

GOVERNMENT OF INDIA : THE PATENT OFFICE, 214, ACHARYA JAGADISH BOSE ROAD, CALCUTTA-17.

Specification No. 112615. Application No. 112615, dated 3rd October, 1967. Complete Specification left on 1st July, 1968. Application accepted on 2nd July, 1969.

Index at acceptance—68 E 3. [LVII(3)]

PROVISIONAL SPECIFICATION

“IMPROVEMENTS IN OR RELATING TO STARTING CIRCUIT FOR FLUORESCENT LAMPS”

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH, RAFI MARG, NEW DELHI-1, INDIA, AN INDIAN REGISTERED BODY INCORPORATED UNDER THE REGISTRATION OF SOCIETIES ACT (ACT XXI OF 1860)

The following specification describes the nature of this invention :—

This is an invention by GOPALAKRISHNAN SUBRAMANIAN, Senior Laboratory Assistant, SABAPATHI BALACHANDRAN, Senior Scientific Assistant, KRISHNAN SUNDARARAJAN, Scientist, CHITTARI VENKATA SURYANARAYANA, Scientist and KADALUNDALIGE SEETHARAMA GURURAJA DOSS, Director, all of the Central Electrochemical Research Institute, Karaikudi-3, Madras State, India, all Indian citizens.

This invention relates to improvements in or relating to starting circuit for fluorescent lamps so that filament fused fluorescent lamps can also be re-used.

To these ends, the invention broadly consists in modifying the existing starting circuit and introducing a capacitor of proper value in the circuit.

The following typical examples are given to illustrate the invention with reference to Figs 1 and 2 of the accompanying drawings.

In fig. 1, the filament fused lamp (L) is connected across a capacitor (C) of value $2\mu\text{F}$. This capacitor (C) is connected to the electric mains supply (M) through a ballast

(B) and a switch (S_1). Another switch (S_2) is connected across the capacitor (C) either to short out the capacitor or to bring in the capacitor to the circuit.

In fig. 2, two capacitors (C_1 and C_2) of values $2\mu\text{F}$ and $0.01\mu\text{F}$ respectively, are connected across the filaments of the filament fused lamp (L). The electric mains supply (M) is provided through a ballast (B) and a switch (S_1) as shown in fig. 2. A starter (G) is connected across the capacitor (C_2).

The following is among the main advantages of the invention: (1) The filament fused fluorescent lamps of (2 feet, 4 feet and 5 feet) can be re-used without need for discarding them.

Dated this 30th day of September, 1967.

(Sd./-)

(R. BHASKAR PAI)
PATENTS OFFICER,

Council of Scientific & Industrial Research.

COMPLETE SPECIFICATION

“IMPROVEMENTS IN OR RELATING TO STARTING CIRCUIT FOR FLUORESCENT LAMPS”

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH, RAFI MARG, NEW DELHI-1, INDIA, AN INDIAN REGISTERED BODY INCORPORATED UNDER THE REGISTRATION OF SOCIETIES ACT (ACT XXI OF 1860)

The following specification particularly describes and ascertains the nature of this invention and the manner in which it is to be performed :—

This is an invention by GOPALAKRISHNAN SUBRAMANIAN, Senior Laboratory Assistant, SABAPATHI BALACHANDRAN, Senior Scientific Assistant, KRISHNAN SUNDARARAJAN, Scientist, CHITTARI VENKATA SURYANARAYANA, Scientist and KADALUNDALIGE SEETHARAMAN GURURAJA DOSS, Ex-Director, all of the Central Electrochemical Research Institute, Karaikudi-3, all Indian citizens.

This invention relates to improvements in or relating to starting circuit for fluorescent lamps.

It has particular reference to a new starting circuit for fluorescent lamps by which even filament fused lamps can be re-operated.

Hitherto known method for reusing the filament fused lamps (Indian Patent No. 46860 of 1952) suffers from the risk that arc discharge may take place and spoil not only the filaments completely but also may burn up the choke through which the current is supplied to the filaments as a consequence.

The main object of the invention is to obviate the hitherto known circuit so as to perfect the invention without involving much extra cost, and to avoid the defect pointed out below.

In the case of conventional circuits, when the filament fuses off, the circuit gets opened and the tube fails to light up. By modifying the conventional circuit, that is by re-arranging the original components and introducing extra

capacitors, even if the filament breaks, the discharge can be initiated without any noticeable reduction in the luminosity of the lamps. This was achieved earlier in Indian Patent No. 46860. But the circuitry given therein has this difficulty that in some cases arcing might occur and further spoil the filament and may go to the extent of burning up the choke.

