R. M. LEVY.

INCANDESCENT LAMP SOCKET.

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1,190,308.

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Fig. 1.

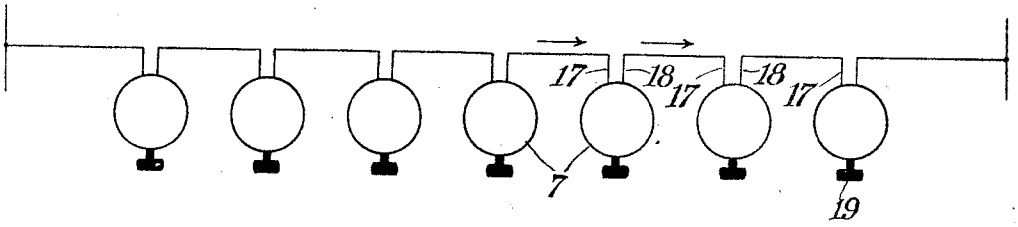


Fig. 2.

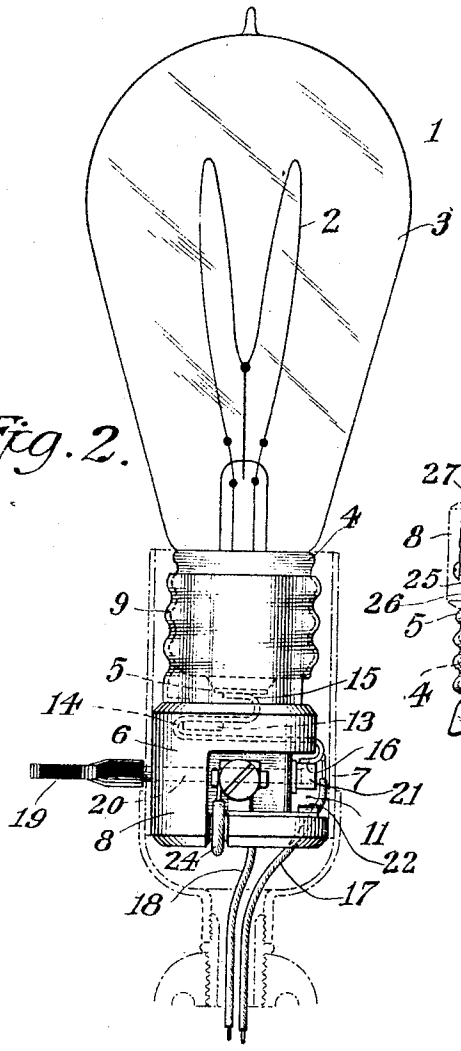


Fig. 4.

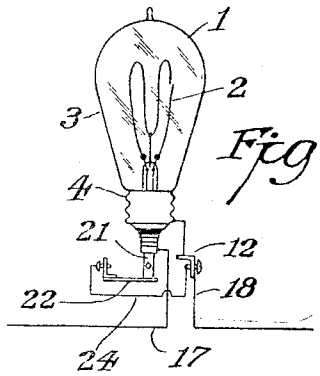


Fig. 5.

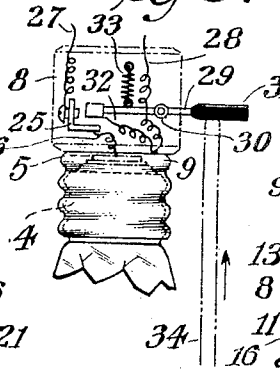
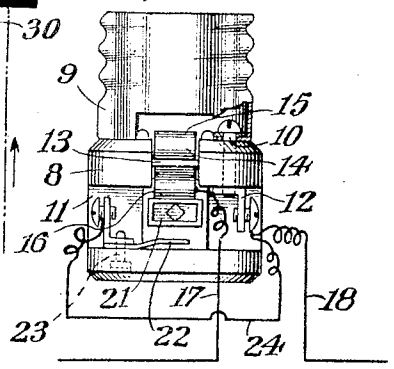


Fig. 3.



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INCANDESCENT-LAMP SOCKET.

1,190,308. Specification of Letters Patent. Patented July 11, 1916.

Application filed November 24, 1914. Serial No. 873,672.

