in that case, I have never had occasion to call on you, I have full faith that should such ever be the case, the alarm would be given in the most reliable manner.

Though such a test of its power has not yet been attempted me, and perhaps never will be, I have no doubt that the alarm would be given in the most reliable manner, in the very act of dealing with the burglar, which has resulted from the installation of the alarm, which was probably the best known to me.

Yours Truly,  
JAS. W. ELWELL, 67 South St.

Brooklyn, July 7, 1886.

Mr. Holmes, Esq.—Dear Sir—I can cheerfully recommend to every family the Burglar Alarm Telegraph, which I have in use in my house. It is a most reliable and valuable invention, and I am glad to see that you are so satisfied with the alarm, and I trust that you will keep it in use. I remain, Sir, your truly,  
JAS. W. ELWELL, 67 South St.

Brooklyn, Conn., July 7, 1886.

I have had the Burglar Alarm Telegraph in my house three years. These years have been made within that period, each of which has been a most successful one. I have no doubt that the alarm would be given in the most reliable manner, in the very act of dealing with the burglar, which has resulted from the installation of the alarm, which was probably the best known to me.

Newburgh N. Y., July 21st, 1886.

Mr. Holmes, Esq.—Dear Sir—I think your Burglar Alarm Telegraph is a most reliable and valuable invention, and I am glad to see that you are so satisfied with the alarm, and I trust that you will keep it in use. I remain, Sir, your truly,  
J. BIOLER.

New York, July 24, 1886.

Mr. E. Holmes, Esq.—I beg to say that the Burglar Alarm Telegraph put into my house by you is in perfect order, and has always worked admirably, and though, in that case, I have never had occasion to call on you, I have full faith that should such ever be the case, the alarm would be given in the most reliable manner.

Willard & Co's, 464 Broadway, New York, July 11th, 1886.

Mr. E. Holmes, Esq.—Dear Sir—The Burglar Alarm Telegraph was applied to my house five months since, and I have found it all the better claim for it. I can and do cordially say it is a true and reliable invention, and I am glad to see that you are so satisfied with the alarm, and I trust that you will keep it in use. I remain, Sir, your truly,  
J. W. WILLARD, 177 East Forty-Fifth Street.

Brooklyn, N. Y., July 10, 1886.

Mr. Holmes, Esq.—Dear Sir—On recommendation of my partner, I introduced the Burglar Alarm Telegraph into my house in Llewellyn Park, Orange, N. Y. It has worked admirably, and I am glad to see that you are so satisfied with the alarm, and I trust that you will keep it in use. I remain, Sir, your truly,  
DAVID E. WALLACE



March 15th, 1867.  
 DEAR SIR—I am perfectly satisfied with the working of the Burglar Alarm Telegraph which I have purchased, and I have no doubt that it is a great and useful invention. I consider the ease of security which it affords, and the small amount of money which it costs, as being well worth the outlay.  
 Very Truly Yours,  
 W. E. H. HOWLAND.

July 21st, 1864.  
 DEAR SIR—I have much confidence in your Alarm Telegraph, and I have no doubt that it is a great and useful invention. I have just advised Mr. Ford of Newport to apply to you for a fixture for his house.  
 Respectfully Yours,  
 W. E. DODGE.

221 Broadway, New York, June 25th, 1863.  
 E. HOLMES, Esq.—Dear Sir—We have seen and equip it under your Burglar Alarm fixture. I would reverse my usual order of things, and commend for my Burglar Alarm fixture, the Telegraph which you have just advised me to purchase. I would not part with the feeling of security it gives me for triple the cost.  
 Yours Truly,  
 JAMES H. KIDFIELD, 56 South O Street, Brooklyn, L. I.

New York, June 25th, 1864.  
 Mr. E. HOLMES—Dear Sir—Your Burglar Alarm Telegraph placed in my house at DEKENS, six years ago, has worked satisfactorily, and has been a great comfort to my family. We have done well in buying that there was a thief, yet I think that the protection against robbery which it furnishes cannot be equalled elsewhere. I can only conclude that it will not pay to meddle with them.  
 Very Truly Yours,  
 J. G. UNLICHFIELD, Editor of the N. Y. Evangelist.

No. 146 Church Street, New York, July 12th, 1864.  
 Mr. E. HOLMES—Dear Sir—In reply to yours of June 1st, I would say that I had not been without the Burglar Alarm Telegraph for some time, and I had had some experience in using it. I would not say that it is a perfect security, but I would say that it is a great and useful invention. I would not say that it is a perfect security, but I would say that it is a great and useful invention. I would not say that it is a perfect security, but I would say that it is a great and useful invention.  
 Respectfully Yours,  
 DAVID S. BROWN.

Peskaeh, July 6th, 1864.  
 E. HOLMES, Esq.—Dear Sir—Your Burglar Alarm Telegraph that you put in my house some eight or ten months ago has proved more useful than I could have expected. I have had to disengage with it. I would rather do without almost any other article of furniture in the house, than be without the Burglar Alarm Telegraph. I would not say that it is a perfect security, but I would say that it is a great and useful invention. I would not say that it is a perfect security, but I would say that it is a great and useful invention.  
 Yours Truly,  
 JAMES L. SEABURY.

650 Broadway, New York, July 6th, 1864.  
 E. HOLMES, Esq.—Dear Sir—The Burglar Alarm Telegraph put in my house by you has worked perfectly, and I have no doubt that it is a great and useful invention. I consider the ease of security which it affords, and the small amount of money which it costs, as being well worth the outlay.  
 Yours Respectfully,  
 W. S. VAN DYKE.

New York, 218 Pearl St., June 24th, 1863.  
 Mr. E. HOLMES—Dear Sir—In answer to your circular I am only to say that your Burglar Alarm Telegraph is in my house, and I have no doubt that it is a great and useful invention. I would not say that it is a perfect security, but I would say that it is a great and useful invention. I would not say that it is a perfect security, but I would say that it is a great and useful invention.  
 Yours Respectfully,  
 T. M. MURDOCH.

New York, July 10th, 1863.  
 Mr. E. HOLMES—Dear Sir—The Burglar Telegraph placed in my house at 118 Mosler street in my house has continued to give satisfaction and kept hard for about a month. I am not aware of any thing being done upon the house.  
 Yours Respectfully,  
 JOHN FERRODIN.

New York, July 24th, 1863.  
 E. HOLMES, Esq.—Dear Sir—I have used your "Burglar Alarm Telegraph" for some time, and I have no doubt that it is a great and useful invention. I would not say that it is a perfect security, but I would say that it is a great and useful invention. I would not say that it is a perfect security, but I would say that it is a great and useful invention.  
 Yours Respectfully,  
 W. H. THAPTON.

Putnam, Westchester Co., June 29th, 1863.  
 E. HOLMES, Esq.—Dear Sir—After my house had been broken into, I decided to have your Alarm Telegraph attached to my doors and windows; I consider it is peculiarly valuable to out-door residences.  
 Yours truly,  
 GEO. W. ALEXANDER.

No. 5 Monroe Place, Brooklyn, Sept. 25th, 1864.  
 E. HOLMES, Esq.—Dear Sir—The Burglar Alarm Telegraph which you put in my house, I consider your Burglar Alarm Telegraph. We had very recently had our family were alarmed by your Burglar Alarm Telegraph, we found that forced open our front hall door. I consider your Burglar Alarm Telegraph, and I would say that it is a great and useful invention. I would not say that it is a perfect security, but I would say that it is a great and useful invention.  
 Very Respectfully Yours, etc.,  
 WM. BUVAL.

Mr. E. Holmes—Dear Sir—Although we have not been alarmed by your Burglar Alarm Telegraph, we have no doubt that it is a great and useful invention. I would not say that it is a perfect security, but I would say that it is a great and useful invention. I would not say that it is a perfect security, but I would say that it is a great and useful invention.  
 Yours Truly,  
 M. F. TINKER.













Brooklyn, July 24, 1866.

Mr. E. Holmes, Sir.—I have had your Burglar Alarm in my house for some time, and I can assure you that it is a very valuable thing, and that it has saved me from a great deal of trouble, and that I have not a moment but they are ready to be at my service, so much so that they left their tools, the moment they opened the window I was up and prepared to receive them. No money would be taken from me.

Yours Respectfully,  
J. C. ROWAN, 154 Franklin cor. Willoughby Avenue, Brooklyn.

Stamford, July 10th, 1866.

F. Holmes, Esq.—Six—I am very glad we had the Alarm Bell put in our house; it gives one a feeling of security we could not otherwise have.

MRS. PHILIP IRISH.

Astoria, L. I., July 23, 1866.

Mr. E. Holmes, Dear Sir.—We have entire confidence in the Burglar Alarm. The family continues to regard the Alarm a protector and friend.

Respectfully Yours,  
E. R. HALLOCK.

Newark, N. J., August 15th, 1866.

Mr. Holmes, My Dear Sir.—I will say as much for your Burglar Alarm as I can. It has saved me from a great deal of trouble, and that I have not a moment but they are ready to be at my service, so much so that they left their tools, the moment they opened the window I was up and prepared to receive them. No money would be taken from me.

Yours Respectfully,  
A. G. P. COLLEBURN, M. D.

New York, July 10th, 1866.

Mr. Holmes, Dear Sir.—I have had your Burglar Alarm in my house for some time, and I can assure you that it is a very valuable thing, and that it has saved me from a great deal of trouble, and that I have not a moment but they are ready to be at my service, so much so that they left their tools, the moment they opened the window I was up and prepared to receive them. No money would be taken from me.

Yours Respectfully,  
GEORGE M. KLOTS, 46 South Tenth St., Williamsburgh.

Banking House of Frederic Schwabert & Son, No. 16 Exchange Place.

Mr. Holmes, Esq.—Dear Sir.—I beg to say that I have perfect confidence in the efficiency of your Burglar Alarm Telegraph, and take pleasure in recommending you to refer to me and use me.

Yours Respectfully,  
C. GERRARD SCHUCHGART.

136 Washington St., Brooklyn, April 23, 1866.

Mr. Holmes, My Dear Sir.—I have had your Burglar Alarm in my house for some time, and I can assure you that it is a very valuable thing, and that it has saved me from a great deal of trouble, and that I have not a moment but they are ready to be at my service, so much so that they left their tools, the moment they opened the window I was up and prepared to receive them. No money would be taken from me.

Yours Truly,  
THEODORE TILTON.

New York, March 10th, 1866.

Mr. E. Holmes, Dear Sir.—The Alarm works perfectly, and I am entirely satisfied with it. I can assure you that it is a very valuable thing, and that it has saved me from a great deal of trouble, and that I have not a moment but they are ready to be at my service, so much so that they left their tools, the moment they opened the window I was up and prepared to receive them. No money would be taken from me.

Truly Yours,  
J. F. WINSLOW.

Brooklyn, July 10th, 1866.

F. Holmes, Esq.—Dear Sir.—I take pleasure in bearing testimony to the efficiency of your Burglar Alarm. It has saved me from a great deal of trouble, and that I have not a moment but they are ready to be at my service, so much so that they left their tools, the moment they opened the window I was up and prepared to receive them. No money would be taken from me.

Yours Truly,  
JOHN A. RUSSELL.

New York, July 23d, 1866.

Mr. E. Holmes, Dear Sir.—I received your circular, requesting my opinion upon the subject of your Burglar Alarm, and in a few words I express my opinion upon the subject. I am very glad to hear that you are so much interested in the subject, and I am sure that you will find it a very valuable thing, and that it has saved me from a great deal of trouble, and that I have not a moment but they are ready to be at my service, so much so that they left their tools, the moment they opened the window I was up and prepared to receive them. No money would be taken from me.

Yours Truly,  
L. P. STARR.

New York, July 23d, 1866.

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Yours Truly,  
E. EVANS, 6th and 6th Fulton Street.







*New York, March 27th, 1861.*  
 I have had the Alarm Bell of Mr. E. Holmes in my house at Bergen, about a year, and it has given me more satisfaction than any other alarm bell I ever used. It gives the ease of security and protection it affords. I can recommend it to my friends as the best device against burglars that I know of.  
 JOHN H. HEDDENHOF.

E. HOLMES, Esq.—Dear Sir—I have had your "Burglar Alarm" in my house now for a long time, and I can say that it has given me more satisfaction than any other alarm bell I ever used. It gives the ease of security and protection it affords. I can recommend it to my friends as the best device against burglars that I know of.  
 JOHN H. HEDDENHOF.

*New York, March 24, 1861.*  
 Mr. E. Holmes—Dear Sir—The Electro Magnetic Alarm Bell which you put in my house at Bergen, about a year ago, has given me more satisfaction than any other alarm bell I ever used. It gives the ease of security and protection it affords. I can recommend it to my friends as the best device against burglars that I know of.  
 JOHN H. HEDDENHOF.

*New York, February 12th, 1861.*  
 Mr. E. Holmes—Dear Sir—I have used your burglar alarm in my house, and I can say that it has given me more satisfaction than any other alarm bell I ever used. It gives the ease of security and protection it affords. I can recommend it to my friends as the best device against burglars that I know of.  
 JOHN H. HEDDENHOF.

*New York, March 27th, 1861.*  
 Mr. E. Holmes—Dear Sir—I have used your burglar alarm in my house, and I can say that it has given me more satisfaction than any other alarm bell I ever used. It gives the ease of security and protection it affords. I can recommend it to my friends as the best device against burglars that I know of.  
 JOHN H. HEDDENHOF.

*New York, March 27th, 1861.*  
 Mr. E. Holmes—Dear Sir—I have used your burglar alarm in my house, and I can say that it has given me more satisfaction than any other alarm bell I ever used. It gives the ease of security and protection it affords. I can recommend it to my friends as the best device against burglars that I know of.  
 JOHN H. HEDDENHOF.

*New York, March 27th, 1861.*  
 Mr. E. Holmes—Dear Sir—I have used your burglar alarm in my house, and I can say that it has given me more satisfaction than any other alarm bell I ever used. It gives the ease of security and protection it affords. I can recommend it to my friends as the best device against burglars that I know of.  
 JOHN H. HEDDENHOF.

*New York, Jan. 24th, 1860.*  
 Mr. E. Holmes—Dear Sir—The Alarm has proved itself invaluable to me, being prevented my house being robbed.  
 Very Respectfully,  
 GEO. OOOD.

*English Neighborhood, N. J., March 24th, 1860.*  
 Mr. E. Holmes—Dear Sir—I have used your burglar alarm in my house, and I can say that it has given me more satisfaction than any other alarm bell I ever used. It gives the ease of security and protection it affords. I can recommend it to my friends as the best device against burglars that I know of.  
 JOHN H. HEDDENHOF.

*Morrisdown, N. J., July 11th, 1861.*  
 Dear Sir—Will you please request the next person who comes to these parts to call and see me? We have had one alarm; the party who tried our house evidently knew of the alarm, and I have retired with a sense of security and relief. I have had your alarm in my house for some time, and I can say that it has given me more satisfaction than any other alarm bell I ever used. It gives the ease of security and protection it affords. I can recommend it to my friends as the best device against burglars that I know of.  
 JOHN H. HEDDENHOF.

*Clinton Avenue, Brooklyn, Feb. 24, 1861.*  
 E. Holmes, Esq.—Dear Sir—I have used your burglar alarm in my house, and I can say that it has given me more satisfaction than any other alarm bell I ever used. It gives the ease of security and protection it affords. I can recommend it to my friends as the best device against burglars that I know of.  
 JOHN H. HEDDENHOF.

*New York, March 27th, 1860.*  
 I have had in operation at my house at Jamaica, Long Island, for nearly two years your Electro Magnetic Alarm Bell, and I can say that it has given me more satisfaction than any other alarm bell I ever used. It gives the ease of security and protection it affords. I can recommend it to my friends as the best device against burglars that I know of.  
 JOHN H. HEDDENHOF.

*New York, Feb. 25th, 1860.*  
 Mr. E. Holmes—Dear Sir—Your alarm has been in operation in my house about four months, and I can say that it has given me more satisfaction than any other alarm bell I ever used. It gives the ease of security and protection it affords. I can recommend it to my friends as the best device against burglars that I know of.  
 JOHN H. HEDDENHOF.

*New York, Feb. 25th, 1860.*  
 Mr. E. Holmes—Dear Sir—Your alarm has been in operation in my house about four months, and I can say that it has given me more satisfaction than any other alarm bell I ever used. It gives the ease of security and protection it affords. I can recommend it to my friends as the best device against burglars that I know of.  
 JOHN H. HEDDENHOF.













*New York, April 27th, 1860.*  
**E. HOLMES, Esq.**—It gives me great pleasure to say that the "Burglar Alarm" which you put into my house four months ago, works like a charm. I should say that the invention was a complete success in every particular. It is so simple and so easily managed, that I have no doubt it will be generally adopted. My fears that you would not have been able to look upon the inventor as a **FRENCH BREVETÉ** are entirely groundless.  
 Truly, Your Obedient,  
**W. R. POWELL, 296 Broadway.**

*New York, April 24th, 1860.*  
**E. HOLMES, Esq.**—Dear Sir—I feel it a duty and a pleasure to announce to you that the "Burglar Alarm" which you put into my house four months ago, works like a charm. I consider it one of the most useful inventions of this inventive age. It is so simple and so easily managed, that I have no doubt it will be generally adopted. My fears that you would not have been able to look upon the inventor as a **FRENCH BREVETÉ** are entirely groundless.  
 Respectfully Yours,  
**K. WARD.**

*New York, April 17th, 1860.*  
**M. R. HERRICK, Esq.**—The "Magnetic Force" which you arranged for the some months since, with which from my home to ring the bell in my stable, a distance of about 500 feet, has given me entire satisfaction. I consider it a most convenient and valuable contrivance for the purpose for which it was arranged.  
 Respectfully Yours,  
**JOHN T. TERRY.**

*New York, April 10th, 1860.*  
**M. R. HERRICK, Esq.**—I will very readily bear testimony to the utility of your "Burglar Alarm." I had, if it is true, some trouble with it in the first instance, but since everything has been properly adjusted, it has worked with all desirable regularity and efficiency.  
 Very Truly Yours,  
**REV. H. R. HOWLAND.**

*New York, April 6th, 1860.*  
**M. R. HERRICK, Esq.**—I need cheerfully say a word in favor of your "House Alarm" or Burglar Telegraph. I esteem it a great protection from depressions in the night, such an assurance of safety, and a source of intelligence as well as for an alarm.  
 Yours, Truly,  
**N. D. MORGAN, 31 Nassau St.**

*New York, April 5th, 1860.*  
**M. R. HERRICK, Esq.**—It is a pleasure to say that the "Burglar Alarm" which you put into my house, and I find it to be all that was represented, as no door or window can be opened even an inch, without the signal being instantly given.  
 Truly, Your Obedient,  
**M. ALMSTEDT, 11 and 13 Ferry St.**

*Atlanta, I. April 15th, 1860.*  
**E. HOLMES**—The "Burglar Alarm" which you put into my house four months ago, works like a charm. I should say that the invention was a complete success in every particular. It is so simple and so easily managed, that I have no doubt it will be generally adopted. My fears that you would not have been able to look upon the inventor as a **FRENCH BREVETÉ** are entirely groundless.  
 Truly, Your Obedient,  
**DANIEL K. HANSON.**

*From Dr. Boston Courier, Boston, Mass.*  
**FATHER ELIZABETH MARIANNA ALBANI.** This highly useful contrivance is now for sale at the Patent Office, No. 100 Broadway, New York. It is so simple and so easily managed, that I have no doubt it will be generally adopted. My fears that you would not have been able to look upon the inventor as a **FRENCH BREVETÉ** are entirely groundless.  
 Truly, Your Obedient,  
**DANIEL K. HANSON.**

*From Dr. Boston Evening Journal, Boston, Mass.*  
**EVERETT MARR'S HOUSE THE CHERRY.** Announced a multitudes of inventors of burglar alarms, but none of them have been able to give a complete and reliable burglar alarm. We have witnessed with great satisfaction the operation of this new and valuable invention, and we are confident that it will be generally adopted. My fears that you would not have been able to look upon the inventor as a **FRENCH BREVETÉ** are entirely groundless.  
 Truly, Your Obedient,  
**DANIEL K. HANSON.**

*New York Evangelist, August 16th, 1860.*  
**WE** have been induced to give so extended a description of this invention, because of our conviction of its great utility. Having had one of these Alarms in my house for some time, I find it to be all that was represented, as no door or window can be opened even an inch, without the signal being instantly given. It is so simple and so easily managed, that I have no doubt it will be generally adopted. My fears that you would not have been able to look upon the inventor as a **FRENCH BREVETÉ** are entirely groundless.  
 Truly, Your Obedient,  
**M. ALMSTEDT, 11 and 13 Ferry St.**

















N. D. MORAN..... 212 Broadway.  
 G. OROCK..... 91 Eighth Avenue.  
 F. A. SCHUBERT..... 26 Exchange Pl.  
 E. M. KAYLOR..... 63 Pine Street.  
 E. M. CRAWFORD..... 111 Pine Street.  
 IRENE SUDBROOK..... 33 Crosby Street.  
 L. J. COOPER..... 43 VAN Street.  
 HENRY MCKAY..... 11 Day Street.  
 W. W. VANDERLINDY..... Avenue D, corner Tenth St.  
 J. A. KENTON..... 83 Nassau St.  
 GEORGE WOODWARD..... 76 Grace St.  
 E. R. VANCE..... 108 Wall St.  
 A. L. LEY..... 201 Broadway.  
 JOHN L. RIPP..... 109 Spruce St.  
 W. M. TALKER..... 153 Eldridge St.  
 EMERSON S. BROWN..... 102 Broad St.  
 COLLEMAN BENDICT..... 21 Broad St.  
 C. E. O'HARA..... 45 John St.  
 W. D. F. MAURICE..... 48 Pine St.  
 HENRY JOHNSON..... 6 State St.  
 WALTER BROWN..... 48 Pine St.  
 J. F. DEWEY..... 240 Broadway St.  
 BUCKE CAT..... 240 Broadway St.  
 S. BURNELL..... 29 Murray St.  
 R. W. ADAMS..... 116 Wall St.  
 COLE ADAMS..... 184 Chambers St.  
 H. A. MOTT..... 13 E. Twenty-Second St.  
 H. H. MOTT..... 11 Broad St.  
 W. J. SCHENCK..... 60 Beakman St.  
 H. F. LOWMEYER..... 21 John St.  
 A. J. SOLA..... 129 Pearl St.  
 PETER ALLEN..... 61 Warren St.  
 JOHN F. RIDGIF..... 48 Exchange Place.  
 JOSEPH H. HARTMAN..... 48 Exchange Place.  
 C. H. VAN DER BURG..... 38 Crosby St.  
 N. S. STRONG..... 41 Wall St.  
 W. H. SMITH..... 61 Leffler St.  
 H. A. KEST..... 61 Broad St.  
 GEORGE BLISS, JR..... 45 William St.  
 D. M. FRISCHY..... Second Av. & Twenty-Second St.  
 GEORGE W. ARLINGER..... 83 Centre St.  
 JOHN WARD..... 21 Courtland St.  
 J. O. CLARK..... 41 Courtland St.  
 HENRY H. HARRIS..... 79 Bowery.  
 L. F. STONE..... 286 Washington St.  
 85 Duane St.

RICHARD PALMER..... 1 Barclay St.  
 LEVI PARSONS..... 61 William St.  
 F. A. SCHUBERT..... 235 West St.  
 R. BRUNSWALD..... 55 William St.  
 J. J. BROAD ST..... 111 Broadway St.  
 GEORGE HERRICK..... 69 Broad St.  
 R. VAN WICK..... 69 Broad St.  
 R. W. ALBERT..... 26 Broad St.  
 J. SCOTT..... 7 Nassau St.  
 J. L. FREEMAN..... 112 Pearl St.  
 J. H. DRAPER..... 64 John St.  
 JOHN C. LINCOLN..... 21 Beakman St.  
 J. J. DENNY..... 111 Broadway.  
 JOHN A. BROWN..... 109 Spruce St.  
 J. J. DENNY..... 15 E. Twenty-Second St.  
 JOHN A. BROWN..... 116 Church St.  
 W. A. CUMMILL..... 84 William St.  
 M. A. WALKER..... 133 Water St.  
 W. G. READ..... 41 Wall St.  
 E. G. READ..... 41 Wall St.  
 THOMAS RUTTEN..... Eighty-fourth St.  
 D. SLOAN..... 116 Liberty St.  
 C. L. CHAPMAN..... 173 Broadway.  
 N. H. KURTZ..... 109 Spruce St.  
 W. D. BURNELL..... 103 Muldoon Lane.  
 J. BIRN..... 65 Duane St.  
 111 Wall St.  
 Wm. H. WALKER..... 91 Fulton St.  
 79 Bowery.  
 COLT C. GODDARD..... 81 Broadway.  
 J. WALTER WOOD..... 42 Pine St.  
 CHERRIE BULLMAN..... 140 Liberty St.  
 J. C. BOYCE..... 39 Wall St.  
 J. H. FINER..... 414 Broome St.  
 W. W. BLISS..... 187 Water St.  
 ROBT S. HOWEY..... 7 Burling Slip.  
 DANIEL TITUS..... 44 Barclay St.  
 THOMAS H. HICKOCK..... 289 Pearl St.  
 Wm. H. FERGUSON..... 43 South St.  
 Wm. H. FERGUSON..... 44 South St.  
 Wm. H. FERGUSON..... 45 North St.  
 JOHN McNAULY..... 65 Cedar St.  
 WILLIAM F. OGDOROUGH..... 74 Wall St.  
 W. A. KRELLER..... 100 Front St.  
 C. V. HASTEN..... U. S. Navy.  
 FRANKLIN P. DEILL..... 15 Beekman St.  
 A. D. BELLECK..... 37 Pine St.  
 BENNY GRAYES..... 65 Canal St.  
 A. THORNTON..... 119 Fulton St.



ORMAN DIMONCK ..... 1 Barclay St.  
 S. P. DUNGAN ..... 41 W. Thirty-ninth St.  
 E. LITVAKOVA ..... 40 Wall St.  
 CHARLES A. EATON ..... 141 Pearl St.  
 W. E. FOSTER ..... 141 Pearl St.  
 F. J. GIBSON ..... 141 Pearl St.  
 F. J. GIBSON ..... 546 Broadway.  
 CHARLES S. GRENDEKER ..... 41 Warren St.  
 B. W. TOWN ..... 78 Wall St.  
 J. F. PANDON ..... 78 Broad St.  
 J. F. PANDON ..... 78 Cedar St.  
 F. E. WENZELER ..... 254 Wall St.  
 O. W. GALT ..... 14 Maiden Lane.  
 K. G. WENZER ..... 15 South William St.  
 T. R. BERTNER ..... 14 Maiden Lane.  
 JOSEPH L. H. WOOD ..... President Sixth Avenue R. R.  
 H. WENZER ..... 151 Cedar St.  
 J. BOBAM ..... 111 Moore St.  
 J. BOBAM ..... 71 Moore St.  
 A. B. HENRY ..... 14 Moore St.  
 EDWARD C. FRANK ..... 111 William St.  
 D. H. LAWRENCE ..... 29 South St.  
 JAMES TROOP ..... 25 Park Place.  
 C. H. MARYN ..... 123 William St.  
 W. A. HORN ..... 111 Wall St.  
 E. C. HINGMAN ..... 98 Gold St.  
 W. H. TIGER ..... 8 Wall St.  
 JOSEPH MATTHEW ..... 348 Broadway.  
 LEONARD GOLDBER ..... 347 Pearl St.  
 EDWARD O. TOWN ..... 333 West St.  
 GEORGE BOULEY ..... 406 Broadway.  
 J. MO DONALD ..... 84 John St.  
 LAMSON BOYER ..... 1 Wall St.  
 J. BELLOCK ..... 21 South St.  
 A. B. BIRLOW ..... 34 South St.  
 N. M. PEAT ..... 60 Nassau St.  
 D. NYLKER ..... 143 Centre St.  
 JOHN M. WARDWELL ..... New York World.  
 CHARLES LOHMAN ..... 81 Chambers St.  
 R. W. MORTONBURY ..... 608 Fifth Avenue.  
 J. F. HAWLEY ..... 128 Church St.  
 W. C. DORRIS ..... 302 Broadway.  
 L. BRANDENBERG ..... 71 John St.  
 J. H. CRANE ..... 4 Hanover St.  
 WILLIAM WATSON ..... 15 South St.  
 JAMES NAYLIE ..... 29 Park Place.  
 ..... 41 Bay St.

JAMES P. WICKHAM ..... 140 Pearl St.  
 JAMES M. WICKHAM ..... 84 Beaver St.  
 JAMES D. WALKER ..... 118 East St.  
 J. L. ABOTT ..... 408 Ninth Avenue.  
 WM. WEAVER ..... 15 Mulden Lane.  
 JOSEPH FAITH ..... 61 Beckman St.  
 H. R. WINDMILL ..... 253 Front St.  
 GEORGE W. DAY ..... 116 West St.  
 C. H. WARD ..... 37 Exchange Place.  
 E. B. WALLACE ..... 78 Westchester St.  
 F. B. JONES ..... 78 Westchester St.  
 BENJAMIN WADSWORTH ..... 47 Broadway.  
 JOHN F. COOK ..... 71 Front St.  
 RUFUS STONEY ..... 84 Broad St.  
 N. B. LAURE ..... 36 Broadway.  
 M. R. COOPER ..... 84 Broad St.  
 EDWARD EVANS ..... 277 Washington St.  
 E. WARD ..... 98 West St.  
 A. BOSWELL ..... 54 Charlton St.  
 STEPHEN R. HALEST ..... 64 Chambers St.  
 JULIUS H. HANCOCK ..... 120 Front St.  
 JAMES H. HILL ..... 140 Mulgrave St.  
 JAMES H. ARNOLD ..... 15 Old Slip.  
 HOOM ALLEN ..... 19 William St.  
 EDWIN C. LITCHFIELD ..... 18 William St.  
 E. B. LITCHFIELD ..... 54 Barclay St.  
 CHARLES CHARLIER ..... 9 Nassau St.  
 H. DONNER ..... 38 Nassau St.  
 JAMES W. EDWARDS ..... 29 Wall St.  
 N. S. SHAPIRO ..... 29 Wall St.  
 S. B. VANDERHOFF ..... 105 Wall St.  
 J. W. FURN ..... 15 Beckman St.  
 FRANCIS E. HILL ..... 175 Pearl St.  
 ALEXANDER S. HILL ..... 175 Pearl St.  
 A. R. CURTIS ..... 28 Whitehall St.  
 JAMES C. BOWAN ..... 214 Canal St.  
 WM. W. SHAWWAY ..... 64 Broad St.  
 W. P. HAVAT ..... 54 Broad St.  
 W. H. WARD ..... 29 Broadway.  
 R. W. HULL ..... 251 Washington St.  
 J. R. BEARDS ..... 29 Ferry St.  
 BENJAMIN DEWEE ..... 29 Ferry St.  
 E. L. BOBERTS ..... Archibald









H. G. DART.....	54 1/2 Pine St.
GEORGE A. TRAYER.....	46 Madison Lane
G. B. WARD.....	76 Cedar St.
J. B. WINTERG.....	298 Broadway.
THOMAS W. ARBUTT.....	137 Broadway.
T. E. F. RUSHBAUGH.....	12 Blake St.
G. WILSON.....	513 Canal St.
A. L. DEANE.....	16 Broadway.
F. C. CORWELL.....	212 E. Third-street St.
J. L. FRANKS.....	89 Wall St.
R. C. HOWARD.....	97 John St.
D. S. HAYMOND.....	10 Nassau St.
FRANK SHILOOH.....	81 Front St.
HEBERT HENRY.....	113 Broadway.
J. S. HUNTER.....	6 Hancock St.
N. S. DENLEY.....	66 South St.
P. C. DUNNE.....	14 Beaver St.
DANIEL HODGMAN.....	27 Maiden Lane
JAMES H. TAYLOR.....	62 William St.
W. H. VAN BLOOD.....	76 Centre St.
E. W. CARROLL.....	3 Murray St.
A. HULLY.....	34 Nassau St.
C. C. CORVENE.....	9 Ferry St.
HOWARD L. FORTY.....	100 Wall St.
JAMES D. CHUTE.....	33 Cedar St.
WALTER HODGMAN.....	14 Wall St.
A. W. PARSONS.....	150 Nassau St.
W. H. PARSONS.....	74 Duane St.
W. O. WARD.....	44 Wall St.
JOHN MATTHEWS.....	437 and 420 Front Avenue
W. C. LAWLEY.....	16 Ferry St.
HENRY M. BAILY.....	17 White St.
F. S. BLISS.....	250 Broome St.
E. O. KELLY.....	6 Bond St.
Wm. H. CARROLL.....	162 Maiden Lane.
F. DAVIS.....	89 Front St.
K. DEWAPPEL.....	544 Greenwell St.
E. DEWAPPEL.....	86 Beaver St.
E. H. HAINMAN.....	27 Wall St.
CHRIS W. FIELD.....	36 Cliff St.
FRANCIS H. TOWNE.....	100 Nassau St.
ANDREW CORWELL.....	13 William St.
J. S. LABON.....	140 Centre St.
	109 Worth St.
	77 Day St.

