June 2, 1931. R. ECKSTEIN 1,807,588

ELECTRICAL SOCKET

Filed Aug. 27, 1927

Fig. 1

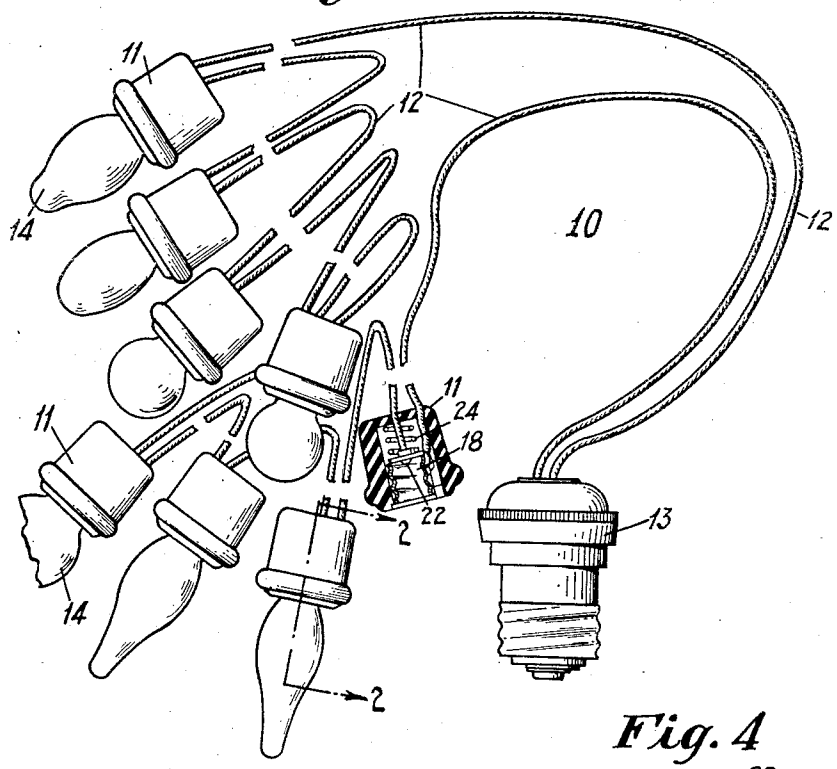


Fig. 4

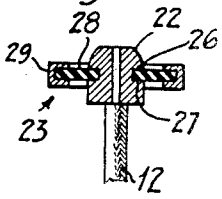


Fig. 2

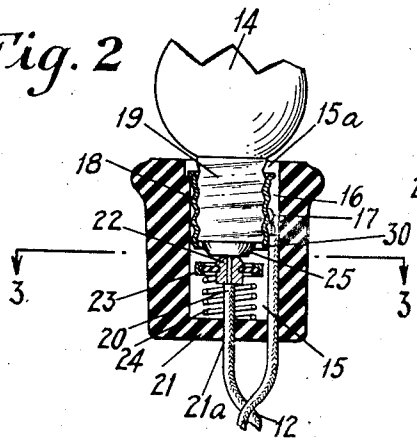
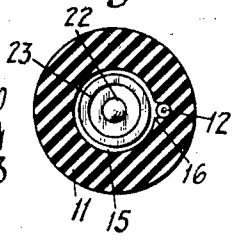


Fig. 3



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UNITED STATES PATENT OFFICE

REUBEN ECKSTEIN, OF NEW YORK, N. Y.

ELECTRICAL SOCKET

Application filed August 27, 1927. Serial No. 215,831.

This invention relates to an improvement in electrical sockets and more particularly to the type of socket used in mounting the miniature bulbs of Christmas tree lighting outfits and the like decorative devices.

The object of the invention is to provide in a combination of the type wherein a number of lamp sockets are connected in series for association with a power source, a means whereby it is possible to test the lamps without removing them from their respective sockets.

It is a further object of the invention to provide means permitting testing any lamp of the Christmas tree lighting outfit without the danger of burning out any of the other lamps which may be retained in circuit, during the testing operation.

It is a further object to present a new and improved lamp socket for Christmas tree lighting outfits in which a short-circuiting element is provided having means for preventing the increase of applied voltage on the other lamps of the series.

An additional object is to provide in a lamp socket a short-circuiting means having a simplified resistance unit ordinarily placed in circuit whenever a lamp is removed from its socket.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the following claims.

In the accompanying drawings, in which is shown one of the various possible illustrative embodiments of this invention,

Fig. 1 is a view showing a number of lamps mounted in an arrangement of sockets connected in series in an assembly of the character ordinarily used for Christmas tree lighting, and showing one of the sockets broken away to disclose the invention in short-circuiting position.