According to our invention, there is provided an electrical starting circuit for a gas-filled fluorescent discharge lamp having at each end a filament electrode, one or both of which is/are broken and a broken part of one of which is in connection with one terminal of an alternating current source and a broken part of the other or the unbroken electrode, being in connection with the other terminal of the current source, comprising a series connection of a pair of condensers connected at one side to the said broken part of one electrode, which is in connection with one terminal of the current source through a choke and at other side to the said broken part of said other electrode or to the said other electrode, if not broken, which is in connection with the said other terminal of the current source, and a make and break device connected in parallel with one of the said condensers.

Detailed description with reference to accompanying drawings :—

Figure 1 represents the conventional starting arrangement for normal fluorescent tube (1). It consists of a

Price : TWO RUPEES.

choke (2), starter (5) and a switch (4) and all the components are connected to electric mains (3) in series with the filaments.

Figure (2) represents the modified circuit to be used with filament fused lamps. In it two capacitors (10 & 11) are connected in series and are across the filaments of the filament fused lamp (6). The starter (12) instead of being connected directly through the filament (as in fig. 1) is connected across one of the capacitors (11). The electric mains supply (8) connection to the filaments of the lamp (6) is made through the switch (9) and the choke (7).

A few typical examples :

Example 1: ref: Fig. 2:

6. Four feet filament fused fluorescent lamp
7. Choke
8. Electric mains, supply 200 V, 50 c/s
9. ON, OFF, Switch
10. Capacitor, 3μ F, 400 V, D.C.
11. Capacitor, 0.01μ F, 400 V, D.C.
12. Starter.

Example 2: ref: Fig. 2:

6. Two feet filament fused fluorescent lamp.
7. Choke
8. Electric mains, supply 200 V, 50 c/s
9. ON, OFF, Switch.
10. Capacitor, 1μ F, 400 V, D.C.
11. Capacitor, 0.001μ F, 400 V, D.C.
12. Starter.

The main advantages:—

1. It is possible to re-use filament fused fluorescent lamps otherwise to be discarded.
2. The extra cost involved in adopting the new circuit is about only 1/4th that of replacing with a new tube.
3. Thus the service life of the fluorescent tube is extended considerably.

The modification can be effected very easily even by an ordinary technician. The modification involved in the invention does not affect the life of the oxide coating.

WE CLAIM:

1. An electrical starting circuit for a gas-filled fluorescent discharge lamp having at each end a filament electrode, one or both of which is/are broken and a broken part of one of which is in connection with one terminal of an alternating current source and a broken part of the other or the unbroken electrode being in connection with the other terminal of the current source comprising a series connection of a pair of condensers connected at one side to the said broken part of one electrode, which is in connection with one terminal of the current source through a choke and at other side to the said broken part of said other electrode or to the said other electrode, if not broken, which is in connection with said other terminal of the current source and a make and break device connected in parallel with one of the said condensers.

2. An electric starting circuit for a gas-filled electric discharge lamp as claimed in claim 1 wherein said current source is electric mains current supply made through a choke and a switch.

Dated this 26th day of June, 1968.

(Sd./-)

(R. BHASKAR PAI)
PATENTS OFFICER,

Council of Scientific & Industrial Research.

