

[54] **REMOVABLE DIMMER ATTACHMENT FOR A PORTABLE LAMP**

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2,142,355 1/1939 Hastings..... 338/220 X

[75] Inventor: **Saul Rosenbaum**, East Meadow, N.Y.

Primary Examiner—Roy Lake
Assistant Examiner—James B. Mullins
Attorney—Hanse H. Hamilton

[73] Assignee: **Leviton Manufacturing Co., Inc.**, Brooklyn, N.Y.

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[52] U.S. Cl. **315/362, 315/DIG. 7, 338/198, 338/199, 338/220, 338/221, 338/233**

[51] Int. Cl. **H05b 37/02**

[58] Field of Search **315/362, DIG. 4, DIG. 7; 338/198, 199, 220, 221, 233**

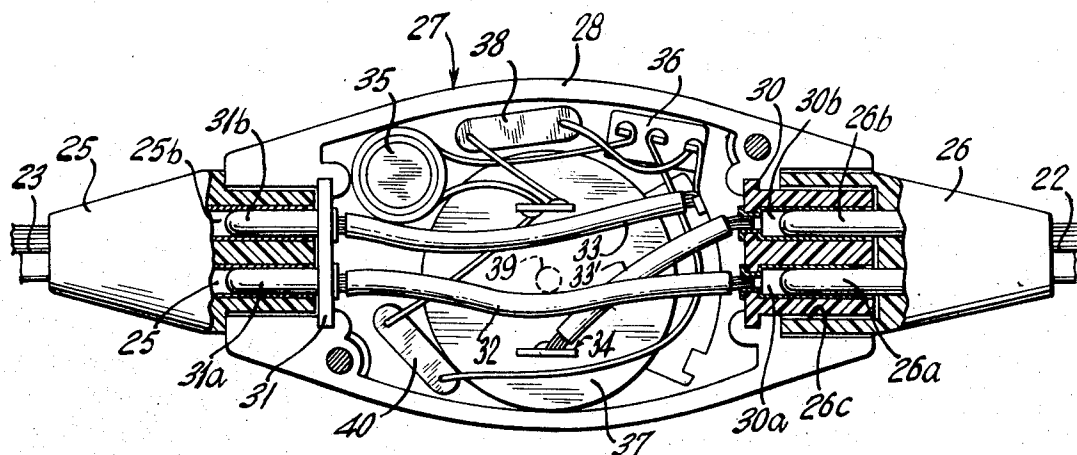
[57] **ABSTRACT**

The present invention pertains to a removable dimmer attachment for a portable incandescent lamp. A conductor cord connects the lamp to a source of alternating current and is divided into two sections. The two sections of the lamp cord are connected by a plug and receptacle for operation of the lamp in the normal manner. The removable dimmer attachment is connected between the two sections of the lamp cord when desired and provides variable control over the level of illumination from the lamp. The connections between the two sections of the lamp cord and the connections of the lamp cord to the dimmer attachment are polarized.

