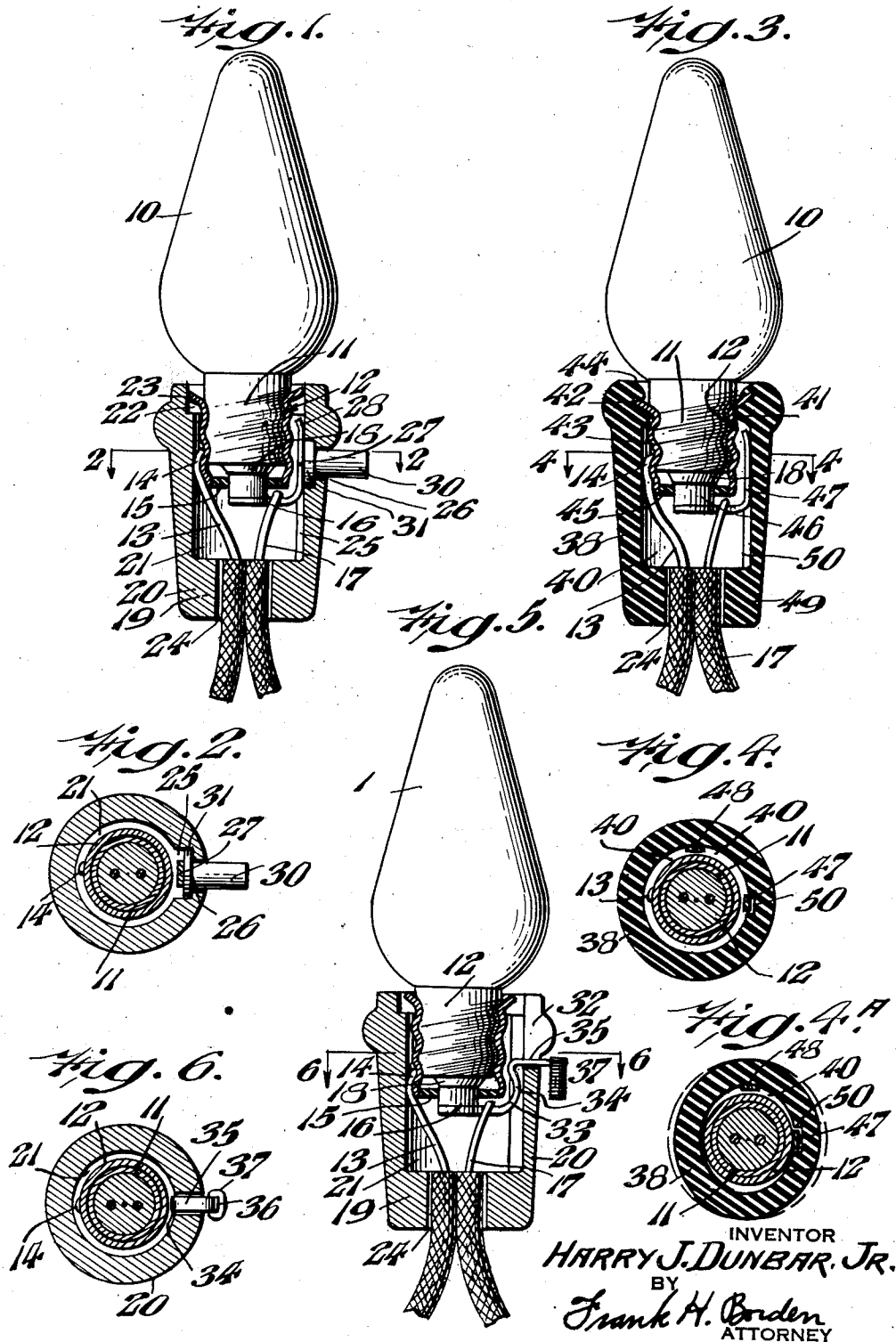


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ELECTRIC LIGHT SOCKET

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ELECTRIC LIGHT SOCKET

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2 Claims. (Cl. 173-346)

This invention relates to electric light sockets, pertaining particularly to electric lamp sockets of a series, such as Christmas tree lights.