R. S. LONG.....	77 Day St.
184 Fifth Avenue	
ROBERT J. LITTONS.....	253 Bond St.
C. C. MACDONALD.....	71 Broadway.
THOMAS M. MALON.....	53 Broome St.
J. PHILLIPS.....	85 Union St.
E. STRAN.....	124 Water St.
GEORGE W. HENRI.....	124 Water St.
CHARLES W. HENRI.....	124 Water St.
Wm. H. HENRI.....	124 Water St.
Wm. H. HENRI.....	124 Water St.
W. H. HENRI.....	124 Water St.
T. M. DELART.....	235 Pearl St.
J. M. KOLUCK.....	8 Follen St.
JOHN V. FRY.....	110 and 112 second St.
REVEREND BROWN.....	51 E. Twenty-first St.
Prof. R. F. B. SHAW.....	171 Madison Avenue
C. C. GONTHIZ.....	117 Front St.
WM. T. CULHAN.....	Fifth Avenue
JOHN SHAWWOOD.....	43 Wall St.
A. M. BLACK.....	112 Nassau St.
WM. D. GUNTER.....	430 First Avenue.
ANDREW TUBOZ.....	27 Pearl St.
PAUL WELSH.....	25 Exchange Place.
EDWARD BRADSHAW.....	171 Front St.
Lewis MANDER.....	75 William St.
J. H. PATTERSON.....	34 Broadway.
LEONARD LOCKWOOD.....	34 Broad St.
E. R. HAWKLE.....	143 W. Eleventh St.
H. M. SCHEFFER.....	170 William St.
CHAS. K. FINECH.....	445 Broadway.
ROSE HENRI.....	124 Water St.
T. H. HEAVIN.....	74 South St.
W. W. DICK.....	84 Chamber St.
BURGESS LEHMAN.....	100-101A
LEONARD.....	100-101A
E. M. MARSH.....	100-101A
C. F. BLACK.....	100-101A
JAMES LOCKE.....	100-101A
Mrs. SMITH.....	100-101A
G. N. VAN WASH.....	100-101A
C. T. VAN WASH.....	100-101A
JAMES U. HENRTICK.....	100-101A



Mr. FRANKSON	.....	Hamers St.	Brooklyn
Mrs. J. H. INGRAM	.....	Clifton Avenue	"
Mrs. T. E. JEWELL	.....	Clifton Avenue	"
Josef FRENCH	.....	Clifton Avenue	"
C. W. SCOFFIELD	.....	Clifton Avenue	"
R. N. HAYES	.....	Clifton Avenue	"
James H. PEARCE	.....	281 Third Avenue	"
W. B. BEADON	.....	Lafayette Avenue	"
Edmund DIBONA	.....	Lafayette Avenue	"
J. M. LAWRENCE	.....	Washington Avenue	"
G. TERSTEN	.....	Washington Avenue	"
U. TERSTEN	.....	Madison Avenue	"
E. H. WATSON	.....	Grand Avenue	"
Mrs. G. BOHR	.....	Third Av. and Evereth St.	"
B. WHITE	.....	Bridge St.	"
W. H. MILLER	.....	Columbia St.	"
G. H. SHAW	.....	Columbia St.	"
John Gies	.....	Madison Avenue	"
WILLIAM HORN	.....	Madison Avenue	"
D. H. LYALL	.....	Washington Avenue	"
M. T. LYONS	.....	Washington Avenue	"
F. H. COPPERHAWT	.....	Henry St.	"
Mrs. L. W. KIMBALL	.....	Columbia St.	"
W. H. WATSON	.....	Fort Greene Place	"
J. E. COTLER, D.D.	.....	Grand St.	"
J. E. ROCHAMON, M.D.	.....	Grand St.	"
E. T. ROCHAMON, M.D.	.....	Lafayette Avenue	"
W. J. R. FRANKS, M.D.	.....	Montague St.	"
C. L. MITCHELL, M.D.	.....	Montague St.	"
A. COOPER HULL, M.D.	.....	Montague St.	"
J. E. CLARSON, M.D.	.....	Montague St.	"
J. E. CLARSON, M.D.	.....	Jordan St.	"
A. E. SWANSON, M.D.	.....	Clifton St.	"
J. INOFFICE, M.D.	.....	Clifton St.	"
D. SNIPEK	.....	Orford St.	"
Wm. M. KERRICK	.....	Orford St.	"
Wm. T. KLOFF	.....	Brooklyn, E. D.	"
S. W. TAYLOR	.....	Brooklyn, E. D.	"
CLAYTON SCHUBER	.....	Bedford Av.	"
H. H. SCHOLZ	.....	Bedford Av.	"
G. M. KLOFF	.....	Bedford Av.	"
Rev. J. A. APPINWALL	.....	Teuth St.	"
Wm. M. KERRICK	.....	Teuth St.	"
M. KERRICK	.....	Teuth St.	"
Rev. R. S. HORN	.....	Teuth St.	"
James THOROLF	.....	Amuck, L. I.	"
Chas. DUNGER	.....	"	"
Saml. B. FARMOSE	.....	Finching, L. I.	"

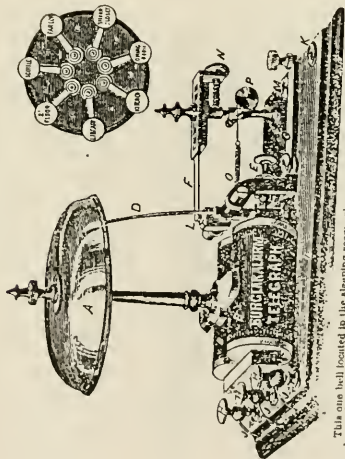
Wm. D. DWYER	.....	Finching, L. I.	"
JOHN GRAMAK	.....	Finching, L. I.	"
JOHN GRAMAK	.....	Finching, L. I.	"
JOHN WYCOFF	.....	Conis Island	"
GILBERT SAYRE	.....	Jamaica, L. I.	"
Judge R. BORTEN	.....	New Utrecht, L. I.	"
Dan'l. ROBERT	.....	East New York, L. I.	"
S. O. LOTT	.....	Brookh. L. I.	"
ADAM LOTT	.....	"	"
Misses DEWEE	.....	"	"
A. L. ZAMBERSKI	.....	"	"
Genoa STRONACH	.....	"	"
JOHN MANTINE	.....	"	"
A. J. DITRAM	.....	"	"
R. L. SCHUMAKER	.....	"	"
A. J. VAN DYKE	.....	"	"
Genl. THOMAS B. UMBRE	.....	"	"
JOHN D. PRINCE	.....	"	"
B. R. FOX	.....	"	"
H. T. CLARK	.....	"	"
H. R. CLARK	.....	"	"
B. O. CLARK	.....	"	"
ASOR GRADY	.....	"	"
COOPER VAN VLIET	.....	"	"
B. F. WOODS	.....	"	"
GILBERT VAN PELT	.....	"	"
W. R. HOWARD	.....	"	"
FRANK W. HORTENKES	.....	"	"
FRANK W. HORTENKES	.....	"	"
VSK. H. SHAR	.....	"	"
CHAS. H. WATFIELD	.....	"	"
THOM. ALBRIGHT	.....	"	"
WM. DELLENT	.....	"	"
A. HAY	.....	"	"
A. HAY	.....	"	"
MAJOR B. FRANK	.....	"	"
FRANCIS MACKIE	.....	"	"
A. W. WATERS	.....	"	"
Wm. METZKE	.....	"	"
SPENCER SCOTT	.....	"	"
J. G. HARRIS	.....	"	"
J. G. P. COLONCK, M.D.	.....	"	"
W. S. HERRICK	.....	"	"
F. H. BALLESTINE	.....	"	"



JOHN J. BARRY .....  
 JOHN COOPER ..... Paterson, N. J.  
 J. S. CHRISTIE, Jr. ....  
 C. DAVENCO .....  
 WILLIAM GRE .....  
 W. C. VAN DYKE ..... New Brunswick, N. J.  
 Assn. ....  
 Judge VAL ..... Dover, N. J.  
 JOHN H. HORNBLUM ..... Morristown, N. J.  
 W. A. FASH ..... Trenton, N. J.  
 CHAS. McALLISTER ..... Camden, N. J.  
 R. S. ALLISON .....  
 E. BRADWAY Z. OKAY ..... Lafayette, N. J.  
 STEPHEN VERRILLAND ..... Bergen Park, N. J.  
 J. W. TOWLEY .....  
 ROBT. P. PARBOTT ..... Elizabeth, N. J.  
 J. B. ANTHONY ..... Cold Spring, N. Y.  
 JOHN W. WINDSOR ..... Troy, N. Y.  
 WILLIAM HORTNER .....  
 CHAS. M. WIGGOTT ..... Mattewan, N. Y.  
 DAVID MOORE ..... Franklin, N. Y.  
 J. WILLIAMS ..... Stewartburg, N. Y.  
 ALBERT .....  
 H. R. STEPHENS .....  
 W. FULLERTON .....  
 J. H. GODWIN .....  
 JOHN SKELAM ..... Spoytenhamptel, N. Y.  
 A. J. WELLS .....  
 J. H. WILKINS ..... Utica, N. Y.  
 JAMES L. SCARVEY ..... Poughkill, N. Y.  
 EDWIN BRIDGES .....  
 GEORGE LEWIS, Jr. .... Yonkers, N. Y.  
 HENRY W. T. MAH ..... Fort Washington, N. Y.  
 GEORGE B. POWELL ..... High Bridge, N. Y.  
 THOS. L. DAVIES ..... Trenton, N. Y.  
 JOHN H. JEFFETT ..... Poughkeepsie, N. Y.  
 H. H. FINCH .....  
 JAMES WATKINS ..... Fort Leroux, N. Y.  
 J. L. SACKETT ..... Stamford, Conn.  
 Mrs. IRENEAS .....  
 FR. W. J. STOKAN .....  
 THOS. S. HILL .....

JOHN BROWN ..... Stamford, Conn.  
 MC. HERRICK .....  
 J. A. CANNON .....  
 ROBT. ELKER .....  
 JOHN FISHBURN .....  
 PHILIP HENRY .....  
 CARL J. E. SMITH ..... Hightstown, Conn.  
 G. SPOONER .....  
 D. W. THURLOW .....  
 Mrs. W. R. FAISER .....  
 Mc. CHEES ..... Hartford, Conn.  
 E. C. ..... Newell, Conn.  
 THOS. P. HUTLER .....  
 HENRY P. HOYT .....  
 M. A. DEFTON ..... New Rochelle, Conn.  
 E. D. GHEFFIN .....  
 L. D. VAN HANSDOORN .....  
 N. B. WAGEN .....  
 N. BALDWIN .....  
 Mrs. M. F. WISLAW .....  
 W. LEON .....  
 HENRY .....  
 CHAS. J. DRISKE .....  
 D. B. STEPHAN .....  
 R. S. FINEST .....  
 H. J. SCHMIDT .....  
 J. M. THOMPSON .....  
 WM. BISHOP .....  
 HERBERT SMITH .....  
 THOS. GOET .....  
 Dr. CHAS. BARKER .....  
 E. LANSBURY .....  
 GEORGE HUTCHES .....  
 GEORGE B. DRAPER .....  
 Mrs. R. PATTERSON .....





This one bell located in the sleeping room, is always in operation upon the same principle. It is so simple and so easily taken care of that a child can do it. The expense for supplies is but a few shillings per year. The location is cheap, simple, and acknowledged by all who use it as a complete protection from burglars.

E. HOLMES'

## Burglar Alarm TELEGRAPH.

(Office--201 Broadway, New York.

114 Dearborn street, Chicago, Ill.

Pittsfield, Pa.

205 Fifth street, Troy, N. Y.

This **BURGLAR ALARM TELEGRAPH** cannot be better described than as follows:

One bell only is required for the entire house.

The bell is located in the sleeping-room, and is operated upon the same principle, and by the same power, exactly, that operates one throughout the country. Every exposed door and window of the house is connected with this bell by telegraph wires and apparatus.

But not a wire, or spring, or machinery of any kind, but the bell, can be sent to the house.

The indicator, represented above, in which window or door the burglar has opened.

It can be introduced into any house without objection (if in the least); not a board is removed, not a mark or scratch can be seen in consequence. If otherwise the inconvenience whatever.

The whole arrangement is so simple, so sure, so easy, by the watch, or on the bell, which attracts the entire house of coffee, and therefore it is the day-after.

The bell gives notice of any alarm, if above or below, is accidentally left open at night. It is particularly valuable during a temporary absence of the family.

As a means of domestic security, it is superior to any and all other means.

The simple method of a small spring, arranged in your sleeping-room, or any, or several parts of the house, rings the bell at the stable.

The door and window of your stable can be connected with the stable bell in your room.

The alarm can be set for a part of the house, or in the stable, if desired. Windows can be set upon with-out for ventilation, and the alarm given if they are closed.

If a window or door is carelessly or purposely left open at night, the bell gives notice.

The bell can be located in any part of the house, or in another building, without expense for the distance from the premises protected.

The battery from four to six can be applied to any one to a house.

The battery is placed in a box (easily locked), and the bell is connected with a lock and key.

It is in no way offensive, and can stand in any closet or pantry where most out of the way.

It is always in operation, and needs only about few minutes attention once in two weeks.

It is so simple and so easily taken care of that a child can do it.

The expense for supplies is but a few shillings per year.

The location is cheap, simple, and acknowledged by all who use it as a complete protection from burglars.

It has been in successful operation for the last seven years; during that time many attempts have been made by burglars upon houses, offices, stables, &c., but all have failed by this invention, but in no case has it failed to give the alarm, consequently saving property and, perhaps, lives.













Office of Bronson & Meringer's Tobacco Works.

**E. HOLZER, Esq., Agent for Holmes' Burglar Alarm Telegraph, Chicago, Dec. 10, 1867.**  
 cannot but express my sincere appreciation for the protection to my household, and being an easy quiet to order, and the extensive protection to my household, without fear or financial incumbrance to me how it could be put into a double house home, but I have never been alarmed by burglars since I had your Alarm put in my house, but I feel secure, and I feel secure without it, and would not be without it for any considerable time.

Yours Truly,

C. BRONSON

**Mr. E. HOLZER, Esq., Agent for Holmes' Burglar Alarm Telegraph, Chicago, Sept. 27th, 1866.**  
 your Alarm put into my house by Mr. Bronson, and I am pleased with the Telegraph. It is introduced without incumbrance, and I am very much pleased with it, and should I build again, would not consider the house complete without it. I am very much pleased with it, and should I build again, would not consider the house complete without it. I am very much pleased with it, and should I build again, would not consider the house complete without it.

Yours Respectfully,

GEO. W. ROSE.

**E. STRAN, Esq., Agent for Holmes' Burglar Alarm Telegraph, Chicago, April 27th, 1866.**  
 your Alarm put into my house by Mr. Bronson, and I am pleased with the Telegraph. It is introduced without incumbrance, and I am very much pleased with it, and should I build again, would not consider the house complete without it. I am very much pleased with it, and should I build again, would not consider the house complete without it.

Yours Truly,

H. Z. CULVER.

**E. STRAN, Esq., Agent for Holmes' Burglar Alarm Telegraph, Chicago, Sept. 11th, 1867.**  
 your Alarm put into my house by Mr. Bronson, and I am pleased with the Telegraph. It is introduced without incumbrance, and I am very much pleased with it, and should I build again, would not consider the house complete without it. I am very much pleased with it, and should I build again, would not consider the house complete without it.

Yours Truly,

D. W. PAOE.

**E. STRAN, Esq., Agent for Holmes' Burglar Alarm Telegraph, Chicago, May, 1867.**  
 your Alarm put into my house by Mr. Bronson, and I am pleased with the Telegraph. It is introduced without incumbrance, and I am very much pleased with it, and should I build again, would not consider the house complete without it. I am very much pleased with it, and should I build again, would not consider the house complete without it.

Yours Truly,

C. R. COLVER.

**K. HOLZER, Esq., Agent for Holmes' Burglar Alarm Telegraph, Chicago, July 24th, 1866.**  
 your Alarm put into my house by Mr. Bronson, and I am pleased with the Telegraph. It is introduced without incumbrance, and I am very much pleased with it, and should I build again, would not consider the house complete without it. I am very much pleased with it, and should I build again, would not consider the house complete without it.

Yours Truly,

H. S. CULVER.

**Chicago, April 19th, 1867.**  
**E. STRAN, Esq., Agent for Holmes' Burglar Alarm Telegraph, Chicago, Dec. 10, 1867.**  
 your Alarm put into my house by Mr. Bronson, and I am pleased with the Telegraph. It is introduced without incumbrance, and I am very much pleased with it, and should I build again, would not consider the house complete without it. I am very much pleased with it, and should I build again, would not consider the house complete without it.

Yours Truly,

F. B. GARDNER.

**Chicago, Jan. 2nd, 1866.**  
**E. STRAN, Esq., Agent for Holmes' Burglar Alarm Telegraph, Chicago, Dec. 10, 1867.**  
 your Alarm put into my house by Mr. Bronson, and I am pleased with the Telegraph. It is introduced without incumbrance, and I am very much pleased with it, and should I build again, would not consider the house complete without it. I am very much pleased with it, and should I build again, would not consider the house complete without it.

Yours Truly,

S. P. FARRINGTON, 391 Michigan Ave.

**Chicago, Jan. 2nd, 1867.**  
**E. STRAN, Esq., Agent for Holmes' Burglar Alarm Telegraph, Chicago, Dec. 10, 1867.**  
 your Alarm put into my house by Mr. Bronson, and I am pleased with the Telegraph. It is introduced without incumbrance, and I am very much pleased with it, and should I build again, would not consider the house complete without it. I am very much pleased with it, and should I build again, would not consider the house complete without it.

Yours Truly,

E. ELBERT, 388 Michigan Avenue.

**Genour W. ROSE, Detroit, Michigan.**

**S. OATMAN, Detroit, Michigan.**

**JAMES F. JOY, Detroit, Michigan.**

**E. B. WASH, Detroit, Michigan.**

**F. BOB, Detroit, Michigan.**

**J. EMMETT, Detroit, Michigan.**

**Capt. J. PAINOR, Detroit, Michigan.**

**Offical Michigan Central R. R., Toledo, Ohio.**

**C. THOMAS, Toledo, Ohio.**

**C. R. MESSENER, Toledo, Ohio.**

**A. THOMAS, Toledo, Ohio.**

**H. S. WATKINS, Toledo, Ohio.**



J. M. DYE.....	168 Michigan ave., Chicago
F. C. WELLS.....	173 " " "
G. M. KINROSS.....	187 " " "
W. B. KANE.....	193 " " "
Mrs. PIER.....	230 " " "
E. KENNEDY.....	368 " " "
S. P. FARRINGTON.....	391 " " "
S. FOSTER.....	Cor. of 13th street.
D. WHEELER.....	903 Wabasha avenue.
O. H. BURRILL.....	984 " " "
A. CONYER.....	471 " " "
M. C. STEVENS.....	475 " " "
J. McFARLANE.....	499 " " "
L. B. DENNETT.....	679 " " "
M. D. WELLS.....	618 " " "
C. DEPRIED.....	674 " " "
J. Q. BOTT.....	1030 " " "
B. F. CRASE.....	10th st. and Prairie st.
J. M. CLAY.....	213 Franklin st.
W. L. ORBT.....	536 " " "
D. W. PACE.....	201 West Washington st.
H. H. TAYLOR.....	384 " " "
H. Z. CULVER.....	301 " " "
C. E. CULVER.....	159 Loomis st.
F. B. GARDNER.....	110 South Sangamon st.
J. C. DEAN.....	471 West Washington st.
J. McGINNOR AGAMA.....	301 North LaSalle st.
L. UNDERDALE.....	Evanston, Ill.
J. C. DYE.....	593 Michigan ave.
J. L. STONE.....	331 Delaware st.
T. M. AYER.....	213 West Washington st.
DR. T. D. FROST.....	W. F. McILWAIN.....
W. F. McILWAIN.....	.....
JESSE H. HEATH.....	.....
N. MATSON.....	.....

## THIS BURGLAR ALARM TELEGRAPH APPARATUS

Is also employed as a Call Bell,

for Servants or laborers upon different parts of the place; for a Cashman, especially when the stable is a long distance from the house; for Servants' call bells about the house.

DOOR BELLS, TABLE BELLS, &c. &c.,

Also, for Protecting a Summer Residence,

While the family are living in the city, by placing the ALARM BELL in the Gardener's Cottage, without regard to distance.

MANY HOUSES HAVE BEEN SAVED FROM BURGLARS,

protected in this way. Also, the Bell can be so arranged as to

Protect the House while the Family are in the Country,

or while the House is unoccupied for any other reason.

## A Clock Circuit Breaker

is applied if desired, which can be set so that

THE BELL WILL NOT RING AFTER ANY GIVEN HOUR  
IN THE MORNING.

This is necessary only when the ringing of the Bell upon the opening of the House in the morning is objectionable.





## No Additional Testimony

need be added (although we have to) in regard to the merits or intrinsic value of the

## Burglar Alarm Telegraph,

than the above Testimonials and our experience of

**SEVEN YEARS WITHOUT A FAILURE.**  
In regard to the need of such a protection, a moment's reflection will convince any one that the

COMMON FASTENINGS

used to protect our houses,

**Offer No Resistance to the Modern Appliances used by Burglars for House breaking;**  
Establishing the fact that our safety from Burglars consists, not in our fastenings, but that

**Our House is not Attacked.**

With the above protection,

**Fastenings are Ignored Altogether,**  
preferring that a Burglar should quietly open a window or door, without breaking or destroying either,

**WHEN THE ALARM WILL BE GIVEN.**

## THE INDICATOR

OF THE BURGLAR ALARM TELEGRAPH

tells you the room in which the break is made; you proceed quietly to the room, or to the opening, and again retire to your room, and the whole thing is unobtrusively settled,

**WITHOUT DAMAGE.**

**WHEN THE ALARM BELL IS RINGING**

HE A

**BURGLAR,**

He is on the outside of the house, and there is no more danger than there would be if he was fifty miles distant

The Slightest Evidence that his Intentions are Discovered before he gains an advantage,

**CAUSES HIM TO MAKE A HASTY RETREAT.**

**The Burglar Alarm Telegraph,**

Can be shown in use for every purpose specified.

**A SUPERIOR ARTICLE**

**OF BLUE VITRIOL,**

PREPARED ESPECIALLY FOR THIS BATTERY.

**FOR SALE AT THE OFFICE.**



ALL INFRINGEMENTS

UPON THIS

**PATENT**

LETTER BY

USING FOR VENDING,



Will be dealt with to the full extent of the law unless provided

**E. HOLMES.**

OFFICES:

**201 BROADWAY, New York,**

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R. O. Schofield, Steam Book and Job Printer, 24 N. 2d St., Phila., Pa.



Appendix H

U.S. Patent No. 63,158

Edwin Holmes of New York, N.Y.

Improvement in Electric Circuit-Breaking Clocks

March 26, 1867



# United States Patent Office.

EDWIN HOLMES, OF NEW YORK, N. Y.

Letters Patent No. 69,168, dated March 26, 1867.

## IMPROVEMENT IN ELECTRIC CIRCUIT-BREAKING CLOCKS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL PERSONS TO WHOM THESE PRESENTS SHALL COME: RECORDED

Be it known that I, EDWIN HOLMES, of the city, county, and State of New York, have invented a new and useful Electro-Magnetic Circuit-Breaking Clock; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a front elevation of a common clock or time-piece provided with a circuit-breaking apparatus in accordance with my invention, the face and hour-denoting figures or characters of the clock being exhibited in red lines.

Figure 2 is a section of the breaker-wheel and its spring.

Figure 3 is a vertical and transverse section of such breaker-wheel and its adjusting wheel.

The purpose of my invention is to effect the breaking of an electro-magnetic circuit at any particular time of the day, and to keep it broken for a determined period thereafter, if desirable. It may also be constructed for closing a circuit at any definite time of the day, and for keeping it closed during such period or part of such day thereafter as may be desired.

My invention is specially designed to be used with the circuit of an electro-magnetic alarm apparatus, particularly such as was patented by Augustus R. Pope, June 21, 1853, in which case it would be designed to break the circuit at an early period in the morning just previous to the time necessary for opening the house or one of the windows or doors thereof included in the circuit or to which the circuit may be applied. By so breaking the circuit, the sounding of the alarm will be prevented whenever such door or window may be opened, and thus persons in the house, whom the alarm, if sounded, would awaken, can remain asleep. Therefore it will be seen that the particular object of thus breaking the circuit is to enable a person at the proper time to open a door or window in the circuit without at the same time causing the alarm to be sounded and awaken the inmates of the house who may be desirous of remaining asleep.

In the drawings, A denotes a clock of ordinary construction, *a* being its hour hand and *b* its minute hand. On the arbor of the hour hand *a*, and concentrically therewith, I arrange what I term the breaker-wheel B, which, by a short tubular shaft, *c*, is connected with an adjusting-wheel, C, on whose face are marked the figures or signs representing the twelve hours. A portion of the periphery of the wheel B, viz, that marked *d*, is a non-conductor of electricity, the remainder of the wheel being made of metal. On the said periphery of the wheel B, a metallic spring, D, bears, it being extended from a circuit-wire screw-connection, *f*, projected from an arm, *g*, which is secured or fixed to the metallic frame *h* of the clock, and should be a non-conductor of electricity. One of the battery wires of the circuit, viz, that marked E, leads into and is to be fixed to the connection *f*. The continuation of the circuit is by a wire, *F*, leading from another screw-connection, *i*, fixed to the frame *h*. While the spring D is in contact with the metallic part of the periphery of the breaker B the circuit will be closed, but as soon as it comes into and while it may remain in contact with the part *d*, the circuit will be broken or open. When the meridian hour mark, viz, XII, of the adjusting-wheel is in its highest position, the spring D should be in contact with one extremity of the part *d*. The circuit-breaker B and its adjusting-wheel should revolve together on the arbor of the hour hand, with friction sufficient to enable them to be carried around or revolved by it, and to be turned at other times on the arbor in order to adjust the part *d* with reference to the hour hand. In order to set the breaker B so as to cause the current to be broken at any particular hour, the number or character designating such hour on the wheel C should be brought around into juxtaposition with the hour hand. When the hour hand may reach that particular hour on the dial, the part *d* will be brought into contact with the spring and the circuit will be broken.

What I claim as my invention, is—

The combination as well as the arrangement of the circuit-breaker B, its adjuster C, and the spring D, with a clock or time-piece A, and an electric or electro-magnetic circuit, the whole being substantially as and for the purpose as hereinbefore specified.

EDWIN HOLMES.





E. HOLMES.  
Electric Clock.

No. 63,158.

Patented March 26, 1867.

Fig. 1

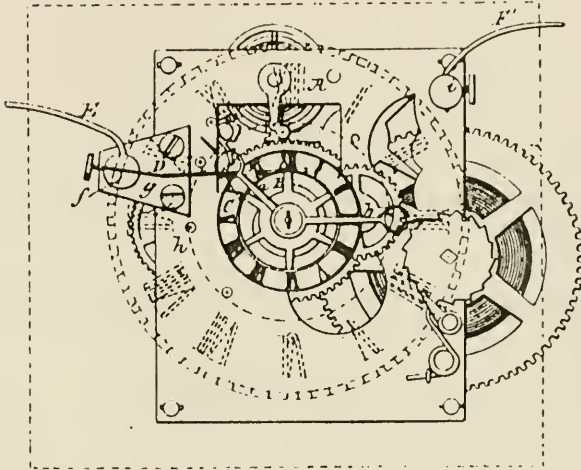


Fig. 2

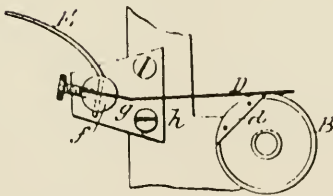
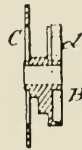


Fig. 3



Witnesses

Samuel A. Piper  
Geo. W. Andrews

Inventor.

Edwin Holmes  
by his attorney  
R. H. Cady.



Appendix I

U.S. Patent No. 20,970

William Whiting, of Roxbury, Massachusetts

Improvement in Electro-Magnetic House-Alarm

July 20, 1858



# UNITED STATES PATENT OFFICE.

WILLIAM WHITING, OF ROXBURY, MASSACHUSETTS.

## IMPROVED ELECTRO-MAGNETIC HOUSE-ALARM.

Specification forming part of Letters Patent No. 20,970, dated July 29, 1854.

*To all whom it may concern:*

Be it known that I, WILLIAM WHITING, counselor at law, of Roxbury, in the county of Norfolk and State of Massachusetts, have invented a new and useful Improvement in Electro-Magnetic House-Alarms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a view of a portion of a dwelling-house with my improved apparatus attached. Fig. 2 is a vertical section through the room, showing the indicating and alarm apparatus in elevation. Figs. 3, 4, 5, 6, and 7, details, to be referred to hereinafter.

I am aware that an apparatus has been employed as a burglar-alarm in which a single electric circuit was employed in connection with the windows and doors of a building, and so arranged that the opening of any one of them should close the circuit and sound an alarm. Such apparatus, however, furnished no indication of the whereabouts of the window or door so opened, and the proprietor was left to search through the whole house for the intruder, who was himself perhaps alarmed, and enabled to escape.

My invention has for its object to produce a house-alarm which shall not only alarm the proprietor or guardian of the house on the intrusion of a burglar, but shall at the same time indicate to him the part of the house attacked, that his attention may be immediately directed to the particular room where an entry has been attempted or effected; and thus I accomplish by the employment of a series of electro-magnetic circuits (one for each distinct room or portion of the house to be guarded) in connection with an indicator for indicating the portion of the house attacked and with an alarm apparatus for sounding the alarm, the doors and windows of the house being so connected with the circuits that the opening of any one of them shall close or break the circuit with which it is connected, cause the alarm to be sounded, and indicate upon the indicator the particular room assailed.

That others skilled in the art may understand and use my invention, I will proceed to

describe the manner in which I have carried the same into effect.

In the drawings, B is the indicator, which is placed in any convenient position in the house to be protected, (as in the sleeping room of the proprietor.) It is here shown attached to the wall of the room. It consists of a board to which are secured the electro-magnets 1, 2, 3, 4, 5, and 6, there being one magnet for each indicating-circuit. The operation of all being similar, but one will be described.

I may here remark that each circuit of wires may protect a single window or door, or a single room or entry. The latter plan is the one here represented.

Near the indicator, in any convenient place, is secured a shelf C, which supports the alarm apparatus. This consists of an electro-magnet, F, the armature of which, as the magnet is made by the closing of the current of its battery, operates the hammer of a bell, and causes it to ring so long as its circuit remains closed and its battery continues in operation. This ringing is accomplished by a well known device, of inserting a small piece of a non-conducting substance in a vibrating arm connected with the armature, one of the wires of the battery being in contact with the arm, and the arm being connected with one end of the coil; but as the method of ringing the bell forms no part of my present invention, it need not be more fully described.

