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Uniform cost accounting system for manufacturing implements and other farm operating equipment

T. F. Wharton

National Implement and Vehicle Association. Manufacturing Costs Committee

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UNIFORM COST ACCOUNTING SYSTEM

FOR

Manufacturers of Implements
and
Other Farm Operating Equipment

ARRANGED BY

T. F. Wharton
Moline, Ill.

ISSUED BY

Manufacturing Costs Committee
of the

National Implement & Vehicle Association

76 WEST MONROE STREET
CHICAGO

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Acknowledgment

Mr. Wharton, who before on several occasions has placed our association in debt to him for helpful assistance in the solution of our common problems, again increases these obligations for the **Uniform Cost Accounting System** herewith presented.

With characteristic foresight he writes this for the layman—the manufacturer who has desired to know his costs, yet whose volume of business has not warranted the employment of a large staff of accountants, or the concern that has had an unfortunate experience with so-called cost systems.

So clearly has he worked out each detail that “he who runs may read”—and understand. Only common sense and an adjustment of your present accounts is necessary to install it. We commend it to those having no satisfactory system at present, also those who, having a system, wish to test its accuracy.

Mr. Wharton’s repute as cost expert and auditor, also his broad experience in our lines as comptroller of Deere & Company, need hardly be mentioned in giving this system our approval.

NATIONAL IMPLEMENT & VEHICLE ASSOCIATION,
E. W. McCULLOUGH,
Chicago, 1916. Secretary and General Manager.

UNIFORM COST ACCOUNTING SYSTEM

FOR

MANUFACTURERS OF IMPLEMENTS AND OTHER FARM OPERATING EQUIPMENT

By T. F. WHARTON

The Association has had presented to it for several years the necessity for a uniform accounting system and for an accurate cost system, and we do not need to repeat the arguments advanced and the reasons given therefor. The present abnormal prices of materials, with increased costs in other directions, seem to make this an opportune time for the Association to adopt a uniform accounting system for manufacturers of implements and other farm operating equipment.

We, therefore, submit herewith a simple system which we recommend to the Association, particularly for the guidance of organizations not already supplied with an adequate or satisfactory cost system.

Essentials of a System.

The first essential of an accounting system is a classification of accounts. By classification is meant an analysis of expenditures, such as will clearly present a picture of operations and results.

The next essential is a set of books and records in which to keep, and from which to make up the analysis of expenditures just referred to.

The final essential is a competent man to keep the books and be held responsible for the accounting system and the figures produced.

Classification of Accounts.

Definition of Terms.

There is more or less confusion in the minds of many persons in regard to the application of the term "costs." This is due to their failure to distinguish between

- (1) The cost of manufacture, and
- (2) The cost sold.

In the system here outlined the term "Cost of Manufacture" will represent the cost of productive material and labor at the factory, together with all expenses incurred by reason of the productive activities of the factory, from the purchase and receipt of materials up to and including the storage in the warehouse at the factory of the finished product ready for shipment to the customer. The accounts necessary to be kept for this cost are:

- (1) Productive material;
- (2) Productive labor;
- (3) Overhead expense, or burden.

The term "cost sold" will represent the **Cost of Manufacture** plus the shipping, selling and general expenses, and a few other charges, as will be hereinafter explained.

Balance Sheet Accounts.

It is of the utmost importance that the cost accounts be tied up with the general accounts of the organization, as only in that way can the costs be proven and really correct results obtained. The following balance sheet accounts are suggested, the numbers being used for convenience as a matter of ready reference:

ASSETS.

Property and Equipment.

- 1a—Land.
- 1b—Buildings and structures.
- 1c—Machinery and fixtures.
- 1d—Dies, patterns, tools, etc.
- 1e—Hauling equipment.
- 1f—Office furniture and fixtures.

Other Property.

- 2—Miscellaneous outside investments.

Current Assets.

- 3a—Materials and supplies.
- 3b—Work in progress.
- 3c—Finished stock.
- 3d—Cash on hand and on deposit.
- 3e—Notes receivable.
- 3f—Accounts receivable.
- 3g—Interest on notes receivable—accrued.

Deferred Charges.

- 4a—Stationery and advertising matter.
- 4b—Working funds advanced.
- 4c—Insurance premiums paid—unexpired.
- 4d—Interest paid—unexpired.
- 4e—Taxes and licenses paid—unexpired.

LIABILITIES.

Capital Stock.

- 5—Amount outstanding.

Bonds, Debentures and Mortgages.

- 6—Detail of separate issues.

Current Liabilities.

- 7a—Notes Payable.
- 7b—Accounts payable.
- 7c—Expenses accrued.

- 7d—Taxes accrued.
- 7e—Interest accrued.

Reserves.

- 8a—For depreciation.
- 8b—For uncollectible accounts.

Profit and Loss.

- 9—Current profit and loss and surplus account.

The subdivision of the foregoing accounts is intended to clearly show the various classes of property owned particularly with the view to applying the proper rates of depreciation thereto. The accounts are easy to keep after once being started. A description of the items chargeable to each account will be found in appendix "A" hereto attached.

Income Statement Accounts.

Following in their order after the balance sheet accounts, and before taking up the accounts representing the cost of manufacture, are the income statement accounts. These accounts are connected with the balance sheet accounts on one hand, and the cost accounts on the other hand, and in the order of the appearance on an income statement are as follows:

10—Sales.

11—Cost of Manufacture of Goods Sold.

12—Shipping, Selling and General Expenses.

- 12a—Crating, boxing and loading domestic shipments.
- 12b—Crating, boxing and loading export shipments.
- 12c—Shipping office labor and expense.
- 12d—Barn, team and auto trucks.
- 12e—Sales department salaries.
- 12f—Sales department expenses.
- 12g—Advertising and publicity.
- 12h—Officers' and clerks' salaries.
- 12i—Printing and stationery.
- 12j—Postage, telegraph and telephone.
- 12k—Export sales expense.
- 12m—Miscellaneous selling and general expenses.

13—Income Credits.

- 13a—Cash discounts on purchases.
- 13b—Interest on current assets.
- 13c—Income from other property.

14—Income Charges.