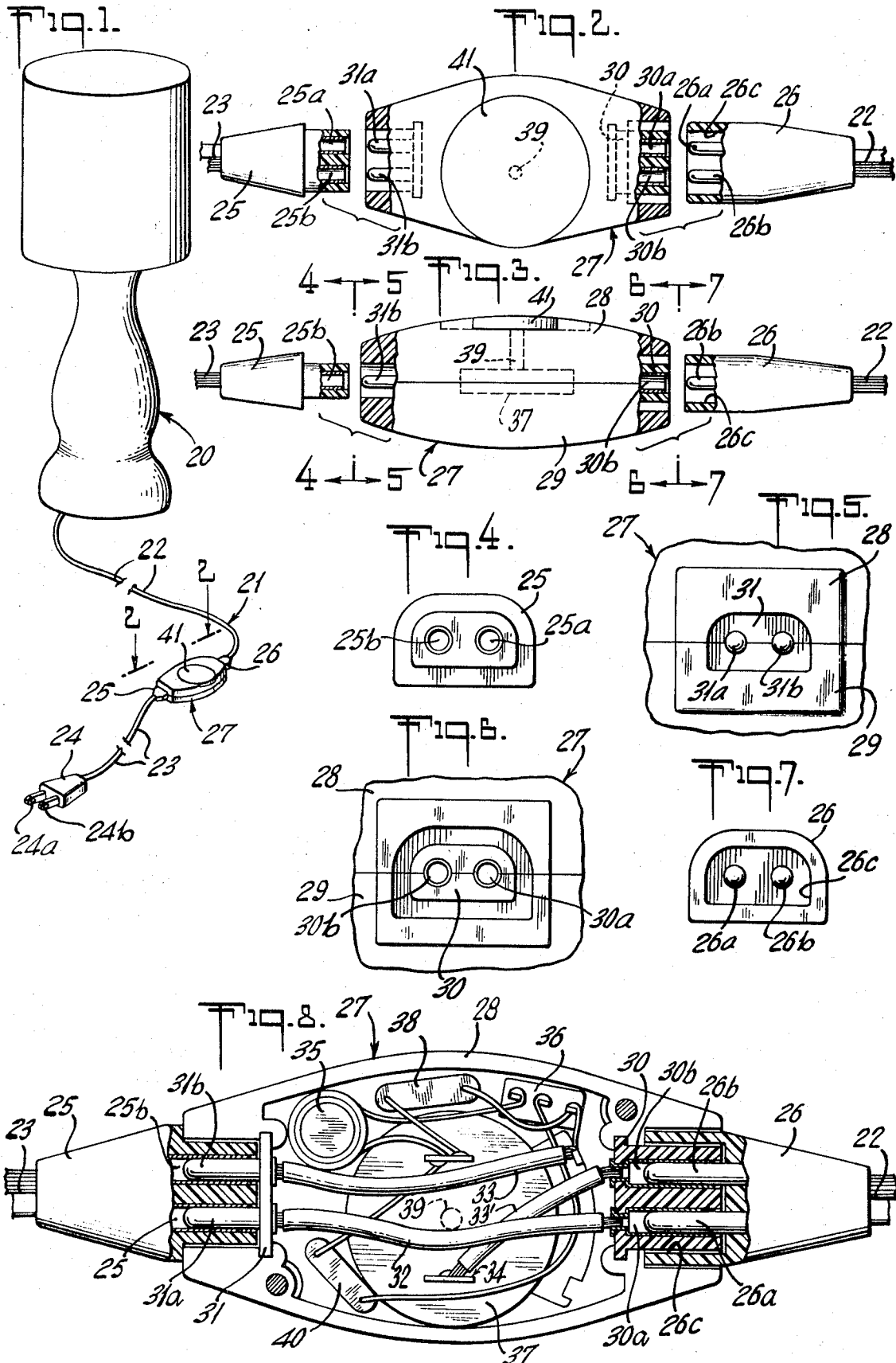
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6 Claims, 13 Drawing Figures



SHEET 1 OF 2



SHEET 2 OF 2

FIG. 9.

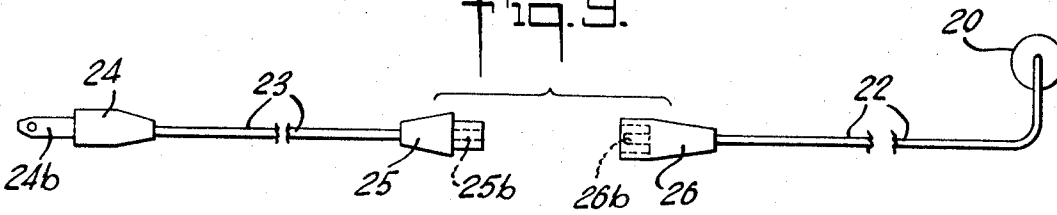


FIG. 10.

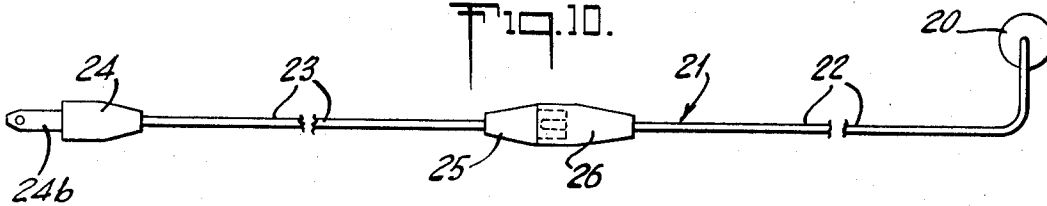


FIG. 11.

