April 17, 1934. L. LUDWIG 1,955,076

CURRENT INTERRUPTING DEVICE

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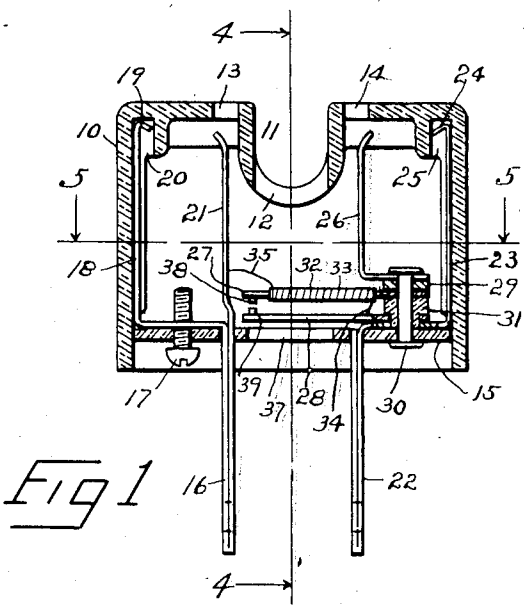


Fig 1

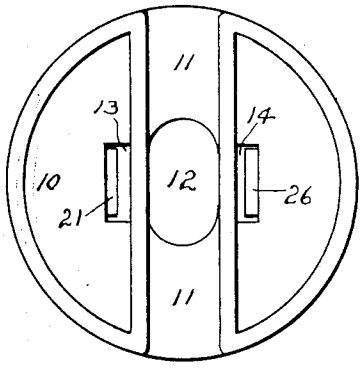


Fig 2

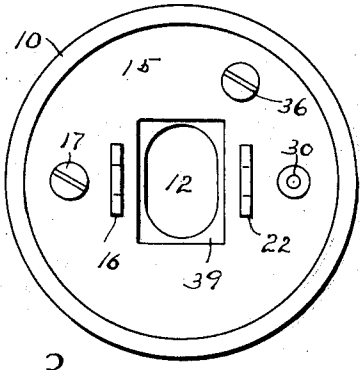


Fig 3

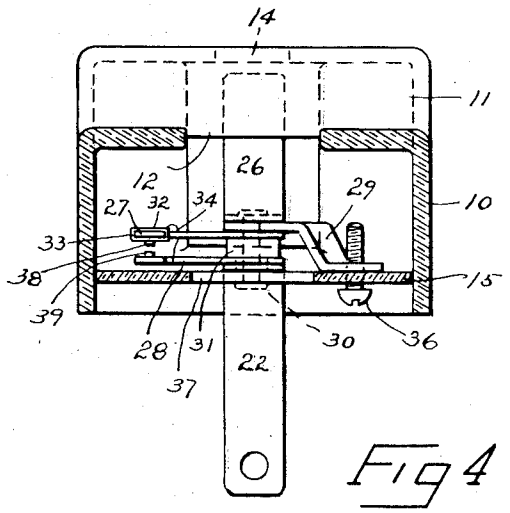


Fig 4

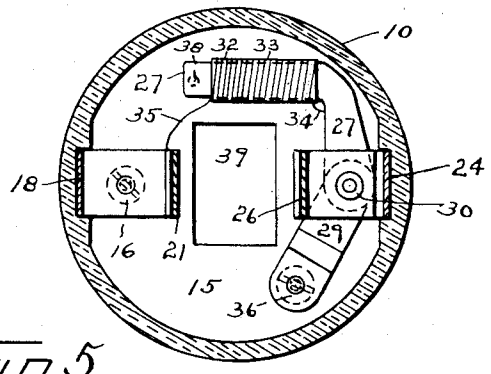


Fig 5

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CURRENT INTERRUPTING DEVICE

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7 Claims. (Cl. 200—115.5)

The invention relates to current interrupting devices employing thermostatic elements, and more particularly to a combination attachment plug and outlet employing such an element. It has for its main object to provide a current interrupting, or flashing, device which may be inserted in an ordinary electric outlet and by means of which lamps, either in a single circuit or in separate and distinct circuits, may be flashed simultaneously.

Another object is to so construct the device that the wires of one of the circuits may be permanently attached to the device, while the wires of other circuits are attached by the ordinary means of a prong-attachment plug. A further object is to provide a device of small and compact construction, consisting of a few inexpensive parts which may be completely assembled prior to their insertion in the housing, so as to facilitate such assembling and reducing its cost.