- 14a—Cash discount on sales.
- 14b—Interest on liabilities.
- 14c—Income and similar taxes.
- 14d—Uncollectible accounts reservation.

As will be hereinafter explained, the sum of accounts Nos. 12 and 14 (including accounts 12a to 12m, inclusive, and accounts 14a to 14d, inclu-

sive), less accounts 13a and 13b, constitute the additional costs, which, added to the **Cost of Manufacture**, represent the **Cost Sold** of the products of the factory. Account 13c represents income which has no connection with the factory operations, and should not be used in computing costs.

The items to be included in each of the foregoing accounts are described in appendix "A" hereto attached.

Cost of Manufacture.

It is of the utmost importance that every item of expenditure connected with manufacturing the product of the factory, except such as clearly add to the existing plant facilities, be charged to its proper cost account and thus find its way into the cost of each product manufactured.

It is also important, for the purpose of securing comparative costs, that a definite dividing line be established as between productive material and productive labor on the one hand, and non-productive material and non-productive labor on the other hand.

For example: the trucking of raw material from the stock room to the factory, of work in progress from one department to another, and of finished stock from the paint shop to the warehouse, is productive labor in one sense of the word. Owing to the fact that most factories are unable to separate this labor as between the parts or machines manufactured, except upon some arbitrary basis of apportionment, it has been included as a separate item of overhead in this system, and not as a part of the productive labor.

In Appendix "A" will be found a description of the items chargeable to each of the accounts which follow:

Foundry Accounts constitute an entirely separate group of cost accounts. The product of the foundry should be charged to the proper factory cost accounts just as outside foundry purchases would be charged. The cost of castings entering into the factory product should be charged to the Productive Material Account. The cost of "jobbing castings," or castings used in maintenance and repairs, should be charged to the proper overhead accounts.

The following factory accounts constitute the items entering into the Cost of Manufacture:

15—Productive Material.

16—Productive Labor.

17—Overhead Expenses.

17a—Maintenance of property and equipment.

17b—Shop supervising and clerical salaries.

17c—Unloading and storing materials.

17d—Handling and trucking materials and work in progress.

17e—Power, heat and light.

17f—Forge shop fuel and supplies.

17g—Experimental work.

17h—Defective material and work.

17i—Factory insurance.

17j—Factory taxes.

- 17k—Factory depreciation.
- 17m—All other overhead expenses.
- 17n—Factory rent (if any is paid).

Foundry accounts do not need to be kept in great detail, but they should give at least the following information for grey iron foundries:

18—Melting.

- 18a—Pig iron and scrap.
- 18b—Labor.
- 18c—All other expense.

19—Molding.

- 19a—Labor.
- 19b—Sand, supplies and maintenance.

20—Core-making.

- 20a—Labor.
- 20b—Sand, fuel, etc.

21—Milling—Finishing.

- 21a—Labor.
- 21b—Maintenance, etc.

22—General.

- 22a—Foundry supervising and clerical salaries.
- 22b—Power, heat and light.
- 22c—Foundry insurance.
- 22d—Foundry taxes.
- 22e—Foundry depreciation.
- 22f—Miscellaneous general.

Malleable foundries should carry the foregoing accounts, and in addition thereto, the following:

23—Hard Milling.

- 23a—Labor.
- 23b—Maintenance, etc.

24—Annealing.

- 24a—Labor.
- 24b—Fuel.
- 24c—Maintenance, etc.

How to Keep These Accounts.

For convenience in bookkeeping, these accounts should be carried in two ledgers, even though one bookkeeper may keep both ledgers. These books should be designated

- (1) General Ledger.
- (2) Operating Ledger.

In the general ledger all of the balance sheet accounts should be carried, and all of the Income Statement Accounts. In the operating ledger all factory and foundry "Cost of Manufacture" accounts should be carried, and also any detail desired of general ledger account 3a—Materials and Supplies.

Factories having a large number of customers' accounts should carry them in one or more "Accounts Receivable Ledgers." Factories having a large number of Accounts Payable should carry them in an "Accounts Payable Ledger." In order to obviate this, however, and in the interests of simplicity and a systematic method of handling things, it is suggested that factories establish a voucher system, with a proper voucher register.

The details of Notes Receivable and Notes Payable should be carried in a Note Record, an ordinary stock form of which will generally be sufficient. Organizations carrying a large amount of Notes Receivable should, however, use a special form of Notes Receivable Ledger.

The Operating Ledger, the Accounts Receivable Ledgers, and similar ledgers, are called Subsidiary Ledgers, because they contain the details of certain accounts carried on the General Ledger. Generally speaking, these should be loose-leaf ledgers.

Charges to the accounts as suggested in this system should come from several different sources.

1. From the Pay Roll. In practically all organizations employes are paid weekly or semi-monthly and monthly. In order to obtain a proper distribution of the pay roll, all employes on a monthly basis should be classified in accordance with the Account Number to which their salaries should be charged. All factory operatives should make daily time reports showing the jobs worked on, the quantity made and the rate per piece, or the time worked on each job and the rate per hour. While it is advisable to have time reports from all operatives, it is not necessary in the case of foremen, engineers, firemen, watchmen, janitors, elevator men, teamsters, and all others whose time is regularly charged to a particular overhead expense account.

The timekeepers or pay-roll clerks should figure the time reports every day, and should recapitulate the same by account numbers. The total pay-roll should be distributed in this way, and a summary thereof handed to the general bookkeeper. The latter should prepare a similar distribution of the office pay-roll and from both of these should make the proper charges to the general and operating accounts.

2. From Material Reports. These reports, preferably in the form of requisitions, should show the quantity and kind of all materials taken out of stock and used for maintenance and repairs, for new construction, and for any purpose except Productive Work. These should be priced and extended, and a recapitulation made similar to the pay-roll distribution. The general bookkeeper should charge the proper accounts with the amounts shown on this recapitulation, and should credit the Materials and Supplies account.

From vouchers, or from the voucher register, practically all other charges to the general and operating accounts should be made.

If desired, a journal can be used for handling these distributions, and for taking care of such items as depreciation, taxes, interest, insurance and other charges prorated or accrued on a monthly basis. Ordinarily, however, these can be made through the voucher register, by the use of journal vouchers, and postings can be made directly from the vouchers.