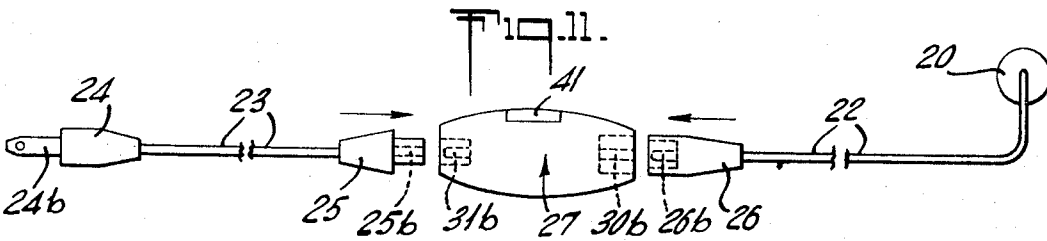


FIG. 12.

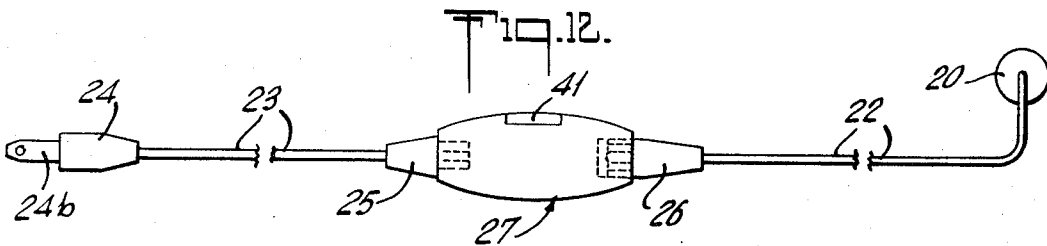
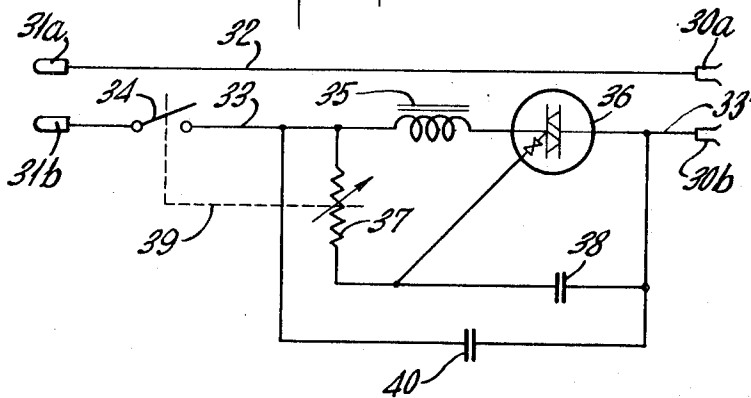


FIG. 13.



REMOVABLE DIMMER ATTACHMENT FOR A PORTABLE LAMP

The present invention relates to a dimmer attachment for a portable type of lamp. It relates, more particularly, to a removable dimmer attachment for connecting an incandescent lamp to a source of alternating current.

An object of the invention is to provide a dimmer attachment which can be installed or removed from an incandescent lamp such as a table or floor lamp when desired without interfering with normal use of the lamp.

A further object of the invention is to provide a dimmer attachment for a portable lamp which can be sold as a separate unit for installation when desired. Under these conditions, the cost of the dimmer attachment does not have to be included in the price of the lamp as such and the dimmer attachment can be added at any time. This not only eliminates the cost of the dimmer attachment from the selling price of the lamp, but the lamp manufacturer need assume no responsibility for operation or servicing of the dimmer attachment.

In addition, the dimmer attachment can be removed for use with similar lamps when desired and can be returned to the store for replacement or service, if required, without interfering with use of the lamp or requiring that the entire lamp be returned.

Another feature of the invention is that it reduces the inventory which has to be kept on hand to supply requests for lamps with or without dimmers as the subject dimmer attachment can readily be installed by the store when it wishes to convert a non-dimming type of lamp to a dimming type of lamp.

Other objects and advantages of the invention will become apparent and will be better understood from the following description and the accompanying drawings, in which:

FIG. 1 is a perspective view illustrating a portable lamp having a lamp cord with a dimmer attachment embodying the invention installed therein;

FIG. 2 is a plan view in partial section of the dimmer attachment shown in FIG. 1 with the dimmer attachment being installed in the lamp cord;

FIG. 3 is a side view in partial section of the dimmer attachment shown in FIG. 2 with the dimmer attachment being installed in the lamp cord;

FIG. 4 is an end view of one end of the lamp cord as seen from line 4—4 of FIG. 3;

FIG. 5 is a fragmentary end view of one end of the dimmer attachment as seen from line 5—5 of FIG. 3;

