May 2, 1933. L. M. LAZARUS 1,906,976

ATTACHMENT PLUG

Filed Feb. 11, 1931

Fig. 1.

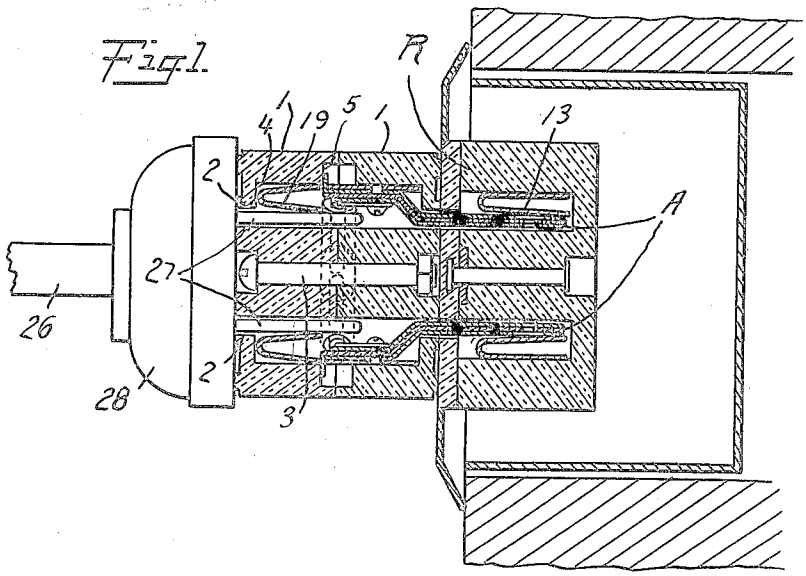


Fig. 2.

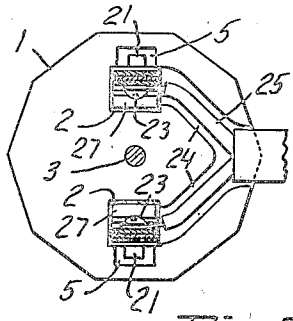


Fig. 3.

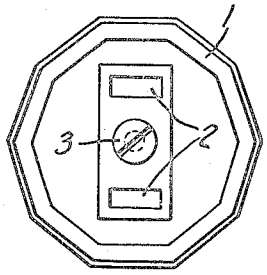


Fig. 7.

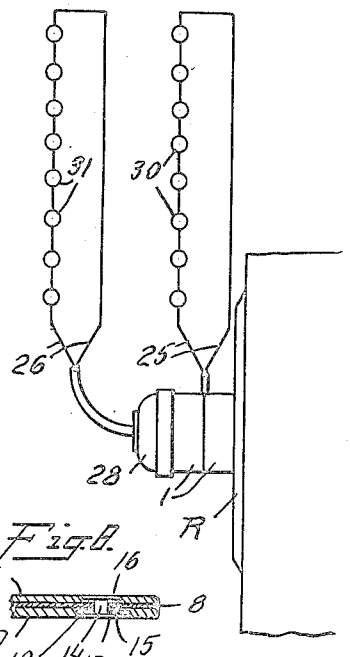


Fig. 5.

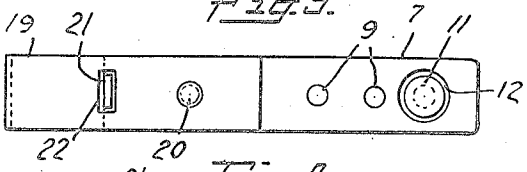


Fig. 4.

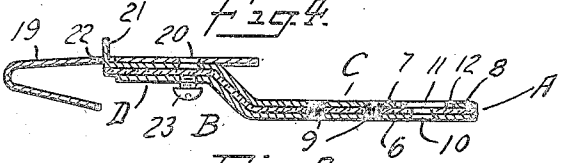
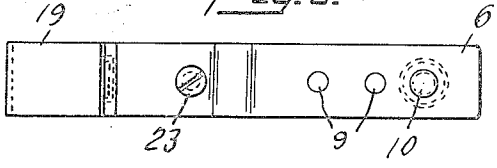


Fig. 8.

