May 3, 1932. L. LUDWIG 1,856,878

ELECTRIC CURRENT INTERRUPTER

Filed Nov. 3, 1930

Fig 1

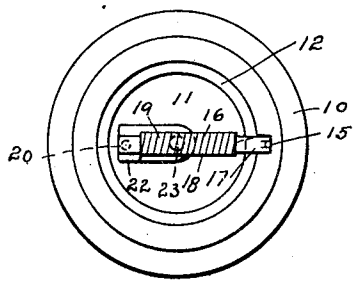


Fig 3

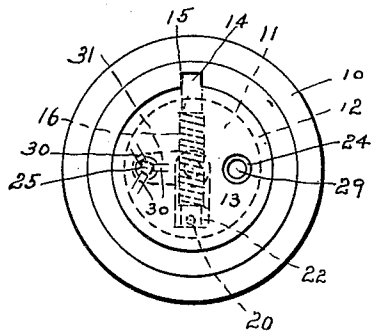


Fig 2

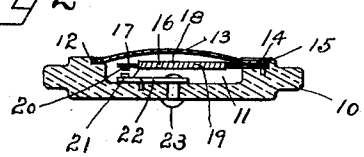


Fig 4

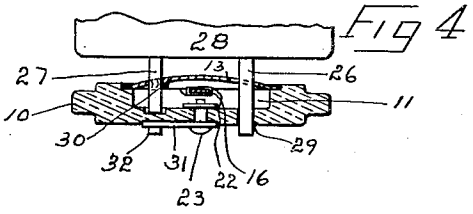
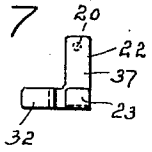
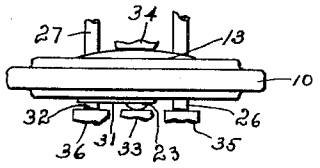


Fig 7





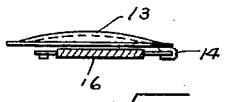


Fig 8

Fig 5

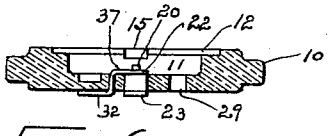


Fig 6

INVENTOR.

Louis Ludwig

BY Henrik J. Schmidt

ATTORNEY.

Patented May 3, 1932 1,856,878

UNITED STATES PATENT OFFICE

LOUIS LUDWIG, OF BROOKLYN, NEW YORK

ELECTRIC CURRENT INTERRUPTER

Application filed November 3, 1930. Serial No. 492,996.

The invention relates to interrupters of the type which is inserted in a lamp socket and which causes the current in the lamp, or other device inserted in the socket, to be interrupted at regular intervals. It has for one object to provide a device of very simple construction, consisting of few parts which are in expensive to manufacture and easy to assemble. Another object is to provide an interrupter which may be used in either the screw type socket or in the so-called bayonet-joint socket. A further object is to so construct the device that the bi-metallic element employed therein is neither bent or otherwise distorted, thereby assuring greater accuracy of operation.

These and other objects and advantages will be readily understood from the accompanying drawings of certain preferred embodiments in which, however, certain modifications might be made without departing from the scope of the invention. In the drawings

Fig. 1 is a plan view of one embodiment of the improved interrupter shown with the contact cover removed,

Fig. 2 is a cross-sectional side view of same,

Fig. 3 is a plan view of another embodiment of the interrupter,

Fig. 4 is a cross-sectional side view of same,

Fig. 5 is a side elevation of the interrupter shown in Figs. 3 and 4 and illustrating its dual utility, and

Figs. 6, 7 and 8 show certain modifications of various details of the interrupter.

Referring first to Figs. 1 and 2, the device consists of an insulating body member 10 which is preferably disc shaped and which is moulded with a circular recess 11. A concentric groove 12 is formed at the top edge of the recess and in this a dome-shaped, metal cover 13 is tightly secured. A tongue 14 is formed on the cover and fits in a seat 15 moulded in the body member. A thermostatic element 16 is contained within the recess and held securely in the seat 15 by the tongue 14. It consists of a flat, narrow, bi-metallic strip 17 which is partly covered with asbestos, or other heat and electric insulating material 18, upon which a resistance wire 19 is wound. A contact point 20 is attached to the free end of the strip 17. It co-acts with a contact point 21 which is secured in one end of a metal connector 22. This connector is secured in the bottom of the recess by means of an eyelet or rivet 23. One end of the resistance wire is connected to the tongue 14 while the other end is connected to the connector 22.

The size of the device is such that it will fit inside and be centered in a standard, electric, lamp socket. When it is placed in such a socket and a lamp is inserted, the head of the rivet 23 engages with the center contact of the socket while the cover engages with the center contact of the lamp. When a current is turned on it will flow through the rivet 23, connector 22, resistance wire 19, cover 13, and hence through the lamp.

The heat given off by the resistance wire causes the bi-metallic strip to curve until the contacts 20 and 21 touch, after which the current is shorted through the bi-metallic strip. When the resistance wire cools the strip straightens out and the current is again switched through the wire. It is evident that the light in the lamp is dimmed while the current flows through the resistance wire and bright while flowing through the metal strip. According to the dimensions of the bi-metallic strip and the amount of resistance in the wire employed, the interruptions will be more or less frequent and of longer or shorter durations.