A battery, D, which operates the alarm apparatus, and a battery, E, which operates the indicator and the indicating-circuits, are placed in any convenient and secure situation. From one pole of the battery D the wire *a* leads to the bell-magnet F, and from this magnet another wire, *a'*, leads to a piece of metal, *b*, secured to the board of the indicator B. To this piece *b* is pivoted, at *c*, the armature *f* of the magnet I of the indicator. From the opposite pole of the battery D the wire *d* leads to a hook or staple, at *e*, on the indicator-board, against which the armature *f* springs back when the coil of the magnet I ceases to be charged. This armature is furnished with a small spring, *i*, which bears against a pin in the board, for the purpose of throwing the armature back.



The wires  $a$ ,  $a^1$ , and  $d$  and battery D constitute the bell-circuit, (shown in red,) which is closed when the armature  $f$  is in the position seen in Fig. 2, and the bell is rung, as before explained.

From one pole of the battery E the wire  $h$  is led to the magnet I, and from the opposite end of the coil of this magnet other wires and springs complete the circuit, as will be hereinafter explained, the wire  $g$  entering the opposite pole of this battery. These wires, with the springs and boxes to be described and the battery E, constitute the indicator-circuit. (Shown in blue.) When this circuit is closed the magnet I is made, and its armature  $f$  is drawn up to it. This breaks the bell-circuit, as explained; but when the current through the coil of the magnet I is broken the armature  $f$  is thrown back by its spring  $i$  into contact with the staple  $e$ , and the bell-circuit is completed. A small shield,  $k$ , on the end of the armature,  $f$ , covers a letter,  $\Lambda$ , attached to the upper side of the board whenever it is drawn up to its magnet, and discloses the letter whenever the armature is thrown back by its spring. Thus the bell is rung and a letter indicating the room is exposed to view each time the indicator-circuit is broken. The manner in which this circuit is broken or closed by the opening or shutting of a door or window will now be explained.

In the door-frame G, (Figs. 1 and 3, on the side to which the hinges are attached,) is secured a metal box,  $m$ , the back part of which may be open. A piece of non-conducting material,  $P$ , rises vertically from the frame G. To this piece  $P$  is attached an insulated piece of metal,  $n$ . A slot,  $o$ , is cut through the front plate of the box  $m$  of a sufficient size to allow a roller,  $p$ , to project a short distance beyond the line of the door frame. This roller  $p$  has its axle hung in a piece,  $u$ , to which is attached a bent spring,  $r$ . The piece  $u$  is pivoted at  $v$  to the sides of the box  $m$ , and is so arranged with respect to the piece  $n$  that when the roller  $p$  projects through the slot  $o$  the spring  $r$  will not be in contact with the piece  $n$ , but rest against the upper part of the piece  $P$ , and when the roller is pressed in by the closing of the door, the end of the spring  $r$  shall slide down onto and in contact with the piece  $n$ , as in Fig. 4.

In Fig. 4 is shown the manner in which raising a window allows the roller  $p$  to spring out through the slot.

I may here state that a similar arrangement to that just described for the door is placed in the side of the frame of each window.

A groove,  $s$ , is cut in the side of the window-sash next to the box  $m$ , of a sufficient width and depth to allow the roller  $p$  to spring out through the slot  $o$ , as in Fig. 3. But as this groove does not extend quite up to the top of the sash, the upper part, at  $t$ , which is not grooved, will press the roller back into the box whenever the sash is shut down, and when it

is raised the roller will spring out into the groove  $s$ , and allow the spring  $r$  to come away from the piece  $n$ . A similar arrangement is attached to the upper sash, so that when it is pulled down its roller  $p$  will spring out. Each of the above-described spring arrangements is included in some one of the indicator-circuits in such a manner that whenever the springs  $r$  are in contact with the pieces  $n$ , the circuit will be closed, and when away from them will be broken. The following is the arrangement here adopted: The wire  $g$ , from the battery E, is attached to the box  $m$  at  $x$ ; another wire,  $y$ , is attached to the insulated piece  $n$ , and is led thence to the next box,  $m$ , in the circuit, (in the drawings to the box in Fig. 1\*;) and from the insulated piece  $n$  of this window to the next box (if there are more of them) is led another wire,  $z$ , and so on for each door or window of that room or circuit. From the last one the wire  $z$ , (Figs. 4 and 2,) is led to the magnet I of the indicator. Thus the circuit which makes this magnet is from the battery E, through the box  $m$ , pivot  $x$ , spring  $r$ , to insulated piece  $n$ , (when the spring is down on it,) thence through the wire  $y$  to the next box, (and so through all the boxes in the circuit;) and from the piece  $n$  of the last one through wire  $z$  to the magnet I; thence through wire  $h$  to the opposite pole of the battery E. The wires used are coated or insulated in the ordinary manner. When thus arranged, if all the doors and windows embraced in this circuit are shut, the circuit will be closed, the magnet I will be made, and its armature  $f$  will be drawn up to it, when the shield  $k$  will cover the indicating-letter  $\Lambda$  and the bell-circuit will be broken, as before explained. But on the opening of a door or window the spring  $r$  will move out of contact with the piece  $n$ , and the indicator-circuit will be broken, when the coil I will cease to be a magnet, its armature will be thrown back by the spring  $i$ , its indicating-letter will be disclosed, and the bell-circuit will be completed through the armature itself, causing the magnet P to ring the bell and give the alarm, which will be sounded so long as the indicator-circuit remains broken and the battery D lasts.

The system which I have described, in which a series of closed circuits is employed in connection with an open bell circuit, is the one which I prefer; but this order may be reversed and a series of open indicating circuits may be used in connection with an indicator and an alarm apparatus, but this arrangement is by no means so safe as that above described.

As before stated, each room or entry will have its own indicator or circuit and magnet and its indicating letter, label, or number; but the same battery E, (if of sufficient strength) may be embraced in all the circuits or as many of them as it is found convenient, and the armatures of all the indicator-magnets may be embraced in one bell-circuit by connecting them with the wires  $a^1$  and  $d$ .





The wire *a* of the bell-circuit is furnished with a switch, *e*, and the wire *k* of the indicating-circuit with a similar switch, *f*. These are for the convenience of the proprietor when he wishes to open or close either circuit—as, for instance, when he rises in the morning and wishes to render the alarm inoperative—he turns the switch *e*, when the bell-circuit will remain open, and the bell will not be rung when the doors and windows are opened. Before switching on the bell-circuit at night he examines to see if all the indicating-circuits are closed. This he will see at a glance, for if any door or window has been left open the armature or magnet belonging to that circuit will not be drawn up, and consequently the indicating-letter of that circuit will be exposed; and if the battery *B* has failed, none of the magnets on the board will be made and all the letters will be exposed, and if this battery should give out in the night the bell would be rung and give notice of it. When he finds the indicating-circuits are all in operation he closes the switch *e*, and then to inform himself if the battery *D* is operative he turns the switch *f*, which breaks the circuit through the wire *h*, and this causes the bell to ring if its circuit is not interrupted. He may then close the switch *f* and retire, knowing that the whole apparatus is in working order.

As it is desirable to have it in the power of the inmates to open a door or window without sounding the alarm, each room, or, if preferred, each door and window, may be furnished with a switch similar to *f*, placed in such a position by turning it the circuit will continue made when the roller *p* springs out—for example, by attaching to one side of the box *m* and turning it in contact with the insulated piece *u*. When the door or window is closed again this private switch is turned off, and the place is protected as before.

If desirable, two or more bells may be included in the same alarm-circuit (the battery *D* being made strong enough) and be placed in different parts of the house, so that the inmates may be simultaneously informed of an attack, and thus render each other prompt assistance. In this case a switch, as at *e*, may be placed near each bell; or they may all be under the control of the proprietor by means of switch *e*.

In lieu of the arrangement shown in Fig. 4, wherein the closing of the window presses in the roller *p*, and thereby closes the circuit, another arrangement has proved, in practice, still more efficient. The cavity *s* is made opposite to the roller *p*, and of a length not much exceeding the diameter of the roller. When the window is closed the roller springs out into this cavity. Instead of the wire 2 being attached to the piece *u* it is attached to a similar insulated piece, *e*, Fig. 5, on the upper part of the piece *l*, so that when the window is raised the roller *p* is pressed in and the spring *t* slides down out of contact with the piece *e*,

to which the wire is connected, and thus the circuit is broken and continues broken until the window is again placed in its original position. This insures not only the sounding of the alarm, but the continuance of the ringing of the bell while the window is open, and renders it still more difficult for a burglar to meddle with the window-spring without giving an alarm, while, in the arrangement represented in Fig. 4, if the lower sash be raised entirely up, the roller *p* will be again pressed in and the circuit closed; and if to prevent this the groove *x* be cut entirely to the bottom of the sash and the latter be raised entirely up, the roller might be reached by a stick or wedge and be pressed in, and thus the continuous ringing of the bell be prevented.

In place of the above described spring arrangements I sometimes use the following more simple one: Two insulated pieces of metal, *d'*, Fig. 6, similar to *n*, Fig. 3, are secured to the inner face of that part of the window-frame with which the sash slides in contact when it is raised or lowered. To each of these pieces *d'* is connected one of the wires *y* and *z*. To the inner edge of the sash, opposite these pieces when the sash is closed, is secured a spring, *o*, Fig. 6, in such a manner that when the window is closed the two arms 1 and 2 of the spring shall be in contact with the insulated pieces of metal *d'*; but whenever the window is raised the spring *o* will slide out of contact with one or both of the pieces *d'* and the circuit will be broken and the alarm be sounded, as before.

One mode in which burglars sometimes enter dwellings is by removing or breaking out panes of glass from a window. To protect the building in this case I have adopted the following arrangement: I sometimes connect the wire leading to the window with that leading from the window, or to or from a series of windows in one circuit, by means of a fine conducting wire, *f'*, Fig. 7, having attached to it at each end a small and light spring clip of metal, one of these clips being slipped onto one of the wires *h'*, Fig. 7, of the indicating-circuit, and the other one onto the other wire *h*, the conducting wire *f'* being carried across the panes of glass to be protected. I use a separate indicating circuit for this fine protecting wire, so as not to interfere with the current passing through the window-springs. When thus arranged, any attempt at forcing in a pane of glass or any attempt to enter will either break the fine wire *f'* or cause it to pull the spring clips off from the wires *h'*, on which they have been slipped, and thus break the circuit and give the alarm. If preferred, this wire *f'* may be removed out of the way, except when its use is required. It may be covered with a protecting coating of some color that will render it nearly invisible at night.

A convenient arrangement of the last described method of protection is to attach permanently to one side of the window-frame a



small spring-box,  $g'$ , Fig. 7, in which the wire  $f'$  may be coiled up by the retraction of a spring, (in a manner similar to that used for tape-measures,) one end of the coil being in contact with one of the circuit-wires  $h'$ , and a clip being attached to the other end of the wire  $f'$ , so that this wire may be drawn out of the box  $g'$ , when required, across the window, and the clip on the end of it may be attached to the other wire,  $h'$ , of the circuit on the opposite side of the window.

Instead of the alarm apparatus above described, I sometimes dispense with the magnet F and battery D and use a bell ring by mechanical power, the same being so arranged that when by the breaking of either one of the indicating circuits the armature  $f$  is thrown back by its spring  $i$  it shall let off a detent, which will allow the power employed to ring the bell to act. The ways of constructing alarm-bells which are rung by mechanical power, and where the ringing is permitted by the motion given by machinery to a detent, are well known and need not be here described; but in my invention the motion of the detent is caused not by the action of any part of the mechanism of the bell itself, but by the movement of the armature caused by the breaking of the electric circuit, in the manner substantially as described.

When a series of indicating circuits is employed, the closing of either one of them draws up to the armature and thereby allows the movement of the detent, and the alarm apparatus is set in motion. Under certain circumstances a separate alarm apparatus may be dispensed with, the noise made by the armatures coming in contact with the magnets being sufficient to give the alarm. Such method, however, I do not recommend.

Hereinbefore the letters of the indicator have been represented as exposed to view by the motion of the armatures of the indicator-magnets; but it is obvious that other methods of indicating may be employed, as, for instance, pointing to a word or letter or number.

What I claim as my invention, and desire to secure by Letters Patent, is—

The improved house-alarm hereinbefore described, consisting of a combination of the following elements, viz: first, a series of electromagnetic circuits; second, an indicator to designate the respective circuits; third, an alarm apparatus; fourth, the window or door springs, the whole operating, as set forth, to sound the alarm and indicate the circuit attacked.

WILLIAM WHITING.

Witnesses:

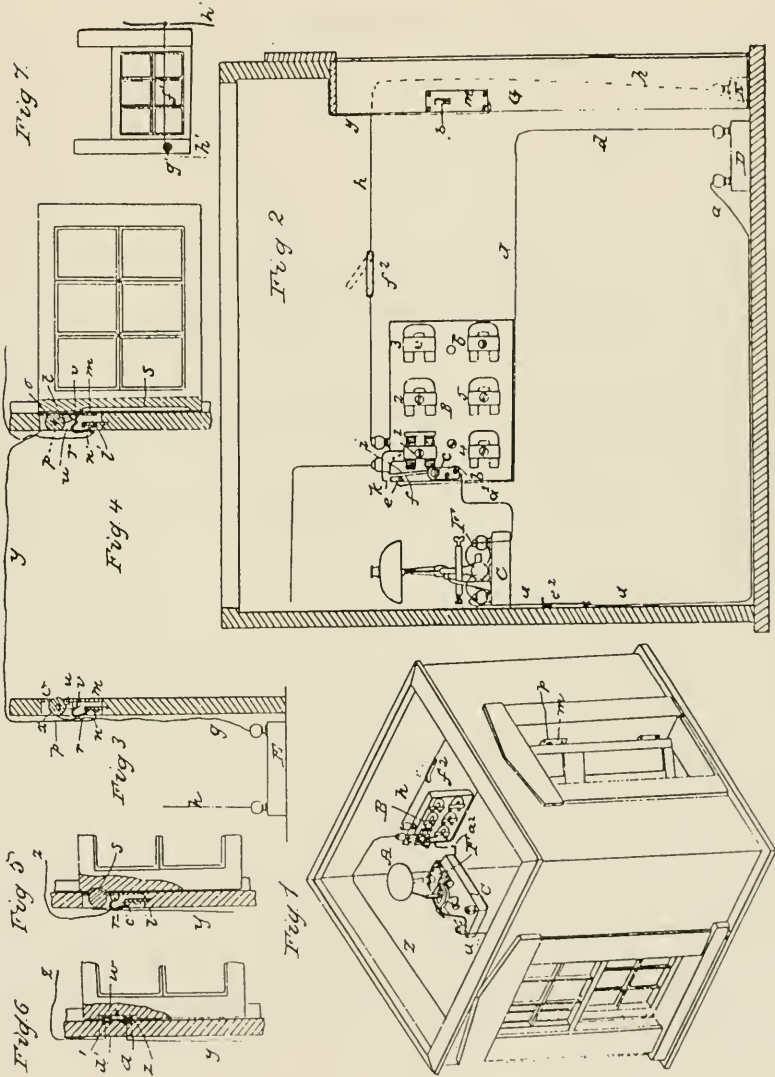
HENRY W. HAYNE,  
THOS. R. ROACH.



W. WHITING.  
Burglar Alarm.

No. 20,970.

Patented July 20, 1858.





Appendix J

U.S. Patent No. 118,231

Elisha Gray, of Chicago, Illinois

Improvement in Electro-Magnetic Annunciators

August 22, 1871





# UNITED STATES PATENT OFFICE.

ELISHA GRAY, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN ELECTRO-MAGNETIC ANNUNCIATORS.

Specification forming part of Letters Patent No. 118,231, dated August 22, 1871.

### To all whom it may concern:

Be it known that I, ELISHA GRAY, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Electro-Magnetic Annunciators; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a top view of my invention. Fig. 2 is an inverted transverse longitudinal section of the same. Fig. 3 is a side elevation taken on line *a a*. Fig. 4 is vertical longitudinal section on line *d d*, and Fig. 5 is an enlarged detached section of the knob employed in reversing the electric current.

Similar letters of reference indicate corresponding parts in the several figures of the drawing.

The object of my invention is to provide an annunciator for the use of hotels and other similar public buildings, by which the number of the room or rooms from which the call is made may be indicated upon the dial; and the improvement consists in an electro-magnetic arrangement communicating from the apartment with the dial, a description of which in detail will be hereinafter fully given.

In the accompanying drawing, A represents the case, which may be as shown or of any known form, which will receive the operating parts of the instrument. B is a metal plate, which is firmly affixed to the inner side of said case, and upon which is mounted the electro-magnets D D'. Each limb of said magnets is connected at its opposite ends from the plate by metal heel-pieces *a a* firmly affixed to the arbor or bearing of the same. E E' E'' are shafts, one end of which have a bearing within plate B, and are pivoted at the opposite end to or upon set-screws *d d d*, which are secured within straps *a*, by which the same are held in proper adjustment. Affixed upon said shafts, between plate B and the end of the magnets, are steel needles or armatures *e e e*, which are properly hardened and magnetized. Said needles or armatures are so arranged as to have an automatic tilting movement, by the reciprocal rocking movement of the shafts, imparted thereto by the electrical current from the magnets. Attached to plate B are lugs *f f f*,

which are so arranged as to prevent the said armatures from coming in contact with and against the poles of the electro-magnets as the same are tilted by the electrical current. Said lugs are usually made of cork, but they may be made of any suitable material. F F' F'' are light metal indicating-pointers, which are firmly affixed to the outer ends of said arbors in front of plate B immediately under the figures marked upon the dial. Attached to the outer side of the case are metal springs G G' and H H', which are bent in proper shape to bring their outer ends in contact with and against metallic rings I and I' affixed upon the knob-spindle J, which is secured to the projecting portion A' of the case. Said rings are insulated one from the other, and their periphery cut into two separate parts, forming in each a long and short section. The short section of ring I is connected to the long section of ring I', and the short section of ring I' is connected to the long section of ring I, by which the electrical current is conveyed from one to the other. Affixed to the short section of ring I is a pin or pivot, *g*, to which is attached a curved spring, *h*, so arranged as to come in contact with and pass over points L, M, and N, which are permanently attached to projection A' of the case, as said knob or commutator is revolved, the same being so arranged as to admit of a reciprocal semi-annular rotary movement. Attached to and upon the knob-spindle J of the commutator is a coiled spring, *i*, which is so arranged as to force the said knob back to its proper position as the same is rotated partially around, and firmly holding the same against a stop-pin, *l*, secured in the said projection. Affixed to the said points L, M, and N are wires R, S, and T, which are each attached at one end to the magnets D D' D'', the opposite ends of each leading to different rooms having numbers corresponding with the numbers indicated upon the dial. Within each separate room is secured a circuit-closer, the manipulation of which causes a contact between the wire communicating with the room and the common return-wire *m*. One end of each wire R, S, and T is soldered to the core of the magnets D D' D'', which are in direct contact with the plate B. Affixed to the core of the magnet D is a wire, *n*, which communicates with spring H. Firmly affixed to springs G G' are wires O O', which are connected with the poles of a galvanic battery.



The operation of my invention is as follows: As the occupant of room No. 1, for instance, manipulates the circuit-closer the electrical current will pass from wire *O'* through spring *G'*, long section of ring *I'*, short section of ring *I*, spring *II* to the common return-wire *m*; thence through the room to wire *R*; thence through magnet *D*, plate *B*, spring *G*, long section of ring *I*, short section of ring *I'*, spring *II'*, and wire *O* to the pole of the battery. The electrical current having passed through magnet *D* in such a direction as to develop a polarity similar to that already in the approximate poles of the needle-armature *e*, hence a mutual repulsion takes place between the approximate poles of the magnets and a mutual attraction between the more distant ones, the object of which is to tilt needle *e* to a reversed position, which carries pointer *P* upon Fig. 1 of the dial, the same current ringing a bell secured upon the return-wire. The call having been made and the number of the room noted, it now remains to restore the pointer to its former position, which is done by turning the knob of the commutator until spring *h* makes a contact with point *N*, thus changing springs *II II'* from the short sections of rings *I* and *I'*, which brings spring *II'* in direct contact with spring *G'*, and spring *II* with spring *G*, by which means the electrical current passes from wire *O* to and through spring *G'*, through the long section of ring *I'*, short section of ring *I*, spring *II*, metal point *N*, wire *R*, magnet *D*, plate *B*, spring *II*,

long section of ring *I*, spring *G*, and wire *O'* to the pole of the battery; thus the electrical current will pass through magnet *D* in a reverse direction from that which was produced by the manipulation of the room circuit-closer, by which a reverse effect is produced upon needle *e*, which restores pointer *P* to its original position.

The same operation may be repeated in a like manner with any other number which will produce a corresponding result.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement of circuits for operating the needle or armature *e* either forward or backward by the electrical current, substantially as and for the purpose set forth.

2. The commutator *J* of an electro-magnetic annunciator, constructed and arranged to operate substantially as and for the purpose specified.

3. The springs *G G' II II'* and wires *R S T*, in combination with rings *I* and *I'* of the commutator *J*, the whole arranged substantially as and for the purpose described.

4. The spring *h*, in combination with points *L*, *M*, and *N*, arranged as described, whereby the electrical current is reversed, substantially as and for the purpose specified.

ELISHA GRAY.

Witnesses:

N. C. GRIDLEY,  
N. H. SHERRBURSE.



Elisha Gray's

# Electro Magnetic Annunciator.

PATENTED AUG 22 1871

118231

Fig 1.

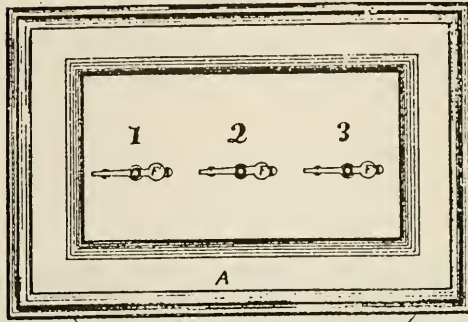


Fig 5.



Fig 2.

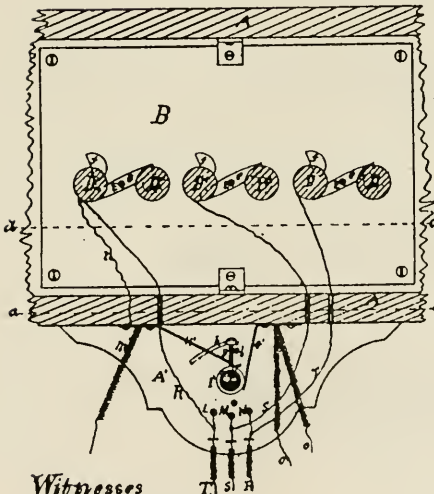


Fig 3.

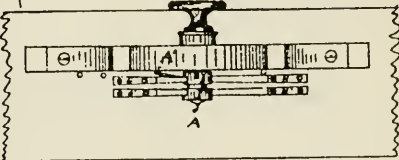
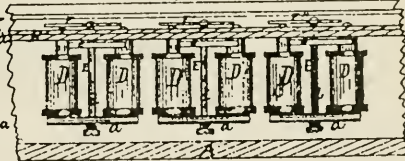


Fig 4.



Inventor

Elisha Gray

Witnesses

A. C. Shuburn

A. G. Frost



Appendix K

Western Electric Annunciator Patents

Reissue 6,825 of U.S. Patent No. 118,231  
Improvement in Electro-Magnetic Annunciators  
Elisha Gray, December 28, 1875

U.S. Patent No. 162,057  
Improvement in Electric Annunciators  
Elisha Gray, April 13, 1875

U.S. Patent No. 114,007  
Improvement in Hotel-Annunciators and Fire-Alarms  
Edward A. Hill, April 25, 1871

Design 8,999  
Design for Annunciator-Dials  
Charles W. Lewis, January 3, 1876

U.S. Patent No. 176,784  
Improvement in Electric Annunciators and  
Fire-Alarm Conductors  
Edward A. Hill, May 2, 1876





# UNITED STATES PATENT OFFICE.

ELISHA GRAY, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN ELECTRO-MAGNETIC ANNUNCIATORS.

Specification forming part of Letters Patent No. 118,231, dated August 22, 1871; reissue No. 6,825, dated December 28, 1875; application filed December 2, 1875.

To all whom it may concern:

Be it known that I, ELISHA GRAY, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Electro-Magnetic Annunciators; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a front view of my annunciator. Fig. 2 is an inverted transverse longitudinal section of the same. Fig. 3 is a side elevation taken on line *a a*. Fig. 4 is a vertical longitudinal section on line *d d*, and Fig. 5 is an enlarged detached section of the knob employed in reversing the electric current.

Similar letters of reference indicate corresponding parts in the several figures of the drawing.

The object of my invention is to provide an annunciator for the use of hotels and other similar public buildings, by which the number of the room or rooms from which the call is made may be indicated upon the dial.

The invention consists in an electro-magnetic arrangement communicating from the apartment with the dial; and also in the combination of a dial, bearing numbers corresponding to different rooms and indicating-points, as will be hereinafter fully described.

In the accompanying drawing, *A* represents the case, which may be as shown, or of any known form, which will receive the operating parts of the instrument. *B* is a metal plate, which is firmly affixed to the inner side of said case, and upon which are mounted the electro-magnets *D D' D''*. The dial *W* is placed directly in front of the plate *B*, to which it may be secured. Numbers or other marks corresponding to the designations of different rooms in the building are placed upon the dial in any suitable manner, and under any convenient arrangement. Each limb of said magnets is connected at its opposite ends from the plate by metal heel-pieces *a a a*, firmly affixed to the arbor or bearing of the same. *E E' E''* are shafts, one end of which have a bearing within plate *B*, and are piv-

oted at the opposite end to or upon set-screws *d d d*, which are secured within straps *a*, by which the same are held in proper adjustment. Affixed upon said shafts, between plate *B* and the end of the magnets, are steel needles or armatures *e e e*, which are properly hardened and magnetized. Said needles or armatures are so arranged as to have an automatic tilting movement by the reciprocal rocking movement of the shafts, imparted thereto by the electrical current from the magnets. Attached to the plate *B* are lugs *f f f*, which are so arranged as to prevent the said armatures from coming in contact with and against the poles of the electro-magnets, as the same are tilted by the electrical current. Said lugs are usually made of cork, but they may be made of any suitable material.

*F F' F''* are light metal indicating-pointers, which are firmly affixed to the outer ends of said arbors in front of plate *B*, immediately under the figures marked upon the dial. Attached to the outer side of the case are metal springs *G G'* and *H H'*, which are bent in proper shape to bring their outer ends in contact with and against metallic rings *I* and *I'* affixed upon the knob-spindle *J*, which is secured to the projecting portion *A'* of the case. Said rings are insulated one from the other, and their periphery cut into two separate parts, forming in each a long and short section. The short section of ring *I* is connected to the long section of ring *I'*, and the short section of ring *I'* is connected to the long section of ring *I*, by which the electrical current is conveyed from one to the other. Affixed to the short section of ring *I* is a pin or pivot, *g*, to which is attached a curved spring, *h*, so arranged as to come in contact with and pass over points *L, M*, and *N*, which are permanently attached to projection *A'* of the case, as said knob or commutator is revolved, the same being so arranged as to admit of a reciprocal semi-annular rotary movement. Attached to and upon the knob-spindle *J* of the commutator is a coiled spring, *i*, which is so arranged as to force the said knob back to its proper position, as the same is rotated partially around, and firmly holding the same against a stop-pin, *l*, secured in the said projection. Affixed to the said points *L, M*, and



N are wires R, S, and T, which are each attached at one end to the magnets D D' D'', the opposite ends of each leading to different rooms, having numbers corresponding with the numbers indicated upon the dial. Within each separate room is secured a circuit-closer, the manipulation of which causes a contact between the wire communicating with the room and the common return-wire m. One end of each wire R, S, and T is soldered to the core of the magnets D D' D'', which are in direct contact with the plate B. Affixed to the core of the magnet D is a wire, n, which communicates with spring H. Firmly attached to springs G G' are wires O O', which are connected with the poles of a galvanic battery.

The operation of my invention is as follows: As the occupant of room No. 1, for instance, manipulates the circuit-closer, the electrical current will pass from wire O' through spring G', long section of ring P', short section of ring I, spring H, to the common return-wire m; thence through the room to wire R; thence through magnet D, plate B, spring G, long section of ring I, short section of ring P', spring H, and wire O, to the pole of the battery, the electrical current having passed through magnet D in such a direction as to develop a polarity similar to that already in the approximate poles of the needle armature e; hence a mutual repulsion takes place between the approximate poles of the magnets, and a mutual attraction between the more distant ones, the object of which is to tilt needle e to a reversed position, which carries pointer F upon Figure 1 of the dial, the same current ringing a bell secured upon the return-wire. The call having been made, and the number of the room noted, it now remains to restore the pointer to its former position, which is done by turning the knob of the commutator until spring h makes a contact with point N, thus changing springs H H' from the short sections of rings I and P', which brings spring H' in direct contact with spring G',

and spring H with spring G, by which means the electrical current passes from wire O to and through spring G' through the long section of ring P', short section of ring I, spring H, metal point N, wire R, magnet D, plate B, spring H, long section of ring I, spring G, and wire O', to the pole of the battery. Thus the electrical current will pass through magnet D in a reverse direction from that which was produced by the manipulation of the room circuit-closer, by which a reverse effect is produced upon the needle e, which restores pointer F to its original position. The same operation may be repeated in a like manner with any other number, which will produce a corresponding result.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement of circuits for operating the needle or armature e either forward or backward by the electrical current, substantially as and for the purpose set forth.

2. The commutator J of an electro-magnetic annunciator, constructed and arranged to operate substantially as and for the purpose specified.

3. The springs G G', H H', and wires R S T, in combination with rings I and P' of the commutator J, the whole arranged substantially as and for the purpose described.

4. The spring h, in combination with points L, M, and N, arranged as described, whereby the electrical current is reversed, substantially as and for the purpose specified.

5. The combination, substantially as described, of a dial, bearing numbers or other characters corresponding to the designations of different rooms in a building, and movable indicating pointers corresponding to the characters upon the dial, as and for the purposes set forth.

ELISHA GRAY.

Witnesses:

HEINRICH F. BRUNS,  
L. A. BENING.



E. GRAY.  
ELECTRO-MAGNETIC ANNUNCIATOR.

No. 6,825.

Reissued Dec. 28, 1875.

Fig. 1.

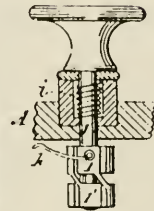
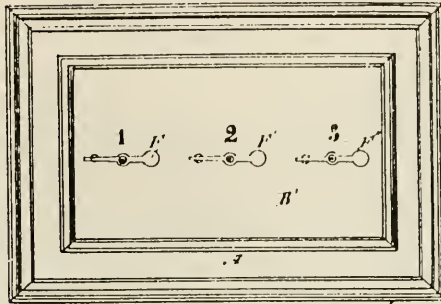


Fig. 2.

Fig. 3.

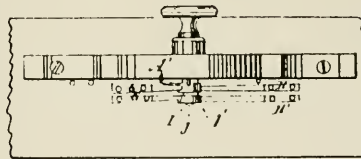
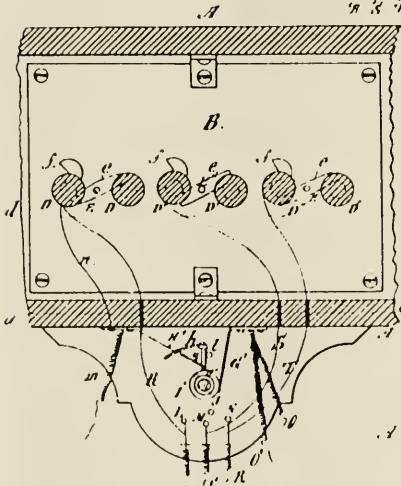


Fig. 4.

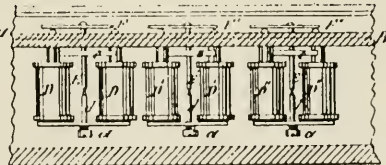


Fig. 5.

Witnesses:

*Frederick S. Brown*  
*Attorney*

*Elisha Gray,*  
Inventor:

*By C. M. & M. S.*  
*Attys.*



# UNITED STATES PATENT OFFICE.

ELISHA GRAY, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN ELECTRIC ANNUNCIATORS.

Specification forming part of Letters Patent No. 162,057, dated April 13, 1875; application filed September 24, 1874.