Fig. 6.



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Patented May 2, 1933

1,906,976

UNITED STATES PATENT OFFICE

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ATTACHMENT PLUG

Application filed February 11, 1931. Serial No. 514,965.

This invention relates to lighting circuits, and more particularly concerns an improved attachment device for use in connecting a plurality of lighting circuits to a single power source.

Electric current for extension lights, appliances and other portable devices used in buildings is usually conducted from a suitable source to an outlet box or equivalent fitting in the baseboard, wall or floor of a room. It is often desirable or necessary to obtain energy for more than one lighting or appliance circuit from a single outlet box or receptacle. In the energization of lighting circuits of the type generally known as Christmas tree or decorative outfits, each circuit comprises a plurality of incandescent lamp bulbs, usually eight in number, connected together in series by suitable lead wires. The series circuit is connected across the usual 110 to 120 volt house lighting circuit, whereby a low voltage of approximately 15 volts is impressed across each lamp, and a reduced brilliance, simulating candle light, is produced. Since the Christmas tree or other object to be decorated by such outfits may vary greatly in size, it is frequently necessary to employ two or more series lighting circuits of the type described and to connect such circuits in parallel across the power supply circuit. This is customarily accomplished by joining the leads from the several circuits in parallel and extending leads from such junction point to the outlet box or receptacle of the power supply circuit. The exposed lead wires of decorative lighting circuits are subjected to comparatively rough usage and consequently short or open circuits in the leads are not at all infrequent. When such short or open circuits occur in the leads extending between the junction point of a number of series circuits and the outlet box or other power source, all of the lighting circuits are deenergized and all of the lamp bulbs are extinguished.

With the above and other considerations in mind, it is proposed in accordance with the present invention to provide an improved attachment device for independently connecting two separate electric circuits across a power supply circuit through a single outlet box or receptacle. When energized through the fitting of the present invention, the separate lighting or other electric circuits are entirely independent, and open circuits or temporary short circuits in one have no effect on the energization of the other.

In general, the above and other objects of the invention are carried out by providing an attachment device having a pair of contact blades for engagement with the usual terminal clips of an outlet box or receptacle, each of such blades comprising at least two mutually insulated current conducting members both of which are arranged for current conductive contact with the terminal clips of an outlet box or receptacle. The separate electric circuits are respectively connected to the separate insulated pairs of conducting members making up the contact blades, and the circuits are accordingly maintained entirely independent.

In one embodiment of the invention, at least one of the current conducting members of each contact blade is connected to or formed integrally with a terminal clip carried by the attachment device, whereby at least one of the electric circuits may be connected to the device through a plug of the usual construction, the contact blades of such plug being brought into engagement with the terminal clips of the attachment device.

The invention will be best understood by reference to the accompanying drawing, in which:

Figure 1 is a sectional side view of one embodiment of my improved attachment device in conductive engagement with an outlet receptacle, a plug being shown in engagement with one circuit of the device;

Fig. 2 is an end view of one of the insulating blocks which form the attachment device, certain of the parts being shown in section;

Fig. 3 is an end view of the attachment device shown in Fig. 1;

Fig. 4 is a sectional view of one of the contact blades of the device;

Figs. 5 and 6 are respectively upper and

under plan views of the contact blade shown in Fig. 4;

Fig. 7 is a diagrammatic representation of two circuits energized through the attachment device of the invention; and

Fig. 8 is a sectional view of a modified form of contact blade connecting means for use in the attachment device.

Referring to the drawing, and more particularly to Fig. 1, the disclosed embodiment of my improved attachment device comprises generally a pair of identical blocks 1 of insulating material carrying a pair of contact blades A and connected together by a central bolt 3. Each block 1 is provided with a pair of oppositely disposed openings 2 therethrough, and each opening 2 has two outwardly extending pockets therein forming the ledges or abutments 4 and 5 as shown in Fig. 1.