These and various other objects and advantages will be readily understood from the following description and from the accompanying drawing of a preferred embodiment of the invention in which, however, modifications may be made without departing from the scope of the appended claims. In the drawing

Fig. 1 is a cross-sectional elevation of the device,

Fig. 2 a top view,

Fig. 3 a bottom view,

Fig. 4 another cross-sectional elevation taken on line 4—4 in Fig. 1, and

Fig. 5 a cross-sectional plan view taken on line 5—5 in Fig. 1.

Referring now to all the views, the device comprises a housing 10 made of insulating material and diametrically across the face of which a relatively deep groove 11 is moulded. An opening 12 is formed centrally in this groove and leads to the hollow interior of the housing. Two rectangular openings 13 and 14 are also provided in the top face of the housing, one on each side of the groove and parallel with it.

All the operating parts of the device are mounted on an insulating disc 15 which fits snugly in the housing. A prong 16 is secured on this disc by means of a screw 17. This prong has an anchor terminal 18, the outer end 19 of which is bent at an acute angle and fits in a socket 20. As the entire prong is made of spring material, it is evident that the angular end 19 may be readily pushed into the socket but that it can be withdrawn only from the socket by an excessive pull. This is owing to the fact that the angular end, when withdrawn, will tend to lock into the side of the socket.

The prong is also provided with a blade 21 which extends upwardly and is slightly curved at its upper end which terminates directly under the opening 13. The other prong 22 is also provided with an anchor terminal 23 which has an angular end 24 fitting in a socket 25. The blade 26, associated with this prong, is not, however, connected directly with the prong, but is insulated from it in a manner which will be explained later. The upper end of this prong is also curved and terminates directly below the opening 14.

A thermostatic device, consisting of a piece of bimetallic or thermostatic element 27 and a plain metal arm 28, is mounted between the prong 22 and the blade 26, as is also a downwardly-bent bracket 29. All these parts are secured on an eyelet 30 and are assembled in the following manner. The metal arm 28 rests directly on, and is in electrical contact with the prong 22, but both of these parts are insulated from the eyelet 30 by a shouldered insulating collar 31. The thermostatic element, the bracket 29 and the blade 26 are all located on top of the collar and are all electrically connected with each other and with the eyelet. A piece of insulating material 32 such as asbestos, is wrapped around the thermostatic element, and on this insulating material a resistance wire 33 is wound; its one end 34 being connected with the metal arm 28 and its other end 35 connected to the prong 16. The shape of the thermostatic element is plainly shown in Fig. 5; the metal arm 28 being of similar shape. A screw 36 is threaded in the bracket 29 and secures this to the disc 15.

The device operates in the following manner. The wires from a circuit are laid in the groove 11 and threaded through the opening 12, after which they are passed through an opening 37, punched in the disc 15, and their stripped ends secured under the heads of the screws 17 and 36. This circuit is thus permanently attached to the device. If the prongs 16 and 22 are then inserted in an electric outlet, a current will flow through the prong 22, arm 28, through the end 34 of the resistance wire 33, through this wire, through the end 35 of this wire and back through prong 16; thus preventing any current from flowing through the circuit connected to the screws 17 and 36. However, as the current flows through the resistance wire it heats the thermostatic element 27 and causes this element to curve until the contact points 38 and 39 contact with each other, after which the current will flow through prong 22, arm 38, contact points 39 and 38, thermostatic element 27, bracket 29, screw 36, thence through the wire attached to this screw, through the circuit of this wire to screw 17, and finally back through prong 16. Any lamp or lamps attached in the circuit between the screws 36 and 17 will then be lighted. When the thermostatic element cools the contact points will separate and the current, instead of flowing

through the lamps will again flow through the resistance wire 33, thus extinguishing the lamps.

If the prongs of an attachment plug are inserted through the openings 13 and 14 so that they contact with the blades 21 and 26, a current will, whenever the contact points 38 and 39 are in contact with each other, flow through prong 22, arm 28, contact points 39 and 38, thermostatic element 27, eyelet 30, blade 26, thence through the circuit or circuits connected to the attachment plug inserted in the device and back through blade 21 to prong 16. Another current will simultaneously flow through the circuit attached to the screws 17 and 36 as previously explained. In other words, all lamps connected in circuits to the blades 21 and 26, as well as to the screws 17 and 36 will then be lighted. When the contact points are again separated, by the action of the thermostatic element, all these lamps will be extinguished.