To all whom it may concern:

Be it known that I, ELISHA GRAY, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Electrical Annunciators, of which the following is a full, clear, and exact description, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing, forming a part hereof, and in which—

Figure 1 is a front elevation of an annunciator embodying my invention. Fig. 2 is a rear elevation of the same; Fig. 3, a vertical cross-section of the plate to which the poles of the magnet are attached, certain other parts being shown in elevation; and Fig. 4, a rear elevation of certain parts shown in Fig. 3, the magnets being removed.

Like letters of reference indicate like parts.

My object is to simplify and improve the construction and operation of that class of electrical annunciators usually employed for sending calls from the rooms to the office in hotels and other buildings, and for similar purposes; and to that end my invention consists in certain novel features, substantially as hereinafter described, relating to the method and means employed for the purpose of accomplishing the object above set forth.

In the drawing, A represents the case of the annunciator. The numerical characters in Fig. 1 designate the various rooms in the building. B is a brass plate attached to the case. C C are ordinary electro-magnets, the poles of which are attached at one end to the plate B. D D are soft-iron armatures, each pivoted to the plate, as shown at *d d*. D' D' are armature-levers, rigidly attached to the armatures D D. The outer or free ends of these levers are made hook-shaped, as shown. *d' d'* are stop-pins, against which the armatures rest when in their normal position, a small space then existing between the armatures and the poles of the magnets. The hook-shaped armature-levers are the essential novel features in connection with the armatures. E E are spindles passing freely through the plate B, and to the outer ends of these index-hands or pointers F F are rigidly attached. These spindles are capable of a free rotary move-

ment. G G are irregularly-shaped arms, rigidly attached to the spindles E E. The form of these arms is such that they may be engaged by the armature-levers when the armatures rest against the stops *d' d'*, and such that they may also then rest nearly against the armatures, as is plainly shown in Fig. 4. H H are vertically-sliding bars provided with the lateral arms *h h*, extending sufficiently for contact with the parts G G when the said bars are moved for the purpose of restoring the index-hands to their normal position, and sufficiently to support the parts G G when the latter are not engaged by the levers D' D', as will hereinafter more fully appear. The bars H H rest on the horizontal bar I, pivoted at each end to the parallel inclined arms J J, the lower end of which latter are pivoted to the plate B. The bar I rests on the crank-arm K, and K' is a crank arm or lever arranged externally to the case, and attached to the same rod or shaft to which the arm K is fastened. *k* is a stop-pin, on which the arm K rests. The battery may be arranged in any convenient place. One end of the wire of each magnet is carried to an insulated binding-post, *l*, there being one of the latter to each magnet, and the other end is carried to the heel of the same magnet, thus connecting the latter with the plate B. A circuit-wire is carried from the plate B to each room, and another from each room to a corresponding binding-post, *l*. These circuits may be connected by means of a common key arranged in each room. The battery-wire may be arranged in the circuit in the usual manner.

When the key in the room No. 1, for example, is depressed, the current will pass through a corresponding magnet in the annunciator, and the armature of this magnet will be attracted to the poles of the same magnet. By this means the lever of the armature so attracted releases the piece G, operating in connection with it, and this piece falls upon the next lower arm *h*, and, in falling, moves a corresponding pointer, F, toward the figure 1, thus indicating that a call is made from room No. 1. A call from any other room may be made in like manner.

In order to set the indicator after one or more calls have been made, the lever K' is so moved as to raise the bar I, thus also rais-





ing the bars H H, and lifting such of the pieces G G as may have fallen upon the arms h h, thus pushing the armatures from the poles, and allowing the armature-levers to engage the parts G G and hold them up, thereby restoring the pointers to their normal position.

When the lever K' is released the annunciator will be set, it being understood that the circuit through the magnet is broken by releasing the key in the room. Curtains may be employed instead of the pointers, and various means may be used to restore the parts G G to their engagement with the armature-levers. The normal position of the armatures is against the pins *d' d'*.

It will be observed, from the foregoing description, that no springs are employed in connection with any of the moving parts; also, that all the pieces G G are slightly moved each time any of them is set, thus preventing the spindles to which they are attached from becoming rigidly set on account of rust, dust, or hardened grease and grit, and keeping them in free working condition at all times. The armatures are pushed from their poles through the instrumentality of mechanism

employed to restore the pointers to their normal position.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The armature D, provided with the hooked levers D', in combination with the tilting piece G, rigidly connected to the index, and constructed and arranged substantially as shown and described, to be struck by the restoring mechanism, to strike the said armature, and to be engaged by the said lever, as and for the purposes set forth.

2. The combination of the pivoted armature D, provided with the hooked lever D', the tilting piece G, rigidly attached to the spindle or sleeve of the index, and the sliding bar H, provided with the extensions h h, the piece G being constructed and arranged to be struck by the said extensions, to strike the said armature, and to be engaged by the said lever, all substantially as and for the purposes specified.

Witnesses:

ELISHA GRAY.

H. M. HATH,

ENOS M. BARTON.



E. GRAY.

Electric Annunciator.

No. 162,057.

Patented April 13, 1875.

Fig. 1

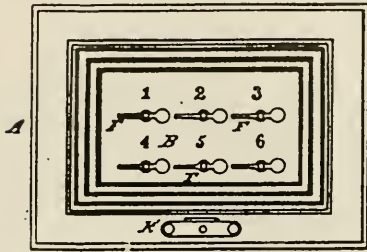


Fig. 2

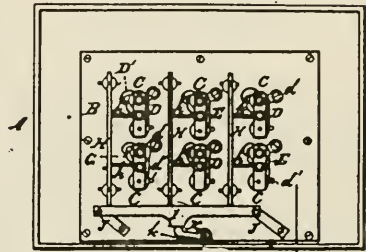


Fig. 3

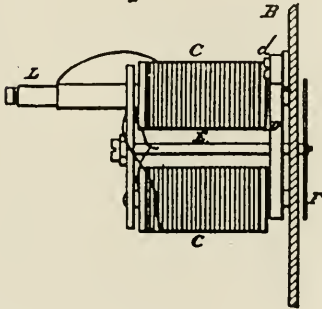
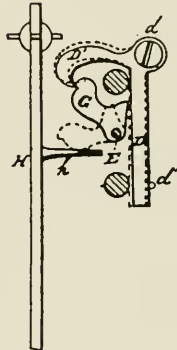


Fig. 4



WITNESSES.

*Leander H. Willett*  
*J. H. Byrnes.*

INVENTOR.

*Elisha Gray*  
*By Lindsey & Warner*  
*Attys*



# UNITED STATES PATENT OFFICE.

RECEIVED

EDWARD A. HILL, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN HOTEL-ANNUNCIATORS AND FIRE-ALARMS.

*Specification forming part of Letters Patent No. 114,007, dated April 25, 1871.*

*To all whom it may concern:*

Be it known that I, EDWARD A. HILL, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improved Hotel-Annunciator and Fire-Alarm; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the following drawing and the letters and figures marked thereon, which form a part of this specification, in which—

Figure 1 represents a front elevation of my annunciator; Fig. 2, a perspective view, showing the construction of the annunciator and the manner in which it is connected with the interior of rooms in the hotel; and Fig. 3, a sectional view of the knob and its attachments used for closing the circuit in each room.

The nature of my invention consists in the construction and operation of the mechanism hereafter described, by which the curtain or blind is moved to indicate the numbers on the dial of the annunciator designating the room the signal is given from. And it also consists in the combination of the permanent magnet, and the wires connected with it, with the magnet A, so as to shunt said magnet, as hereafter described; and in the fire-alarm mechanism arranged in each room, so that, by the expansion produced by heat, a permanent circuit is formed, which gives a constant alarm, as hereafter described.

To enable those skilled in the art to understand how to manufacture and use my invention, I will proceed to describe the same with particularity.

The same letters of reference refer to the corresponding parts in the different figures.

In the annexed drawing, B and C represent a portion of the interior of two rooms and the annunciator, which is located in the office of the hotel, with three coil-magnets, one of which, A, is a general magnet connected with all the others, and the other two, B' and C', are special magnets to each room, B and C, and are connected directly by wires each with its particular room. I have as many special magnets as I have rooms, each magnet being

connected by a special wire with its particular room.

In the annexed drawing, B' is the special magnet for the room B, and C' for the room C. D is the galvanic battery, one pole of which is connected, through the thumb-screw E and wire F, to the coil-magnet A, that being what I call the general magnet, on account of being connected with all the special or room magnets. It is connected with the special or room magnets by the wire H', which connects it with the plate I, with which all of said magnets are connected, as hereafter described.

The magnet C' has one end of its wire J attached to the plate I, while the other end is connected with the knob M in the room C, and the wire K of the magnet B' has one end also attached to the plate I, while the other end is connected with the knob M in the room B.

There is also a wire, N, which is connected with one pole of the battery through the thumb-screw L, and is connected with the knob M in each of the rooms, so that, when the knob M is pulled, as hereafter described, the circuit is completed through that room and the annunciator.

There is a vibrating armature, O, pivoted in the center, and located between the poles of each coil-magnet in such a manner that when a circuit is closed through any one of the magnets its armature will be vibrated by the ends of the armature being drawn to the poles of the magnet.

To each of the armatures connected with the special or room magnets there is attached an arm or projection, P, which, when the armature is vibrated by the closing of the circuit, strikes against the vibrating arm Q, which supports the blind or curtain R, opposite the number on the dial S corresponding to the number of the room through which the circuit is closed.

The arms Q are so pivoted to the plate T that they will stand in a position to hold the blind R directly behind the numbers on the dial S till they are swung by the projections P, as above described, from behind the number to the position in Fig. 1.



The blinds or curtains are swung back into position by turning the crank U, which slides the piece V, the notches thereon vibrating the arms Q.

W is a spring for holding the piece V away from the operations of the arms Q only when moved by the crank U, as above described.

There is a bell-hammer, A', attached to the armature O of the general magnet A, so that when the armature is vibrated, as above described, it causes the hammer to strike the bell D' and give an alarm; and, as the general magnet A is connected with all the other magnets, whenever the circuit is completed through any of the special magnets it also passes through the general magnet A, and causes the bell to strike, so that the bell strikes and gives the alarm at the same time that the blind falls from behind the number on the dial indicating the number of the room in which the circuit was completed.

The hammer-handle A' passes through a notch in the vibrating arm E', and it is so arranged that just before the hammer strikes the bell the handle A' causes the arm E' to vibrate and close a circuit through the wires I' and H' and the points at I', which shunts the magnet A and relieves the attraction on the armature, when the spring J' raises the hammer.

The permanent magnet K' holds the point I', which is thrown against one of its arms by the vibration of the arm E' as the shunt-circuit is closed, and holds said circuit closed until the hammer-handle is raised nearly its full stroke, when it strikes the side of the notch in the vibrating arm E' and raises it, which opens the shunt-circuit, and the circuit is thrown through the magnet A again, and the strokes of the hammer are repeated so long as the circuit through the room is kept closed.

When there is no circuit closed through any of the rooms the spring J' raises the hammer, and the point or armature I' is held by the permanent magnet, so that the shunt-circuit is held open till the current has passed through the magnet A and caused a stroke of the hammer, as above described.

The shunt above described also serves the additional purpose of increasing the strength of the circuit through the special magnet of the room in which the circuit is closed. When the circuit is first closed it passes through the magnet A, as above described, being weakened by the resistance of that magnet. As soon, however, as the circuit through the shunt is closed, the resistance of the magnet A is avoided, and the force of the circuit in the special magnet correspondingly increased, so that if at first the current is not strong enough to vibrate the armature of the special magnet and tilt the blind or curtain, as above described, the increased force will always effect it.

The circuit is closed in the room by pulling the knob M and bringing the pin a, which is connected with the wire N through the spindle of the knob, in contact with the wire J. When the knob M is released it is thrown back in place by the coil-spring b. c is a wire or rod, one end of which is connected with the wire N, and the other end with the bar e. This rod is made of metal, which expands when heated, and is so connected with the bar e that it holds the points at f apart till it expands, and when it expands the spring g draws the points together and closes the circuit.

If the room becomes sufficiently hot to expand the wire c, and the wire can be so constructed as to expand and close the circuit at any desired increased temperature, the circuit is permanently closed and a constant alarm is given at the office by the striking of the bell D', as above described.

A single signal is given by the occupant of a room by pulling the knob M and releasing it; but, in case of a fire in a room sufficiently hot to expand the wire c, the circuit is permanently closed and a continuous signal given.

The dial S of my annunciator is an ordinary glass, covered on the inside with an opaque substance, such as paint or paper, excepting the outlines of the figures indicating the numbers of the various rooms, they being made in the opaque substance and seen through the glass, the blinds behind the figures being of the color of the opaque covering of the glass, and the figures to be obscure till the blinds are tilted, as above described. This is a cheap, simple way of constructing the dial, and causes the number of the room from which the signal is given to be shown very distinctly.

By pivoting the armatures O they can be vibrated, as above described, without overcoiling a weight or the force of a spring, which has heretofore been objectionable on account of the electric force required to move the armature.

Having thus fully described the construction and operation of my hotel-annunciator, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the pivoted armatures O and tilting blinds or curtains K, when constructed and operating in an annunciator, substantially as and for the purposes specified.

2. The combination of the magnet A and shunt with the special magnets B' C' when so constructed and arranged that the electric current passes alternately through the magnet and shunt automatically, for the purpose of strengthening the currents to the magnets B' C' when the magnet A is shunted.

3. The permanent magnet K', in combination with the shunt-circuit and the alarm-bell, when constructed and operating substantially as and for the purposes specified.





4. The combination of the permanent magnet K', the vibrating arms L', B', and A', when constructed and arranged substantially as described, for the purposes of opening and closing the circuit of the shunt.

5. The dial S, provided with transparent figures, in combination with the shifting blind, as and for the purpose described.

6. The combination of an electro-magnetic

annunciator and fire-alarm, when said fire-alarm is so constructed and arranged that the action of the heat closes the same circuit used by the annunciator, substantially as specified.

EDWARD A. HILL.

Witnesses:

L. L. CORURN,

J. L. CORURN.



E. A. HILL.

Improvement in Hotel-Annunciators and Fire-Alarms.  
No. 114,007. Patented April 25, 1871.

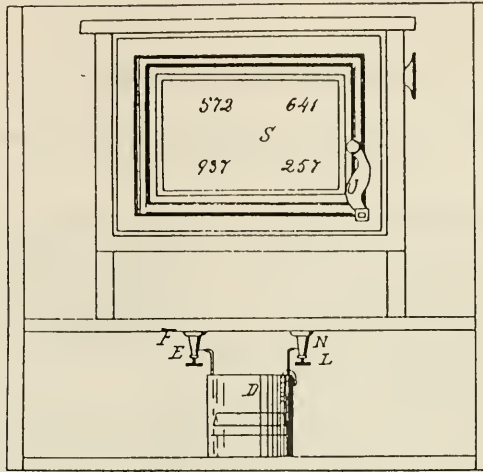


Fig. 1

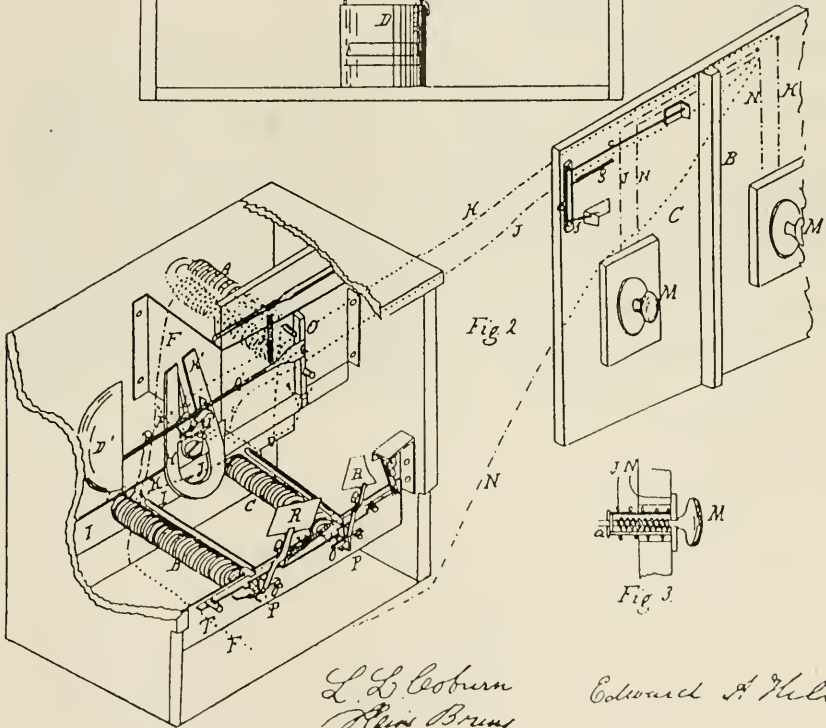


Fig. 2

Fig. 3

L. L. Coburn  
Plum. Bruns.

Edward A. Hill.



# UNITED STATES PATENT OFFICE.

CHARLES W. LEWIS, OF CHICAGO, ILLINOIS.

## DESIGN FOR ANNUNCIATOR-DIALS.

Specification forming part of Design No. 8,999, dated February 15, 1876; application filed January 3, 1876.  
[Term of Patent 14 years.]

*To all whom it may concern:*

Be it known that I, CHARLES W. LEWIS, of the city of Chicago, county of Cook and State of Illinois, have invented a Design for a Face or Dial of an Annunciator, of which the following is a specification:

The nature of my design is fully represented in the accompanying drawings, to which reference is made.

A represents the face or dial plate of the annunciator, and is shown slightly in perspective. B represents figures upon the dial-plate, which are intended to be the same as the numbers of the rooms with which the annunciator is connected. Letters are sometimes used instead of figures. C are pointers or indicators, which are turned to the figures or letters to indicate the room from which a call is made. The dial-plate A is made a dark color, or jet-black. The figures B are made the color of gold-leaf, and the indicators are made of light metal color, by preference; but I do not wish to limit my invention to making the figures gold color and the indicators light metal color, because the same contrast between the dial, figures, and indicators could be produced by making the indicators gold color and the figures light-metal color, and

they would produce substantially the same appearance in connection with the black background.

I have not represented the different colors in the drawings, but have shown the different parts, so that, when taken in connection with this description, my invention will be limited to the contrast of colors, substantially as above specified, my design, consisting of the dark dial-plate and of the bright figures and indicators or pointers of different bright colors, making the contrast of colors, and presents a very attractive appearance.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

An ornamental design for an annunciator-dial, consisting of the following features: a black background, gilt letters or figures placed thereon and arranged in rows across the dial, and bright metal pointers corresponding in number and arrangement to said letters or figures, substantially as described.

CHARLES W. LEWIS.

Witnesses:

HEINRICH F. BRUNS,  
L. M. HARRIS.



# UNITED STATES PATENT OFFICE.

EDWARD A. HILL, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN ELECTRIC ANNUNCIATORS AND FIRE-ALARM CONDUCTORS.

Specification forming part of Letters Patent No. 170,784, dated May 2, 1876; application filed April 21, 1875.

*To all whom it may concern:*

Be it known that I, EDWARD A. HILL, of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Means for Inclosing and Running Wires to Form the Circuits of Electric Annunciators and Fire-Alarms, of which the following is a specification:

There has hitherto been great difficulty experienced in fitting a building (hotel or dwelling-house) with the wires to constitute the numerous circuits required by electrical annunciators and fire or burglar alarms. It is desirable that the wires shall be concealed from view, guarded from accidental injury, and protected from moisture; that they shall be always readily accessible for purposes of electrical tests and to repair breaks; and also that they shall be so disposed that new or additional wires may be supplied to form additional circuits.

To provide a means for readily accomplishing these several results is the object of this invention.

I propose to provide a series of tubes or pipes broken at each turning, and at intervals along their lengths, by open spaces, to afford access to the bundle of several wires which are run through said tubes. These tubes or pipes are laid throughout the building, preferably supported by the lathing, before the plastering is applied, and under the flooring before it is put down.

The object being to conceal or cover the pipes, they may be put through the walls or between the walls, or between the floors and ceilings, in manner desired, it being only necessary that the breaks in said pipes should be accessible through pockets or traps or other apertures in the floor, ceiling, or walls opposite said breaks, all of which will be hereinafter more fully explained.

The accompanying drawing, which forms a part of this specification, represents said series of pipes, or a portion thereof, as applied.

In the said drawing, A represents a portion of a lathed wall before the plastering is applied. B is a section of the flooring. C C' C<sup>2</sup> C<sup>2</sup> are several of a series of small tubes or pipes secured to the lathing, or elsewhere, wherever it may be desired to run the wires of the annunciator or other circuits. The several tubes are separated from each other by

an interval. The interval at D is for the purpose of taking out one of the wires and breaking it to form terminals for key, which may be placed by the side of the break.

The breaks at E E are to accommodate the bend or change of direction from a horizontal to a perpendicular or vertical direction.

The break D may be covered or concealed by the plate of the key, and the breaks E are below the flooring B and concealed thereby. The flooring at this point is cut and a removable trap, H, inserted, to form what is technically termed a "pocket" to render the break accessible. These pipes, in series, are extended throughout the entire building, with breaks at every turning and at every place where a key is to be inserted, and also with breaks when proceeding vertically at every floor, and in every place where they can be properly concealed, and yet be made accessible. The wires to form the numerous circuits are pushed through these pipes and led to their destination.

Where a series of rooms occur one above another the wires for the whole series are run up a single pipe series extending to the uppermost.

The single return-wire of the circuit, common to the whole of the other wires, is inclosed with the smaller wires of the separate circuits, so that the circuits may be tested at any of the breaks.

Wires for new circuits may be added by simply pushing them through the tubes, commencing at one of the breaks and continuing through all the tubes.

The wires are indicated in the drawing by the letter K, and are several in number, to supply the number of circuits required.

Having thus described my invention, that which I claim as new, and desire to secure by Letters Patent, is—

The combination, with the wires of a series of circuits, of a series of inclosing tubes or pipes arranged within the walls or floors, either or both, of a building, and separated from each other by breaks accessible from the exterior of the walls or floors, substantially as and for the purposes set forth.

EDWARD A. HILL.

Witnesses:

J. W. MUNDAY,  
HEINRICH F. BRUNS.

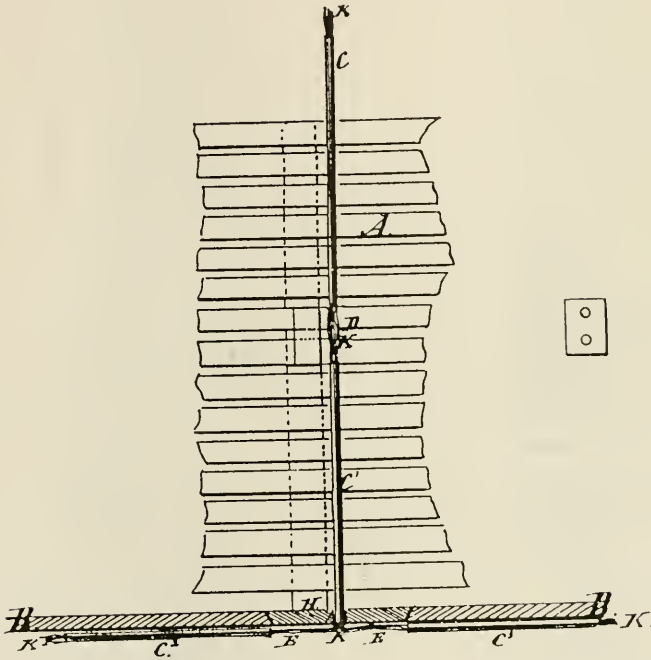




E. A. HILL.

ELECTRIC ANNUNCIATOR AND FIRE ALARM CONDUCTORS.  
No. 176,784.

Patented May 2, 1876.



Witnesses:

*Sturwick, L. Brown.*  
*Edw. B. Mealy and*

Inventor:

*Edward A. Hill*  
*by Coburn & Murray*  
*his atty.*



*Western Electric Manufacturing Co.*

The following are among the HOTELS which have been fitted up with our Annunciators.

PALMER HOUSE.....	Chicago, Ill.
GRAND PACIFIC.....	"
SHERMAN HOUSE.....	"
TREMONT HOUSE.....	"
*GARDNER HOUSE.....	"
ADAMS HOUSE.....	"
MATTESON HOUSE.....	"
MASSASOIT HOUSE.....	"
GRAND CENTRAL.....	"
*ST. CAROLINES COURT.....	"
ANNA HOUSE.....	"
REVERE HOUSE.....	"
OAKLAND HOUSE.....	"
COMMERCIAL HOTEL.....	"
*BIGELOW HOUSE.....	"
*GAULT HOUSE.....	"
MICHIGAN AVENUE HOUSE.....	"
PEORIA HOUSE.....	Peoria, Ill.
McGILL HOUSE.....	Clinton, Ill.
ROBERTSON HOUSE.....	Joliet, Ill.
HARPER HOUSE.....	Rock Island, Ill.
CENTENNIAL HOUSE.....	Danville, Ill.
HIGHLAND PARK HOUSE.....	Highland Park, Ill.
*LAKE FOREST HOUSE.....	Lake Forest, Ill.
LINCOLN HOUSE.....	Lincoln, Ill.
HYDE PARK HOUSE.....	Hyde Park, Ill.
BURTIS HOUSE.....	Davenport, Iowa.
GRANT HOUSE.....	"
STARR'S HOTEL.....	Burlington, Iowa.
GORHAM'S HOTEL.....	" "
OGDEN HOUSE.....	Council Bluffs, Iowa.
*HUBBARD HOUSE.....	Sioux City, Iowa.
GRAND CENTRAL HOTEL.....	Omaha, Neb.
*CANNON HOUSE.....	Lincoln, Neb.
*ATWOOD HOUSE.....	" "
COMMERCIAL HOTEL.....	" "
TOWNSEND HOUSE.....	Oconomowoc, Wis.
COOK'S HOTEL.....	Green Bay, Wis.
REVERE HOUSE.....	Oshkosh, Wis.
PARK HOTEL.....	Madison, Wis.
PLANKINTON HOUSE.....	Milwaukee, Wis.
ST. CHARLES HOTEL.....	" "
CAPITAL HOUSE.....	Little Rock, Ark.
GRAND CENTRAL.....	Hot Springs, "
BINKLEY HOUSE.....	Sherman Texas
JOPLIN HOUSE.....	Joplin, Mo.
*CUTLER HOUSE.....	Grand Haven, Mich.

Reprinted from, Western Electric Manufacturing Co., Price List of Western Electric Manufacturing Co., Including Electric Bells and Annunciators Suited for Calls in Hotels Residences.... (Chicago, 1877), 16 - 17.



*VAUGHN HOUSE.....	Eaton Rapids, Mich.
SOUTHERN HOTEL.....	St. Louis, Mo.
GRAND CENTRAL HOTEL.....	South Bend, Ind.
ST. NICHOLAS HOTEL.....	Lafayette, Ind.
ST. JAMES HOTEL.....	Richmond, Ind.
GRAND HOTEL.....	Indianapolis, Ind.
ST. CHARLES HOTEL.....	" "
REMY HOTEL.....	" "
ALVORD HOUSE.....	" "
KIRBY HOUSE.....	Muncie, Ind.
*BOODY HOUSE.....	Toledo, Ohio.
ST. CHARLES HOTEL.....	Columbus, Ohio.
ROUSH HOUSE.....	Zanesville, Ohio.
NEWARK HOUSE.....	Newark, Ohio.
MARTINSBURG HOUSE.....	Martinsburg, Md.
OAKLAND HOUSE.....	Oakland, West Vir.
MONONGAHELA HOUSE.....	Pittsburgh, Pa.
ST. CHARLES HOUSE.....	" "
UPDEGRAFF HOUSE.....	Williamsport, Pa.
GIRARD HOUSE.....	Philadelphia, "
AUBRY HOUSE.....	" "
GREAT WESTERN HOTEL.....	" "
WEST END HOTEL.....	" "
ST. GEORGE HOTEL.....	" "
LA PIERRE HOUSE.....	" "
WARD HOUSE.....	Towanda, "
VANCE HOUSE.....	" "
WINDSOR HOTEL.....	Montreal, Canada.
ARCADE HOTEL.....	Cincinnati, Ohio.
*SALT LAKE HOUSE.....	Salt Lake City, Utah.
*TOWNSEND HOUSE.....	" " "
WALKER HOUSE.....	" " "
WILER HOUSE.....	Mansfield, Ohio.
KERR HOUSE.....	Marion, O.
CHICAGO CLUB HOUSE.....	Chicago, Ill.
CLUB HOUSE.....	Cincinnati, O.

The following are a few of the Residences which we have supplied with Calls and Buzzer Alarms:

GEO. M. PULLMAN.....	Chicago, Ill.
DANIEL THOMPSON.....	" "
E. W. BLATCHFORD.....	" "
GEORGE L. DUNLAP.....	" "
PERRY H. SMITH.....	" "
ALEXANDER MITCHELL.....	Milwaukee, Wis.

AND MANY OTHERS.

\*Those marked with a \* have our Annunciator of former pattern, which is lacking in some of the merits of the Needle Annunciator as now made.



Appendix M

U.S. Patent No. 123,808

Charles E. Chinnock, of New York  
Assignor to Edwin Holmes of Brooklyn, New York

Improvement in Electro-Magnetic Annunciators

February 20, 1872





# UNITED STATES PATENT OFFICE.

CHARLES E. CHINNOCK, OF NEW YORK, ASSIGNOR TO EDWIN HOLMES, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN ELECTRO-MAGNETIC ANNUNCIATORS.

Specification forming part of Letters Patent No. 123,805, dated February 20, 1872.

*To all whom it may concern:*

Be it known that I, CHARLES E. CHINNOCK, of New York city, in the county and State of New York, have invented a new and Improved Electro-Magnetic Annunciator; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a vertical transverse section of my improved annunciator. Fig. 2 is a front view of the same. Fig. 3 is a vertical section of the same taken on the plane of the line *c c*, Fig. 1, and seen in the direction of the arrow 1. Fig. 4 is a similar section of the same taken on the plane of the line *k k*, Fig. 1, and seen in the direction of the arrow 2.

Similar letters of reference indicate corresponding parts.

This invention has for its object to provide an automatic indicator for electro-magnetic alarm or call apparatus, and means for establishing currents through audible or other signals whenever the indicator is set in motion. It is intended for use on alarm apparatus to first indicate the locality at which the operating current was established and subsequently start the alarm, and is equally well applicable to hotel-annunciators and similar apparatus for showing the number of room and calling the attendant.