Although it has been proposed heretofore to provide electric lamp sockets with contact means arranged to be selectively actuated to short circuit a given socket in order to locate a burned out or unseated electric lamp of a series, yet in every instance with which I am familiar, manufacturing costs of such devices has been so high as to be prohibitive, and other disadvantages had attached, with a consequent failure of the devices to attain any commercial success.

It is among the objects of this invention to provide an electric lamp socket of extreme simplicity and of low manufacturing costs; to provide an electric lamp socket with means operable by pressure laterally of the socket to short circuit the current below the bulb; to provide a Christmas tree lamp socket which is superficially of conventional construction and which is arranged to respond to manual pressure to complete the circuit through the socket to locate a faulty bulb or lamp. Many other objects and advantages will become more apparent as the description proceeds.

In the accompanying drawing:

Fig. 1 represents a vertical section partially in full lines through one form of the invention,

Fig. 2 represents a horizontal section there-through,

Fig. 3 represents a vertical section through a simplified modified form of the invention in which the socket member is of resilient construction,

Fig. 4 represents a horizontal section there-through,

Fig. 4A represents the horizontal section of Fig. 4 with opposite sides compressed to show the disposition of parts during the short circuit of the socket.

Fig. 5 represents a vertical section partially in full lines through a still further modified form of the invention, and

Fig. 6 represents a transverse section thereof.

As is well known in this art the lamp bulb 10 having the threaded shank 11 is threaded into a spun brass or similar metallic threaded sleeve or cylinder 12, to a portion of which a lead-in circuit wire 13 is soldered or otherwise connected as at 14. The socket 12 includes an insulating end plate 15 of some material such as "bakelite", having an axial rivet or contact device 16 to which the other circuit wire 17 is electrically connected as by soldering. The axial contact

or rivet 16 is disposed to be engaged by the axial prolongation or terminal 18 of the electric light bulb 10. Normally the electrical instrumentalities just described are disposed in a rigid insulating base casing or housing 20 having the axial bore 21 and an inner peripheral recess 22 into which the open mouth of the brass socket or cylinder 12 is spun as at 23 in order to anchor the parts together. Such sockets customarily having an axial bore 24 in the end wall 19 in which the circuit wires 13 and 17 are disposed.

In the form of invention shown in Fig. 1 the socket member 20 has a vertical channel 25 and a lateral bore 26 in communication therewith. A lateral resilient contact arm 27 in electrical connection with the axial contact 16, upon which, preferably, it is mounted, and with which it may be integral has an upwardly extending end 28 terminating opposite the threaded sleeve or socket but in spaced and air insulated relation thereto.

It will be understood that the lamp 10 of Fig. 1 is one of a series in the circuit of Christmas tree or similar lamps in series and that for test purposes, if the circuit of the series has been interrupted so that the lamps are extinguished, lateral pressure upon the contact arm 27 to move it to electrical engagement with the metallic socket 12 will short-circuit the current passing through lead wires 13 and 17 so as to complete the circuit through the series if it is otherwise properly closed, in the event the lamp 10 of the instant socket has been unable to close the circuit.

In the form of invention shown in Fig. 1 a sliding pin or button 30 having inwardly an enlarged head 31 to prevent it from moving outwardly of the socket, is disposed slidably in the lateral bore 26 in position to be engaged and actuated by the operator's finger to engage and move the contact arm 27 for short-circuiting purposes. It will be clear that it is the work of but an instant to press successively each of the plungers or pins 30 of a series with a very quick determination and location of the faulty lamp. It will be clear that the provision of a circuit closer in the socket as just described obviates the necessity of successively unscrewing and removing each suspected lamp and its replacement by another presumed to be in working condition, to secure the same results as the simple circuit closing just described.

A modification of the device in Fig. 1 is shown by Fig. 5, which differs from the disclosure of Fig. 1

1 in the omission of separate pin or button 30 and the substitution of an integral extension of the flexible contact to serve as its own handle. Specifically the socket 20 of Fig. 5 is the same in all essential respects as the socket 20 of Fig. 1 except that the bore 26 of the latter is replaced by a vertical slot 32 extending axially of the socket through the wall thereof. The metallic threaded socket 12, axial contact 16 and the wires 13 and 17 are identical, but the contact element or resilient arm 33 connected to or integral with the axial rivet 16 has a substantially vertical portion 34 arising beside the metallic socket, merging into the radially extending portion 35 having, preferably, the depending shank or handle 36 which may be covered or coated with an insulating material such for instance as rubber, "bakelite", etc., to form a handle 37 as shown. It will be clear that in this modification lateral pressure upon handle 37 will push or urge the vertical portion 34 into contact with the metallic sleeve to short-circuit the current through the base or socket as in the device of Fig. 1.