Controlling Accounts.

Certain of the general ledger accounts are supported by details on the subsidiary ledgers, and for that reason become Controlling Accounts. In connection with this system we are principally interested in Account 3b—Work in Progress, as this is the controlling account for all “Cost of Manufacture” accounts. It is the account which ties the cost system up to the general books.

This account should be handled just as though it were the only manufacturing account on the books. It should be charged at the beginning of the year with the inventory of Work in Progress. During the year it should be charged with all productive and non-productive labor and all overhead expense; all foundry operations, and all other expenditures charged to any “Cost of Manufacture” accounts. At the end of the year it should also be charged with the balance of the Materials and Supplies accounts, as explained in Appendix “A.” The Work in Progress account should be credited with the inventory taken at the end of the year, and the balance of the account will represent the cost of the product finished during the year and delivered to the warehouse. This balance should be credited to Work in Progress and charged to Finished Stock (account 3c).

In the operating ledger an extra account should be opened on a separate sheet, for the inventory. The total of all accounts on the operating ledger should agree at all times with the total charges to Work in Progress (account 3b).

How to Obtain Individual Costs.

In the ordinary implement factory there is produced such a variety of implements and parts, that the only simple method of ascertaining costs is by means of specifications. What are specifications? They are the detailed directions for building an implement, stating the dimensions, quantity and grade of materials to be used, and the manner of assembling.

In preparing specifications it is important that only the Productive Materials chargeable to Account 15, and the Productive Labor chargeable to Account 16, be used as the Productive Material and Labor costs. The Overhead Expense should be added as a percentage of the Productive Labor, based upon the experience derived from keeping the cost accounts provided by this system.

These specifications should not be used in determining the cost of castings. In general, such costs should be obtained by dividing the total cost of all castings by the tonnage of good castings produced. The resulting cost per ton is quite accurate, and may be used in the specification costs of implements as the material cost of castings.

Factories which have no specifications can prepare them by “knocking down” the several implements or machines made and by listing every piece entering into the product. In listing wood or steel parts, the rough size and not the finished size should be used as the basis for cost computation, and in addition a liberal allowance should be made for waste which cannot be foreseen or controlled. This allowance can be provided for by adding to the specification cost of materials from 2 per cent to 5 per cent of such cost. The lumber waste is much larger than this, but

can generally be provided for in figuring the cost based on the rough size necessary for the finished part.

A sample specification sheet is shown in Appendix "B." This form is intended for the specification of a shipping bundle, or a part of a machine, although it can be used, if desired, for a complete machine. This form provides space for the name of the machine or part at the top; and for a description of every piece entering into the completed bundle or machine, giving the number of pieces used, the kind of material, the size required to make the piece, the weight or number of feet, the price, and the prime cost for material and labor. In order to obtain the complete cost of the bundle, the factory overhead has to be added to the labor cost on a percentage basis.

Back of the specification sheets, and a necessary part thereof, is a form used for figuring up in detail the productive labor and material cost of each piece entering into the completed bundle. A sample form of this sheet is shown in Appendix "C." This form provides for a full description of the piece, and for listing up in detail the several labor operations necessary to finish the piece. In case of productive day labor, the price per operation will have to be ascertained by averaging the costs per hundred pieces shown on the time reports of the men. The costs of all primary parts are worked up on these sheets, and then transferred to the regular specification sheets.

For ascertaining the cost of complete machines the regular specification sheets can be used. In which case the shipping bundles should be listed from their specifications, together with the material and labor costs, and the total cost ascertained, as already explained, in the following manner:

| | |
|--|-------------|
| 1—Productive Material, per specification..... | \$..... |
| 2—Productive Labor, per specification..... | \$..... |
| 3—Overhead Factory Expenses (Accounts 17a to 17n, inclusive), estimated on basis of past experience to be — % of No. 2..... | \$..... |
| | <hr/> |
| 4—Total Cost of Manufacture..... | \$..... |
| 5—Shipping, Selling and General Expenses and Income Charges (net), (Accounts 12a to 12m, inclusive, and 13a, 13b, 14a, 14b, 14c, and 14d), estimated on basis of past experience to be — % of No. 4..... | \$..... |
| | <hr/> |
| 6—Total Cost Sold | \$..... |
| | <hr/> <hr/> |

In order that a manufacturer may know that his costs are correct, he should revise the specification figures at the close of each year, using the average cost paid for raw materials during the year for the material costs; average piece and day work prices paid during the year for labor, and average overhead percentage, as shown by the books, for the overhead.

As a matter of information for the management, a record should be kept during the year, by quantities, of the entire product made in the factory and delivered to the warehouse.

The specification costs should be applied to the total of the several kinds and sizes of implements and parts made during the year, separating the results as between material, labor and overhead, so that a statement could be made up substantially as follows:

| | Material | Labor | Overhead | Total |
|---|----------------|----------------|----------------|----------------|
| Inventory beginning of year..... | \$..... | \$..... | \$..... | \$..... |
| Cost of year's operations..... | | | | |
| Total | \$..... | \$..... | \$..... | \$..... |
| Less inventory at end of year..... | | | | |
| Actual cost of product..... | \$..... | \$..... | \$..... | \$..... |
| Specification cost of year's production | | | | |

If the specifications have been correctly prepared, the last two sets of figures should be approximately the same.

If the differences are large, the specifications should be checked up and corrected. If the differences are small—say 2 per cent of the cost—that difference can be applied on the specification sheets to the three elements of cost, and the specifications accordingly corrected. Costs finally worked out and checked up in this way will be as nearly correct as costs can be made under any system of accounting.

BRANCH HOUSES.

The system here outlined is intended primarily for factories selling their products to jobbers or dealers direct.

Factories maintaining branches, and selling goods through their own branch houses should, in addition to the accounts already provided, keep an expense account for each branch house; this account should be subdivided substantially as the regular Shipping, Selling and General Expense accounts of the factory are divided, and should be included as part of the Selling Cost of the goods. Goods purchased for resale should be charged to Finished Stock, and freight on goods shipped to branches should also be charged to Finished Stock. Inventories of goods in branch warehouses should be taken at factory cost plus freight.