To all whom it may concern:

Be it known that I, REGINALD M. LEVY, a citizen of Australia, and a resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Incandescent-Lamp Sockets, of which the following is a full, clear, and exact specification.

My invention relates to incandescent electric lamp sockets and has for its object the devising of means for an expeditious way of detecting a break in the circuit of a number of lamps connected in series which is caused by a defective lamp or one that is disconnected from its socket.

Referring to the drawings forming part of this specification Figure 1 is a diagrammatical view of a number of incandescent lamps connected in series. Fig. 2 is an elevational view of an incandescent lamp and socket with the outer casing of the socket shown in dotted outline. Fig. 3 is an elevational view of the socket shown at right angles to Fig. 2. Fig. 4 is a diagrammatical view of Fig. 2 showing the manner of connecting the conducting wires to the socket, and Fig. 5 is a modified form of the socket.

It is a usual method in many incandescent lighting systems to connect a number of the lamps in series and to place these in parallel with the feed wires so that a greater potential may be used between the feed wires with a corresponding saving in the cost of the copper used for the wires. Often five such lamps are connected in series. In the present embodiment (Fig. 1) seven are shown for the purpose of illustration only, the invention being of course limited to no definite number. Such methods of arranging the lamps have the objection however that when for any reason one lamp does not light, it results in preventing all the other lamps of the particular series from lighting. When this occurs it has been necessary to examine each lamp separately to ascertain which of the lamps is the cause of the set not lighting. The cause may be either from a broken filament of the lamp, or a lamp that is loose in its socket, either of which results in breaking the circuit through the set of lamps. In inspecting the lamps to ascertain the cause it is evident that if a lamp is found loose in its socket it may be tightened to cause the necessary electrical contact and the fault thereby remedied. It is however often difficult to ascertain a broken filament and the usual practice is to entirely unscrew the lamp from the socket and replace it by another lamp. If the replacing lamp causes the series to light it is manifest that the trouble was caused by the replaced lamp. It cannot be expected however that the first lamp tried out would be the defective lamp and it often necessitates several lamps or even the entire series being replaced before the trouble is located. This requires the expenditure of considerable time and trouble, and it is the object of this invention to provide means for more readily ascertaining the particular lamp causing the trouble.

The essential of my invention is to provide means for short-circuiting the feed wires of each lamp so that the current may pass through the short circuit instead of the filament constituting the lamp. As soon as the short circuit is made in the defective lamp it is evident that the current will pass through the other lamps of the entire set causing them to light thus revealing the defective lamp which may be replaced by another lamp, thereby obviating the removal of each lamp until the trouble has been located, as was the former practice, as has already been described. It is obvious that many mechanisms may be contrived for accomplishing this short circuiting and in this specification I have shown only two such constructions.

In the drawings, 1 represents the incandescent lamp which is of usual construction and comprises the filament 2, glass bulb 3, the threaded base 4 and the metallic terminal 5. This is insulated from the threaded base 4 and one of the ends of the filament 2 is connected to it while the other end is connected to the base 4, all in the usual and well known way and for this reason such connections are not shown here. The socket 6 is incased by the usual shell 7 and comprises a body portion 8 of porcelain or other non-conducting material, and a metallic threaded socket 9 for receiving the threaded base of the lamp in the usual manner.

Referring more particularly to Figs. 1 to 4 inclusive, the socket is flanged inwardly and secured to the base by screws, one of which is shown at 10. The base is formed with a U-shaped channel 11 and the particular screw shown is extended down into

this channel and screwed into a binding post 12 thereby making metallic contact with the socket. A bar 13 is secured in the porcelain base 6 and has secured to it a strip of folded metal 14. The upper end of this strip is free and folded over at 15 and normally projects upwardly into the path of the metal terminal 5 as it descends downward when the lamp is screwed into the socket. The fold 15 yields when in contact with the terminal 5 as the latter is being screwed downward and thereby makes a firm electrical contact therewith. The lower end of the strip of folded metal 14 is folded over and is at considerable distance from the bar 13 to form a spring contact 16. A lead wire 17 is electrically connected to this strip of folded metal 14 in any convenient manner and the other lead wire 18 is connected to the binding post 12. By these connections it will be evident that a circuit is formed through the filament of the lamp, that is to say, the current passes through the wire 17, the strip of folded metal 14, the terminal 5, the side of the filament connected therewith, and then through the filament to the opposite end and to the threaded base 4 which is connected to said opposite end of the filament, then through the threaded socket 9, screw 10, binding post 12, and finally out at the wire 18.

