

Sept. 9, 1941.

E. P. SEGHERS

2,255,336

ELECTRIC PLUG

Filed Oct. 19, 1939

Fig. 1.

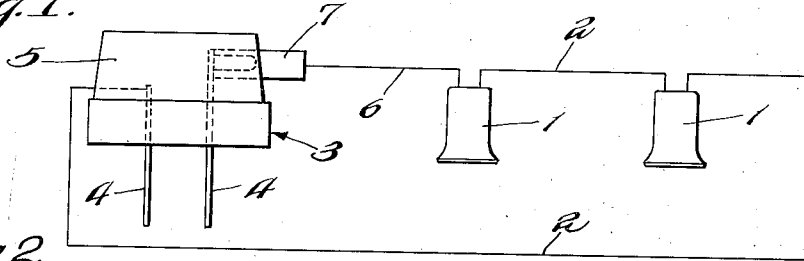


Fig. 2

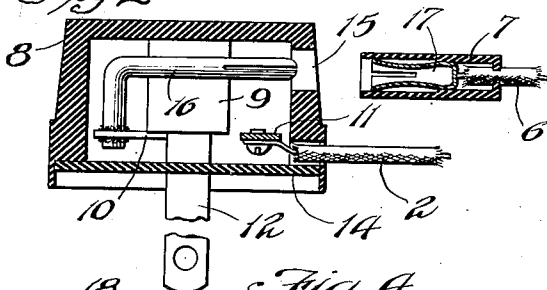


Fig. 3.

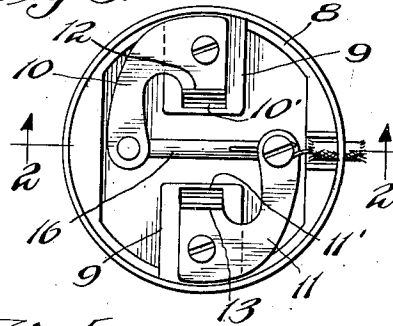


Fig. 4

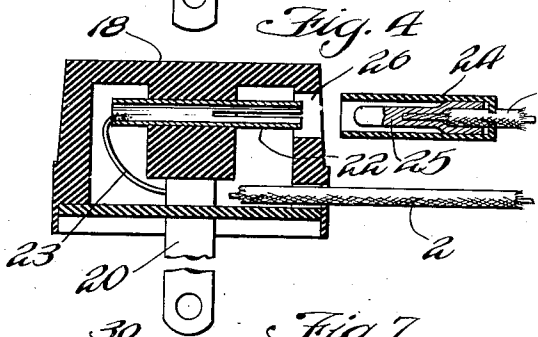


Fig. 5.

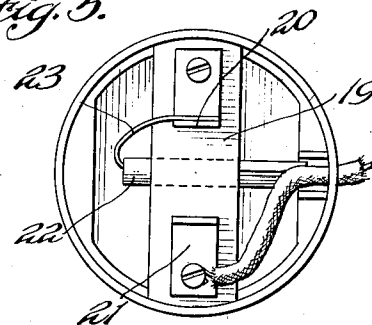


Fig. 7.

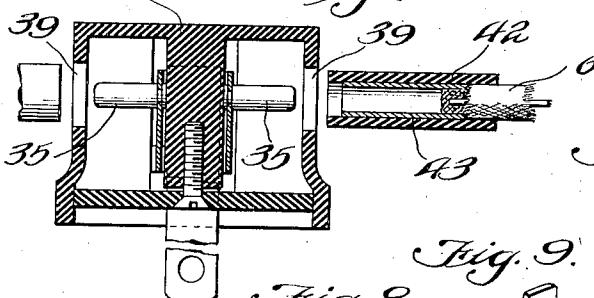


Fig. 6.

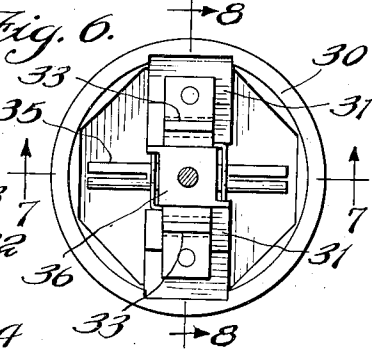


Fig. 8.