PROVISIONAL SPECIFICATION

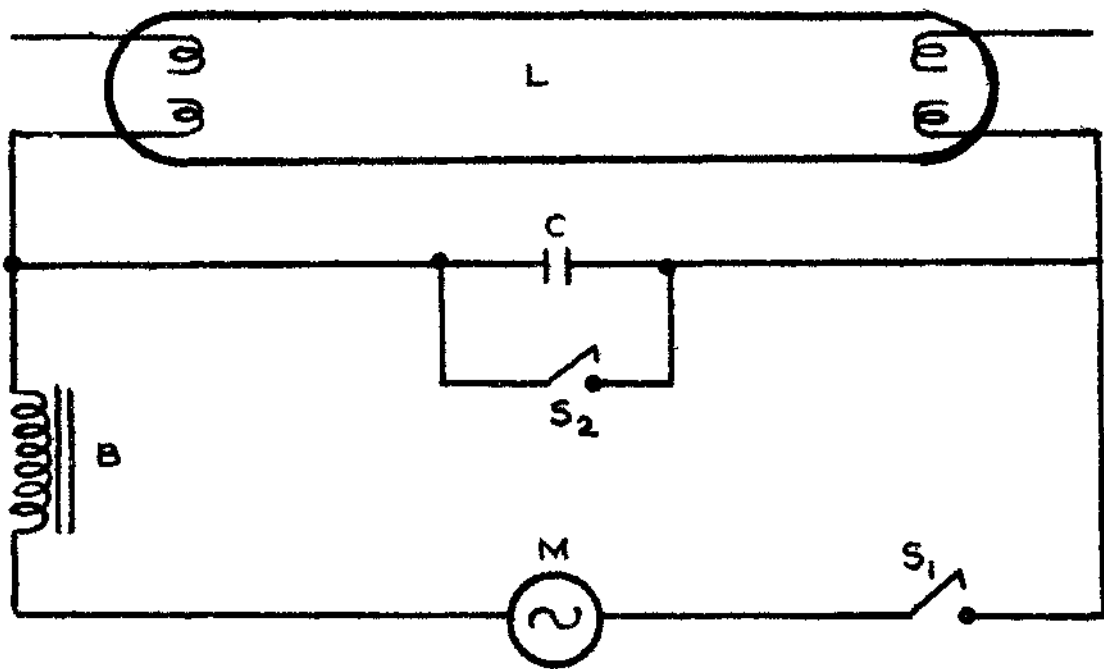


FIG. 1.

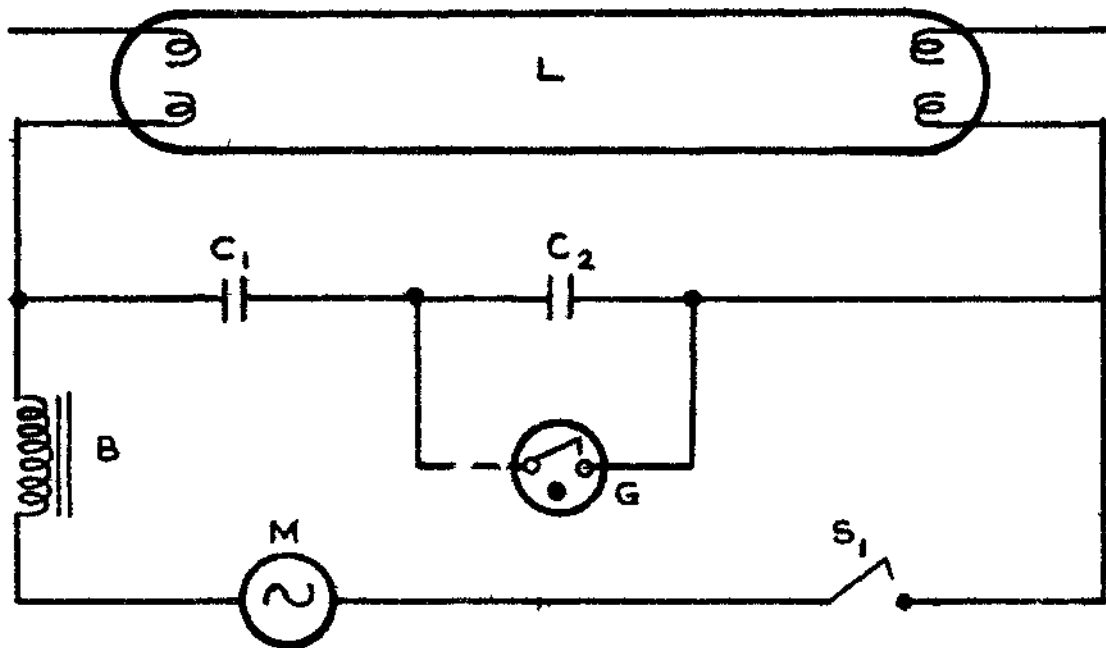


FIG. 2

R. Bhaskarbai

(R. B. PAI)
PATENTS OFFICER,
C. S. I. R.