The contact blades A, one of which is shown in detail in Figs. 4, 5 and 6, each comprises a pair of current conducting members 6 and 7 spaced apart and mutually electrically insulated by the strip 8 of insulating material. Each conducting member 6 and 7 as well as the insulating strip 8 therebetween, has an offset or angularly disposed portion at B connecting the blade portion C with the terminal portion D of the blade.

The conducting members 6 and 7 may be secured together in any suitable manner. As shown in Fig. 6, a plurality of rivets 9 of insulating material may be employed to fasten the conducting members 6 and 7 together with the insulating strip 8 therebetween. A current conducting rivet 10 is secured in electrical contact with the inner conducting member 6 and extends through the insulating strip 8, the head 11 of this rivet lying within and spaced from the edges of an opening 12 in the conducting member 7, so as to be insulated therefrom, and the surface of the rivet head 11 lying flush with the outer surface of the member 7. With this arrangement, as shown in Fig. 1, the terminal clip 13 of the outlet box or receptacle R is in direct electrical contact with the conducting member 7 and is independently electrically connected through the rivet head 11 and the rivet 10 to the conducting member 6.

If desired, a single member may be employed to connect the conducting members 6 and 7 together and to carry current from the terminal clip 13 to the member 6. Thus, as shown in Fig. 8, a rivet 14 may be used for this purpose. The head 16 of the rivet 14 is countersunk within and in electrical contact with the member 6, the shank of the rivet passes through an opening 15 in the member 7 and out of contact with the sides of such opening, and the head 17 of the rivet is insulated from the member 7 by the insulating washer 18 and lies flush with the outer surface of the member 7.

As explained above, it is preferred to provide terminal clips on one of the conducting members of each of the contact blades A. As shown in Figs. 4, 5 and 6, a terminal clip 19 is secured to the rearward end of the conducting member 7 by means of a conductive rivet 20, and an up-turned tap 21 on the member 7 extends through an opening 22 in the clip 19 to insure a rigid mechanical connection between these elements. A terminal screw 23 threadedly engages each of the conducting members 6 in the portion D of each blade, as shown in Figs. 1, 4 and 6.

In assembling the fitting, the two contact blades A are placed within the openings 2 of either block 1 and the other block is passed over the blades, the blocks being secured together by the bolt 3. As shown in Fig. 1, the blades A are firmly held between the blocks 1 by the engagement of the abutments 4 with the opposite ends of the terminal clips 19 and by the engagement of one of the abutments 5 with the tap 21.

As shown in Figs. 1 and 2, a pair of cooperating grooves 24 are formed on the inner ends of each of the blocks 1 and the two leads 25 of one of the electric circuits are disposed in these grooves and connected respectively to the conducting members 6 of the contact blades A by means of the terminal screws 23. The leads 26 of the remaining electric circuit are connected through the terminal clips 19 to the conducting members 7 of the blades A through the blades 27 of a plug 28 of usual and ordinary construction.

As shown in Fig. 7, the improved attachment device of the present invention may be employed to connect a plurality of series lighting circuits to a power source. Thus, the series connected lamp bulbs 30 may be connected through the lead wires 25 to the conducting members 6 of the attachment device, and the series connected lamp bulbs 31 may be connected through the lead wires 26 and the plug 28 to the conducting members 7 of the device. In this manner, the two lighting circuits are maintained entirely independent up to the point at which they are connected across the terminal clips 13 of the outlet receptacle R. This arrangement is of considerable advantage in that the breakage of a lead wire or a temporary short circuit between the lead wires of one of the energized circuits has no effect upon the energization of the other circuit and one circuit is maintained energized regardless of a failure at any point in the other.