A turn-button 19 is provided at one side of the socket and has a shaft 20 extending therefrom, through the socket and projecting into the U-shaped channel 11. The shaft has a cross-bar 21 secured to this end which preferably is placed in the same plane as the turn-button 19. A spring contact 22 is secured to the porcelain base as by means of the screw 23 and has a free end in the path of the bar 21. When this bar is turned as shown at Fig. 2, that is to say, transversely to the lamp the contact is broken between the said spring contacts 16 and 22, and when it is turned at right angles to this position as shown in Fig. 4, it crowds in between the spring contacts 16 and 17 and makes contact therebetween, simultaneously forcing the former upwardly and the latter downwardly to insure firm metallic contact through the three members, 16, 21 and 22. A wire 24 is connected at its opposite ends to the binding posts 12 and 22 respectively to form the short circuit when the bar 21 is turned to make the electrical contact between the contacts 16 and 22.

In testing out the series of lamps shown in Fig. 1 it will only be necessary to turn the respective buttons 19 until the defective lamp is finally reached. The current which has been interrupted by the defect existing in the particular lamp will then flow through the corresponding wire 17, the strip of folded metal 14, the bar 21, spring terminal 22, short circuiting wire 24, binding post 12 and then out through the wire 18 to the next lamp thereby producing a continuous circuit, enabling the remaining lamps to light.

Fig. 5 shows a modified construction in which 25 represents a binding post to which is connected a wire 26 for forming electrical contact with the terminal 5 of the lamp, one of the lead wires 27 is connected to this binding post 25 and the other lead wire 28 is connected to the socket 9 in the usual manner. A lever 29 is pivoted in the porcelain base 8 by pivot pin 30. Its outer end projects beyond the lamp socket and is provided with a head 31. The inner end is connected to the lamp socket by means of the wire 32 and is held in upward position by the tension spring 33. The inner end of this lever extends above the binding post 25 and when this end is swung downwardly against the tension of spring 33 it contacts with the binding post to short circuit the lamp. The current in such an instance flows through the wire 27, binding post 25, wire 32 and wire 28. This construction is convenient in instances where the lamps are located in the ceilings somewhat out of reach for in such cases all that is necessary is to use a rod as shown at 34 when trying out the lamps of the series. The rod may be brought under and in contact with the head 31 and raised upwardly to tilt the lever until the short circuit is formed. If the lamp being tried out is not found to be the defective one the operator lowers the rod 34 thereby releasing the lever which automatically returns to its normal open position. It is necessary that the short circuit be broken in each instance before another one is made and while this is accomplished automatically, in this embodiment it is necessary that care be taken in the previously described construction to turn each button to break its contact before another button is turned to make contact. For if too many short circuits are made simultaneously and the circuit is finally closed it is evident the potential may be greater than the lamps can withstand with attending burning out of the fuse or opening of a switch. To prevent this the short circuit wires 32 and 24 may be of sufficient resistance to equal that of the filament which is short circuited.

Having thus described my invention I claim—

1. In an incandescent lamp socket a pair of electrical terminals adapted to be connected with terminals of the lamp and controllable means for short-circuiting the terminals of the socket comprising a contact member in electrical contact with one terminal and a lever in electrical contact with the other terminal, said lever being adapted to make electrical contact with the first contact member to short-circuit the terminals when manually controlled and to automati-

cally break contact when the manual control is released.

2. In an incandescent lamp socket a pair of electrical terminals adapted to be connected with terminals of the lamp, an electrical conductor permanently secured to one of said terminals, and manually controllable means for bringing said conductor into electrical contact with the other terminal for short-circuiting said terminals said means being adapted to break contact simultaneously with the releasing of the manual control.

3. A system of incandescent lamp sockets connected in series and means at each socket for short-circuiting it comprising a contact member in electrical contact with one terminal and a lever in electrical contact with the other terminal, said lever being adapted to make electrical contact with the first contact member to short-circuit the terminals when manually controlled and to automatically break contact when the manual control is released.

This specification signed and witnessed this 2nd day of November, 1914.

REGINALD M. LEVY.

Witnesses:

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