MONTHLY REPORTS.

The system here outlined does not provide for a monthly closing of books. There should be prepared, however, a monthly trial balance of the General Ledger accounts, which should be arranged in comparison with the same accounts at the same date of the previous year. There should also be prepared monthly a statement of the Operating Expenses representing Cost of Manufacture. This should be in comparison with the same expenses of the previous year. The percentage of overhead expenses to Productive Labor should be figured monthly by accounts and compared with similar percentages of the previous year.

The weekly distribution of the payroll, if employes are paid weekly, should be prepared for the management, and should be arranged by departments and compared with the same week of the previous year; the

year to date might also be shown on the same distribution, with a comparison with the same period of the previous year.

These reports should be taken from the books and records, and should represent only a small amount of clerical labor.

GENERAL.

The importance of accurate and honest accounting cannot be emphasized too strongly. By accurate accounting is meant the proper classification of accounts, the proper distribution of income and expenditures between the accounts, and the charging of the same things, into the same accounts year after year for the purpose of securing valuable comparisons.

By honest accounting is meant the proper charging to expenses of everything belonging there. For example; (1) Maintenance: It is sometimes difficult to draw the line as between maintenance and capital expenditures. In case of doubt, it is generally wise to charge the expense account, rather than the capital account. When an expenditure is made the money is gone and sooner or later has to get into the cost of goods. Better charge doubtful items to expense now, rather than accumulate them for the future.

(2) Depreciation: Proper rate of depreciation should be decided upon for each class of property, and should be strictly adhered to, regardless of the effect on the balance sheet. Only in this way can accurate results be obtained.

(3) Inventories: These should always be priced conservatively, and never above cost. Profits are made on the goods sold, and not on the products on hand. If profits are taken on an inventory one year, they will necessarily be lost when the goods are sold, and the operations for two years will be incorrectly stated.

With proper accounting and correct costs, a manufacturer becomes the real master of his business, and can rest in the assurance that he has placed himself in an enviable position in his trade.

* * *

APPENDIX "A." BALANCE SHEET ACCOUNTS.

1a—Land.

Value of all land owned and acquired, used or to be immediately used for factory purposes, exclusive of improvements thereon. The cost of land includes money actually paid for the same, cost of examination and registration of title, conveyancer's and notary's fees, purchasing agent's commissions or fees, taxes accrued to date of transfer of title, and all liens upon the title acquired. Special assessments for new street paving and sidewalks, and filling necessary to place the land in condition for use, are also chargeable to this account.

1b—Buildings and Structures.

Cost of all buildings and other structures devoted to general corporate purposes; also, all fixtures permanently attached thereto and made a part thereof, such as building elevators, gas pipe and fittings,

sprinkler system, electric lighting and electric feed wiring, trolley tracks, paint dips, and storage bins. The account also includes the cost of fencing and gates, yard paving, wagon and railroad scales and scale offices, industrial tracks, lumber yard foundations, tunnels, sewerage systems, water tanks and mains, hose houses, pumping stations, sheds, wash-rooms, bridges, spirals in Shipping Department, etc. Among the buildings may be mentioned, general office building, general shop buildings, storehouses, stables, warehouses, pattern storage, etc.

1c—Machinery and Fixtures.

Purchase price, freight and cost of installation of all factory and foundry equipment, in the nature of machinery and attachments, conveyors, compressors, cranes, power plant, furnaces, forges, pulleys, line shafting, belting, trucks, trolleys, etc.

1d—Dies, Patterns, Tools, Etc.

Cost of all factory and foundry equipment in the nature of dies, drills, flasks, jigs, patterns, tools, etc.

1e—Hauling Equipment.

Cost of all auto trucks, wagons, horses, harness and stable equipment.

1f—Office Furniture and Fixtures.

Cost of all office equipment, such as desks, chairs, tables, filing cabinets, movable safes, typewriting machines, movable partitions, railings, carpets, rugs, etc.

2—Other Property.

Cost of property owned by the organization and not used in its operations, including investments in stock and bonds of other companies, and similar items.

3a—Materials and Supplies.

This account should be charged with the inventory of all raw materials and supplies on hand at the beginning of the year, not including stationery and advertising matter. It should also be charged with the cost, including freight, of all purchases during the year. The account should be credited with amounts used during the year for new construction of for maintenance, or for other expenses, and at the end of the year should be credited with the inventory. The balance remaining will represent the amount of materials and supplies used in manufacturing during the year, and should be charged to Work in Progress (Productive Materials, Account No. 15). If desired, organizations may separate this account into as many different material accounts as they wish to carry. In that case, the several material accounts should be carried on the operating ledger in a section marked "Materials and Supplies." This account in the general ledger would then become a controlling account. These subdivisions, if any are carried, should include at least the following number of accounts:

- 1—Iron and Steel.
- 2—Lumber.
- 3—Paint.
- 4—Expense Material (tool steel, etc.).

In case this account on the general ledger is used as a controlling account it will be necessary to distribute the charges on the operating ledger as between the different accounts carried, so that the total of the accounts on the operating ledger will always equal the total of the one account on the general ledger. In making charges to Materials and Supplies account, cash discounts should not be deducted, as they should be credited to Account 13a.

3b—Work in Progress.

As already explained, this is a controlling account for all of the Cost of Manufacture accounts on the operating ledger. It should be charged with the inventory of Work in Progress at the beginning of the year, and with all productive and non-productive labor and other overhead expenses, and with the total of all foundry operations and productive materials used during the year. The inventory at the end of the year should be credited to this account, and the balance should be charged to Finished Stock account (3c) on the general ledger. This balance will represent the cost of the product finished during the year.

3c—Finished Stock.

This account should be charged with the inventory value of Finished Stock on hand at the beginning of the year, and throughout the year should be charged with all purchases of finished stock which are resold by the organization. At the end of the year it should be charged with the balance of the Work in Progress account, as already explained, and should be credited with the inventory. The balance of the account will represent the cost of goods sold during the year, and should be charged to Account 11—Cost of Manufacture of Goods Sold.