A in the drawing represents the face-plate or dial of the indicating apparatus. It has a series of keys, *a a*, arranged radially or otherwise around a common center, every such key serving to establish metallic connection between a wire, *b*, from the battery, and a spring, *d*, adfixed to the reverse of the plate A. B is a shaft, hung in the frame of the machine and in the plate A, forming the center of the series of keys *a*. The shaft B carries on the face of the plate A a projecting pointer, *e*, and on the reverse of said plate a projecting metallic spur, *f*. *g* is a metal plate, secured to the back of A around the shaft B, but insulated from the latter. The several springs *d d' d'' d'''*, &c., connecting with the several wires *b b' b'' b'''*, &c., respectively, all bear with their loose ends against this plate *g*, from which a wire, *h*, leads

to an electro magnet, C. The armature-lever D of this magnet has a projecting arm, *i*, entering, when raised, a spur-wheel, *j*, of a clock-work, E, and preventing, consequently, any movement of said clock-work. The shaft B is, by gearing *l*, connected with the clock-work, to be rotated thereby whenever the arm *i* is withdrawn from the wheel *j*. The spur *f* will, when the shaft B revolves, slide beneath the springs *d d'*, &c., and break contact between them and the plate *g*. *m* is a metal spring, resting upon a collar, *n*, of the shaft B, and connected with a wire, O. The armature D has a hook, *p*, formed at its end. A hooked drop, F, catches over this hook *p*. When the armature is lowered the drop F is released, and is by a spring, *r*, drawn against a metallic rest, G. A rod, *s*, and lever, *t*, connected with the drop F and with a key or handle, *u*, can be used to relock the drop F to the hook *p* of the armature. It is a battery, from which a wire, *v*, leads to a screw-emp, *w*, whence another wire, *x*, extends to the magnet C. *y* is a switch on the wire *x*, for breaking the circuit. Wires *z z' z'' z'''*, &c., lead from the other pole of the battery to the several rooms or parts of a house, and connect thence with the several wires *b b' b'' b'''*, &c., respectively. The wire *z* is shown to lead to a window, I, from which the wire *b* goes to a spring, *d*. When the window is raised a circuit is established through the wires *z b*, spring *d*, plate *g*, wire *h*, electro-magnets, wires *x* and *v*, so that the electro-magnets will be charged. This will cause the armature *d* with its arm *i* to be drawn down and the train of wheels released, so that the shaft B will be revolved until the spur *f* lifts the spring *d* from the plate *g*, and thereby breaks the circuit. The armature is then drawn off the magnet by its spring, and the arm *i* will stop the train of wheels, causing the pointer *e* to stop opposite the spring *d*, through which the circuit started. The pointer will thus on the keys *a* or equivalent marks indicate the name or number of the window or thing moved; or, if on an annunciator, the number of the room in which the circuit was closed. The spur *f*, in breaking the circuit through the magnet C, transfers it from the spring *d*, with which it remains in contact, to the spring *m*, and thence by the wire *o* to the magnet of an



alarm-bell, J, to which a branch of the wire *v* extends, as shown in Fig. 3. Thus a burglar-alarm can be set in operation by the action of the primary current through the springs *d*. When the apparatus is used for an annunciator the spring *m* is dispensed with but the drop F and rest G applied. The current, when closed in any room, charges the electro-magnet as above described, lowers the arm *i*, and causes rotation of the shaft B until the spur *f* breaks the circuit. In being attracted to the magnet the armature releases the drop, which falls against the rest G, and thereby establishes a new circuit through the bell L. This circuit is as follows: A branch, *a*\*, from the wire *z* or the same pole of the battery leads to the magnet of the bell L and another wire, *b*\*; thence to the rest G. This rest being in contact with the drop F is thereby in metallic connection with a wire, *c*\*, which leads to the screw-cap *u*, whence the wire *r* extends to the battery, as shown. A continuous ringing is thus kept up to call the attendant, who, by the index *e*, can read the number of the room whence the call emanated. The circuit is broken when the attendant, by pressing on the key *u*, moves the lever *t* and rod *s* so as to carry the drop F back over the hook *p* of the armature, separating thus the drop from the rest.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The spur *f*, affixed to the rotary shaft B for raising the springs *d d'*, &c., off the plate *g*, and thereby interrupting the currents which give it motion, as set forth.

2. The pointer *e*, applied to the shaft B, in combination with the spur *f* and springs *d d'*, &c., substantially as herein specified.

3. The collar *u* on the shaft B, combined

with the spur *f*, spring *m*, and plate *g*, to establish a secondary current, substantially as herein shown and described.

4. The plate *g*, secured in the frame A and in metallic contact with the springs *d d'* which connect with the battery, but insulated from the shaft B, whose spur *f* breaks such connections, as set forth.

5. The springs *d d'*, &c., secured to the plate or frame in metallic contact with the fixed plate *g*, from which they can be raised by a spur, *f*, on a rotary shaft, B, as set forth.

6. The combination, on an alarm apparatus, of the springs *d d'*, plate *g*, shaft B, and spur *f*, with the collar *u* and spring *m*, substantially as herein shown and described.

7. The armature D, provided with a projecting arm, *i*, which engages in a wheel of a clock-work, to arrest the same as long as the armature is not attracted by its magnet, as specified.

8. The clock-work E, imparting motion to the shaft B, but arrested by an arm, *i*, of the armature, which, when drawn down by the charging of its electro-magnet, releases the clock-work, allowing it to revolve the shaft, as specified.

9. The shaft B, so connected with the clock-work E and with a projecting spur, *f*, that when moved it will serve, by the action of the spur on the springs *d d'*, &c., to arrest the train which gave it motion.

10. The lever and rod *s*, in combination with the drop F, to reset it upon the armature-lever, and thereby break the circuit, and at the same time release the train of clock-work, as set forth.

CHARLES E. CHINNOCK.

Witnesses:

GEO. W. MABEE,

T. B. MOSHER.



C. E. CHINNOCK. 2 Sheets--Sheet 1.  
 Improvement in Electro-Magnetic Annunciators.  
 No. 123,808. Patented Feb. 20, 1872.

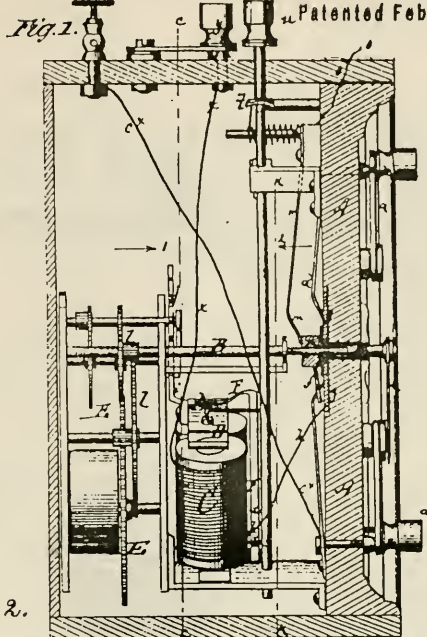
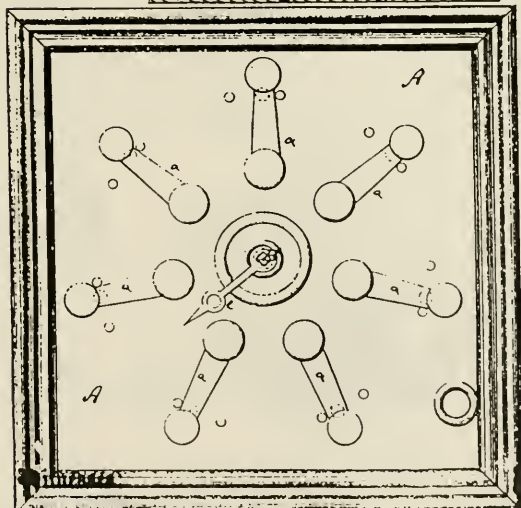


Fig. 2.



Inventor:

*John Beecher.  
 Francis. McCord.*

*C. E. Chincock*

*Per Munnell  
 Attorneys.*



C. E. CHINNOCK.

2 Sheets--Sheet 2.

Improvement in Electro-Magnetic Annunciators.  
No. 123,808. Patented Feb. 20, 1872.

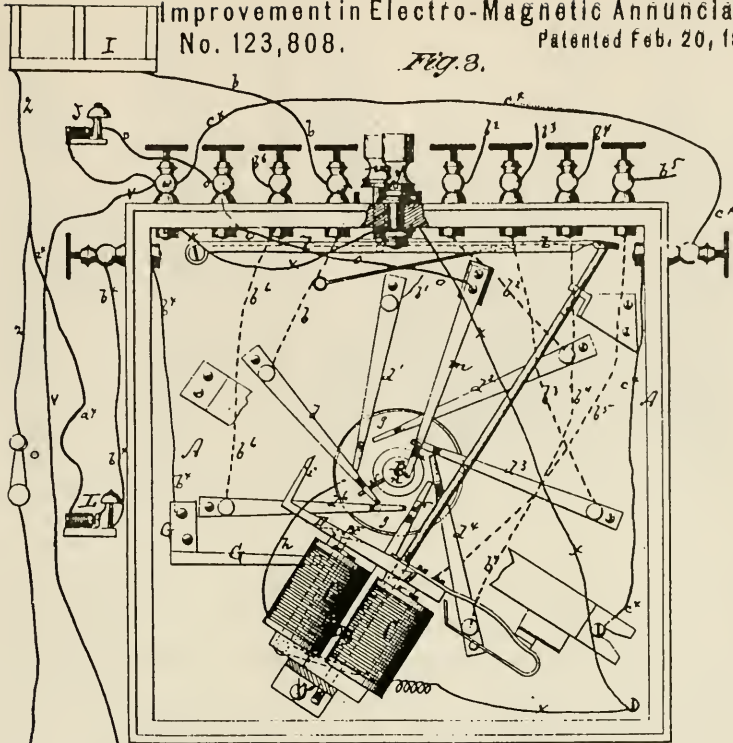


Fig. 3.

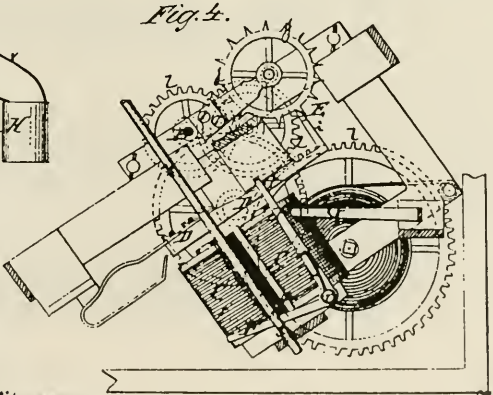


Fig. 4.

Witnesses:

John Becker.  
Francis McArdle

Inventor:

C. E. Chincock

PER *Munnell*

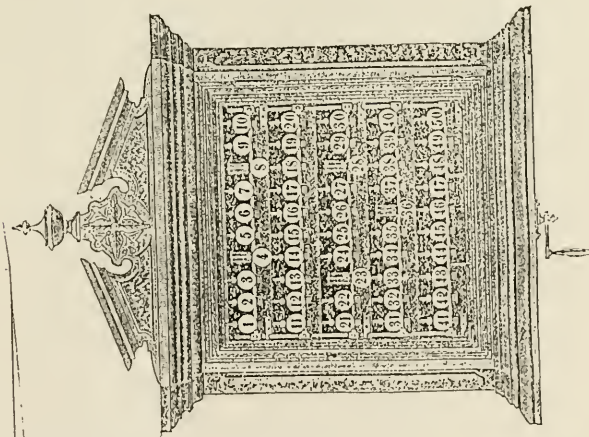
Attorneys.











ELECTRIC

House and Hotel Annunciator,

BELL CALLS FOR EVERY PURPOSE,

Signals, Bells, Batteries, Wires, &c. &c.

T. E. CORNISH,

1111 CHESTNUT STREET, PHILADELPHIA.

PARTICULAR ATTENTION

IS REQUESTED TO OUR

House and Hotel Annunciator

IT CONSISTS OF A SINGLE

CALL BELL AND ANNUNCIATOR

In the kitchen or servants' department, and so arranged that a simple touch of a small ornamental spring in each room of the house

RINGS THIS BELL, AND ANNOUNCES

The room from which the call proceeds. The whole is operated by

ONE BATTERY, OR BY THE SAME BATTERY

THAT OPERATES THE

BURGLAR ALARM TELEGRAPH.

It is simple, perfect and reliable, and will not get out of order, and is a very great improvement upon the old system of "bell pulls." We also have

AN ATTACHMENT FOR RINGING THE SERVANT'S BELL, FROM THE TABLE OR DINING ROOM,

AND

Calling the Coachman from the Stable.

No one should build or even live in a house without examining these electrical appliances, without which no house can be said to have all or even the

MOST IMPORTANT OF MODERN IMPROVEMENTS.

Your attention is respectfully invited to the merits of the

BURGLAR ALARM TELEGRAPH,

AS A PROTECTION AGAINST

BURGLARS AND ASSASSINS.

THE TESTIMONY OF HUNDREDS

Who are using this protection, and *twelve years experience without a failure*, proves that not a house, bank, or store has been robbed, or a *safe blown open*, that this protection, properly applied to the premises, would not have failed.

NO BANK OFFICER OR WATCHMAN

Should sleep with the keys of the bank under his pillow, or in his room or house, without some means to awaken him upon the approach of robbers.

Life has no value if the Burglar is allowed an Advantage.



Appendix O

Reissue 6,599  
of  
U.S. Patent No. 20,970

William G. Russell and Abraham Firth,  
of Boston, Massachusetts,  
Executors of William Whiting, Deceased,  
Assignors to Edwin T. Holmes

Improvement in Electro-Magnetic House-Alarms

August 17, 1875



# UNITED STATES PATENT OFFICE.

WILLIAM G. RUSSELL AND ABRAHAM FIRTH, OF BOSTON, MASSACHUSETTS,  
EXECUTORS OF WILLIAM WHITING, DECEASED, ASSIGNORS TO EDWIN  
T. HOLMES.

## IMPROVEMENT IN ELECTRO-MAGNETIC HOUSE-ALARMS.

Specification forming part of Letters Patent No. 20,970, dated July 20, 1859; extended seven years; reissue  
No. 6,599, dated August 17, 1875; application filed July 23, 1875.

*To all whom it may concern:*

Be it known that WILLIAM WHITING, counsellor at law, late of Roxbury, in the county of Norfolk and State of Massachusetts, did, in his lifetime, make an invention of a new and useful Improvement in Electro-Magnetic House-Alarms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 is a view of a portion of a dwelling-house with the said improved apparatus attached. Figs. 2 and 2\* represent a vertical section through the room, showing the indicating and alarm apparatus in elevation; Figs. 3, 4, 5, 6, and 7, details to be referred to hereafter.

Previous to the invention of said WHITING an apparatus had been employed as a burglar-alarm in which a single electric circuit was employed in connection with the windows and doors of a building, and so arranged that the opening of any one of them should close the circuit and sound an alarm. Such apparatus, however, furnished no indication of the whereabouts of the window or door so opened, and the proprietor was left to search through the whole house for the intruder, who was himself perhaps alarmed and enabled to escape. Such apparatus, moreover, afforded no means for the disconnection of any particular portion of the house from the alarm instrument independently of the other portions, so that it was impracticable to disconnect a particular room or door from the alarm instrument without disconnecting the entire house.

The objects attained by the invention of said WHITING were the production of a house-alarm which not only alarms the proprietor or guardian of the house on the intrusion of a burglar, but at the same time indicates to him the part of the house attacked, so that his attention may be immediately directed to the particular room where an entry has been attempted or effected, and also the capacity of disconnecting one portion of the house from the alarm instrument without disconnecting the other portions of the house therefrom.

The first of these objects was accomplished

by the said WHITING by the employment of a series of electro-magnetic circuits (one for each distinct room or portion of the house to be guarded) in connection with an indicator for indicating the portion of the house attacked, and with an alarm apparatus, (for sounding the alarm,) which is common to the several circuits of the series, the doors and windows of the house being so connected with the circuits that the opening of any one of them shall close or break the circuit with which it is connected, cause the alarm to be sounded to all the circuits of the series, and indicate upon the indicator the particular room assailed.

The second of said objects was accomplished by said WHITING by the employment of a switch in each of the magnetic circuits of the series which it was expedient to disconnect from the alarm instrument that was common to the whole series of circuits, so that the openings of the house controlled by said switch could be disconnected from the common alarm instrument without disconnecting the other circuits of the series from that instrument.

In order that others skilled in the art might understand and use the said invention, the said WHITING represented the manner in which he carried the same into effect, as in the accompanying drawings, and described the same in the following words:

In the drawing, B is the indicator, which is placed in any convenient position in the house to be protected, (as in the sleeping-room of the proprietor.) It is here shown attached to the wall of the room. It consists of a board, to which are secured the electro-magnets 1, 2, 3, 4, 5, and 6, there being one magnet for each indicating-circuit. The operation of all being similar but one will be described. I may here remark that each circuit of wires may protect a single window or door, or a single room or entry. The latter plan is the one here represented.

Near the indicator, in any convenient place, is secured a shelf, C, which supports the alarm apparatus. This consists of an electro-magnet, F, the armature of which, as the magnet





2

is made by the closing of the circuit of its battery, operates the hammer of a bell, and causes it to ring so long as its circuit remains closed and its battery continues in operation. This ringing is accomplished by a well-known device of inserting a small piece of a non-conducting substance in a vibrating arm connected with the armature, one of the wires of the battery being in contact with the arm, and the arm being connected with one end of the coil; but as the method of ringing the bell forms no part of my present invention it need not be more fully described.

A battery, D, which operates the alarm apparatus, and a battery, E, which operates the indicator and the indicating-circuits, are placed in any convenient and secure situation. From one pole of the battery D the wire *a* leads to the bell-magnet F; and from this magnet another wire, *a'*, leads to a piece of metal, *b*, secured to the board of the indicator B. To this piece *b* is pivoted at *c* the armature *f* of the magnet I of the indicator. From the opposite pole of the battery D the wire *d* leads to a hook or staple at *e*, on the indicator-board, against which the armature *f* springs back when the coil of the magnet I ceases to be charged. This armature is furnished with a small spring, *i*, which bears against a pin in the board, for the purpose of throwing the armature back. The wires *a*, *a'*, and *d*, and battery D, constitute the bell-circuit, which is closed when the armature *f* is in the position seen in Fig. 2, and the bell is rung, as before explained.

From one pole of the battery E the wire *h* is led to the magnet I, and from the opposite end of the coil of this magnet other wires and springs complete the circuit, as will be hereafter explained, the wire *g* entering the opposite pole of this battery. These wires, with the springs and boxes to be described, and the battery E, constitute the indicator-circuit. When this circuit is closed the magnet I is made, and its armature *f* is drawn up to it. This breaks the bell-circuit, as explained; but when the current through the coil of the magnet I is broken the armature *f* is thrown back by its spring *i* into contact with the staple *e*, and the bell-circuit is completed. A small shield, *k*, on the end of the armature, covers a letter, A, attached to the upper side of the board whenever it is drawn up to its magnet, and discloses the letter whenever the armature is thrown back by its spring. Thus the bell is rung, and a letter indicating the room is exposed to view each time the indicator-circuit is broken. The manner in which this is broken or closed by the opening or shutting of a door or window, will now be explained.

In the door-frame G, Figs. 1 and 3, on the side to which the hinges are attached, is secured to a metal box, *m*, the back part of which may be open, a piece of non-conducting material, *l*, which rises vertically from the frame G. To this piece *l* is attached an insulated piece of metal, *n*. A slot, *o*, is cut through the

front plate of the box *m* of a sufficient size to allow a roller, *p*, to project a short distance beyond the line of the door-frame. This roller *p* has its axle hung in a piece to which is attached a bent spring, *r*. The piece *n* is pivoted at *v* to the sides of the box *m*, and is so arranged with respect to the piece *n* that when the roller *p* projects through the slot *o* the spring *r* will not be in contact with the piece *n*, but rest against the upper part of the piece *l*, and when the roller is pressed in by the closing of the door the end of the spring *r* shall slide down into and in contact with the piece *n*, as seen in Fig. 4. In Fig. 4 is shown the manner in which raising a window allows the roller *p* to spring out through the slot. (I may here state that a similar arrangement to that just described for the door is placed in the side of the frame of each window.) A groove, *s*, is cut in the side of the window-sash next to the box *m*, of a sufficient width and depth to allow the roller *p* to spring out through the slot *o*, as in Fig. 3; but as this groove does not extend quite up to the top of the sash, the upper part at *t*, which is not grooved, will press the roller back into the box whenever the sash is shut down, and when it is raised the roller will spring out into the groove *s* and allow the spring *r* to come away from the piece *n*. A similar arrangement is attached to the upper sash, so that when it is pulled down its roller *p* will spring out. Each of the above-described spring arrangements is included in some one of the indicator-circuits in such a manner that whenever the springs *r* are in contact with the pieces *n* the circuit will be closed, and when away from them will be broken.

The following is the arrangement here adopted: The wire *g* from the battery E is attached to the box *m* at *x*; another wire, *y*, is attached to the insulated piece *n*, and is led thence to the next box *m* in the circuit, (in the drawings, to the box in Fig. 4); and from the insulated piece *n* of this window to the next box (if there are more of them) is led another wire, *z*, and so on for each door or window of that room or circuit. From the last one the wire *z*, Figs. 4 and 2, is led to the magnet I of the indicator. Thus the circuit which makes this magnet is from the battery E through the box *m*, pivot *r*, spring *r*, to insulated piece *n*, when the spring is down on it; thence through the wire *y* to the next box, and so through all the boxes in the circuit; and from the piece *n* of the last one through wire *z* to the magnet I; thence through wire *h* to the opposite pole of the battery E. The wires used are coated or insulated in the ordinary manner. When thus arranged, if all the doors and windows embraced in this circuit are shut, the circuit will be closed, the magnet I will be made, and its armature *f* will be drawn up to it, when the shield *k* will cover the indicating-letter A, and the bell circuit will be broken, as before explained; but on the opening of a door or window the spring *r* will move out of contact of



the piece  $n$ , and the indicator-circuit will be broken, when the coil  $I$  will cease to be a magnet, its armature will be thrown back by the spring  $i$ , its indicating-letter will be disclosed, and the bell-circuit will be completed through the armature itself, causing the magnet  $F$  to ring the bell and give the alarm, which will be sounded so long as the indicator-circuit remains broken and the battery  $D$  lasts.

The system which I have described, in which a series of closed circuits is employed in connection with an open bell-circuit, is the one which I prefer; but this order may be reversed, and a series of open indicating-circuits may be used in connection with an indicator and an alarm apparatus; but this arrangement is by no means so safe as that above described.

As before stated, each room or entry will have its own indicator circuit and magnet, and its indicating letter, label, or number; but the same battery,  $B$ , (if of sufficient strength,) may be embraced in all the circuits, or as many of them as it is found convenient, and the armature of all the indicator-magnets may be embraced in one bell-circuit by connecting them with the wires  $a$  and  $d$ . The wire  $a$  of the bell-circuit is furnished with a switch,  $e$ , and the wire  $h$  of the indicating-circuit with a similar switch,  $f$ . These are for the convenience of the proprietor when he wishes to open or close either circuit; as, for instance, when he rises in the morning, and wishes to render the alarm inoperative, he turns the switch  $e$ , when the bell-circuit will remain open, and the bell will not be rung when the doors and windows are opened. Before switching on the bell-circuit at night he examines to see if all the indicating-circuits are closed. This he will see at a glance, for if any door or window has been left open the armature of the magnet belonging to that circuit will not be drawn up, and consequently the indicating-letter of that circuit will be exposed; and if the battery  $B$  has failed none of the magnets on the board will be made, and all the letters will be exposed, and if this battery should give out in the night the bell would be rung and give notice of it. When he finds the indicating-circuits are all in operation he closes the switch  $e$ , and then, to inform himself if the battery  $B$  is operative, he turns the switch  $f$ , which breaks the circuit through the wire  $h$ , and this causes the bell to ring if its circuit is not interrupted. He may then close the switch and retire, knowing that the whole apparatus is in working order. As it is desirable to have it in the power of the inmates to open a door or window without sounding the alarm, each room, or, if preferred, each door and window, may be furnished with a switch similar to  $f$ , placed in such a position that by turning it the circuit will continue made when the roller  $p$  springs out—for example, by attaching it to one side of the box  $m$ , and turning it in contact with the insulated piece  $n$ , when the door or window

is closed again, this private switch is turned off, and the place is protected as before.

If desirable, two or more bells may be included in the same alarm-circuit, (the battery  $D$  being made strong enough,) and be placed in different parts of the house, so that the inmates may be simultaneously informed of an attack, and thus render each other prompt assistance. In this case a switch, as at  $e$ , may be placed near each bell, or they may all be under the control of the proprietor, by means of switch  $e$ . In lieu of the arrangement shown in Fig. 4, wherein the closing of the window presses in the roller  $p$ , and thereby closes the circuit, another arrangement has proved in practice still more efficient. The cavity  $k$  is made opposite to the roller  $p$ , and of a length not much exceeding the diameter of the roller. When the window is closed, the roller springs out into  $t$ 's cavity. Instead of the wire  $z$  being attached to the piece  $n$ , it is attached to a similar insulated piece,  $e'$ , Fig. 5, on the upper part of the piece  $B$ , so that when the window is raised the roller  $p$  is pressed in and the spring  $r$  slides down out of contact with the piece  $e'$ , to which the wire is connected, and thus the circuit is broken, and continues broken until the window is again placed in its original position. This insures not only the sounding of the alarm, but the continuance of the ringing of the bell while the window is open, and renders it still more difficult for a burglar to meddle with the window-spring without giving an alarm, while in the arrangement represented in Fig. 4, if the lower sash be raised entirely up, the roller  $p$  will be again pressed in and the circuit closed, and if, to prevent this, the groove  $k$  be cut entirely to the bottom of the sash, and the latter be raised entirely up, the roller might be reached by a stick or wedge and be pressed in, and thus the continuous ringing of the bell be prevented.

In place of the above-described spring arrangements, I sometimes use the following more simple one: Two insulated pieces of metal,  $d'$ , Fig. 6, similar to  $n$ , Fig. 3, are secured to the inner face of that part of the window-frame with which the sash slides in contact when it is raised or lowered. To each of these pieces  $d'$  is connected one of the wires  $y$  and  $z$ . To the inner edge of the sash, opposite these pieces when the sash is closed, is secured a spring,  $u$ , Fig. 6, in such a manner that when the window is closed the two arms 1 and 2 of the spring shall be in contact with the insulated pieces of metal  $d'$ ; but whenever the window is raised the spring  $u$  will slide out of contact with one or both of the pieces  $d'$ , and the circuit will be broken and the alarm be sounded, as before.

One mode in which burglars sometimes enter dwellings is by removing or breaking out panes of glass from a window. To protect the building in this case I have adopted the following arrangements: I sometimes connect the wire leading to the window with that lead-



ing from the window, or to or from a series of windows in one circuit, by means of a fine conducting-wire,  $f'$ , Fig. 7, having attached to it at each end a small and light spring-clip of metal, one of these clips being slipped onto one of the wires,  $h'$ , Fig. 7, of the indicating-circuit, and the other one onto the other wire,  $h$ , the conducting-wire  $f'$  being carried across the panes of glass to be protected. I use a separate indicating-circuit for this fine protecting-wire, so as not to interfere with the circuit passing through the window-springs. When thus arranged, any attempt at forcing in a pane of glass, or any attempt to enter, will either break the fine wire  $f'$  or cause it to pull the spring-clips off from the wires  $h'$ , on which they have been slipped, and thus break the circuit and give the alarm.

If preferred, this wire  $f'$  may be removed out of the way except when its use is required. It may be covered with a protecting coating of some color that will render it nearly invisible at night.

A convenient arrangement of the last-described method of protection is to attach permanently to one side of the window-frame a small spring-box,  $g'$ , Fig. 7, in which the wire  $f'$  may be coiled up by the retraction of a spring, (in a manner similar to that used for tape measures,) one end of the coil being in contact with one of the circuit-wires  $h'$ , and a clip being attached to the other end of the wire  $f'$ , so that this wire may be drawn out of the box  $g$  when required across the window, and the clip on the end of it may be attached to the other wire  $h'$  of the circuit on the opposite side of the window.

Instead of the alarm apparatus above described, I sometimes dispense with the magnet  $F$  and battery  $D$ , and use a bell rung by mechanical power, the same being so arranged that when, by the breaking of either one of the indicating-circuits, the armature  $f$  is thrown back by its spring  $i$ , it shall let off a detent which will allow the power employed to ring the bell to act.

The ways of constructing alarm-bells which are rung by mechanical power, and where the ringing is permitted by the motion-giving machinery to a detent, are well known, and need not be here described; but in my invention the motion of the detent is caused, not by the action of any part of the mechanism of the bell itself, but by the movement of the armature caused by the breaking of the elec-

tric circuit, in the manner substantially as described.

When a series of indicating-circuits is employed the closing of either one of them draws up the armature, and thereby allows the movement of the detent, and the alarm apparatus is set in motion.

Under certain circumstances a separate alarm apparatus may be dispensed with, the noise made by the armatures coming in contact with the magnets being sufficient to give the alarm. Such method, however, I do not recommend.

Hereinbefore the letters of the indicator have been represented as exposed to view by the motion of the armature of the indicator-magnets; but it is obvious that other methods of indicating may be employed, as, for instance, pointing to a word or letter or number.

What is claimed as the invention of the said WHITING is—

1. The improved house alarm, substantially as hereinbefore described, consisting of the combination of the following elements, viz: first, a series of electro-magnetic circuits; second, an indicator to designate the respective circuits; third, an alarm apparatus common to all the circuits of the series; fourth, the window or door springs—the whole operating, as set forth, to put in operation the alarm apparatus that is common to all the circuits of the series, and to indicate the particular circuit of the series which is attacked.

2. The combination, substantially as before set forth, of the following devices, viz: the series of magnetic circuits, the alarm apparatus common to all the circuits of the series, and the switch for disconnecting a particular circuit of the series of circuits from the alarm apparatus without disconnecting the remainder of the series of circuits from that apparatus.

Witness our hands this 12th day of July A. D. 1875.

W. G. RUSSELL,  
ABRAHAM FIRTH,  
*Executors of the will of Wm. Whiting.*

Witnesses to signature of W. G. RUSSELL:  
H. H. SANBORN,  
WILLIAM HEDGE.

Witnesses to signature of ABRAHAM FIRTH:  
J. F. R. FIRTH,  
C. C. SHELDON.



W. WHITING, dec'd.

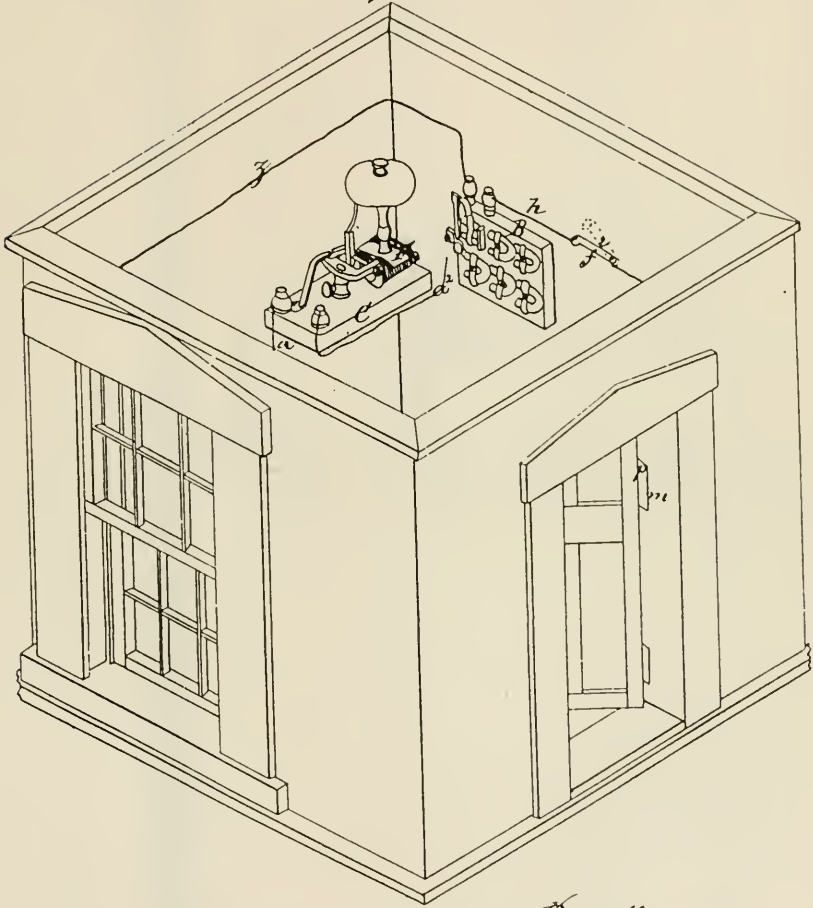
W. G. RUSSELL & A. FIRTH, Ex'rs

Electro-Magnetic House Alarms.

No. 6,599.

Fig. 1.

Reissued Aug. 17, 1875.



Witnesses  
 H. L. Bennett  
 W. S. Isaacson.