In the device shown in Figs. 3, 4 and 5, provisions have been made so that it may be employed not only in screw type sockets but in bayonet-joint sockets as well. To accomplish this the cover is provided with two openings 24 and 25 through which the prongs 26 and 27, of a bayonet-joint socket 28, may pass. A hole 29 is also provided in the bottom of the recess 11. While the hole 29 is of just sufficient size to allow the prong 26 to slide therein, the hole 24 is made large enough to prevent any contact between the prong and the cover.

The opening 25 is made by stamping and forming a plurality of contact springs 30 which, while firmly engaging with the prong 27, still allows it to slide between them. The

prong 27 does not pass through the body member but stops against the bottom of the recess 11. A metal connector 31 is secured by the rivet 23 in such a position that a stud 32 secured on the end thereof is exactly located in the place where the end of the prong 27 would be if it passed through the body member.

In this embodiment the current passes through stud 32, connector 31, rivet 23, connector 21, resistance wire 19, cover 13, springs 30 and hence through the prong 27 and the lamp. The action of the thermostatic element is the same as previously explained.

Fig. 5 illustrates how the device may be used in either type of socket. When used in the screw-type socket, the rivet 23 engages on the socket contact 33 while the cover 13 engages with the lamp contact 34. When used in the bayonet socket, the prong 26 engages on the socket contact 35 while the stud 32 engages on the socket contact 36. As the springs 30 exert a certain amount of friction on the prong 27 and as the prong 26 fits fairly tight in the hole 29, the interrupter may be attached on the lamp before this is inserted in the socket. This is a distinct advantage as it is difficult to align the parts if the interrupter is first inserted in the socket.

In Figs. 6, 7 and 8 modifications of construction are shown. In this case a single member 37 has been substituted for the connector 22, rivet 23, connector 31 and stud 32. This member is moulded in the body member. Its corresponding parts have been numbered as in the other views and its shape is plainly shown in Figs. 6 and 7, Fig. 6 showing a side view of the member moulded in the body member and Fig. 7 showing a bottom view of the member itself. In Fig. 8, the tongue 14 on the cover 13 has been made longer and bent in a U shape. The thermostatic element is securely clamped in this bend.

From the foregoing it will be seen that I have provided a device of the simplest construction which can be employed in either of the sockets mentioned, and in which the bimetallic member is not bent or otherwise distorted. This is important, because, when such is the case, the metal must be specially heat treated or its action will not be permanently reliable.

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

1. A current interrupting device comprising an insulating body member insertable in an electric lamp socket, a recess formed in one face of said body member, a cover secured over said recess and constituting one terminal of the device, a thermostatically-operated switch lever secured under and electrically connected with said cover, and a co-acting switch member secured in the bottom of the recess and having means which extend through the bottom wall of the recess and which constitutes the other terminal of the device.

2. A current interrupting device comprising an insulating body member insertable in an electric lamp socket, a recess formed in one face of said body member, a cover which forms one terminal of the device secured over said recess, a thermostatically-operated switch lever secured to and electrically connected with said cover, and a co-acting switch member partly contained in the bottom of the recess and partly extending through the bottom wall of same to form the other terminal.

3. A current interrupting device comprising an insulating body member insertable in a bayonet-joint lamp socket, a recess formed in one side of said body member, a metal cover secured over said recess, a thermostatically-operated switch lever secured by and electrically connected with said cover, a co-acting switch member secured in the recess and having a connecting member extending through the bottom wall of the recess to contact with one terminal of the socket in which the device is inserted, an opening formed in said cover through which one prong of the lamp to be inserted in the socket will pass while being electrically connected with the cover, and aligned openings formed in the cover and the body member through which the other prong of such lamp will pass without contacting with the cover.

4. A current interrupter comprising an insulating body member insertable in a bayonet-joint lamp socket, a recess formed in one side of said body member, a metal cover secured over said recess, a thermostatically-operated switch lever secured under said cover and electrically connected therewith, a co-acting switch member secured in the recess and having a connecting member extending through the bottom wall of the recess to contact with one terminal of the socket in which the device is employed, an opening formed in said cover through which one prong of the lamp to be used in the socket will pass, resilient members associated with said opening for providing slideable electrical contact between said prong and the cover, and aligned openings formed in the cover and the body member through which the other prong of such lamp may pass without contacting with the cover.

5. A current interrupter comprising an insulating body member containable in a bayonet-joint lamp socket, a recess formed in one side of said body member, a metal cover secured over said recess, a thermostatically-operated switch lever secured under said cover and electrically connected therewith, a co-acting switch member secured in the recess and having a connecting member extending through the bottom wall of the recess to con-

tact with one terminal of the socket in which the device is employed, an opening formed in said cover through which one prong of the lamp to be used in the socket will pass, resilient members associated with said opening for providing slideable electrical contact between said prong and said cover, aligned openings formed in the cover and the body member through which the other prong of such lamp may pass without contacting with the cover, and said resilient members and the opening in the body member constituting means whereby the device may be frictionally held on the said prongs prior to their insertion in the socket.

6. A current interrupter comprising an insulating body member insertable in a lamp socket, a recess formed in said body member, a cover secured over said recess and forming one contact for engagement with the center terminal of a lamp inserted in the socket, a thermostatically-operated switch lever secured to and electrically connected with said cover, a co-acting switch member secured in the recess, said switch member having one contact extending through the center of the bottom wall of the recess for engagement with the center terminal of a screw-type socket and another contact extending through said wall to one side of the first-mentioned contact for engagement with one of the terminals of a bayonet-joint socket, aligned openings formed in the cover and body member through which one prong of a bayonet-joint lamp may pass without contacting with the cover, and an opening formed in the cover through which the second prong of such lamp may pass while electrically contacting with the cover.

LOUIS LUDWIG.