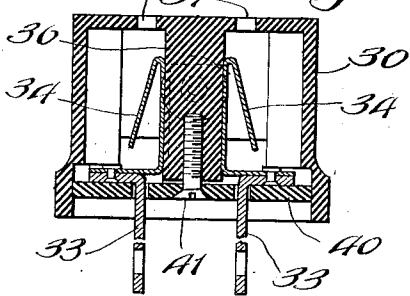
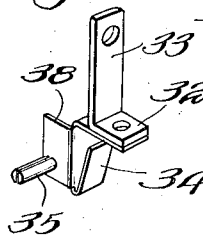


Fig. 9.



INVENTOR.

Emiel P. Seghers

BY

George H. Simmons

ATTORNEY. 1105

UNITED STATES PATENT OFFICE

2,255,336

ELECTRIC PLUG

Emiel P. Seghers, Chicago, Ill.

Application October 19, 1939, Serial No. 300,125

2 Claims. (Cl. 173-334)

This invention relates to decorative lighting equipment more particularly to a plug for connecting such equipment to a source of commercial current and has for its principal object the provision of a new and improved device of this kind.

Decorative lights such as are commonly used for decorating Christmas trees usually comprise a plurality of individual lamps connected together in series and the series combination connected to a source of electric current. In decorating the tree the string of lamps so formed is trained over the branches of the tree and the string is then plugged into a suitable source of current. In order to facilitate placing the lamps upon the tree the plug by which the string is connected to the source of current is arranged so that either one or both ends of the string may be readily separated from the plug.

It is the further object of the invention to provide a plug in which one or both ends of a string of lights are connected by removable connections.

Still another object of the invention resides in the provision of a plug of this type in which the electrical parts are at all times fully insulated to guard against shock.

Still another object of the invention resides in the provision of a terminal for use on the string of lights and adapted to establishing a connection with the plug, the terminal being insulated so that a person will not receive a shock from the plug in the normal use of it.

Further objects of the invention, not specifically mentioned here, will be apparent from the detail description and claims which follow, reference being had to the accompanying drawing in which preferred embodiment of the invention is shown by way of example and in which:

Figure 1 is a diagrammatical illustration of the principle of the invention;

Figure 2 is a cross-sectional elevational view through a plug and cooperating terminal taken substantially along the line 2-2 of Figure 3 looking in the direction of the arrows;

Figure 3 is a bottom side plan view of the plug shown in Figure 2 with the bottom plate removed;

Figure 4 is a view similar to Figure 2 showing a modified form of the invention;

Figure 5 is a bottom side plan view of the plug shown in Figure 4 with bottom plate removed;

Figure 6 is a bottom side plan view of still another embodiment of the invention with the bottom plate removed;

Figure 7 is a view similar to Figure 2 taken along the line 7-7 of Figure 6;

Figure 8 is a cross-sectional view taken along

the line 8-8 of Figure 6 looking in the direction of the arrow; and

Figure 9 is a perspective view of the current carrying element of the plug shown in Figures 6 to 8 inclusive.

In my co-pending application, Serial Number 129,130, filed March 5, 1937, which issued as Patent No. 2,180,121 on Nov. 14 1939, of which application the instant application is a continuation in part, there is shown an improved decorative light device suitable for use on Christmas trees and the like. One of the features of the invention shown in this co-pending application is an arrangement for attaching one end of a string of Christmas tree lights to a plug in such a manner that the connection may be broken during the process of placing the lamps upon a Christmas tree or other object that is being decorated. As will be appreciated by those skilled in the art, when this connection is broken and the plug and one side of the string of Christmas tree lights is connected to a source of electric current, the full voltage of that source of current will be on the removable terminal. Should a person in placing the string upon the object being decorated come in contact with that terminal he will receive a shock which, under certain circumstances, might be fatal. Furthermore, if the terminal comes in contact with a grounded device such as a radiator an arc is likely to be struck and it is possible that a fire might ensue.