W. G. Russell  
 A. Firth  
 Executors of Will of  
 William Whiting,  
 Dec'd.  
 by their atty,  
 O. L. Somwick

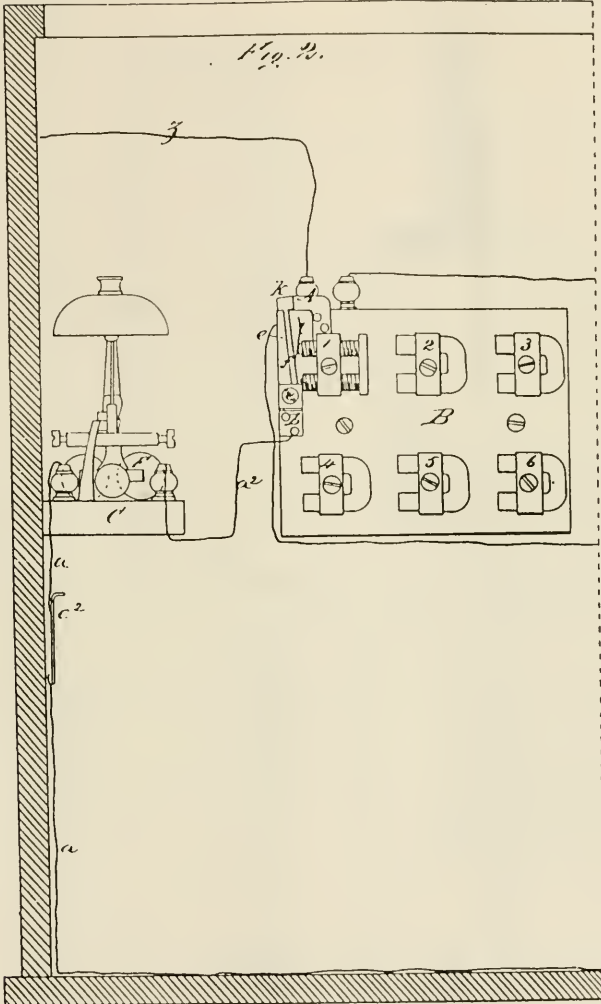




W. WHITING, dec'd.  
W. G. RUSSELL & A. FIRTH, Ex'rs  
Electro-Magnetic House Alarms.

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Reissued Aug. 17, 1875.



Witnesses  
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W. H. Isaac.

W. G. Russell  
A. Firth  
Executors of Will of Wm Whiting dec'd.  
by his atty E. J. Fenwick



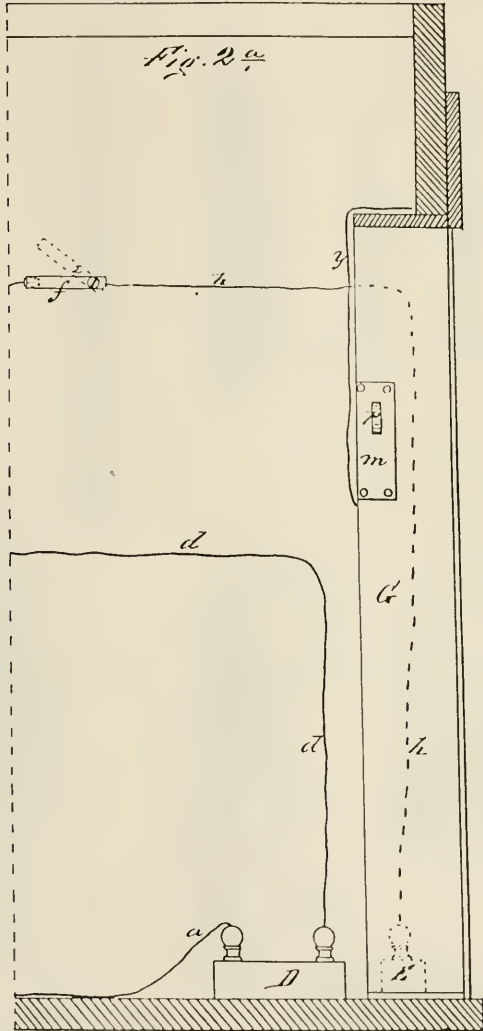
W. WHITING, dec'd.

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Witnesses  
 H. L. Bennett  
 W. H. Jones.

Wm. G. Russell  
 A. Firth  
 Executors of Will of Wm. Whiting  
 dec'd.  
 by their Atty J. S. Kenwick



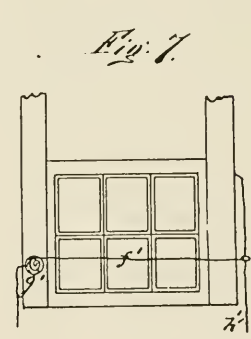
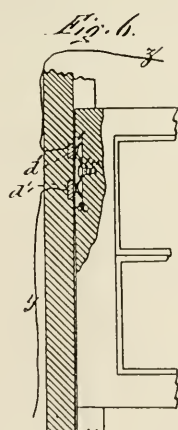
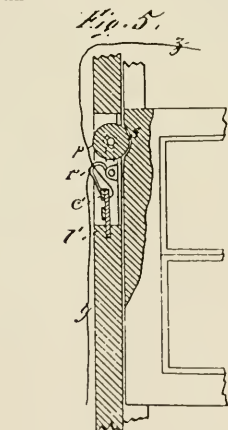
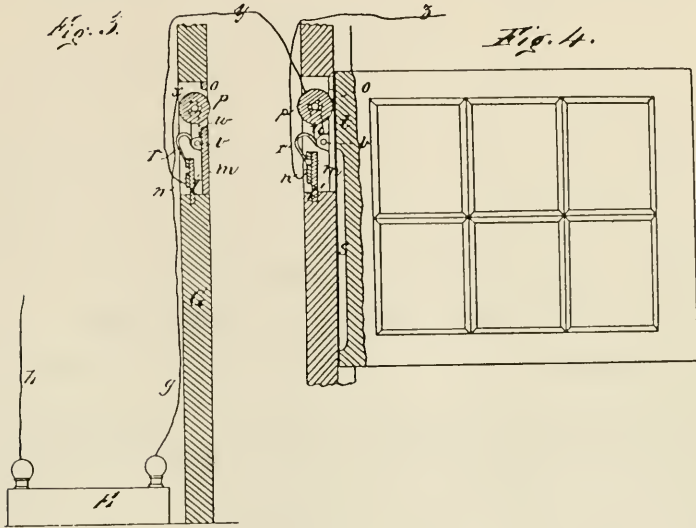
W. WHITING, dec'd.

W. G. RUSSELL & A. FIRTH, Ex'rs.

Electro-Magnetic House Alarms.

No. 6,599.

Released Aug. 17, 1875.



Witnesses  
 H. L. Bennett  
 W. H. Jones.

Wm. G. Russell  
 A. Firth  
 Executors of Will of  
 William Whiting  
 dec'd.  
 by their atty.  
 C. J. Sommers



Appendix P

U.S. Patent No. 120,744

Edwin Holmes, of Brooklyn, New York,  
and  
Henry C. Roome, of Jersey City, New Jersey

Improvement in Circuit-Closers for Electrical  
Burglar-Alarms and Signals

November 7, 1871





# UNITED STATES PATENT OFFICE.

EDWIN HOLMES, OF BROOKLYN, NEW YORK, AND HENRY C. ROOME, OF JERSEY CITY, NEW JERSEY.

## IMPROVEMENT IN CIRCUIT-CLOSERS FOR ELECTRICAL BURGLAR-ALARMS AND SIGNALS.

Specification forming part of Letters Patent No. 120,744, dated November 7, 1871.

To all whom it may concern:

Be it known that we, EDWIN HOLMES, of Brooklyn, in the county of Kings and State of New York, and HENRY C. ROOME, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Circuit-Closers for Electrical Burglar-Alarms and Signals, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing forming part of this specification.

Our invention relates to circuit-closers for that class of burglar-alarms and signals which are operated by a difference in the flow of the current of a closed circuit; and the invention consists in a permanent magnet surrounded by one or more magnetic coils, thereby forming an improved circuit-closer. The invention likewise comprises a certain combination of an armature with a circuit-closer, whereby the synchronous opening of one circuit and closing of another is effected by the action of said armature; and the invention furthermore includes a combination, with the permanent magnet, of a foil spring, whereby a more complete or perfect contact is obtained between said magnet and the point it makes and breaks circuit with.

Figure 1 represents an interior front view of an apparatus having our invention applied to it; Fig. 2, a vertical section through the line *x x* in Fig. 1; Fig. 3, a vertical section through the line *y y* in Fig. 2; and Fig. 4, a diagram, showing the connection of the apparatus with certain batteries and an alarm-bell.

Similar letters of reference indicate corresponding parts throughout the several figures.

D in the accompanying drawing is the permanent magnet surrounded or inclosed by one or more magnetic coils, C. F is an adjusting-screw, arranged so that when the coils C are not charged it will always be in metallic connection with the magnet D by the impinging or embedding of it, as produced by the deflection of the magnet against or within a fine foil springs, one end of which is soldered to the magnet. Said spring is used to insure electrical contact with the screw F, and, by making said spring of thin foil, this is more effectually and certainly accomplished than when mere contact of the spring and end of the screw is relied upon, as dust or dirt getting upon the end of the screw would arrest or interfere with

the passage of the current, whereas a spring made of thin foil allows of the point of the screw embedding itself therein; consequently the fouling of the end of the screw would be of but little or no importance. E is a similar screw, but so arranged and adjusted that when the usual current is passing through the coils C the magnet D will almost, but not quite, touch it. H represents a pair of electro-magnets, provided with an armature, I, which is notched at its one end so as to engage with a hook upon the arm of a drop, K, pivoted, as at *b*, and so arranged and constructed that when released by the armature I it will fall upon and move downward an upright arm of a circuit-breaker, L, and cause the latter to rest upon a pin, *c*. Said circuit-breaker L is pivoted intermediately of its length, so that when its one end is in contact with the pin *c* its other end will be thrown up and made to break contact with a pin or stop, *d*. The circuit-breaker L has its contact with the pin or stop *c* broken and its contact with the pin *d* established by a spring, *e*, which is relieved from the weight of the drop K. The pivot of L is connected, by a wire, *i*, with screw-cups 4 and 5, and connection continued from thence, by the wire *i*, to one pole at the battery B; and the pin or stop *d* is connected, by a wire, *k*, to the wire of the electro-magnets H, and connection continued from thence, by a wire, *m*, to the adjusting-screws E and F. The pin *c* is connected, by a wire, *l*, to a signal or alarm-bell, W, and from thence, by said wire, *l*, through a screw-cup, *b*, to the other pole of the battery B. A is a battery, having one of its poles connected, by a wire, *o*, to the place or structure to be guarded or signal to be made, from whence said wire returns to a screw-cup, 1, and, passing through the magnetic coils C, emerges at a screw-cup, 2, and from thence to the other pole of the battery A. The permanent magnet D is in connection, by a wire, *n*, through a screw-cup, 3, with the battery B.

The operation of the invention as applied to a burglar-alarm, which is the purpose here selected for illustration, is as follows: When the points or places to be guarded are closed and secured, a current will flow from the battery A through the wire or circuit *o* and magnetic coils C. This will cause the magnet D to approach closely to, but not quite touch, the adjusting-screw E, at the same time breaking contact between the magnet D and screw F. The drop K is set to engage with the



armature I. This being the condition, the circuit-closer is then in proper position for protecting the exposed points or places, and the magnet D, as in Fig. 3, touches neither of the adjusting-screws E and F. If any attempt be made to enter the point or place guarded by means which cause the flow of the current through the coils C to be increased, then the magnet D will instantaneously deflect to a contact with the adjusting-screw E. This will close the circuit *i* of the battery B, and the current, passing through magnet H and attracting the armature I, will release the drop K, which, in falling upon the upright arm of the circuit-breaker L, will break contact between the latter and the pin *d* and establish contact between said circuit-breaker and the pin or stop *e*, thereby completing the circuit *l* through the alarm W and the battery B and sounding a continuous alarm. If any attempt be made to enter the point or place guarded by means which cause the flow of the current through the circuit *o* to be broken or diminished, the magnet D would fall and establish contact with the adjusting screw F, and thus close the circuit *m* of the battery B and sound the alarm, as before.

While we prefer to use two batteries, A and B, as described, one battery might be made to answer without changing the character or principle of the invention. Neither do we confine ourselves to making the magnet D of itself close the

circuit of the battery B, as it is obvious that said magnet might be made to carry or actuate an independent circuit-closer with substantially the same effect; nor do we restrict ourselves to the use of the adjusting-screws E and F, as a like contact with the magnet D can be made in various ways or by other means without changing the invention.

Instead of the alarm-bell, too, any other audible or visible signal might be used.

What we here claim, and desired to secure by Letters Patent, is—

1. The circuit-closer, consisting of the permanent magnet D, surrounded or inclosed by the magnetic coil or coils C, charged by a primary circuit, and operating substantially as described, for the purpose set forth.

2. The combination of the armature I with the circuit-closer L, whereby the synchronous opening of one circuit and the closing of another by the action of said armature is effected, substantially as specified.

3. The combination of the foil spring *s* with the magnet D, essentially as described.

EDWIN HOLMES.  
H. C. ROOME.

Witnesses:

R. W. TODD,  
JAMES TOMNEY.

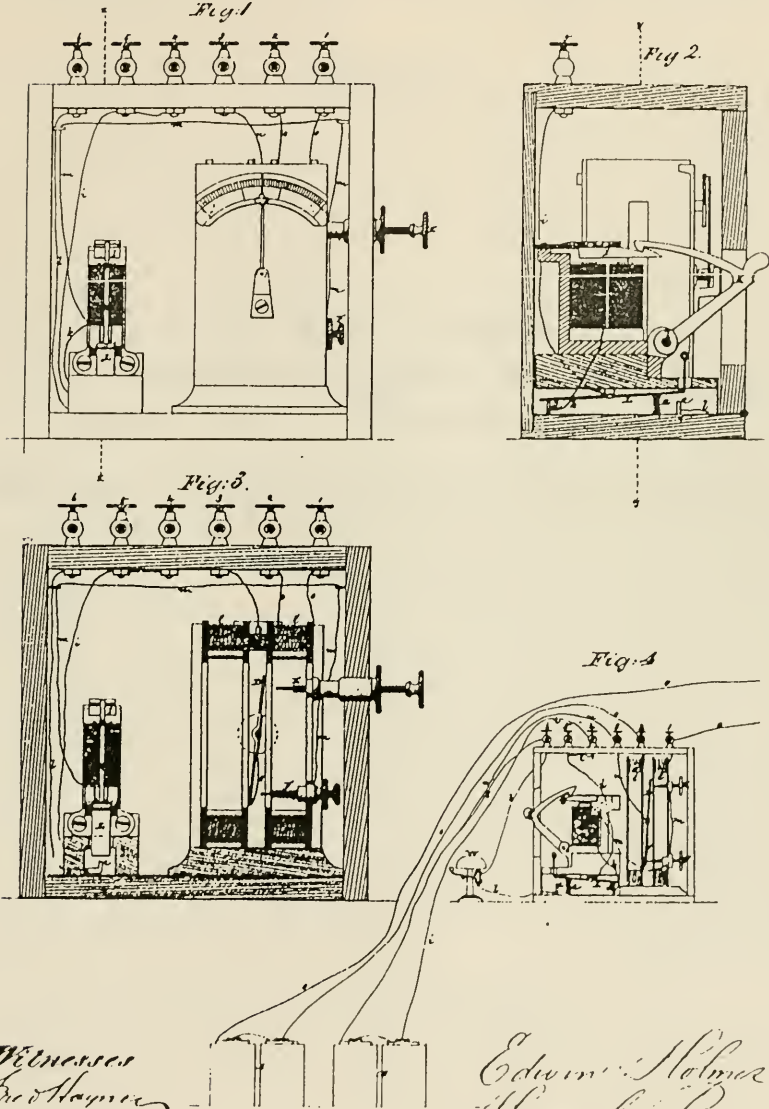
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EDWIN HOLMES & HENRY C. ROOME.

Improvement in Circuit Closers for Electrical Burglar Alarms and Signals.  
No. 120,744.

Patented Nov. 7, 1871.



Witnesses  
Geo. Haynes  
R. P. Huber

Edwin Holmes  
Henry C. Roome  
per Rom, Combs & Co



Appendix Q

U.S. Patent No. 120,875

Edwin Holmes, of Brooklyn, New York,  
and  
Henry C. Roome, of Jersey City, New Jersey

Improvement in Electro-Magnetic Burglar-Proof Curtains

November 14, 1871





# UNITED STATES PATENT OFFICE.

EDWIN HOLMES, OF BROOKLYN, NEW YORK, AND HENRY C. ROOME, OF JERSEY CITY, NEW JERSEY.

## IMPROVEMENT IN ELECTRO-MAGNETIC BURGLAR-PROOF CURTAINS.

Specification forming part of Letters Patent No. 120,875, dated November 14, 1871.

*To all whom it may concern:*

Be it known that we, EDWIN HOLMES, of Brooklyn, in the county of Kings and State of New York, and HENRY C. ROOME, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Electro-Magnetic Burglar-Proof Curtain; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

Figure 1 represents a sectional front view of our improved electro-magnetic curtain. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a vertical section of its fabric.

Similar letters of reference indicate corresponding parts.

The nature of our invention consists in the arrangement of a burglar-proof curtain to be suspended in front of safes, vaults, behind windows, or in other suitable places, and connected with an electric alarm apparatus in such a manner that it will, when moved or pierced, cause the alarm to be sounded.

By the use of such curtain a very cheap and most effective guard is obtained, which can, over night, be suspended in front of the things or openings to be protected, while during day time it can be rolled up out of the way or otherwise do the service of ordinary curtains.

The curtain A to be used for this purpose we prefer to make of two thin and pliable sheets, *a b*, of metal, insulated from each other by a pliable non-conductor, *c*, and covered with sheets *d e* of non-conducting material, so that when glued or fastened together they will form a single sheet, substantially as described in the Letters Patent for an electric lining granted to us December 20, 1870. We fasten one end of this sheet A to a non-conducting roller, B, which has

metallic gudgeons *f g* hanging in metallic brackets *h* and *i*, respectively. These brackets are connected by wires *j k* with a battery, C. The metallic gudgeons *f g* are either directly, or by means of short wires or metallic pieces *l* and *m*, respectively, connected with the two metallic sheets *a b*. The lower end of the curtain has one or more metallic rings, *n*, insulated from the sheets *a b*, but metallically connected with each other. These rings are fitted over hooks *o* when the curtain is drawn down. The wire *k* leads from the bracket *i* to the first hook *o*, and is from the last hook continued to the battery, as shown.

Any attempt to enter by cutting through the curtain will, by means explained in our aforementioned Letters Patent of December 20, 1870, cause an alarm to be sounded by the establishment of a complete circuit, while on the other hand any attempt to roll up the curtain or lift the roller B from the brackets will, by entirely breaking the circuit, cause an alarm to be sounded, also as explained in our former patent.

Instead of the sheets *a b* sheets of fine-meshed wire fabric or equivalent pliable conducting material may be used.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A curtain composed in part of metallic conductor of electricity, to be used substantially as herein specified and described.
2. The metallic gudgeons of the curtain when connected with the battery and with the metallic fabrics *a b* of the curtain, and combined with the metallic lower connections *n o*, substantially as specified.

EDWIN HOLMES.  
H. C. ROOME.

Witnesses:

R. WM. TODD,  
CHAR. V. KNOWLER.

(24)



E. HOLMES & H. C. ROOME.

Improvement in Electro Magnetic Burglar Proof Curtain.

No. 120,875.

Patented Nov. 14, 1871.

Fig. 1.

Fig. 2.

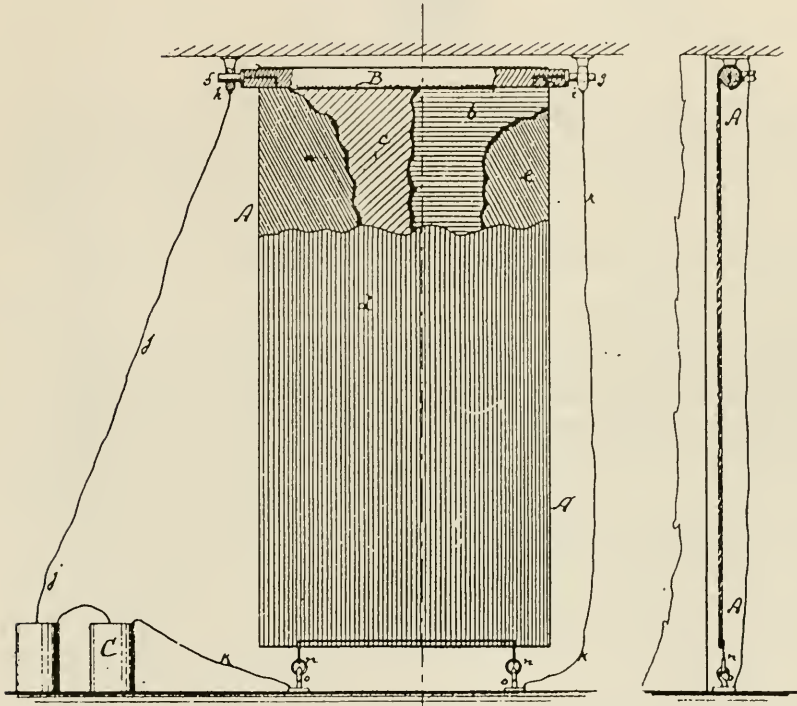


Fig. 3.



Witnesses:  
*A. D. ...*  
*Francis W. ...*

Inventor:  
*E. Holmes*  
*H. C. Roome*  
 per *Merrill*

Attorneys.



OFFICE OF

# The Electro-Magnetic Fire and Burglar Alarm Telegraph,

5 BECKMAN

STREET.



Room 17.

New York, 1872.

The Subscribers respectfully ask your attention to this very important invention. Daily experience renews our warning that no Locks or Bolts are sufficient to keep Robbers out, and also, that when they have entered the house they will often add murder to their crime rather than forsake their plunder. *But, an alarm given before they enter is sure to drive them away.* Of this we have abundant proof in the testimony of those who have been provided with our protection.

Our Mr. GUEST, during ten years of practical application and study, has brought to a perfect system the arrangement of an ELECTRO-MAGNETIC ALARM, and we confidently offer it as free from the annoying defects of the older efforts, and a sure protection against BURGLARY, and the carelessness of servants.

It can be put in your house at small expense, and without any injury to the building, or any material disturbance of carpets or furniture. You then have a simple and compact apparatus, ornamental in appearance, and easily understood, placed with its Bell and "Indicator" in any room you may select, and the conducting wires are attached to the windows and doors requiring them, without being exposed to sight at any point of their route. When the attachment is set for the night (which is done by the movement of a small switch on the Bell in your room), should you wish to know if any window or door has been accidentally left open, the movement of a Knob on the instrument will at once answer your enquiry. You can then retire to bed with a perfect assurance that your Bell will be rung loudly if any attempt is made to enter your house.

In the morning, a reverse movement by your thumb and finger will detach the connection; or, if you prefer not to have your sleep disturbed by the servants opening the house, you can have a "*Clock Circuit Breaker*," which can be set so that the Bell will not ring after a designated hour.

The wires can be carried into Stables or other detached buildings, and controlled by the same instrument in your bedroom.

OUR ANNUNCIATOR, with a needle revolving upon a dial, which is marked to correspond with the rooms, is a beautiful improvement upon the old system of *pull bells*, whose wires require constant repairs from their tendency to break or stretch.

In addition to this protection against Burglars, and in connection with it, can be attached our patented FIRE ALARM APPARATUS. A small glass bulb, of about an inch square in size, placed in each room, will ring your Alarm Bell when the heat in either room becomes inordinate, and your "Indicator" will immediately designate the locality where the danger exists.

We have no controversy with any fair competitor, nor any disposition to bandy words with others. We claim to offer a superior article. A cleanly, regular, and enduring BATTERY; a BELL APPARATUS of simple and automatic construction, that requires no "expert" to regulate, and invariably receives commendation when inspected; and newly-invented and patented SPRINGS that do not break and are certain of action. We pay great attention also to *beauty of form and finish* in our instruments, so that they are an ornament in any house.

We only ask an examination and comparison of relative merits. Please call at our office, and see the beauty and simplicity of the machinery and its operation.

## COCK & GUEST,

No. 5 Beckman St., (Room 17,) New York.



*The following are the well known and representative names of a few  
of those who are using our .*

## BURGLAR ALARM TELEGRAPH.

Merchant's Bank, - - - -	New York.	Hon. Alexander McCue,	Brooklyn.	Hon. C. H. Van Brunt,	Bay Ridge, L. I.
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Eugene Kelly, - - - -	"	Joseph Willets, - - - -	"	George Self, - - - -	"
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John C. Green, - - - -	"	Thos. McCormic, - - - -	"	Wm. Butler Duncan, - - -	Staten Island.
James M. Shaw, - - - -	"	Theo. R. Brown, - - - -	"	A. R. Little, - - - -	Philadelphia.
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G. W. DeBevoise, - - -	"	S. L. Keeney, - - - -	"	H. R. Payson, - - - -	"
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John Ewen, - - - -	Spuyten Duyvel.	Wm. Taylor, - - - -	"	I. O. Gimbernat, - - - -	"
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Henry Clement, - - - -	"	Duncan Cryder, - - - -	Whitestone,	N. Perry, Jr., - - - -	"
L. M. Franklin, - - - -	"	Benjamin Cox, - - - -	"	A. P. Riker, - - - -	Woodside, L. I.
E. Mitchell, - - - -	"	A. J. Provost, - - - -	"	Dr. C. A. Beldin, - - - -	Jamaica, "





Appendix S

U.S. Patent No. 79,973

John H. Guest, of Brooklyn, New York

Improved Electro-Magnetic Burglar and Fire Alarm

July 14, 1868



# UNITED STATES PATENT OFFICE.

JOHN H. GUEST, OF BROOKLYN, NEW YORK.

## IMPROVED ELECTRO-MAGNETIC BURGLAR AND FIRE ALARM.

Specification forming part of Letters Patent No. 79,973, dated July 14, 1868.

To all whom it may concern:

Be it known that I, JOHN H. GUEST, of Brooklyn, in the county of Kings and State of New York, have invented and made a certain new and useful Improvement in Fire and Burglar Alarms; and I do hereby declare the following to be a full, clear, and exact description of the said invention, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is an elevation of the magnets and bell. Fig. 2 is a plan of the same. Fig. 3 is a section of the thermal circuit-closer. Fig. 4 is an elevation, and Fig. 5 a section, of the designating and disconnecting apparatus. Fig. 6 is a section of the circuit-closer that is connected with a window, to close the circuit when said window is opened. Fig. 7 is a section of the circuit-closer that is employed with a door or other swinging article.

Similar marks of reference denote the same parts.

This apparatus is arranged upon the generally-known plan of giving an alarm by a bell whenever the circuit of a galvanic battery is closed by the movement of any device that should remain stationary, thus giving an alarm and indicating that some portion of the apparatus is not in a normal condition.

I will first describe my alarm-bell, which consists in two magnets, *a* and *b*, with two armatures, *c* and *d*, on one lever, *e*, that is hung to oscillate, and is connected with the hammer *f* that strikes the bell *g*. *h* and *i* are springs to the adjustable circuit-closers *k* and *l*.

By reference to the lines in Fig. 2, indicating the wires of the electrical circuit, it will be seen that when the electricity passes through the helix of the magnet *a* the attraction of its armature will separate *i* and *l* and break the circuit to itself, and at the same time close *h* and *k*, and cause the magnet *b* to attract its armature *d*, and thereby reverse the circuits, and this is done with the utmost rapidity, causing the hammer to strike the bell, and that without depending on springs to produce the reverse movement, as heretofore.

The lever *e* is suspended either by a spring, *e'*, as shown in Fig. 1, from the screw *d'*, by which the position of the armatures is adjusted, or said lever *e* may be centered by screws *a'* in a yoke, *b'*, that is adjusted vertically by the screw *d'*, and the centering-screws *a'*, passing

through slots in the frame *c'*, prevent lateral motion, so that the armatures are free to vibrate, but cannot easily become displaced. Fig. 9 represents this variation in the mode of hanging the armatures.

The switch *c'*, when standing between the studs 2 and 3, causes the whole apparatus to be inoperative. When upon the stud 2 the apparatus is in position for use when either of the alarm circuit-closers are brought into action, and by turning the switch to the stud 3 the bell may be rung to test the battery, to see if it is in order, without actually examining the same.

The thermal circuit-closer, Fig. 3, consists of an air-tight box, *m*, that is formed with an expanding head, 4, of thin metal, corrugated concentrically, and near the center of this is hinged the circuit-closer *m'*, that, in a normal condition, is sustained by the hook 5, but when the air in the box *m* expands by the temperature of the apartment in which it is applied, rising beyond a certain point, the head 4, being pressed outwardly in its center, causes the closer *m'* to unlatch, and it drops upon the arm 6, to which one wire of the circuit is connected, while the other is connected to the box *m*, thus closing the circuit and ringing the bell.

In Fig. 3 I have shown the box *m* and arm *m'* movable, so that they may be adjusted by a screw, 7, to any desired point, so that the alarm will be given at a definite temperature, and 8 is a dial upon which figures may be marked to indicate at a fixed pointer, 9, the degree of heat at which the apparatus will become operative.

In Fig. 8 I have shown the screw 7, dial 8, and pointer 9, as applied to the hook 5, to adjust that instead of the box *m*.

The circuit-closer, which becomes a temperature or fire alarm, is to be located in any desired part of a building. It is preferable that the same be attached to the ceiling, as being in a position to be most likely to operate by changes of temperature.

The circuit closer for a window, Fig. 6, is made of a hanging pendulum, *n*, upon a fulcrum, 10, to which one wire of the battery is applied. The upper end, 11, of this pendulum is a spring, and when the window-sash *o* is in its normal or closed position the pendulum *n* hangs freely in a notch in the side of the sash;



but as soon as the sash is raised the pendulum *n* is moved, and the spring 11 comes into contact with the block 12, to which the other wire of the battery is connected, and thereby the circuit is closed and the alarm given.

The device for acting with a door or other swinging article, Fig. 7, consists in a plate, *p*, to which the spring 13 is attached, and also one the wires of the battery.

14 is a second spring insulated from the plate *p*, but, for convenience, connected thereupon, and to this the other battery-wire is connected.

The door *w*, acting against the pusher *q* upon the spring 14, separates the springs 14 and 13 when the door is closed; but when it is opened the two springs come together and close the circuit.

The designating and disconnecting apparatus (shown in Figs. 4 and 5) consists in a plate, *r*, to which one of the battery-wires is connected. Through this plate there are as many holes as there are points to be designated by the connections of the battery, such as "fire," "window," "door," or other sub-designations, and in each of these holes is placed a screw-stud, *s*, that is insulated from said plate by being smaller than the hole, so as not to touch it, and said stud receives its support from the wooden or other non-conducting base of the plate *r*.

A wire from the different points to be designated leads to the different studs *s*, and on each stud is a nut *t*, and the button-head of the stud may be appropriately engraved or marked with the name required.

All the nuts *t* should be kept screwed upon the plate *r*. If the alarm-bell rings, the attendant unscrews first one nut, *t*, and then another, until he arrives at the particular circuit that

has been closed and is operative, which he knows by the separation of *t* and *r*, stopping the bell by breaking that particular circuit, and thus it is known what part of the premises requires attention.

In place of a metal air-box the corrugated disk forming the circuit-closer might be set in a wooden rim, and act by its expansion as the thermal circuit-closer.

What I claim, and desire to secure by Letters Patent, is—

1. A pair of magnets and armatures arranged and acting in the manner specified, in combination with a hammer and bell, the former being attached to the lever of the armature, for the purposes, and as set forth.

2. An expansive corrugated disk and hinged arm forming a thermal circuit-closer, substantially as set forth.

3. The adjusting-screw 7, in combination with the thermal circuit-closer, as and for the purposes set forth.

4. The pendulum and spring, in combination with the circuit-wires and notched sash or slide to close the circuit, as specified.

5. The two springs 13 14, connected with the circuit-wires, in combination with the pusher *q*, for the purposes, and as set forth.

6. The plate *r*, screw-studs *s*, and nuts *t*, constructed substantially as specified, in combination with the circuit-wires, to form a designating or disconnecting apparatus in a fire or burglar alarm, substantially as set forth.

In witness whereof I have hereunto set my signature this 28th day of March A. D. 1868.

J. H. GUEST.

Witnesses:

CHAS. H. SMITH,  
GEO. D. WALKER.









Appendix T

U.S. Patent No. 118,199

George E. Cock and John H. Guest, of New York, N.Y.

Improvement in Electro-Magnetic Burglar-Alarms

August 22, 1871



117,199

# UNITED STATES PATENT OFFICE.

GEORGE E. COCK AND JOHN H. GUEST, OF NEW YORK, N. Y.