While the forms of invention described and disclosed in Figs. 1 and 5 are simple and inexpensive to manufacture, there is still a simpler and preferred form contemplated in this invention. Specifically referring to Figs. 3 and 4 the socket element or housing 38 is formed of live resilient rubber or the like so as to form a chamber 40, the walls of which are deformable under lateral pressure externally of the casing. Preferably rubber casing 38 has an inward curved lip or expansible internal bead 41 upon which the lower portion of the outwardly flared flange 42 of the metallic socket 43 is arranged to rest and an overhanging shoulder or expansible bead 44 is provided to snap over the upper portion of the flared flange 42 to engage the flange between the two shoulders and to hold the socket against either rotation or undesired retraction in the flexible casing after the socket has been forced or pushed inwardly to proper seating. To further this end the edge of the flared flange 42 may be serrated or notched to facilitate frictional engagement. It is preferred that the chamber 40 be of greater diameter than the diameter of the metallic socket member 43 so as to afford clearance for the contact members to be described. The insulating base element 45 of the socket carries an axial contact 46 and also carries the pair, preferably, of contact arms respectively 47 and 48 preferably disposed at 90° to each other relative to the central axis and preferably disposed so as to flare outwardly to substantially engage the inner walls of the rubber housing 38, or in a groove 50 disclosed, in insulated relation to the metallic socket 43. The rubber housing will have the conventional end wall 49. Lateral pressure on the yielding casing will secure the desired circuit closing.

It will be clear that the cost of manufacture of this rubber form both in materials and in the

labor of assembling will be a very minimum and it will be obvious that when properly assembled there will be no external manifestation of the switching or short-circuit characteristics of the socket, there will be no lateral projections to catch upon wires or other objects, and the utmost in simplicity will have been achieved. The advantage of the pair of contacts 47 and 48 will be obvious as it will be clear that squeezing pressure between the thumb and fore-finger, for instance, will almost certainly subject one or the other of the contacts to such inward compression as to short-circuit the socket. The same wires 13 and 17 connected in the same manner are provided for this socket as in the other forms. It will be clear that there may be a greater number of the contact arms 47 and 48 than the two disclosed or they may be single arms. It will be understood that in the ordinary case it will not be necessary to provide longitudinal internal grooves as the rubber walls are considered sufficiently flexible and resilient as to permit squeezing contact to be effective. As shown at 50, however, a form groove may be provided in which the contact arms or either or both of them may be disposed, as the number of grooves is varied. This will assist in preventing undesired rotation of the socket.

The advantages of the invention are thought to be obvious as will be the fact that the desirable results sought are achieved at a minimum of cost.

I claim:

1. In lamp sockets, a threaded tubular metallic lamp receiving element, an axial contact mounted in the element and insulated therefrom, a pair of contact arms electrically connected to the axial contact having each a portion adjacent the element, said arms being peripherally spaced relative to the element, said socket including a rubber housing having a chamber surrounding said element and arms and arranged to be compressed inwardly by manual pressure, said contact arms being so spaced as to be actuated by such compressing movement to establish electrical contact with said element.

2. A socket for electric light bulbs, comprising a metallic shell having threads to receive a bulb, an externally axially symmetrical deformable housing having an axial opening in one end to receive the shell as the only opening at or near said end, means engaging the shell and housing to maintain coaxial centered relation of the shell and housing, connectors extending through the wall of the housing to electrical engagement with relatively insulated parts of said shell, a resilient arm insulatedly mounted on said shell in electrical engagement with one of said connectors and terminating axially inwardly from the means engaging the shell and housing so as to be disposed within and completely concealed by the housing, said housing and resilient arm so disposed internally below said means as to enable pressure on the housing walls to move said arm into contact with said shell to short circuit the connectors.

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