From the foregoing it will be seen that the device comprises a simple means whereby one or more lamps connected permanently to the device may be flashed; and by means of which additional circuits of lamps may be flashed simultaneously by connecting them to the blades 21 and 26. It will also be noted that the attachment plug may be inserted in the device without interfering with the wires permanently attached to it, as these are contained in the groove 11.

Having described my invention and its purposes, what I claim as new and wish to protect by Letters Patent is:

1. In a device of the class described, an insulating housing, a disc secured in said housing, a pair of spaced contact prongs secured on said disc, a terminal screw associated with one of said prongs, a bracket having another terminal screw, a thermostatic current interrupter, said bracket electrically connected to the other prong through said thermostatic current interrupter, and an opening formed in the housing through which a pair of wires may be passed to be permanently attached to said terminal screws.

2. In a device of the class described, an insulating housing, a disc inserted in said housing, a pair of spaced contact prongs secured on said disc, said prongs having flexible anchors for securing the disc in the housing, a terminal screw associated with one of said prongs, a bracket having another terminal screw, a thermostatic current interrupter, said bracket electrically connected to the other prong through said thermostatic current interrupter, and an opening formed in the housing through which a pair of wires may be passed to be permanently attached to said terminal screws.

3. In a device of the class described, an insulating housing, a disc secured in said housing, a pair of spaced contact prongs secured on said disc, a terminal screw associated with one of said prongs, a bracket having another terminal screw, a thermostatic current interrupter, said bracket electrically connected to the other prong through said thermostatic current interrupter, an opening formed in the housing through which a pair of wires may be passed to be permanently attached to said terminal screws, a contact blade associated with the prong having the terminal screw, another contact blade associated with the bracket, and openings formed in the face of the housing through which the prongs of an attachment plug may be inserted to engage with said contact blades.

4. In a device of the class described, an insulating housing, a disc secured in said housing, a pair of spaced contact prongs secured on said disc, a terminal screw associated with one of said prongs, a bracket having another terminal screw, a thermostatic current interrupter, said bracket electrically connected to the other prong through said thermostatic current interrupter, an opening formed in the housing through which a pair of wires may be passed to be permanently attached to said terminal screws, a contact blade associated with the prong having the terminal screw, another contact blade associated with the bracket, an opening formed in the face of the housing through which the prongs of an attachment plug may be inserted to engage with said contact blades, and all of said parts being attachable to the said disc prior to its insertion in the housing.

5. In a device of the class described, an insulating housing, a disc secured in said housing, a pair of spaced contact prongs secured on said disc, a terminal screw associated with one of said prongs, a bracket having another terminal screw, a thermostatic current interrupter, said bracket electrically connected to the other prong through said thermostatic current interrupter, an opening formed in the housing through which a pair of wires may be passed to be permanently attached to said terminal screws, a contact blade associated with the prong having the terminal screw, another contact blade associated with the bracket, openings formed in the face of the housing through which the prongs of an attachment plug may be inserted to engage with said contact blades, and a groove formed across the face of the housing in which the permanently attached wires are contained so as to prevent them from interfering with the insertion of an attachment plug in the face.

6. An insulating housing, a pair of spaced contact prongs secured thereto, a terminal screw associated with one of said prongs, a bracket having another terminal screw, a thermostatic current interrupter, said bracket connected to the other prong through said thermostatic current interrupter, an opening formed in the housing through which a pair of conductors may be passed to be permanently attached to said terminal screws, a contact blade associated with the prong having the terminal screw, another contact blade associated with the bracket, openings formed in the face of the housing through which the prongs of an attachment plug may be inserted to engage with said contact blades.

7. In a device of the class described, an insulating housing, a disk secured in said housing, a pair of spaced contact prongs secured on said disk, a terminal screw associated with one of said prongs, a bracket having another terminal screw, a thermostatic current interrupter, said bracket electrically connected to the other prong through the said thermostatic current interrupter, an opening formed in the housing through which a pair of wires may be passed to be permanently attached to said terminal screws, a contact blade associated with the prong having a terminal screw, another contact blade associated with the bracket, openings formed in the face of the housing through which prongs of an attachment plug may be inserted to engage with said contact blades, and all of said screws, prongs and blades connected with the current interrupter so as to flash all lamps contained in all of the circuits when the device is connected with an outlet carrying a current.

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