3d—Cash on Hand and on Deposit.

The general ledger account of this title represents the entire cash account of the company, including both the cash in the office and all balances on deposit, other than the petty cash fund. All cash received should be charged to this account, and all disbursements should be credited thereto. All cash receipts of every nature should be deposited, and all disbursements made upon properly approved vouchers. Separate from the above account, an account representing the petty cash fund should be carried on the general ledger. This should be included on the balance sheet as part of the cash on hand and on deposit.

3e—Notes Receivable.

All notes receivable should be charged to this account and all collections on notes (not including interest) credited thereto. The details of the notes should be carried in a Notes Receivable Record, and should be balanced with the account monthly.

3f—Accounts Receivable.

This is a controlling account for accounts receivable. The individual accounts may be carried in one or more subsidiary ledgers, depending on the number of accounts carried. The general ledger account should be charged with the total of all items charged to the individual accounts, and should be credited with all collections, discounts, allowances, or

other items credited to the individual accounts. At the end of each month the total balances of the individual accounts should agree with the balance of the controlling account on the general ledger.

3g—Interest on Notes Receivable—Accrued.

Such companies as carry a considerable amount of interest bearing notes may, if they so desire, accrue the interest monthly. The amount of such accrual should be charged to this account and credited to Account 13b. All collections of such interest should then be credited to this accrued account. In the case of companies carrying a small amount of interest bearing notes, no accruals will be necessary, and the interest should be credited to Account 13b as collected.

4a—Stationery and Advertising Matter.

This account should be charged with the inventory of stationery, catalogs, blank books, blank forms, etc., carried in stock. During the year items of this class should generally be charged to the proper expense accounts. At the end of the year this account should be credited with the new inventory, and any difference in this account should be charged or credited, as the case may be, to the proper expense accounts.

4b—Working Funds Advanced.

These consist of the amounts advanced to officers and employes for traveling and other expenses. Individual accounts ("Trip Accounts") should be opened with each person to whom money is advanced for such purposes. These accounts should be charged with the amounts advanced and credited with expense reports and refunds. Where only a few accounts of this nature are carried it will not be necessary to open a general ledger account for this item, but the individual trip accounts can be carried on the general ledger.

4c—Insurance Premiums Paid—Unexpired.

All insurance premiums, including the total payments to mutual insurance companies, should be charged to this account when paid. The account should be credited at the end of each month with the proper monthly accrual of insurance, and the proper expense accounts should be charged. This monthly accrual should be based on the annual net premiums paid, after making allowance for the refunds to be received from the mutual insurance companies. These refunds, when received, should be credited to this account. The balance of the account will represent refunds due from mutual insurance companies as well as the unexpired proportion of the net premiums.

4d—Interest Paid—Unexpired.

When interest is paid in advance, or when notes payable are discounted, the interest or discount should be charged to this account. As the interest thus prepaid accrues, it should be credited at monthly intervals to this account, and charged to Account 14b.

4e—Taxes and Licenses Paid—Unexpired.

When taxes and licenses are paid in advance of their accrual the amount prepaid should be charged to this account. As the taxes and

licenses thus prepaid accrue, they should be credited at monthly intervals to this account and charged to the appropriate expense account. It will not be necessary, generally, to carry this account, as taxes are practically all accrued in advance of their payment, and carried in Account 7d.

5—Capital Stock.

This account should be credited with the total amount of capital stock outstanding. Where more than one class of stock is issued, such as preferred and common, a separate account should be carried with the amount issued of each class. Stock authorized but not issued should not be included in this account.

6—Bonds, Debentures and Mortgages.

Each issue of any of these classes of securities should be carried separately on the general ledger and reported separately on the monthly report. Serial notes of which the maturities extend over several years should be included in these accounts. Mortgages assumed on any purchased properties should also be included herein.

7a—Notes Payable.

This is a controlling account for Notes Payable, with the details in a notes or "bills" payable record. All notes issued should be credited to this account, and all payments charged thereto. Renewals should be included as notes issued and paid.

7b—Accounts Payable.

This account may be more conveniently carried on the general ledger under the title "Audited Vouchers," which will serve as a controlling account for the accounts payable as shown by the voucher register. This controlling account should be credited monthly with the total of the "Accounts Payable" column of the voucher register, and should be charged monthly with the total of the "Accounts Payable" column of the cash book. The balance of the account should agree with the total unpaid vouchers at the end of each month, as shown by the voucher register. In case a voucher register is not used, but individual accounts are carried for the liabilities, the total of such individual accounts should be used to make up this ledger account in preparing a balance sheet. If such individual accounts are carried in an Accounts Payable ledger, then this account on the general ledger will be a controlling account. In that event it should be handled the same as any other controlling account.

7c—Expenses Accrued.

This account should be used as a provision for such expenses as are known to have been incurred during the month or year, when it is desired to charge the expenses into the operations in advance of the receipt of bills for the same. When the bills are received this account should be charged therewith. The account may also be used for accruing expense items which are to be settled at infrequent periods, such as royalties or similar items.

7d—Taxes Accrued.

This account should be credited at the end of each month with one-twelfth of the estimated annual taxes of the company, and should be

charged with such taxes when paid. As soon as the actual taxes are known the account should be adjusted to the correct figures. The monthly accrual of taxes credited to this account should be charged to the appropriate expense accounts.

7e—Interest Accrued.

This account should be credited at the end of each month with the interest accrued during the month on all of the indebtedness of the company, except when the interest has been paid in advance. The interest to be accrued is usually that on the bonds, debentures and mortgages, and notes payable other than those to banks and trust companies. The interest credited to this account should be charged to Account 14b, and when such interest is paid it should be charged to this account (7e).

8a—Reserve for Depreciation.

This account should be credited monthly with one-twelfth of the annual depreciation charges, and the proper accounts should be charged therewith. When any property is sold or removed, the cost value thereof at which the same is carried on the books should be credited to the property account and the loss should be charged to this reserve.

8b—Reserve for Uncollectible Accounts.

This account should be credited with the amount charged to Account 14d—Uncollectible Accounts Reservation. It should be charged with all uncollectible accounts when written off.