No 112615

COMPLETE SPECIFICATION

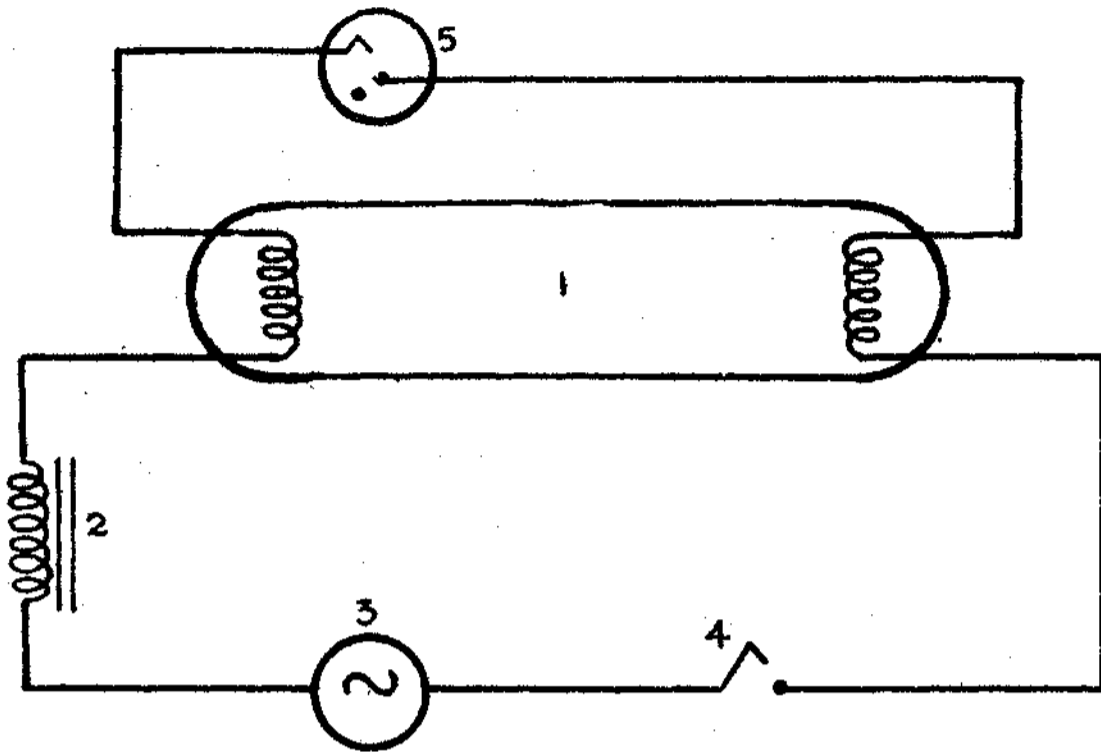


FIG. 1.

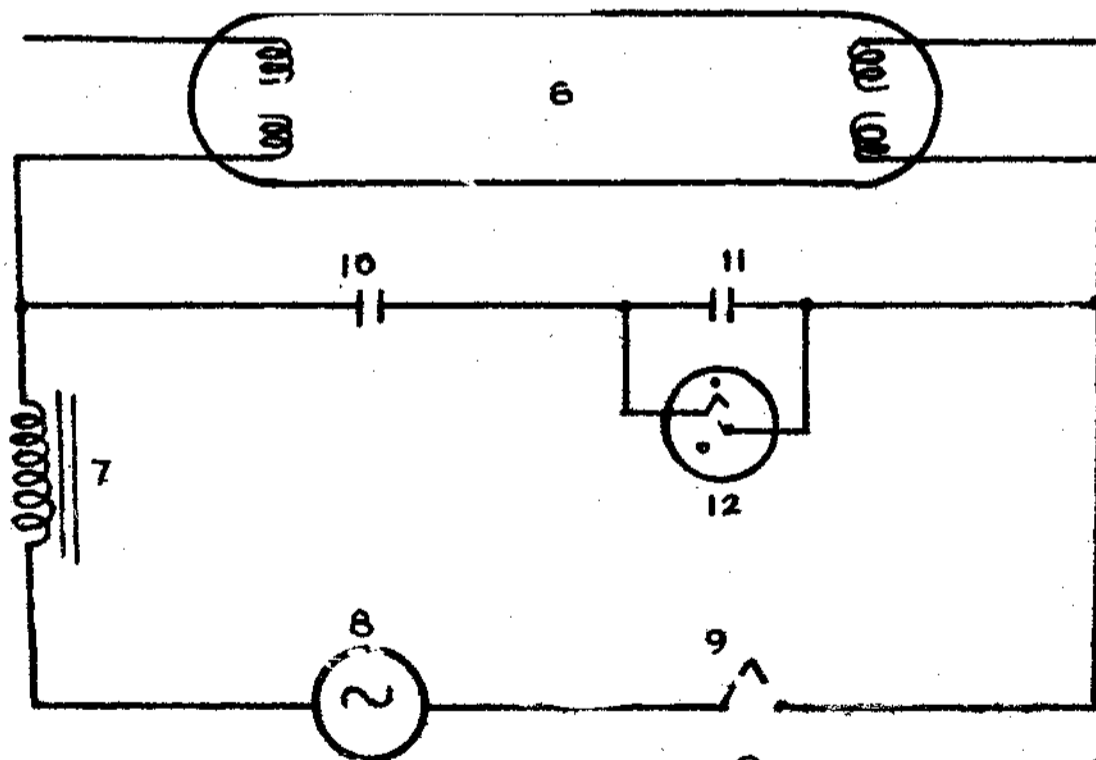


FIG. 2

R. Bhashir Pai

(R. B. PAI)
PATENTS OFFICER,
C. S. I. R.