## IMPROVEMENT IN ELECTRO-MAGNETIC BURGLAR-ALARMS.

Specification forming part of Letters Patent No. 118,199, dated August 22, 1871.

*To all whom it may concern:*

Be it known that we, GEORGE E. COCK and JOHN H. GUEST, of the city, county, and State of New York, have invented a new and Improved Burglar-Alarm; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which the drawing represents a face view, partly in section, of our improved burglar-alarm.

This invention relates to several improvements in the sounding and setting apparatus of a burglar-alarm; and consists, first, in the arrangement of an adjustable spring, whereby the movements of the vibrating armature are regulated; also, in the application to windows of a balanced metallic circuit-closer, which will serve to establish a current as soon as the sash is moved or its panes are meddled with. Finally, the invention consists in the introduction of a peculiar set of springs between the sash and window-frame for closing the circuit as soon as the sash is elevated.

A in the drawing represents the bell of the burglar-alarm. B is the clapper of the same, connected with the vibrating armature C, which is pivoted opposite the electro-magnets D. From the armature projects a horizontal spring or arm, *a*. *b* is a flat spring, secured to a frame or holder, *c*, which is vertically adjustable on a post, *d*, of the instrument. By means of a screw, *e*, the spring *b* can be secured at a suitable distance above the arm *a*. During the vibration of the armature the spring *a* will strike the spring *b* with greater or lesser intensity, according to the height of the latter. The strokes of the armature are thereby controlled, the clapper being thrown with greater or lesser violence against the bell. The alarm instrument is, by wires *f* and *g*, connected with the battery and with two metal plates, E and F. The plate E is sunk into the top of the window-frame G, and is, at *h*, insulated from the plate F held above it. It is a metal beam or bar, pivoted at *i* to metal lugs that project from the plate E. One end of the beam H is weighted by a ball, *j*, or equivalent means. The other end is, by a cord or chain, *l*, connected with the lower window-sash J. This chain, when the sash is down, holds the beam H balanced, so that neither end is in contact with the plate F above. When, how-

ever, the chain is pulled by meddling with the window-panes or direct contact, it draws one end of the beam down and swings the weighted end against the plate F. When, on the contrary, the chain is slackened by elevating the lower sash or cut, the weighted end of the beam H descends and carries the other end in contact with the plate F. In either case, therefore, metallic connection between the plates E and F is established, and, consequently, also a circuit through the wires and the alarm instrument operated. During day-time the chain can be disconnected from the sash *l* and put out of the way. The wires *f* and *g* connect, also, with plates L and M, which are secured to the inner edge of the window-frame, between the same and the edge of the window-sash. The upper spring-plate L springs into a notch, *l*, of the window-sash when the latter is down or closed; but when the same is raised it crowds the plate L against a spring, N, which is in contact with M, and establishes thereby metallic connection between the wires *f* and *g*.

A metal plate, *m*, can be secured to the edge of the sash to make direct connection between the plate L and M.

The plate L may be suspended from its fastened end, and the plate M project upward, as shown, at the left-hand side of the drawing, or both be suspended, as on the right-hand side. In the latter case the spring N and plate *m* may both be dispensed with. When the sash is raised clear of the plates L M, to be no longer in contact with the same, the circuit is closed by the spring of the plates, which throws them in contact with each other.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The adjustable spring *b*, applied to the alarm apparatus above the arm or spring *a* of the armature, as specified.

2. The beam H, pivoted between the plates E and F, and weighted at one end to operate substantially in the manner herein shown and described.

3. The spring-plates L M, combined with the spring N, and applied to the window-frame, substantially as specified.

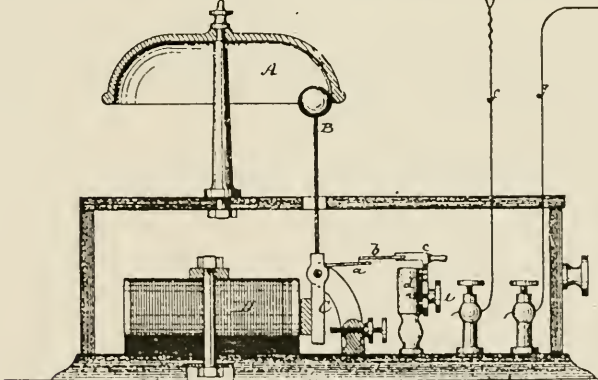
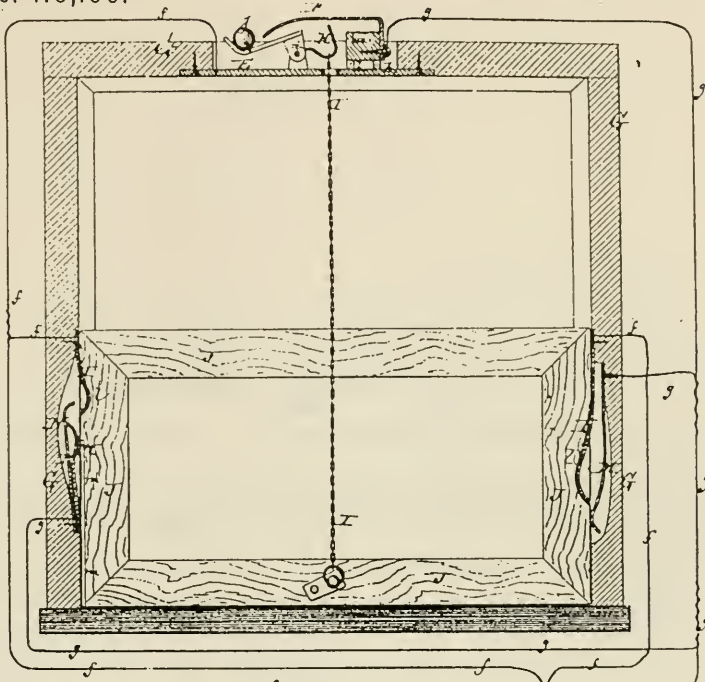
GEORGE E. COCK.  
JOHN H. GUEST.

Witnesses:

T. H. MOSHER,  
GEO. W. MAHRE.



G. E. COCK & J. H. GUEST.  
 Improvement in Electro-Magnetic Burglar Alarms.  
 No. 118,199. Patented Aug. 22, 1871.



Witnesses:

Inventor:

*Francis W. Auld*  
*Alex. L. Roberts*

*G. E. Cock*  
*J. H. Guest.*  
 PER *Wm. H. L.*



Appendix U

U.S. Patent No. 110,362

Edwin Holmes, of New York, N.Y.  
and  
Henry C. Roome, of Jersey City, New Jersey

Improvement in Electro-Magnetic Envelopes for  
Safes, Vaults, & c.

December 20, 1870





# United States Patent Office.

EDWIN HOLMES, OF NEW YORK, N. Y., AND HENRY C. ROOME, OF JERSEY CITY, NEW JERSEY.

Letters Patent, No. 110,862, dated December 20, 1870. **REISSUED**

## IMPROVEMENT IN ELECTRO-MAGNETIC ENVELOPES FOR SAFES, VAULTS, &c.

The Schedule referred to in these Letters Patent and making part of the same.

### To all whom it may concern:

Be it known that we, EDWIN HOLMES, of the city, county, and State of New York, and HENRY C. ROOME, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Electro-Magnetic Envelope or Lining for Safes, Vaults, and other structures, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing forming part of this specification, and in which—

Figure 1 represents an interior face view of our improved envelope or lining, as applied to the one side of a safe or vault or wooden case inclosing the same; and

Figure 2, a transverse section thereof, in part. Similar letters of reference indicate corresponding parts.

Our invention relates to electro-magnetic attachments to safes, vaults, and other structures or inclosures for operating a burglar-alarm, upon any attempt being made to break into or improperly interfere with the safe, vault, or structure; and

The invention consists in an electric envelope or lining applied to such structure or structures, so that any perforation by a metallic instrument or conductor of said envelope or lining, when the same is properly connected with a battery and bell, or any severing of its connection with the battery, shall sound an alarm.

The invention comprises a combination of an electric envelope or lining for safes, vaults, and other structures, with a galvanometer or instrument, the movements of which are produced by variations in a current of electricity from a battery or other electrical apparatus, in connection with the safe, vault, or structure.

Said invention also includes a peculiar construction of the envelope or lining, by making it of separate parts or plates, which connect with the opposite poles of the battery, and which are imperfectly insulated from each other, or are connected with each other by a resistance-coil or medium.

The invention also embraces an envelope or lining of the character specified, made of thin, pliable sheets of metal, and insulated from each other by a pliable non-conductor, so that when glued or cemented together they form a single sheet. The insulating substance we prefer to use is composed of a coating of gum-shellac and paper or cloth.

Referring to the accompanying drawing—  
a and b represent two thin and pliable plates of sheet metal, so insulated from each other that they will allow of a slight current of electricity to pass from one to the other when the plates are connected with the opposite poles of a battery.

This insulation is effected either by introducing a partial conductor between the plates, or by making the insulating substance so thin in one or more places that it will allow of the passage of a slight current through it, or a like effect may be produced by perfectly insulating the plates a and b, as by an insulator, c, and connecting them together by a resisting coil or medium, f, which last, for the purpose of more clearly explaining the action of the envelope or lining, is the arrangement shown in the drawing.

The two plates a and b being insulated, as described, upon the surface of one of them is glued or cemented another plate or sheet of insulating material, c, and upon this insulator is glued or cemented a thin continuous ribbon, d, of metal, arranged to lie in convolutions or in a zigzag manner over the entire surface of said insulator c.

The insulators c c' we prefer to make of cloth or paper, properly coated with gum-shellac, and so that they, like the metallic conductors which they insulate, are pliable, whereby the whole may be applied in the form of a single sheet as an envelope or lining to a safe, vault, or other structure, or to the inside of a wooden covering surrounding the same.

One end of the ribbon d is connected, as by a wire, l, with the one pole of a battery, and the other end thereof with the plate a.

The resistance-coil f is connected with the plates a and b at points g and h, and the plate b connected as by a wire, k, with the opposite pole of the battery to that with which the ribbon d is connected.

When the wires k and l are connected as described, a slight current of electricity passing to the ribbon d, flows around the entire safe or vault to the plate a, through the resistance-coil f to the plate b, and from thence through the wire k to the battery.

Any attempt to perforate the envelope or lining by a metallic instrument, would establish a perfect electrical connection between the plates a and b, and the current not being obliged to pass through the resistance-coil f, the flow would be greatly increased.

Should an entrance be attempted by using a non-conducting instrument, the metal ribbon d would be severed and the circuit broken, or the cutting of either wire k or l would have the same effect.

To obtain an alarm from the fluctuation or stoppage of the current, as thus produced, it only requires to connect the wires k and l with a galvanometer, or instrument the measurements of which are produced by variations in a current of electricity from a battery or other electrical apparatus, in connection with the safe, vault, or structure. A bell in connection with the apparatus, may be used to give the alarm.



What is here claimed, and desired to be secured by Letters Patent, is—

1. An envelope or lining for safes, vaults, and other structures, composed of two parts or conductors imperfectly insulated from each other or connected with each other through a resistance-coil or medium, and in connection with the opposite poles of a battery or other electrical apparatus, for action as specified.

2. The combination of an electric envelope or lining for safes, vaults, and other structures, with a galvanometer or instrument, the movements of which are produced by variation in a current of electricity from a battery or other electrical apparatus, in connection with a safe, vault, or structure, substantially as herein described.

3. An electro-magnetic envelope or lining, composed of thin and pliable sheet of metal, insulated from each other by pliable non-conductors, so that when gined or cemented together, the whole form a single sheet, substantially as specified.

4. The combination of the metallic sheets or plates *a b*, the insulating sheets *c c'*, the metallic ribbon *d*, the resistance-coil or medium *f*, and the battery-wires or connections *k*, essentially as described.

EDWIN HOLMES.  
HENRY C. ROOME.

Witnesses:

HENRY C. BANKS,  
ANDREW BUSCH, Jr.



E. HOLMES & H. C. ROOME.  
ENVELOPE OR LINING FOR SAFES, VAULTS, &c  
No. 110,362. Patented Dec. 20, 1870.

Fig. 1

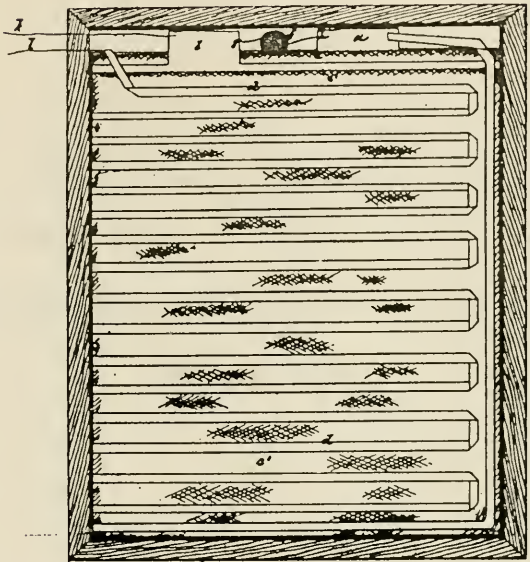


Fig. 2



Witnesses:  
W. H. Holmes  
R. C. Roome

Edwin Holmes  
Henry C. Roome



Appendix V

U.S. Patent No. 120,874

Edwin Holmes, of Brooklyn, New York  
and  
Henry C. Roome, of Jersey City, New Jersey

Improvement in Electric Linings for Safes

November 14, 1871





# UNITED STATES PATENT OFFICE.

EDWIN HOLMES, OF BROOKLYN, NEW YORK, AND HENRY C. ROOME, OF JERSEY CITY, NEW JERSEY.

## IMPROVEMENT IN ELECTRIC LININGS FOR SAFES.

Specification forming part of Letters Patent No. 120,874, dated November 14, 1871.

*To all whom it may concern:*

Be it known that we, EDWIN HOLMES, of Brooklyn, in the county of Kings and State of New York, and HENRY C. ROOME, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in the Application of Electric Lining to Vaults, Safes, and other structures; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

Figure 1 represents a sectional elevation provided with our improved electric exterior casing. Fig. 2 is a horizontal section of the same. Fig. 3 is a detail section of part of the screen.

Similar letters of reference indicate corresponding parts.

This invention relates to an improved method of applying electric-alarm apparatus to safes, vaults, and other structures, with the view to greater efficiency of action and simpler mode of application.

The method heretofore employed has been to apply a lining connected with the electric apparatus directly to the inside of the safe or vaults. Whenever such a safe or vault is attacked by burglars it is injured or destroyed before the lining is reached and the alarm given. To remedy this defect we build around the structure A to be guarded an exterior case, to which the lining B, which may consist either of metallic sheets or a network of wires, is applied, and which shall constitute an exterior electrical burglar-proof safe of itself, so that if any attempt be made to enter by cutting, drilling, or breaking through an alarm will be sounded before the structure-guarded A is itself reached. This exterior inclosure B is provided with a door, *d*, through which access may be gained to the door of the

structure guarded, and said door being provided with the usual springs to break or establish electrical contact in the act of opening or closing. If any particular portion of a safe or vault is considered especially liable to the assaults of burglars and the remainder thought to be safe, we apply to that particular portion a section of this exterior case, without inclosing the whole. We prefer to build this outer inclosure of wood or papier-maché *b*, and apply the electrical lining *c* to its interior surface. To protect the lining from injury by contact with the sides of the safe or vault we either interpose a thin partition, *d*, of wood, papier-maché, or straw-board between the two, or set the lining a short distance from the wall of such safe or vault, to obtain an intermediate air-space. The lining of the door should always be so protected by having the interior partition fastened to the outer door, thus inclosing the lining between two protecting surfaces. The lining may be applied directly to the exterior surface of the safe proper and be covered by the protecting surface. The electric lining may, however, also be applied to the exterior body of the safe without the use of an outer protection.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A safe or vault, provided with an electric outer lining surrounding or covering it wholly or in part, and insulated therefrom, and protected, substantially as herein shown and specified.

2. The exterior inclosure B, made of the parts *b* and *c*, substantially as herein shown and described, to be applied to a safe or vault, in the manner specified.

EDWIN HOLMES.

H. C. ROOME.

Witnesses:

R. WM. TODD,

JAMES TOURNEY.

(128)



E. HOLMES & H. C. RÖUME.  
Improvement in Lining for Safes.

No. 120,874.

Fig. 1.

Patented Nov. 14, 1871.

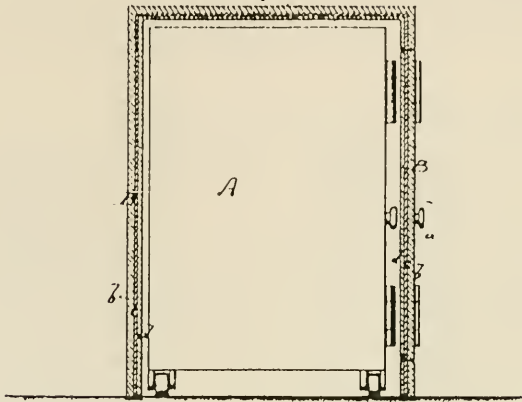


Fig. 2.

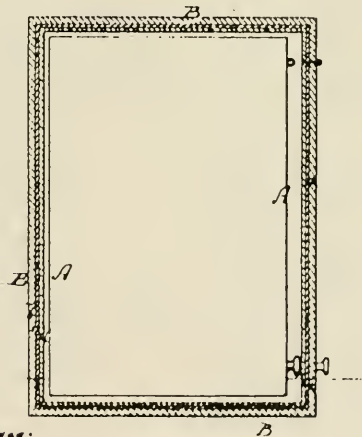
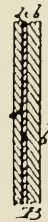


Fig. 3.



Witnesses:

*A. D. ...*  
*James M. ...*

Inventor:

*E. Holmes*  
*H. C. Rume*  
Per *Merrill & Co.*

Attorneys.



## HOLMES CENTRAL OFFICE PROTECTION SUBSCRIBERS, 1872-73-74

Below are some of the Banks and Jewelers who were using the Holmes Central Office Protection in 1872-73-74, many of which have been having uninterrupted service up to the present time.

BANKS.	JEWELERS AND OTHERS.
Athletic National Bank	Tiffany & Co.
Bank of the State of New York	Enos Richardson & Co.
Bowery Bank	Benedict Brothers
Corn Exchange Bank	Sussfeld, Lorsch & Co.
Chatham Bank	Keller & Untermeyer
Continental Bank	L. & M. Kahn
Dry Goods Bank	Henry Ginnell
First National Bank	Lissauer & Sondheim
Farmers' Loan and Trust Company	Joseph B. Bowden
German-American Bank	Randall, Barmore & Co.
Hanover Nat. Bank	Hodenpyl, Tammison & Co.
Market Bank	Alex. M. Hays & Co.
Manufacturers' and Merchants' Bank	Bryant & Bentley
Nassau Bank	Hessels & Ludeke
Seventh Ward Bank	Phillip Bissinger
Third National Bank	Victor Bishop
Manhattan Savings Inst.	D. H. Wickham
Emigrant Industrial Savings Bank	Smith & Hedges
East River National Bank	Eisenman Brothers
Union Bank	E. Aug. Neresheimer
Importers & Traders National Bank	Heide Brothers
North River Bank	Trattel Brothers
Butchers & Drovers National Bank	Schwab Bros. & Co.
Shoe and Leather National Bank	Wood & Hughes
Mechanics & Traders National Bank	Wm. S. Hedges & Co.
Bank of Montreal	A. J. Hedges & Co.
Bank of the Republic	Theo. B. Starr
West Side Bank	Jos. Frankel
Citizens' Savings Bank	Downing & Keller
German Savings Bank	Kossuth, Marx & Co.
August Belmont & Co.	Tenner & Baum
Winslow, Lanier & Co.	Bartens & Rice
M. Morgan's Sons	J. E. Robert
J. J. Stuart & Co.	A. Wallach & Co.
J. B. Colgate & Co.	Hobbins & Appleton
Mutual Life Insurance Company	Lyon & Hardy
Equitable Life Insurance Company	Wm. Heiman
New York Life Insurance Company	Kaufman Bros.
Phelps, Dodge & Co.	Jachne Bros.
Pennsylvania Coal Company	Cheney Bros., Silks
John Jacob Astor	John N. Stearns & Co.
William Astor	Mills & Gibb
Vernilye & Co.	Nonotuck Silk Company

Reprinted from, Edwin T. Holmes, A Wonderful Fifty Years. (New York, 1917), 41.



## LOCKWOOD CHILDREN

<u>Name</u>	<u>Year of Birth</u>	<u>Move in Age</u>	<u>Move out Age</u>
LeGrand Jr.	1844	24	29
Williston	1846	22	27
Henry	1852	16	21
Arthur	1856	12	17
Florence	1860	8	13
Edwin	1862	6	11





ANNUNCIATOR LABEL COMPARISON  
 Lockwood-Mathews Mansion Museum

## MAIN

Missing  
 Missing  
 Cellar Doors  
 Missing  
 Parlor and Dining Room  
 Guest Chambers  
 Servants Rooms  
 Kitchen and Laundry  
 Florence's Room  
 Family Rooms  
 Coachman  
 Missing  
 Sitting Room  
 Missing  
 Vestibule

## SERVANTS

Library and Music Room  
 Wine Cellar  
 Cellar Doors  
 Kitchen and Laundry  
 Parlor and Dining Room  
 Billiards and Lunch Rooms  
 Servants Rooms  
 Missing  
 Missing  
 Family Rooms  
 Willie's Room  
 Arthur's Room  
 Sitting Room  
 Missing  
 Vestibule



## The McWilliamses and the Burglar Alarm

The conversation drifted smoothly and pleasantly along from weather to crops, from crops to literature, from literature to scandal, from scandal to religion; then took a random jump, and landed on the subject of burglar alarms. And now for the first time Mr. McWilliams showed feeling. Whenever I perceive this sign on this man's dial, I comprehend it, and lapse into silence, and give him opportunity to unload his heart. Said he, with but ill-controlled emotion:

I do not go one single cent on burglar alarms, Mr. Twain—not a single cent—and I will tell you why. When we were finishing our house, we found we had a little cash left over, on account of the plumber not knowing it. I was for enlightening the heathen with it, for I was always unaccountably down on the heathen somehow; but Mrs. McWilliams said no, let's have a burglar alarm. I agreed to this compromise. I will explain that whenever I want a thing, and Mrs. McWilliams wants another thing, and we decide upon the thing that Mrs. McWilliams wants—as we always do—she calls that a compromise. Very well: the man came up from New York and put in the alarm, and charged three hundred and twenty-five dollars for it, and said we could sleep without uneasiness now. So we did for awhile—say a month. Then one night we smelled smoke, and I was advised to get up and see what the matter was. I lit a candle, and started toward the stairs, and met a burglar coming out of a room with a basket of tinware, which he had mistaken for solid silver in the dark. He was smoking a pipe. I said, "My friend, we do not allow smoking in this room." He said he was a stranger, and could not be expected to know the rules of the house: said he had been in many houses just as good as this one, and it had never been objected to before. He added that as far as his experience went, such rules had never been considered to apply to burglars, anyway. I said: "Smoke along, then, if it is the custom, though I think that



the conceding of a privilege to a burglar which is denied to a bishop is a conspicuous sign of the looseness of the times. But waiving all that, what business have you to be entering this house in this furtive and clandestine way, without ringing the burglar alarm?"

He looked confused and ashamed, and said, with embarrassment: "I beg a thousand pardons. I did not know you had a burglar alarm, else I would have rung it. I beg you will not mention it where my parents may hear of it, for they are old and feeble, and such a seemingly wanton breach of the hallowed conventionalities of our Christian civilization might all too rudely sunder the frail bridge which hangs darkling between the pale and evanescent present and the solemn great deeps of the eternities. May I trouble you for a match?"

I said: "Your sentiments do you honor, but if you will allow me to say it, metaphor is not your best hold. Spare your thigh; this kind light only on the box, and seldom there, in fact, if my experience may be trusted. But to return to business: how did you get in here?"

"Through a second-story window."

It was even so. I redeemed the tinware at pawnbroker's rates, less cost of advertising, bade the burglar good-night, closed the window after him, and retired to headquarters to report. Next morning we sent for the burglar-alarm man, and he came up and explained that the reason the alarm did not "go off" was that no part of the house but the first floor was attached to the alarm. This was simply idiotic; one might as well have no armor on at all in battle as to have it only on his legs. The expert now put the whole second story on the alarm, charged three hundred dollars for it, and went his way. By and by, one night, I found a burglar in the third story, about to start down a ladder with a lot of miscellaneous property. My first impulse was to crack his head with a billiard cue; but my second was to refrain from this attention, because he was between me and the cue rack. The second impulse was plainly the soundest, so I refrained, and proceeded to compromise. I redeemed the property at former rates, after deducting ten per cent. for use of ladder, it being my ladder, and next day we sent down for the expert once more, and had the third story attached to the alarm, for three hundred dollars.

By this time the "annunciator" had grown to formidable dimensions. It had forty-seven tags on it, marked with the names of the various rooms and chimneys, and it occupied the space of an ordinary wardrobe. The gong was the size of a wash-bowl, and was placed above the head of our bed. There was a wire from the house to the coachman's quarters in the stable, and a noble gong alongside his pillow.



We should have been comfortable now but for one defect. Every morning at five the cook opened the kitchen door, in the way of business, and rip went that gong! The first time this happened I thought the last day was come sure. I didn't think it *in* bed—no, but out of it—for the first effect of that frightful gong is to hurl you across the house, and slam you against the wall, and then curl you up, and squirm you like a spider on a stove lid, till somebody shuts the kitchen door. In solid fact, there is no clamor that is even remotely comparable to the dire clamor which that gong makes. Well, this catastrophe happened every morning regularly at five o'clock, and lost us three hours sleep; for, mind you, when that thing wakes you, it doesn't merely wake you in spots; it wakes you all over, conscience and all, and you are good for eighteen hours of wide-awakeness subsequently—eighteen hours of the very most inconceivable wide-awakeness that you ever experienced in your life. A stranger died on our hands one time, and we vacated and left him in our room overnight. Did that stranger wait for the general judgment? No, sir; he got up at five the next morning in the most prompt and unostentatious way. I knew he would; I knew it mighty well. He collected his life-insurance, and lived happy ever after, for there was plenty of proof as to the perfect squareness of his death.

Well, we were gradually fading toward a better land, on account of the daily loss of sleep; so we finally had the expert up again, and he ran a wire to the outside of the door, and placed a switch there, whereby Thomas, the butler, always made one little mistake—he switched the alarm off at night when he went to bed, and switched it on again at day-break in the morning, just in time for the cook to open the kitchen door, and enable that gong to slam us across the house, sometimes breaking a window with one or the other of us. At the end of a week we recognized that this switch business was a delusion and a snare. We also discovered that a band of burglars had been lodging in the house the whole time—not exactly to steal, for there wasn't much left now, but to hide from the police, for they were hot pressed, and they shrewdly judged that the detectives would never think of a tribe of burglars taking sanctuary in a house notoriously protected by the most imposing and elaborate burglar alarm in America.

Sent down for the expert again, and this time he struck a most dazzling idea—he fixed the thing so that opening the kitchen door would take off the alarm. It was a noble idea, and he charged accordingly. But you already foresee the result. I switched on the alarm every night at bed-time, no longer trusting on Thomas's frail memory; and as soon





as the lights were out the burglars walked in at the kitchen door, thus taking the alarm off without waiting for the cook to do it in the morning. You see how aggravatingly we were situated. For months we couldn't have any company. Not a spare bed in the house; all occupied by burglars.

Finally, I got up a cure of my own. The expert answered the call, and ran another ground wire to the stable, and established a switch there, so that the coachman could put on and take off the alarm. That worked first rate, and a season of peace ensued, during which we got to inviting company once more and enjoying life.

But by and by the irrepressible alarm invented a new kink. One winter's night we were flung out of bed by the sudden music of that awful gong, and when we hobbled to the annunciator, turned up the gas, and saw the word "Nursery" exposed, Mrs. McWilliams fainted dead away, and I came precious near doing the same thing myself. I seized my shotgun, and stood timing the coachman whilst that appalling buzzing went on. I knew that his gong had flung him out, too, and that he would be along with his gun as soon as he could jump into his clothes. When I judged that the time was ripe, I crept to the room next the nursery, glanced through the window, and saw the dim outline of the coachman in the yard below, standing at present-arms and waiting for a chance. Then I hopped into the nursery and fired, and in the same instant the coachman fired at the red flash of my gun. Both of us were successful; I crippled a nurse, and he shot off all my back hair. We turned up the gas, and telephoned for a surgeon. There was not a sign of a burglar, and no window had been raised. One glass was absent, but that was where the coachman's charge had come through. Here was a fine mystery—a burglar alarm "going off" at midnight of its own accord, and not a burglar in the neighborhood!

The expert answered the usual call, and explained that it was a "False alarm." Said it was easily fixed. So he overhauled the nursery window, charged a remunerative figure for it, and departed.

What we suffered from false alarms for the next three years no stylographic pen can describe. During the next three months I always flew with my gun to the room indicated, and the coachman always sallied forth with his battery to support me. But there was never anything to shoot at—windows all tight and secure. We always sent down for the expert next day, and he fixed those particular windows so they would keep quiet a week or so, and always remembered to send us a bill about like this:



Wire .....	\$2.15
Nipple .....	.75
Two hours' labor .....	1.50
Wax .....	.47
Tape .....	.34
Screws .....	.15
Recharging battery .....	.98
Three hours' labor .....	2.25
String .....	.02
Lard .....	.66
Pond's Extract .....	1.25
Springs at 50 .....	2.00
Railroad fares .....	7.25
	<hr/>
	\$19.77

At length a perfectly natural thing came about—after we had answered three or four hundred false alarms—to wit, we stopped answering them. Yes, I simply rose up calmly, when slammed across the house by the alarm, calmly inspected the annunciator, took note of the room indicated, and then calmly disconnected that room from the alarm, and went back to bed as if nothing had happened. Moreover, I left that room off permanently, and did not send for the expert. Well, it goes without saying that in the course of time *all* the rooms were taken off, and the entire machine was out of service.

It was at this unprotected time that the heaviest calamity of all happened. The burglars walked in one night and carried off the burglar alarm! yes, sir, every hide and hair of it: ripped it out, tooth and nail; springs, bells, gongs, battery, and all; they took a hundred and fifty miles of copper wire; they just cleaned her out, bag and baggage, and never left us a vestige of her to swear at—swear by, I mean.

We had a time of it to get her back; but we accomplished it finally, for money. The alarm firm said that what we needed now was to have her put in right—with their new patent springs in the windows to make false alarms impossible, and their new patent clock attached to take off and put on the alarm morning and night without human assistance. That seemed a good scheme. They promised to have the whole thing finished in ten days. They began work, and we left for the summer. They worked a couple of days; then *they* left for the summer. After which the burglars moved in, and began *their* summer vacation. When we returned in the fall, the house was as empty as a beer closet in



premises where painters have been at work. We refurnished, and then sent down to hurry up the expert. He came up and finished the job, and said: "Now this clock is set to put on the alarm every night at 10, and take it off every morning at 5:45. All you've got to do is to wind her up every week, and then leave her alone—she will take care of the alarm herself."

After that we had a most tranquil season during three months. The bill was prodigious, of course, and I had said I would not pay it until the new machinery had proved itself to be flawless. The time stipulated was three months. So I paid the bill, and the very next day the alarm went to buzzing like ten thousand bee swarms at ten o'clock in the morning. I turned the hands around twelve hours, according to instructions, and this took off the alarm; but there was another hitch at night, and I had to set her ahead twelve hours once more to get her to put the alarm on again. That sort of nonsense went on a week or two, then the expert came up and put in a new clock. He came up every three months during the next three years, and put in a new clock. But it was always a failure. His clocks all had the same perverse defect: they would put the alarm on in the daytime, and they would *not* put it on at night; and if you forced it on yourself, they *would* take it off again the minute your back was turned.