9—Profit and Loss.

The income and expense accounts should be closed into this account at the end of the year. All items of any particular size written off or collected during the year, and which do not relate to the year's operations, should be charged or credited to this account. All dividends paid should also be charged to this account. The balance will represent the surplus and undivided profits of the organization. In preparing an income account the charges and credits to this account should be listed up in more or less detail, for the information of the management.

INCOME STATEMENT ACCOUNTS.

10—Sales.

This account should be credited with the gross amount of all sales made during the year, and should be charged with the selling value of returned goods, with allowances which represent the adjustments in prices and with allowances for freight, where goods are sold at "delivered" prices. This account can be subdivided and the sales classified into as many divisions as the organization may desire. In this case the several sales accounts can also be carried on the general ledger, or they can be carried on the operating ledger and this account used as a controlling account.

11—Cost of Manufacture of Goods Sold.

As already explained, this account should be charged with the balance of the Finished Stock account, after taking up the inventory.

12a—Crating, Boxing and Loading Domestic Shipments.

Wages paid for taking goods (except those for export) out of the Finished Stock warehouses and loading on and storing in cars for shipments; also for delivering local and mixed car shipments from the warehouses to wagons or auto trucks. Cost of materials and other expense items connected with domestic shipping, such as crates, boxes, bracing materials used in cars, etc.

This account should be charged with the cost of packing parcels post shipments and with the postal insurance thereon, and credited with the amounts billed against customers or others for such items.

12b—Crating, Boxing and Loading Export Shipments.

Wages paid for taking goods out of the Finished Stock warehouses and loading on and storing in cars for export shipment; also for delivering export shipments from the warehouses to wagons and auto trucks. Cost of materials used and labor expended in boxing shipments for export.

12c—Shipping Office Labor and Expense.

Amounts paid shipping department foremen, and clerks employed in the shipping department. If the same force looks after the receiving and storing of goods in the warehouse, the expense should be arbitrarily divided between this account and Account 17d—the entire expense being first charged to the latter account and a fair proportion thereof transferred by journal entry to Account 12c. Cost of stationery and supplies used in the shipping department, and all other shipping expenses not otherwise provided for.

12d—Barn, Team and Auto Trucks.

Cost of material used and labor expended in making repairs to auto trucks and buildings occupied by auto trucks; feed and harness for teams belonging to the shipping department; wages paid teamsters, chauffeurs, and barnkeepers; rent of barn or garage; cost of horseshoeing and harness repairs; gasoline, oil, supplies, and repairs for auto trucks; wagon repairs and axle grease; drayage bills for hauling outgoing materials or goods. A portion of this expense will belong to incoming freight, and an arbitrary amount should, therefore, be credited to this account and charged to operating account No. 17m.

12e—Sales Department Salaries.

Salaries of the Sales Manager and assistants, of salesmen, and of the office force in the sales department; also the salaries of experts and others working in the field in the interests of the sales organization, or to promote in any way the sales of goods, or in setting up goods and demonstrating their use. (Experts in the field who are *exclusively* engaged in studying and remedying troubles, and who are not engaged in setting up goods or educating dealers should be charged to Account 17g—Experimental Work.)

12f—Sales Department Expenses.

All office expenses of the sales department, and all traveling expenses of the employees whose salaries are charged to the preceding account.

12g—Advertising and Publicity.

Cost of advertising in newspapers and periodicals; cost of booklets, announcements, invitations, calendars, souvenirs, catalogs (except repair catalogs), circular letters, pamphlets, posters and electrotypes, and photos for use in advertising matter; signs and expenses of hanging or placing; envelopes and wrappers for mailing advertising matter, and freight and express paid thereon; also cost of painting implements for photographing. (Repair catalogs should be charged to Account 12i.)

12h—Officers' and Clerks' Salaries.

Salaries of officers of the company (except when actively engaged in the duties of positions otherwise classified), cashier, auditor, the accounting and billing departments, mailing clerks, office boys, clerks entering orders received, and other employes of the general office, including stenographers and clerks assisting the officers and employes whose salaries are charged to this account.

12i—Printing and Stationery.

Cost of printing, stationery and office supplies used in the general office, and of repair catalogs.

12j—Postage, Telegraph and Telephone.

All expenditures for postage, including cost of stamp on government envelopes and postal cards. Rent of telephone, cost of switchboards, salaries of telephone operators, long-distance tolls, messenger service, and all other expenses of telephone service; cost of all telegrams, including messenger service.

12k—Export Sales Expense.

Salaries and all other expenses of export sales department, where one is maintained; also salaries and expenses of export salesmen.

12m—Miscellaneous Selling and General Expenses.

All selling and general expenses which are not otherwise provided for, such as dues and donations, janitor's supplies, towels, ice, laundry, waste baskets, water, wrapping paper, carfare, dinners for office help, and similar items; maintenance, repair and depreciation of furniture, fixtures, etc., in general office.

13a—Cash Discounts on Purchases.

Cash discount is that given for the payment of bills in advance of their due date, and should, in no case, be considered as a reduction in the purchase price of goods. All cash discounts should be credited to this account. This does not include trade discounts, as these should be credited against the appropriate purchase accounts.

13b—Interest on Current Assets.

All interest earned on notes and accounts receivable and on bank balances. Refunds of interest on receivables, but no interest paid on liabilities, should be charged thereto.

13c—Income from Other Property.

Income derived from any of the assets included in Account No. 2.

Any expenses incurred on account of such property should be charged to this account.

14a—Cash Discount on Sales.

Cash discount allowed customers on sales of the factory product.

14b—Interest on Liabilities.

This account should be charged with the interest on all liabilities. Any refunds of interest previously charged to this account should be credited thereto, but under no circumstances should interest on receivables be credited to this account.

14c—Income and Similar Taxes.

This account should be charged with the Federal Income and Capital Stock taxes, and also with any state income taxes or any state taxes not based on the value of real or personal property. It is intended that charges be made to this account monthly on the basis of an estimated figure for the year.

14d—Uncollectible Accounts Reservation.