The instant invention includes an arrangement of plug and removable terminal therefor in which the current carrying elements are protected by insulation in such a manner that it is impossible for a person to come in contact with them or for the element to come in contact with a grounded object during the time that the device is being put into place. When the terminal is inserted into the plug to complete the connection the insulating device extends into the insulating shell of the plug so that the connection is properly insulated and the circuit will not be short circuited should a metallic decorative member fall upon it.

Referring now to the drawing more in detail, particularly to Figure 1, where there is diagrammatically illustrated a string of decorative lights 1 connected together with wires 2, the end wires being connected to a plug 3 by which connection is made to a source of electric current. The plug 3 has the usual prongs 4 projecting from a casing 5 that is composed of an insulating material. One of the connecting wires 2 extends into the casing 5 and is connected to one of the prongs 4 and the connecting wire 6 at the other

end of the string terminates in a terminal 7 that is detachably connected to the other prong 4 within the casing 5.

As will be seen in Figures 2 and 3, the plug casing 8 is a cup like casing containing internal bosses 9 upon which are fixed terminal members 10 and 11, terminal member 10 including a prong 12 which projects from the casing. Terminal member 11 contains a similar prong 13. Usually a casing of this kind is composed of a molded insulating material such as Bakelite and the cavity portion of the casing is closed by a bottom plate 14 which is composed of fiber or Bakelite and is perforated to permit the prongs 12 and 13 to extend through it.

Casing 8 contains a perforation 15 located upon the median line of the plug and with which a terminal member 16 is aligned. Terminal member 16 is connected to and carried by the member 10, and contains a slot opening into its free end so as to provide contact tension as will be well understood by one skilled in the art.

The casing also contains a perforation through which the wire 2 of a string of lamps is extended and connected to the terminal 11, this connection being made by a screw in the usual manner, or if desired the screw may be omitted and the wire soldered directly to the terminal.

The wire 6 terminating the other end of the string of lights extends into an insulating shell 7 preferably generally cylindrical in shape and within which female terminal member 17 is located, the wire being attached to this member, preferably by soldering. The shell 7 is adapted to fit in the perforation 15 so that the terminal 17 may be projected into the casing 8 and into electrical connection with the member 16 thereby to complete the circuit of the string of lamps. Female terminal 17 is slotted so that when engaged with terminal 16 a good electrical contact will be made. It will be noted that the member 17 is set well back from the open end of the shell 7 so that it is protected and a person manipulating the casing is not likely to come in contact with the terminal. It will also be noted that the diameter of perforation 15 is small and that member 16 terminates well within casing 8 so that there is little danger of a person receiving a shock in the normal operation of the device.

In the embodiment of the invention shown in Figures 4 and 5 a similar molded outer casing 18 is provided with a single cross bridge 19 upon which prong members 20 and 21 are fixed. Projected through this bridge 19 is a female terminal member 22 which is connected to the prong 20 in any preferred manner such as by a wire or strap 23. Member 22 is provided with a slot opening into its free end to provide resiliency in the member. The end wire 2 of the string of lamps is brought into the casing and connected to the prong member 21. The wire 6 on the other end of the string projects into a shell 24 and is terminated upon a male terminal member 25 disposed wholly within the shell. Casing 18 is perforated at 26 to receive the shell 24 so as to permit the terminal 25 to be brought into contact with the female terminal 22 in the plug casing.

As will be understood by those skilled in the art, plugs of the type shown in Figures 2 to 5 inclusive are frequently provided with suitable perforations in the face of the plug opposite the prongs so as to permit the prongs of another plug to be inserted into the casing and to make contact with terminal members, such as 10' and

11', Figure 3. Such an arrangement permits building up a cluster of plugs and thereby enables a plurality of string of lamps to be lighted from one electric outlet, and the use of plugs of this type is contemplated.

In the embodiment of the invention shown in Figures 2 to 5 inclusive one side of the string of lights is permanently connected to the plug and the other side is connected through the removable terminal. In the embodiment shown in Figures 6 to 9 inclusive the string of lights may terminate on both ends in suitable terminals both of which are adapted to be detachably connected to the plug, or if desired, two strings may be connected to a single plug. In this embodiment the casing 30 is provided with two generally rectangular bridges 31 which form sockets into which the foot portion 32 of a terminal member is nested. This terminal member consists of a prong 33 for spring terminal 34 and a terminal 35. Each plug contains two of these elements. As will be seen best in Figure 8, the outer casing 30 contains a central post 36 which is generally rectangular in shape and against which a portion of the spring terminal 34 is located. The casing contains perforations 37 through which the prongs of another plug are inserted and brought into contact with the spring terminals 34.