FIG. 6 is a fragmentary view of a second end of the dimmer attachment as seen from line 6—6 of FIG. 3;

FIG. 7 is an end view of a second end of the lamp cord as seen from line 7—7 of FIG. 3;

FIG. 8 is a bottom view in partial section of the cover of the dimmer attachment shown in FIG. 3 with the ends of the lamp cord connected thereto;

FIG. 9 is a side view of a lamp cord with the ends of the lamp cord separated;

FIG. 10 is a side view of the lamp cord shown in FIG. 9 with the ends of the cord joined;

FIG. 11 is a side view of the lamp cord with a removable dimmer attachment in position for connection to the ends of the lamp cord in accordance with the invention;

FIG. 12 is a side view of the lamp cord and removable dimmer attachment shown in FIG. 11 with the ends of the lamp cord connected to the dimmer attachment;

FIG. 13 is a schematic wiring diagram for a removable dimmer attachment embodying the invention.

Referring now to the drawings in detail, there is a portable lamp 20 having the usual socket and an incandescent lamp bulb (not shown).

The lamp 20 has a dual or twin conductor cord 21 which is split or divided into two sections 22 and 23. The upper section 22 of the cord 21 is connected to a socket of the lamp 20 in the usual manner. If desired, this connection may be made through a switch (not shown) or the like. One conductor of the cord 21 is connected to the metal screw shell of the lamp socket and the other conductor is connected to the center contact of the socket. The lower section 23 of the split cord 21 has a plug 24 attached to one end thereof. The plug 24 has a pair of spaced contact prongs 24a and 24b connected to the conductors for insertion in the usual wall outlet or receptacle (not shown) which connects the lamp 20 to a source of alternating current.

The lower section 23 of the conductor 21 also has a receptacle 25 formed at the other end thereof. The receptacle 25 has socket-like contacts 25a and 25b which are embedded in the end of the receptacle and which are connected to the conductors of the cord section 23.

One end of the upper section 22 of the conductor cord 21 is connected to the lamp socket for the lamp 20 as described above and a plug 26 is formed at the other end thereof. The plug 26 has contact prongs 26a and 26b which are surrounded by a wall 26c and which engage with the contacts 25a and 25b of the receptacle 25 when the two sections of the split cord are joined together as shown in FIG. 10.

The wall 26c defines a recess which is shaped to receive the end of the receptacle 25 and which also polarizes the connections between the plug 26 and the receptacle 25. In other words, the receptacle 25 can only be connected to the plug in one position and predetermined connections between the plug 24 and the socket of the lamp 20 are maintained. It will be understood that other means for polarizing the connections between the plug and receptacle may be employed if desired.

The socket-like contacts 25a and 25b are embedded in the end of the receptacle 25 so that they will not be exposed when the receptacle 25 and the plug 26 are disconnected. In addition, the contact prongs 26a and 26b of the plug 26 are protected by the upstanding wall 26c which defines the shaped recess in the plug. As has been described, the shape of the recess defined by the wall 26c and the shape of the receptacle 25 are employed to polarize the connections between the plug 26 and the receptacle 25.

When the plug 26 is inserted in the receptacle 25, as shown in FIG. 10, the two sections 22 and 23 of the lamp cord 21 are joined and the lamp 20 may be operated in the usual manner.

When the plug 26 is removed from the receptacle 25, the two sections 22 and 23 of the cord 21 are separated and a lamp dimming attachment 27 may be inserted between the sections 22 and 23 of the cord 21 as shown in FIGS. 11 and 12.

As shown best in FIGS. 3 and 8, the lamp dimming attachment 27 comprises a hollow housing of insulating material formed by a cover 28 and a base 29. The cover

28 contains the dimmer components and circuit shown schematically in FIG. 13 which will be described hereinafter.

In the dimmer attachment 27, a receptacle 30 is mounted at one end of the housing in a recess shaped to receive the plug 26 on the upper section 22 of the lamp cord 21. The receptacle 30 which corresponds to the receptacle 25 on the lower section 23 of the conductor cord 21, contains spaced socket-like contacts 31a and 30b to receive and engage with the contact prongs 26a and 26b of the plug 26.