This should be charged with a small percentage of the sales, for the purpose of making provision for uncollectible accounts which are sure to develop. Past experience of the organization should be used as a guide in determining the percentage to be applied. The amounts charged to this account should be credited to Account 8b.

COST OF MANUFACTURE ACCOUNTS.

15—Productive Material.

This account should be charged with the cost of materials which form a part of the finished product of the factory, including the cost of castings made by the organization itself.

16—Productive Labor.

This account should be charged with all direct labor applied to the manufacture of goods. This labor is the only labor taken directly into consideration in the specifications in figuring the prime costs, the indirect labor and other expenses being applied to the costs as a percentage of this direct labor. In charging labor to this account care should be taken to see that only such labor is charged as is included in the specification costs, and in the preparation of specifications no labor should be included therein for which a specific overhead expense account is provided, even though such labor is paid for at piece rates and could be allocated to particular parts. This refers particularly to handling material and stock, unloading stock, and inspection.

17a—Maintenance of Property and Equipment.

Cost of materials used and labor expended in maintenance and repairs of all buildings, grounds, property and equipment of the organization, except property not used in operations. In the case of small tools, jigs, dies, patterns, drills, etc., it is recommended that the fixed asset be entered upon the books for these items in Account 1d, and that thereafter

the purchases of all such items be charged to this expense account, unless there is an increase in the capacity of the plant. In the latter case an additional amount should be charged to the asset account representing the value of the necessary equipment of that nature. Under such circumstances no depreciation should be provided for on this asset. If desired, this account can be subdivided into several different maintenance accounts, such as the following:

- (a) Buildings and Grounds.
- (b) Machinery.
- (c) Small Tools.
- (d) Power, Heat and Light Plant.
- (e) Belting.
- (f) Patterns and Coreboxes.
- (g) Dies and Jigs.
- (h) Trucks.
- (i) Furnaces.
- (j) Miscellaneous Equipment.

17b—Shop Supervising and Clerical Salaries.

Salaries and wages paid superintendent, assistant superintendent, master mechanic, purchasing agent, clerks in their offices, draftsmen, employment agent, timekeeper and clerks, foremen of departments, clerks in their offices, and other clerks throughout the factory.

17c—Unloading and Storing Material.

Labor of unloading material from cars and delivering same to store-rooms and yards, and storing same therein.

17d—Handling and Trucking Materials and Work in Progress.

Labor handling material from storehouse to factory, delivering material from one department to another, and delivering finished goods from the factory to the warehouse; trucking, moving, piling or storing material or finished goods, including loading and handling of scrap; also collecting and distributing trolley hooks.

17e—Power, Heat and Light.

Wages paid stationary engineers, firemen and helpers at power plant. Cost of coal, coke and wood (including labor unloading and storing) used at power plant for production of power, heat and air and light; also water for use in boilers. Cost of oil, waste and rags used, and labor expended in oiling machinery, lineshaft, elevators, etc., and wages paid oil house men. Payments made to others for electricity, gas and heat furnished this company. If desired, this account can be subdivided to suit the convenience of the factory. These subdivisions may include:

- (a)—Engineer and Firemen.
- (b)—Fuel for Power, Heat and Light.
- (c)—Lubricants and Waste.
- (d)—Purchased Power, Heat and Light.

17f—Forge Shop Fuel and Supplies.

Fuel oil, nut tappings, smithing coal, welding compound, etc., used in forge shop; also oxygen, carbide and miscellaneous supplies used in acetylene gas outfit.

17g—Experimental Work.

Cost of material used, labor expended and other expenses (including office supplies, small tools, etc.), in making experimental tests of implements and implement parts, and in making steel patterns for parts designed; also in trying out implements in the field.

17h—Defective Material and Work.

Cost of material used and labor expended in revising or reworking finished goods or work in progress found defective by inspectors, or of raw materials thrown out as defective. This account should also be charged with the material and direct labor cost of all parts found defective.

17i—Factory Insurance.

Charge monthly with one-twelfth the annual premium paid for insurance on factory buildings contents and materials and supplies, wherever located. Accident or liability insurance should be charged to Account 17m.

17j—Factory Taxes.

Charge monthly with one-twelfth the annual taxes paid on factory grounds, buildings, contents and materials and supplies wherever located.

17k—Factory Depreciation.

Charge monthly with one-twelfth the annual provision for depreciation of factory buildings and equipment.

17m—All Other Overhead Expenses.

For all factory expense not otherwise provided for in the foregoing classification, with the exception of rent, if any is paid. This account can be subdivided if desired—the following accounts indicating the class of charges to this account and also the subdivisions that might be made of the account:

- (a)—Factory Office Supplies.
- (b)—Inspection.
- (c)—Hauling Expenses—Inbound Materials.
- (d)—Fair and Sample-room Work.
- (e)—Repairs on Implements and Returned Goods.
- (f)—Watchmen, Janitors and Elevator Men.
- (g)—Sick and Injured Employees.
- (h)—Pensioned Employees.
- (i)—Inventory Expense.
- (j)—Premiums and Allowances.
- (k)—Grinding Materials.
- (m)—Factory Traveling Expenses.
- (n)—Demurrage.
- (o)—Undistributed Freight and Express.
- (p)—Dues and Subscriptions.
- (q)—All Other Miscellaneous Expenses.

17n—Factory Rent—If any is paid.

This account should be charged with rent paid for factory buildings, in case these buildings are rented.

FOUNDRY ACCOUNTS.

18—Melting.

Cost of pig iron and scrap, fuel, flux, fire brick, fire clay and other cupola or furnace supplies, and of unloading and moving pig iron, scrap, fuel, flux, etc., from the yard to the cupola platform or to furnace; cupola or furnace charging, tending, etc.; transporting molten metal from the cupola or furnace to the point of distribution, and the maintenance of all equipment used in such operations. This cost is intended to represent the cost of the molten metal distributed to the various pouring devices ready for the use of the molder or special pourer. This account may be carried in one account in the operating ledger, or separated into the three accounts suggested in the classification of accounts, as

- (a)—Pig Iron and Scrap.
- (b)—Labor.
- (c)—All Other Expenses.

19—Molding.