The post terminals 35 are mounted upon a base 38 which is disposed alongside of a face of the central post 36, the terminals 35 being thus aligned with perforations 39 in the side walls of the outer casing 30. The assembly of parts is held in the casing by a plate 40 that is attached to the central post 36 by a screw 41 and is perforated to permit the prongs 33 to extend out of the casing and to be brought into contact with a source of electric current.

The end wire of string of Christmas tree lamps such as for instance the wire 6, Figure 7, extends into a generally cylindrical shell 42 and is connected to a terminal member 43 that is disposed therein. The terminal 43 falls short of the end of the casing 42 to prevent the terminal from being engaged during manipulation of the device. Shells 42 are of such diameter that they may be extended into the casing 30 through perforation 39 to bring the terminal 43 into engagement with one of the terminals 35.

As shown in Figures 6 to 9 inclusive terminal 35 is a male terminal and terminal 43 is a female terminal. If desired the position of these terminals may be reversed in the manner shown in Figures 2 to 5 inclusive, that is, the female terminal may be carried on base 38 and the male terminal may be placed in shell 42. Preferably both ends of the string of lamps is provided with a terminal and shell such as 43 and 42 and are connected to one plug as shown. If desired, however, a single plug may be made to serve two strings in which case one end of one string will be permanently connected to one prong 33 in the manner fully illustrated in Figures 2 to 5 and the one end of the other string will be permanently connected to the other prong 33. The terminal ends of the two strings will be connected to the terminals 35 and, if desired, suitable marks may be employed to indicate to which side the terminal must be connected.

From the foregoing it will be seen that the devices of my invention are possessed of many advantages. They are inexpensive to construct and maintain; they are fully insulated so that a person cannot readily be shocked in manipulating

the device; they are convenient and will make the problem of stringing a string of lamps upon a Christmas tree much more simple.

While I have chosen to illustrate my invention by showing and describing a preferred embodiment of it, I have done so by way of example. As there are many modifications and adaptations which can be made by one skilled in the art within the teachings of the invention.

Having thus complied with the statutes and shown and described a preferred embodiment of my invention of what I consider new and desire to have protected by Letters Patent is pointed out in the appended claims.

What is claimed is:

1. In an electric plug, a pair of current carrying members each comprising, an L shaped rigid member the longer leg of which forms a prong, a flexible member fixed to the shorter leg of said first member and extending therefrom in substantial parallelism to said prong, a contact integral with said flexible member and extending from the end thereof back at an angle toward said shorter leg, a base integral with said flexible member and disposed at right angles thereto and to said prong, a male terminal projecting from said base, a casing composed of insulating material and having internal cavities for receiving said current carrying members and holding the same with said prongs and bases disposed in substantially parallel planes, said casing having perforations through which other plug prongs may extend to engage said contacts and having other

perforations through which female terminal members may extend and engage said male terminals, and means including a disk having perforations through which said prongs extend for holding said current carrying members in said casing.

2. The combination in an electric plug of a cup-shaped shell composed of insulating material, a rectangular post centered within said shell and extending from the closed end thereof, a pair of bridges disposed within said shell and spaced from said post, a pair of L-shaped male contactors each having a foot portion resting on one of said bridges and a longer contact portion extending out of said shell, a spring terminal for each of said contactors comprising, an L-shaped base engaging two sides of said post, an arm extending from one end of one section of said base and fixed to the foot portion of the male contactor, a terminal arm extending from the other end of said base section and toward said arm, and male contact means projecting from the other section of said base, there being perforations in said shell through which said spring terminals are accessible to other plugs, a disk fitted in the open end of said shell to close the same, and bearing against the foot portions of said contactors, there being perforations in said disk through which said male contactors extend, and means engaging said disk and post for holding the assembly together within said shell.

EMIEL P. SEGHERS.