Now there is the history of that burglar alarm—everything just as it happened; nothing extenuated, and naught set down in malice. Yes, sir,—and when I had slept nine years with burglars, and maintained an expensive burglar alarm the whole time, for their protection, not mine, and at my sole cost—for not a d—d cent could I ever get *them* to contribute—I just said to Mrs. McWilliams that I had had enough of that kind of pie; so with her full consent I took the whole thing out and traded it off for a dog, and shot the dog. I don't know what *you* think about it, Mr. Twain; but I think those things are made solely in the interest of the burglars. Yes, sir, a burglar alarm combines in its person all that is objectionable about a fire, a riot, and a harem, and at the same time had none of the compensating advantages, of one sort or another, that customarily belong with that combination. Good-by: I get off here.



## NOTES

(1) The term building systems is used in this context to include lighting; water systems (drainage and plumbing); climate control (heating and ventilation); cooking facilities and kitchens; as well as security systems.

(2) New York was the first city in America to institute a public police force in 1844. Philadelphia followed in 1854, and by the 1870s almost all major American cities had municipal police forces.

(3) The Oxford English Dictionary, 2d ed, s.v. "security." See also Webster's New World Dictionary, 2d ed., s.v. "security."

(4) Charles S. Chamberlin, "A Short History of Private Security," Assets Protection 4 (1979): 35.

(5) For a discussion of the evolution of locks and others methods of protection see, Vincent J.M. Eras, Locks and Keys Throughout the Ages (Folkestone: Bailey Bros and Swinfen Ltd., 1974) and Robert Kraske, Silent Sentinels: The Story of Locks, Vaults and Burglar Alarms (Garden City, N.Y.: Doubleday & Company, Inc., 1969).

(6) Black's Law Dictionary, 5th ed., defines "hue and cry" as follows, "in old English law, a loud outcry with which felons (such as robbers, burglars, and murderers) were anciently pursued, and which all who heard it were bound to take up, and join in the pursuit, until the malefactor was taken." David R. Johnson, Policing the Urban Underworld: The Impact of Crime on the Development of the American Police, 1800-1887 (Philadelphia: Temple University Press, 1979), 7-8. Enforcing local ordinances is described as, "they looked after the condition of streets, sidewalks, privies, slaughterhouses, and the miscellaneous activities which affected the health, safety, and well-being of the urban population."





(7) Johnson, Policing the Urban Underworld, 7.

(8) David Ward, Cities and Immigrants: A Geography of Change in Nineteenth-Century America New York: Oxford University Press, 1971), 3.

(9) Augustine E. Costello, Our Police Protectors: A History of the New York Police (1885; reprint, Montclair, N.J.: Patterson Smith, 1972), vi-vii.

(10) Johnson, Policing the Urban Underworld, 12.

(11) Johnson, Policing the Urban Underworld, 3.

(12) Johnson, Policing the Urban Underworld, 9.

(13) Costello, Our Police Protectors, vii. It was not until 1845, however, that the common council actually ratified the enabling legislation for the Municipal Police Act which the legislature had passed in 1844. This act eliminated the marshals and night watch and replaced them with a round-the-clock force of 800 men.

(14) Benjamin P. Eldridge and William B. Watts, Our Rival The Rascal (1897; reprint, Montclair, N.J.: Patterson Smith, 1973), 93-119. In this survey of nineteenth-century burglary techniques and history, the authors describe the modis-operandi of the several classes of robbers who practice the "art" of robbery. The house-breaker or sneak thieves generally worked during daylight or early evening hours. Often, they were young boys who did not attempt complex jobs. They would ring the doorbell on some pretext and if they discovered the house unoccupied, they would break in to ransack drawers and closets looking for small objects such as jewelry, silver, clothing or money. The more sophisticated and dangerous "second story climber" gained access through the second floor of a house. Although their take was similar, these "climbers" usually worked in pairs and would have surveyed the premises in advance to be certain of routines and to verify value. "Far above all these house-breakers and sneak thieves, in his own esteem and in point of offense, is the night raider or professional burglar who makes the dwelling house his mark." Generally working as an armed pair - their approach is made in dead of night to a previously marked house. (Our Rival, 102)



(15) Johnson, Policing the Urban Underworld, 61.

(16) For a summary discussion of mechanical alarm systems see William Greer, A History of Alarm Security (Washington, D.C.: The National Burglar Alarm & Fire Alarm Association, 1979), 6-11.

(17) Numerous sources recount the history and major developments in the understanding of electricity and magnetism. For example see Frank L. Pope, Modern Practice of the Electric Telegraph: A Handbook for Electricians and Operators (New York: Russell Brothers, 1869); Park Benjamin, The Age of Electricity: From Amber-Soul to Telephone (New York: Charles Scribner's Sons, 1888) or Herbert W. Meyer, A History of Electricity and Magnetism (Cambridge: The MIT Press, 1971).

(18) Pope, Modern Practice of the Electric Telegraph, 9-12. Although the term battery is commonly applied to the single unit, or cell, containing the generating materials, the proper usage of the term is to refer to a number of cells connected together.

(19) Polarization, refers to the accumulation of hydrogen gas bubbles on the positive (or copper) plate causing the surface of this plate to become coated with a deposit of zinc. This process, tends toward converting the battery into one in which both plates are of zinc. This causes a perceptible weakening and finally a cessation of a cells electro-motive force.

(20) Meyer, A History of Electricity and Magnetism, 34-51.

(21) Benjamin, The Age of Electricity, 79-82.

(22) For a discussion of early fire alarm developments see, Greer, A History of Alarm Security, 13; William F. Channing, The Municipal Electric Telegraph: Especially in its Application to Fire Alarms (New Haven: B.L. Hamlen, 1852); or William Werner, History of the Boston Fire Department and Fire Alarm System: January 1, 1859 through December 31, 1973 (Boston: The Boston Sparks Association, 1974).

(23) Boston Daily Advertiser, 30 May 1845 and 3 June 1845.



(24) Channing, The Municipal Electric Telegraph, 5-9. The system, which Boston actually put into operation in 1852, had, in the years since first proposed been substantially improved. Although not perfect it was far superior to any previous method. The Fire Alarm Telegraph was introduced into Philadelphia in 1855 and into St. Louis in 1858.

(25) Although no other patents are directly attributed to Edwin Holmes does not mean that he did not control other technology. Patents were assigned or sold on a regular basis. It is assumed that this is how Holmes received his rights to other improvements in his system. Only when the assignment took place at the time of patent application would the new owner's name be registered in the index along with the name of the inventor. Otherwise, the only way to establish transfer of ownership is to use the Patent Assignment Digest (National Archives, Washington, D.C.). First, it is necessary to select the patents to be checked in the assignment digest. Few patent titles indicate whether they are for electrically or mechanically based systems. Therefore, The Index of Patents Relating to Electricity Prior to 1881 is an essential tool. Patents which fell into the most promising electrical subclasses [burglar alarms, annunciators; bells; circuit closer; clocks and meters] were compared with those identified in the subject matter index as being burglar alarm related. When a patent appeared on both lists it became a candidate for examination in the assignment digest. For this study, a list of approximately three hundred patents was generated. Because the digest is indexed only by assignor, checking these patents for an assignment is a lengthy process. First, the index to the assignment digest is consulted to determine volume and page number within the digest where a patentee with a given name is registered. Of course, the more common the name, the greater the number of citations that will be produced - all of which must be checked to determine if they relate to the patent in question. The corresponding volume of the assignment digest is consulted to see to whom the patent was assigned and if it is in fact the patent in question. Unfortunately, this painstaking procedure failed to identify additional Holmes controlled patents. This process, because of its complexity, is full of potential problems, an incorrect spelling anywhere in the process can result in a dead end. Even without er-



rors or omissions in procedure, failure to register a patent assignment, and errors within the digest itself cannot be overcome. For example, it is certain that Holmes received the Pope assignment, yet this transfer is not recorded in the assignment digest.

(26) George Russell Jackson, History of the Churches of Somerville with Portraits of the Pastors (Murray & Walsh, Publishers, 1882). "A Public Loss," [Augustus Russell Pope obituary], [Boston] Evening Transcript, Monday, 24, May 1858, Second Edition.

(27) Affidavit of Lemuel Pope; U.S. Patent Extension Case File, Augustus Russell Pope, "Electro Magnetic Alarms" February 14, 1867; Records of the Patent Office, Record Group 241; National Archives, Washington, D.C.

(28) U.S. Patent Application File No. 9,802, Augustus Russell Pope of Somerville, Massachusetts, 21 June 1853; Records of the Patent Office, Record Group 241; National Archives, Suitland, MD. English patent No. 1,795 was issued August 1, 1853 for the same device. (Appendix C)

(29) Moses Gerrish Farmer was issued patent No. 8,920, for an "Improvement in Electro-Magnetic Alarm-Bells" on May 4, 1852. (Appendix D)

(30) Paul B. Israel, "From the Machine Shop to the Industrial Laboratory: Telegraphy and the Changing Context of American Invention, 1830-1920" (Ph.D. diss., Rutgers, The State University of New Jersey, 1989), 114. Boston remained in this prominent position until after the Civil War, when New York and Philadelphia began to hold important places.

(31) Robert V. Bruce, Alexander Graham Bell and the Conquest of Solitude (Boston: Little, Brown & Company, 1973), 92.

(32) Affidavit of Moses Farmer; U.S. Patent Extension Case Files, Augustus Russell Pope, "Electro Magnetic Alarms" February 14, 1867; Records of the Patent Office, Record Group 241; National Archives, Washington, D.C.

(33) Moses Gerrish Farmer was born in New Hampshire and educated at the Andover, Massachusetts preparatory school. He attended, but due to ill health, did not com-





plete his studies at Dartmouth College. Farmer devised a machine to print paper window shades and thus began his career as an inventor. In 1845 he became interested in electricity. After learning telegraphy he became an operator and later took charge and was responsible for opening offices on the line between Boston and Newburyport. During this period his electrical experimentation continued at home. In 1848 he invented the electrical striking apparatus for the fire-alarm service which he developed with Dr. William F. Channing. In 1853 he resumed work on other electrical ideas. His later accomplishments included in 1855, discovery of a means of duplex and quadraplex telegraphy; in 1856 he started an electrotyping business after succeeding in depositing aluminum electrolytically. In 1858-59 he invented an incandescent electric lamp. Farmer was years ahead of his contemporaries in many applications of electrical current. Although his electrical patents rivaled Edison's his fame and profit did not. This is attributed to his tendency to continually plunge into unknown territory rather than to perfect a marketable invention.

(34) Affidavit of Charles Williams; U.S. Patent Extension Case Files, Augustus Russell Pope, "Electro Magnetic Alarms" February 14, 1867; Records of the Patent Office, Record Group 241; National Archives, Washington, D.C.

(35) Bruce, Alexander Graham Bell, 92. This was the same shop where the Channing and Farmer fire alarm apparatus was constructed and this same shop later went on to employ Thomas A. Watson.

(36) U.S. Patent No. 9,802 to Augustus Russell Pope of Somerville, Massachusetts, for "Improvement in Electro-Magnetic Alarms," June 21, 1853.

(37) U.S. Patent No. 9,802 to Augustus Russell Pope.

(38) Affidavit of Lucy Pope; U.S. Patent Extension Case Files, Augustus Russell Pope, "Electro Magnetic Alarms" February 14, 1867; Records of the Patent Office, Record Group 241; National Archives, Washington, D.C.

(39) Edwin T. Holmes, A Wonderful Fifty Years New York: Privately Published, 1917), 11. The Boston paper Eve-



ning Transcript reported (Monday evening May 24, 1858) the death of Augustus Pope as follows: "[he] has been prostrated for the past three weeks...the greater part of his illness was accompanied by delirium." An unsigned handwritten note in his Harvard alumni file states "Augustus Russell Pope died of typhoid fever at Somerville, Mass. at 5 o'clock A.M. May 24, 1858, or rather it was an affection of the brain, overtaken by work, and moreover embarrassed by pecuniary reverses, his family having a tendency to insanity."

(40) May 6, 1858 Letter of Application for patent reissue; U.S. Patent Application File No. 9,802, Augustus Russell Pope of Somerville, Massachusetts, 21 June 1853; Records of the Patent Office, Record Group 241; National Archives, Suitland, MD.

(41) Greer, A History of Alarm Security, 25.

(42) Edwin T. Holmes in A Wonderful Fifty Years, 7 reports his father's 1858 move to New York while his family stayed in Boston until 1859, when they also relocated. Holmes, A Wonderful Fifty Years, 17.

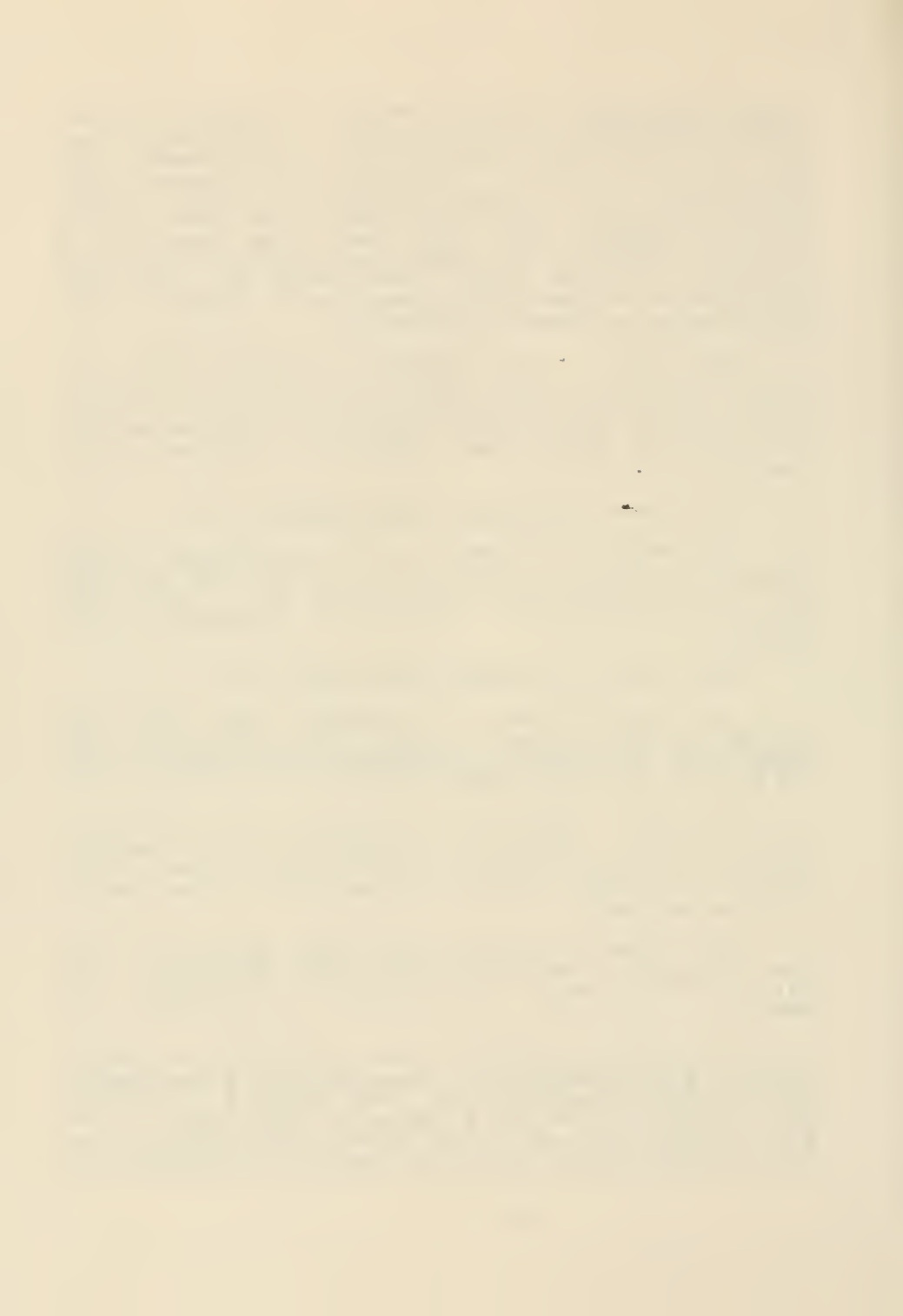
(43) Holmes, A Wonderful Fifty Years, 14.

(44) Edwin Holmes, A Treatise Upon the Best Method of Protecting Property from Burglars, and Human Life from Midnight Assassins (New York: Brooklyn Daily Times, Print, [1861]), 5.

(45) This pamphlet does not have a publication date; however, each of the letters from clients is dated. The latest letter is of March 7, 1861, it is therefore assumed publication would have been shortly after this date.

(46) Holmes, A Wonderful Fifty Years, 25. The Your Attention pamphlet is also undated however, the date of the latest testimonial is September 11, 1868.

(47) These addresses are reported in, Edwin Holmes, Your Attention is Respectfully Requested to the Following Testimonials, (New York: H.C. Stoothoff, [1868]), 52. Holmes, A Wonderful Fifty Years, 44, reports, "in 1869 my father sent me to Boston, and T.E. Cornish who had been in his employ for some years, to



Philadelphia, to establish our Burglar Alarm and Electrical Business." A search of Philadelphia city directories shows the following listings for T.E. Cornish:

- 1868 no listing;
- 1869 no listing;
- 1870 Cornish, Thomas Jr. agent, 1111 Chestnut;
- 1871 Cornish, Thomas E., agent, 1111 Chestnut;
- 1873 Cornish, Thomas E., burglar alarms, 1111 Chestnut;
- 1874 Cornish, Thomas E., tel. instrmnts, 1111 Chestnut;
- 1876 Cornish, Thomas E., burglar alarms, 1111 Chestnut;
- 1877 Cornish, Thomas E., burglar alarms, 1111 Chestnut;
- 1878 Cornish, Thomas E., electrician, 1111 Chestnut;
- 1879 Cornish, Thomas E., electrician, 1111 Chestnut;
- 1880 Cornish, Thomas E., manager, 1111 Chestnut;
- 1881 Cornish, Thomas E., manager 57 S. 4th.

(48) No patent for this device has been uncovered. Only one testimonial specifically mentions the existence of an annunciator. Therefore annunciators were available, although probably not very widespread by March 1861.

New York, March 16, 1861

Mr. Holmes,

Dear Sir: - I know not which most to admire, the certainty of action of your instrument, or the promptness with which it gives the alarm.

An opportunity was offered us several weeks since of testing both these qualities. Very early one morning before daybreak, my family were suddenly aroused by the bell ringing an alarm. On examining the indicator, I discovered there was something wrong in the basement, and proceeding thither, surely enough, I found a window had been opened. I could find no other traces of my morning visitor, and whether he was frightened away by the noisy monitor above the stairs, or restrained by the silent monitor within himself, I will not take it upon myself to decide. But one thing I know, that ever since the occurrence, my family have duly appreciated your useful invention.

Respectfully yours,  
Edward H. Ladd  
500 Broadway



(49) Western Electric Manufacturing Co., Price List of Western Electric Manufacturing Co., Including Electric Bells and Annunciators Suited for Calls in Hotels and Residences, and Burglar Alarms, and the Electro-Mercurial Fire Alarm (Chicago: Western Electric Manufacturing Co., 1877), 6.

(50) Holmes, A Wonderful Fifty Years, 43.

(51) Amedee Guillemin, Electricity and Magnetism ed. Silvanus P. Thompson (London: Macmillan and Co., 1891), 676.

(52) Holmes, A Wonderful Fifty Years, 17. Holmes took the bare wire to a factory where steel wire for hoop skirts was braided with cotton and here had his copper wire covered in a similar fashion. In 1870, Eugene Phillips of Providence began making insulated wire for electrical purposes and Holmes ceased to produce his own supplies.

(53) Holmes, Your Attention, 53.

(54) Edgar W. Martin, The Standard of Living in 1860; American Consumption Levels on the Eve of the Civil War, (Chicago: University of Chicago Press, [1942]), 101.

(55) U.S. Patent No. 9,802 to Augustus Russell Pope.

(56) Holmes, A Wonderful Fifty Years, 17.

(57) F.C. Allsop, Practical Electric Bell Fitting: A Treatise on the Fitting-up and Maintenance of Electric Bells and all the Necessary Apparatus (London: E. & F.N. Spon: 1890), 20-21.

(58) Holmes, Your Attention, 53. Holmes indicates that he sells "a superior article of Blue Vitriol, prepared especially for this battery," Your Attention, 63. Blue vitriol refers to copper sulfate which is blue in color, and was used in the gravity, crowfoot, or bluestone batteries.

(59) Holmes, Your Attention, 53.

(60) Holmes, A Treatise, 56.





(61) The 1861 booklet mentions two variations in the application and usage of the system. First, "as a means of communicating to a stable or other outbuilding, it is superior to any and all other means used. The simple touch of a small spring, arranged in your sitting-room, or any, or several parts of the house, rings the bell at the stable." (Holmes, A Treatise, 35) "Every door and window of the stable without regard to distance, can be, and is often connected with this same Bell in the sleeping room. Any person wishing some means to communicate with the coachman at the stable, cannot find a better or more economical method." (Holmes, A Treatise, 47).

(62) U.S. Patent No. 63,158 to Edwin Holmes of New York, NY, for "Improvement in Electric Circuit-Breaking Clocks," March 26, 1867.

(63) Holmes, Your Attention, 53.

(64) Holmes, Your Attention, 53.

(65) Holmes, A Treatise, 49.

(66) Henry Hudson Holly, Country Seats and Modern Dwellings (1878; reprint, Watkins Glen, NY: Library of Victorian Culture, 1977), 102.

(67) In the patent Whiting states, "I am aware that an apparatus has been employed as a burglar-alarm in which a single electric circuit was employed in connection with the windows and doors of a building, and so arranged that the opening of any one of them should close the circuit and sound an alarm. Such apparatus, however, furnished no indication of the whereabouts of the window or door so opened, and the proprietor was left to search through the whole house for the intruder, who was himself perhaps alarmed and enabled to escape. My invention had for its object to produce a house-alarm which shall not only alarm the proprietor or guardian of the house on the intrusion of a burglar, but shall at the same time indicate to him the part of the house attacked, that his attention may be immediately directed to the particular room where an entry has been attempted or effected; and this I accomplish by the employment of a series of electromagnetic circuits (one for each distinct room or portion of the house to be guarded) in connection with an indicator for indicating the portion of the house attacked." Whiting goes on to describe a drop annun-



ciator where a small shield covers a letter assigned to a particular room, when the alarm is sounded the armature is thrown back by its spring and the letter indicating the room is exposed to view.

(68) Western Electric Manufacturing Co., Price List of Western Electric, 6.

(69) Western Electric Manufacturing Co., Price List of Western Electric, 57-58.

(70) C.J. Wharton, Domestic Electricity for Amateurs (London: E. & R.N. Spon, 1889), 27.

(71) F.B. Badt, Bell Hangers' Hand-Book (Chicago: Electrician Publishing Company, 1889), 91-92.

(72) Western Electric Manufacturing Co., Price List of Western Electric, 10.

(73) Although patents are valuable as historical records they do have limitations. They provide no evidence about what was actually produced or manufactured, or even if a device was commercially produced at all.

(74) George E. Cock and J.H. Guest, "Office of the Electro-Magnetic Fire and Burglar Alarm Telegraph" circular, 1872. Warsaw Collection of Business Americana, Crime Box, Archives Center, National Museum of American History, Washington, D.C.

(75) The suggestion of competition comes from Holmes in 1868, when he announces: "All infringements upon this patent either by using or vending will be dealt with to the full extent of the law for such cases provided." (Holmes, Your Attention, end sheet.)

(76) Trow's New York directory for 1870 has no listing for Cock; Guest's occupation is listed as Patents, 229 Broadway. The 1871 directory still lists Guest at 229 B'way but with his occupation listed as Alarms. Cock appears with an occupation listed as Treasurer although he shows a business address of 9 Murray.

(77) Holmes, A Treatise, 46.



(78) Fred M. Gibson, "Electric Protection Services: A Study of the Development of the Services Rendered by the American District Telegraph Company" (New York: ADT, Research and Development Division, 1962), 12.

(79) In 1866, S.S. Laws invented an instrument for reporting fluctuations in the gold market. Next, in 1867 E.A. Callahan perfected a device to transmit stock market quotations.

(80) "The American District Telegraph Company," The Telegrapher 11 (October 9, 1875). ADTs 1878 prospectus reports that the business grew and "on January 1, 1878, it connected 4,500 dwellings and stores and had a staff of 600 expert messengers and 50 private policemen. It has 21 central stations and 42 managers."

(81) By 1887 there were about twenty companies offering district messenger services. Most employed "District Telegraph" as part of their corporate name and some used the name American District Telegraph Company of the City and State in which they choose to operate.

(82) U.S. Patent No. 110,362 to Edwin Holmes of New York, NY, and Henry C. Roome of Jersey City, New Jersey, for an "Improvement in Electro-magnetic Envelopes for Safes, Vaults & c.", December 20, 1870.

(83) U.S. Patent No. 110,362 to Edwin Holmes and Henry C. Roome.

(84) Holmes, A Wonderful Fifty Years, 37.

(85) Holmes, A Wonderful Fifty Years, 36-37.

(86) Reissue 8,949 October 28, 1879 of U.S. Patent 110,362 to Edwin Holmes and Henry C. Roome.

(87) Holmes, A Wonderful Fifty Years, 36. Gibson, "Electric Protection Services", 17.

(88) Holmes, A Wonderful Fifty Years, 42.

(89) "The American District Telegraph Company", The Telegrapher 11 (October 9, 1875).



(90) These seven houses were brought to the attention of the author through different means. Lockwood-Mathews, where the author volunteered for a number of years, was the catalyst for this entire undertaking. Responses from a query published in the APT Communique identified several houses: Armour-Stiner Octagon, Maish, and Wilderstein. Jean Wolf, a fellow student and co-worker came across Beechwood and the Bowne house. And, finally the Fraser house was located as a result of the 1868 pamphlet listing.

(91) Norwalk Gazette, October 12, 1869 quoting from the New York Sun October 2, 1869.

(92) Norwalk Gazette, October 12, 1869.

(93) Charles M. Selleck, Norwalk (Norwalk, CT: 1895), 214. The first purchase was made on November 24, 1863 with additional purchases being made into the next spring.

(94) For a more detailed discussion of the life of LeGrand Lockwood and the house he built see, Mimi Findlay and Doris E. Friend, eds., The Lockwood-Mathews Mansion Museum, 2nd ed. (Norwalk, CT: The Lockwood-Mathews Mansion Museum of Norwalk, Inc., 1981).

(95) "For Sale: Mr. LeGrand Lockwood's Mansion in Norwalk, Connecticut" advertisement in an unidentified New York paper. March 1873. Lienau Memorabilia, 18. Avery Library, Columbia University.

(96) "Elm Park - South Norwalk, Conn., Situation - Grounds, & C." [photocopy], Lockwood-Mathews Mansion Museum Archives, Norwalk, Connecticut.

(97) Findlay and Friend, The Lockwood-Mathews Mansion Museum, 11.

(98) Holmes, Your Attention, 47. The listing reads, "LeGrand Lockwood...94 Broadway." At the beginning of this section Holmes advises "as far as possible the business address is given."

(99) The appearance of the bell presently in place is quite different from the bells depicted in the Holmes circulars. (Figure 9, pg. 31) Embossed on the underside of the bell is the name of the manufacturer: Stanley & Patterson of New York, NY.





According to Holmes (Jr.) the electrical bell used in the system was originally made by Charles Williams. In 1876 Holmes opened a machine shop for the exclusive manufacture of all Holmes's electrical instruments and appliances. Therefore, in order for this bell to be original, or nearly original, Stanley and Patterson of New York City would need to have been in existence between 1868, when the mansion was constructed and 1876, when the bell commission moved in-house, which it was not. Stanley and Patterson first shows up in the Trows New York City directory of 1892-1893. Although the Stanley Works, Hardware and Patterson Brothers, Hardware were both in existence in the 1868-1876 period they are two entirely separate entities. In the 1891-1892 directory there is a listing for Stanley & Hall, elec. Insts. 32 Frankfort. A year latter (1892-1893) the listing reads, Stanley & Patterson, Supplies 32 Frankfort.

(100) Findlay and Friend, The Lockwood-Mathews Mansion, 37.

(101) Findlay and Friend, The Lockwood-Mathews Mansion, 35.

(102) Florence Mathews, "The Ancestry of Mr. Charles T. Mathews" [transcribed copy]. Lockwood-Mathews Mansion Museum Archives, Norwalk, CT. The full diary excerpt reads as follows, "an incident that second summer was interesting as we had a most unpleasant experience of a robbery. We had a number of people in the house and were playing bowls downstairs. A fierce and noisy storm raged outside. My school friend, Dora Merrell, was visiting me, and as I wanted her to be very comfortable I gave up my room and dumped all my jewelry into a bureau drawer on the opposite side of the house. As I stepped from my door for dinner, I saw Dora was simply gowned in black. I had on a light blue dress and a very valuable medallion of diamonds, turquoise and pearls, a gift of Father's, and a necklace of turquoise to represent forget-me-nots given by Mother. Realizing the bad taste of outshining one's guests, I stepped back, took them off, and threw them into the drawer. While we were bowling Father went to his room and hearing someone try to open the connecting door between his bathroom and the Oriental room, he called out "That door is locked, go around the other way." The burglar delighted at such information



turned and rushed into the side of the house where I had moved next to Lillie. Just as I was saying goodnight to Dora in her room Lilly came and asked for a candle. Instantly I felt something was wrong and asked twice before she answered "Someone has entered the house and taken everything from my top drawer and Will wants to go thru the rooms to see if he is in hiding." "Oh!" I said, "all my jewelry is there." I flew over to find everything gone. I was deeply ashamed for Father had told me to lock up all valuable things as this house was like a "Light set on a Hill" close to the Post Road between New York and Boston. I had always intended to do so but alas!

(103) Gordon William Fulton, "The Bowne House, Flushing, New York: A Historic Structure Report" (Master's thesis, Columbia University, 1981), 19-29.

(104) "The Bowne House, Flushing, New York", page reported that prior to 1860, the house was equipped with "modern innovations, being heated by a furnace and illuminated by gas." Because no "Parsons" are listed on Holmes's 1861 subscriber lists it is assumed that an alarm system, while available, was not among the added innovations.

(105) Fulton, "The Bowne House," 168.

(106) The rooms on the second floor are the residence of the caretaker, as well as staff office space. Therefore there was limited access to the floor area due to placement of furniture and floor coverings. Visual inspection indicated at least limited presence of floor wires on this floor.

(107) Holmes, A Treatise, 40.

(108) Since my first visit in 1990, work has been done to replace some of the floorboards. An attempt has been made to replicate the original wiring patterns.

(109) Betty Halle, Riverton Town Historian, "Research Notes 101 Main St., Riverton, New Jersey." [photocopy].

(110) The Newport city directories from 1858 until 1878/9 indicate the primary place of residence was New York.



(111) Joseph Pell Lombardi, "The Octagon House, 1858 - 1975" (New York: The Office of Joseph Pell Lombardi & Assoc., [1979]).

(112) Lombardi, "The Octagon House, 1858-1975," reports, "inscriptions on interior hardware and painter graffiti under the porch indicate that rebuilding occurred immediately after Stiner's purchase in 1872."

(113) "George H. Maish," The United States Biographical Dictionary Des Moines, 777 - 778.

(114) David Maish Liddle, "Statement of December 12, 1973" Ralph Gross correspondence. [Photocopy].

(115) Ralph Gross correspondence.

(116) Cynthia Owen Philip, "Wilderstein: The Creation of a Hudson River Villa, 1852 - 1892," The Hudson Valley Regional Review 7 (Sept. 1990): 6.

(117) Philip, "Wilderstein," The Hudson Valley Regional Review, 20.

(118) Philip, "Wilderstein," The Hudson Valley Regional Review, 33.

(119) In January 1891 the dynamo/turbine at Wilderstein was completed and the electric lights were turned on for the first time-- quite a feat in this rural setting when one considers New York City's Pearl Street Station had come on line just nine years earlier.

(120) Popular Science Monthly, 1881, 57.

(121) Holmes, Your Attention, 14. In his July 2, 1866, testimonial, P.T. Barnum states, "I have had Holmes' Burglar Alarm Telegraph in my house three years."

(122) P.T. Barnum, Struggles and Triumphs (Buffalo: Warren & Johnson & Co., 1872), 616.



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