Fig. 2 is a longitudinal cross-sectional view along line 2—2 of Fig. 1 disclosing the short-circuiting device in inoperative position, as when a bulb has been inserted into the socket.

Fig. 3 is a cross-sectional view on line 3—3 showing the invention in plan.

Fig. 4 is an enlarged sectional view of the short circuiting element.

On the drawings, 10 indicates an assembly of sockets 11 connected by the conductor 12 in series with each other and the connector plug 13, said plug 13 being adapted to be inserted into a socket (not shown) having connection, in turn, with a source of power for lighting the lamps 14 mounted in said sockets 11. The latter may be formed of any suitable well known non-conducting material. Each socket is provided with a cylindrical recess 15 providing the opening 15*a*, and having a groove 16 formed in a wall thereof for receiving one end 17 of a conductor wire 12, this end 17 being fixedly secured to a screw-bushing 18 which may be either molded into or otherwise secured to socket 11. Said bushing 18 provides means for the reception of the screw end 19 of lamp 14, said screw end constituting one electrical contact for said lamps.

An end 20 of a conductor 12 passes into recess 15 in socket 11 through opening 21*a* in the end wall 21 of said recess, and is attached to a contact member 22 having secured thereto a disc 23 against which spring 24 retained in said recess by wall 21 normally presses to force contact member 22 into electrical contact with the projection 25 on lamp 14 which constitutes the other electrical connection for said lamp. The disc 23, as shown in Fig. 4, may be retained on contact member 22 by heading over the member 22 as at 26 to retain the disc against the shoulder 27 on the member 22.

The disc 23 comprises an insulating plate 28 around the edges of which is secured the annular metallic ring 29 so positioned with respect to member 22 and screw bushing 18 that, when the lamp 14 is withdrawn from screw bushing 18, the metallic ring will contact with the rim 30 of the bushing 18. The insulating plate 28 may be provided with a

conducting medium there across which may be so regulated in its application that a resistance is obtained approximately that of a lamp unit 14; the adjustment being carried out by the application of carbon or lamp black or the like to a fibrous insulating disc, or by immersion of such disc into a colloidal solution or suspension of such materials, the proportion of the materials being such as to deposit in the fibres of the disc sufficient conducting material to allow the circuit to be maintained across the disc, yet placing in that circuit a resistance approximately that of lamp 14. Another method for making up such resistance units may be carried out by depositing on the insulating plate 28 metallic salts which are effected by light, and then by any known photographic process, the salts changed to deposit a metallic film on the plate, the amount of deposit being controllable by the time of exposure so that amount of metal deposited and therefore the resistance of the plate may thereby be fixed at any known quantity.

Since the head 26 and the shoulder 27 are brought into direct contact with the plate 28 and the metallic ring 29 likewise has a direct contact therewith, an efficient electrical connection is made thereacross so that, when a bulb 14 is removed from the bushing 18, the circuit at the socket will still be maintained but, due to the resistance of plate 28, the voltage as applied to any other one or more of the lamps in the circuit will not be increased; thus avoiding injury to the remaining bulbs during a testing operation or by accidental removal of a bulb while power is applied and contributing to the long life of such devices.

It is easily seen that if anyone lamp 14 burns out, or in any other manner, becomes defective, the series circuit of conductor 12 and connector plug 13 will be broken at that lamp. Then, by partially screwing out the end 19 from socket 11, ring 29 will be brought into contact with the rim 30 of screw bushing 18 and the circuit completed between the two conductor ends 17 and 20 at that socket. If the defective lamp in the circuit be the lamp 14 which has thus been disconnected, the other lamps will immediately light up, indicating that the lamp being handled is the defective one. If the defective one is not at that time found, the lamp so screwed out may be left in its released position and other lamps tested in the same manner until a defective one is found. Then screwing in the other bulbs will indicate whether any other lamp 14 is defective in like manner so that a testing operation will disclose not only a single defective bulb but all defective bulbs, in case more than one is defective.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention I claim as new and desire to secure by Letters Patent:

1. In an electric socket, a bushing adapted to receive an electric element, a spring pressed contact for said element in said socket, an insulating disc mounted on said contact, said disc having a metallic film thereon making electrical connection with said contact and a metallic ring on the outer periphery of said disc making electrical contact with said film.

2. In an electric socket, a bushing for an electric element, a contact in said socket, a disc mounted on said contact comprising an insulating member having a thin coating of metallic conducting material thereon, secured to and making electrical connection with said contact, an annular ring secured to the perimeter of said member and in electrical contact with said coating, and means for maintaining said ring normally in contact with said bushing.

In testimony whereof I affix my signature.

REUBEN ECKSTEIN.