Cost of all materials used in molds or in their preparation and the cost of all molding operations, beginning with the preparation of material up to and including the delivery of the rough castings to the milling department, including making molds, setting cores, pouring metal, dumping the flasks, and knocking off gates and sprue. Also the cost of maintenance of all equipment used exclusively in these operations, such as patterns, flasks, molding machines, squeezers, bottom boards, weights, shovels, bellows, hammers etc. This account may be carried in one account in the operating ledger, or separated into the two accounts suggested in the classification of accounts, as

- (a)—Labor.
- (b)—Sand, Supplies and Maintenance.

20—Coremaking.

Cost of all materials or supplies used in cores, or in connection with their manufacture, and of all operations in coremaking beginning with the preparation of material, including making, baking and delivering cores, and the maintenance of all equipment used exclusively in such operations. This group of expenses is intended to represent the cost of the cores delivered to molders, ready for use in molds. This account may be carried in one account in the operating ledger, or separated into the two accounts suggested in the classification of accounts, as

- (a)—Labor.
- (b)—Sand, Fuel, etc.

21—Milling and Finishing.

Cost of supplies used and of operations in connection with milling and finishing castings, including supplies used in connection with same after receipt by the chippers and grinders; also including delivery of the finished castings to the shipping department or to storage. This account may be carried in one account in the operating ledger, or separated into the two accounts suggested in the classification of accounts, as

- (a)—Labor.
- (b)—Maintenance, etc.

22a—Foundry Supervising and Clerical Salaries.

Salaries of foundry superintendent or general foreman, foundry clerks and similar help; or a fair proportion of the pay of factory superintendent and clerks, whose duties are wholly or partly connected with foundry operations.

22b—Power, Heat and Light.

Cost—Fuel, Supplies and Labor—of service of the above nature, whether produced or purchased. If furnished by the factory power plant, a fair charge, based on the load or space, should be made monthly to the foundry.

22c—Foundry Insurance.

22d—Foundry Taxes.

22e—Foundry Depreciation.

These accounts will be charged monthly with the proportion of such items applicable to the foundry, when the foundry is operated in connection with the factory. In the case of foundry operated independently, these accounts will carry the amounts paid or accrued.

22f—Miscellaneous General.

All other miscellaneous foundry expenses, such as maintenance or foundry buildings and grounds, sick and injured employes, etc.

23—Hard Milling.

Cost of all supplies used and all operations in connection with hard milling, including maintenance of equipment and delivery of castings to the annealing ovens. This account may be carried in one account in the operating ledger, or separated into the two accounts suggested in the classification of accounts, as—

- (a)—Labor.
- (b)—Maintenance, etc.

24—Annealing.

All cost in connection with annealing, in the malleable foundry, beginning with the receipt of castings at ovens and including delivery for final milling and finishing. Maintenance of annealing ovens, pots, bottoms, etc., and all other equipment used exclusively in annealing operations is chargeable to this group of expenses. This account may be carried in one account in the operating ledger, or separated into the three accounts suggested in the classification of accounts, as—

- (a)—Labor.
- (b)—Fuel.
- (c)—Maintenance, etc.

APPENDIX "B."

(Specification Sheet—see page 10.)

Form designed for the specification of a shipping bundle, or a part of a machine, although it can be used, if desired, for a complete machine.

| | | | | | | | | | | | | |
|--|------|---------------|-------|-------------|----------------|------------------|--------------|------------------|----------|-------|------------|-------|
| BY <input type="checkbox"/> FIRST MADE | | SPEC. NO. | | DATE | | | | | | | | |
| PURCH. DEPT. <input type="checkbox"/> MADE BY | | SHEET NO. | | BY | | | | | | | | |
| COST CLERK <input type="checkbox"/> GROUPED | | SHEET NO. | | STEEL | | | | | | | | |
| MAINT. OFFICE <input type="checkbox"/> THIS SHEET O. K. BY | | SHEET NO. | | O. H. BLAR | | | | | | | | |
| | | SHEET NO. | | MATERIAL | | | | | | | | |
| | | SHEET NO. | | LABOR | | | | | | | | |
| | | SHEET NO. | | TOTAL | | | | | | | | |
| DEPT. NO. | MARK | QTY. OF SHEET | BRAND | DESCRIPTION | SIZE OR THICK. | KIND OF MATERIAL | WT. OF SHEET | WT. OF ALL SHEET | MATERIAL | LABOR | FINAL COST | TOTAL |
| | 1 | | | | | | 1 | | | | | |
| | 2 | | | | | | 2 | | | | | |
| | 3 | | | | | | 3 | | | | | |
| | 4 | | | | | | 4 | | | | | |
| | 5 | | | | | | 5 | | | | | |
| | 6 | | | | | | 6 | | | | | |
| | 7 | | | | | | 7 | | | | | |
| | 8 | | | | | | 8 | | | | | |
| | 9 | | | | | | 9 | | | | | |
| | 10 | | | | | | 10 | | | | | |
| | 11 | | | | | | 11 | | | | | |

APPENDIX "C."

Form designed for figuring in detail the productive labor and material cost of each piece entered into a completed bundle. (Back of specification sheet and a necessary part thereof—see page 10.)

| Reference | Description | Size | Weight | Material | Number | Size | Weight | Material | Number |
|-----------|----------------|------|--------|----------|--------|------|--------|----------|--------|
| | Description | | | | | | | | |
| | Used on | | | | | | | | |
| | In use | | | | | | | | |
| | OPERATION | | | | | | | | |
| | Reference | | | | | | | | |
| | Description | | | | | | | | |
| | Used on | | | | | | | | |
| | In use | | | | | | | | |
| | OPERATION | | | | | | | | |
| | Designer | | | | | | | | |
| | Style | | | | | | | | |
| | Per 100 Pieces | | | | | | | | |
| | _Mate. | | | | | | | | |
| | Designer | | | | | | | | |
| | Style | | | | | | | | |
| | Per 100 Pieces | | | | | | | | |
| | _Mate. | | | | | | | | |
| | Designer | | | | | | | | |
| | Style | | | | | | | | |
| | Per 100 Pieces | | | | | | | | |
| | _Mate. | | | | | | | | |