A plug 31 is mounted in a recess at the other end of the housing which is shaped to receive the receptacle 25 on the lower section 23 of the lamp cord 21. The attachment plug 31 corresponds to the cord plug 26 on the upper section 22 of the conductor cord and has spaced contact prongs 31a and 31b of the receptacle 25. As noted, the prongs 31a and 31b are located in a recess which is shaped to receive the end of the cord receptacle 25. As noted, the plug 31 and the receptacle 30 of the dimmer attachment 27 mate, respectively, with the receptacle 25 and plug 26 on the two cord sections 22 and 23 with the connections being polarized to maintain the desired connections from the lamp 20 to the plug 24.

A suitable circuit for the dimmer attachment 27 is shown schematically in FIG. 13. In the circuit illustrated, a conductor 32 connects the contact 30a of the receptacle 30 to the contact 31a of the plug 31. The other contact 31b of the plug 31 is connected by leads 33, 33' to the other contacts 30b of the receptacle 30 through an on-off switch 34, a filter coil 35 and a thyristor 36. The thyristor 36 may be a Quadrac or the like. An R-C phase shift control network which includes a variable resistance or potentiometer 37 and a condenser 38 is connected across the thyristor 36 and the filter coil 35 with a junction between the resistance 37 and the condenser 38 being connected to a gate element of the thyristor 36. This will provide substantially full range (zero to 120 volts) control over the alternating current supplied to the lamp. The on-off switch 34 and the variable resistance 37 may be formed as a single unit for operation by a common shaft 39. A condenser 40 may also be connected across the thyristor 36 to minimize interference from its operation at radio frequencies.

An end of the shaft 39 projects through the cover 28 and carries a knob or dial 41 for on and off operation of the switch 34 and setting of the resistance 37 as desired. As shown in FIG. 8, the components of the dimmer attachment 27 may be compactly assembled and enclosed within the housing.

The dimmer attachment 27 is removed from the proximity of the incandescent lamp when installed in the cord 21 and hence, heat from the incandescent lamp does not affect operation of the dimmer attachment or its circuit components.

It will be understood that various modifications may be made by those skilled in the art in the embodiment of the invention described herein without departing from the spirit of the invention.

What is claimed is:

1. In a portable incandescent lamp, the combination comprising:

- a. a conductor cord connecting an incandescent lamp socket to a source of alternating current;
- b. said cord being divided into two sections;
- c. mating electrical connectors attached to ends of each of said sections; and
- d. an adjustable dimmer removably connected between the connectors attached to the cord;
- e. said dimmer comprising a housing containing a lamp dimming circuit;
- f. said housing having recesses formed at opposite ends thereof;
- g. each of said recesses being shaped to receive one end of the connectors attached to the two sections of the conductor cord; and
- h. a pair of electrical contacts located in each of said recesses and being connected to the lamp dimming circuit;

i. each pair of said contacts detachably engaging with contacts of the connector received in said recess.

2. In a portable incandescent lamp, the combination as defined in claim 1 which includes:

- a. means for polarizing electrical connections between the connectors attached to the sections of the conductors cord and the contacts carried by the dimmer.

3. In a portable incandescent lamp, the combination as defined in claim 2 wherein:

- a. the polarizing means includes shaped walls formed on the connectors attached to the conductor cord and the recesses formed in the ends of the dimmer housing are shaped to receive one of the connectors attached to the conductor cord.

4. A lamp dimmer for removable connection in a lamp cord connecting a portable incandescent lamp to a source of alternating current which comprises:

- a. a split housing of insulating material;
- b. said housing having spaced ends and shaped recesses formed therein;
- c. circuit means enclosed within said housing for adjustably controlling a supply of alternating current to an incandescent lamp; and
- d. a pair of spaced contact elements connected to said circuit and being located in each of said shaped recesses in the housing;
- e. said contacts being connected to the dimmer circuit in the housing.

5. A lamp dimmer for removable connection in a lamp cord as defined in claim 4 wherein:

- a. the circuit enclosed within the housing includes:
- b. a thyristor connected in series between one of the contact elements of each pair; and
- c. an adjustable R-C network connected across said thyristor.

6. A lamp dimmer for removable connection in a lamp cord as defined in claim 4 wherein:

- a. the recess in the housing are shaped to polarize connections to the contact elements contained therein.

* * * * *

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3 748,532

Dated July 24, 1973

Inventor(s) Saul Rosenbaum

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Col. 3, line 9- Change numeral "31a" to "30a".

Col. 3 line 16- After numeral "31b" insert-
to engage with the contacts 25a and 25b.

Col. 4, line 26- Make "conductors" singular.

Signed and sealed this 19th day of February 1974.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents

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