The improved attachment device may also be employed as a switch for disconnecting one of the lighting circuits from the power source without entirely withdrawing the device from the receptacle to do so, and without employing a separate switch. It has been pointed out that circuits 26 and 25 are entirely independent and that the latter is con-

nected to the source of power by contact between the rivet 10 and the terminal clips 13 of the outlet box or receptacle R. Accordingly, inasmuch as the rivets 10 are spaced from the tips of the corresponding independent conducting members 7, partial withdrawal of the attachment devices from the receptacle R, to disengage rivets 11 from the receptacle terminal clips 13, disconnects circuit 25 from the source of power. The same result is obtained by partial insertion of the blades into the receptacle. Inasmuch as the tips of the members 7 are in engagement with the corresponding terminal clips 13, only circuit 26 is energized. Thus, by a simple act, one of the circuits supplied by the device may be disconnected at will.

I claim:

1. In an attachment of the character described, a pair of contact blades adapted to be inserted in a standard outlet receptacle, each of said blades comprising at least two electrically independent current conducting members, means for independently electrically connecting both of the current conducting members of each of said blades to a terminal of an outlet receptacle, means for connecting the leads of an electric circuit to one of the current conducting members of each of said blades and means for independently connecting the leads of a separate electric circuit to the other conducting member of each of said blades.

2. In an attachment of the character described, a pair of contact blades adapted to be inserted in a standard outlet receptacle, each of said blades comprising two mechanically connected and electrically insulated current conducting members each arranged for independent electrical contact with a terminal of the outlet receptacle, means for connecting the leads of an electric circuit to one of the conducting members of each of said blades and means for independently connecting the leads of a separate electric circuit to the other conducting member of each of said blades.

3. In an attachment device of the character described, a pair of contact blades adapted to be inserted in a standard outlet receptacle, each of said blades comprising two mechanically connected and electrically insulated current conducting members each arranged for independent electrical contact with a terminal of the outlet receptacle, a pair of terminal clips respectively electrically connected to one of the conducting members of each of said blades and means for connecting electrical conductors to the other of the conducting members of each of said blades.

4. In an attachment device for use in independently connecting a plurality of series lighting circuits to the terminals of an outlet receptacle, a pair of contact blades adapted to be inserted in a standard outlet receptacle, each of said blades comprising at least two mechanically connected and electrically insulated current conducting members, means for independently electrically connecting all of the conducting members of each of said contact blades with a terminal clip of the outlet receptacle and means for independently connecting each of at least two series lighting circuits to separate electrically independent conducting members of both of said blades.

5. In an attachment device of the character described, a pair of contact blades adapted to be inserted in a standard outlet receptacle, each of said blades comprising two parallel conducting strips with a strip of insulating material therebetween, current conducting means secured to one of the strips of each of said blades and extending to a point flush with the surface of the other strip but out of contact therewith whereby both of the strips of each blade may be independently electrically connected to a single terminal clip and means on each of said conducting strips for connecting a lead thereto.

6. In an attachment device of the character described, a pair of contact blades adapted to be inserted in a standard outlet receptacle, each of said blades comprising two parallel conducting strips with a strip of insulating material therebetween, current conducting means secured to one of the strips of each of said blades and extending through an opening in the other of said strips to a point flush with the surface of the other strip but out of contact therewith, whereby both of the strips of each blade may be independently electrically connected to a single terminal clip engaging one surface of one of said strips, and means on each of said conducting strips for connecting a lead thereto.

7. In an attachment device of the character described, the combination of a pair of contact blades adapted to be inserted in a standard outlet receptacle, each of said blades comprising at least two separate conductors for independent connection to two corresponding circuits and for independent engagement with the corresponding contact clips of the receptacle, the conductors of each blade having separate contact points spaced lengthwise of the corresponding blade whereby the degree of insertion of the blade in the outlet receptacle determines the electrical connection between the blade conductors and the corresponding terminal clips of the outlet receptacle.

In testimony whereof I affix my signature.

LOUIS M. LAZARUS.