Oct. 9, 1934. O. W. GREENE 1,976,492

SOCKET

Filed June 3, 1931

Fig. 1.

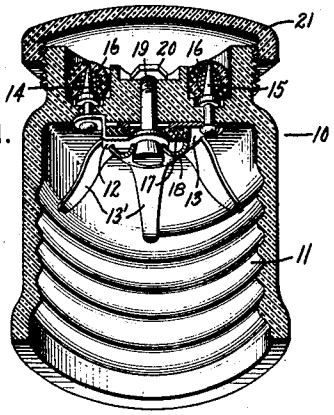
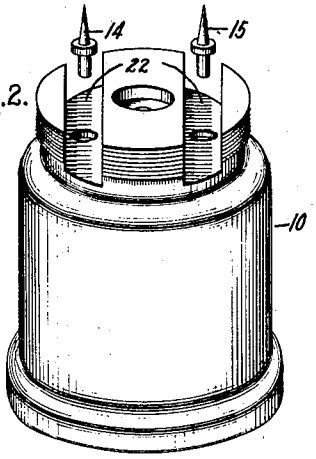
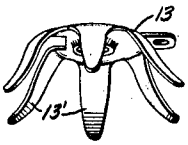
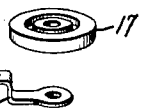


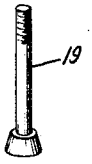
Fig. 2.











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UNITED STATES PATENT OFFICE

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SOCKET

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Application June 3, 1931, Serial No. 541,876

2 Claims. (Cl. 173—358)

My invention relates to electrical sockets and more particularly to electrical sockets adapted for the reception of threaded plugs.

In general, the practice has been to secure a metallic shell in the base of the body member of a socket by one rivet or bolt which at the same time serves to make electrical connection between the shell and a conductor. When a plug is threaded into the socket its tip contact engages a center contact of the socket which is rigid or has a stop limiting its movement. In order to insure a good electrical contact between the tip contact of the plug and the center contact of the socket a certain amount of force must be exerted in threading the plug into the socket. The force used in making this contact must be resisted by the threaded metallic shell. This force is in a direction tending to pull the shell out of the socket. Thus, when the shell is secured by a lone rivet or bolt, the shell is quite likely to break from its mooring if an excessive force is used in inserting the plug in the socket or after a plug has been inserted a number of times. Also, the shell is likely to be distorted in shape unless it is made of a comparatively heavy grade of metal. Attempts to improve the securing of the shell in the socket as by increasing the number of rivets, shrinking an insulating body member on the shell, providing a divided body member with shoulders to engage the end of the shell or other means have all been met with increased costs of manufacture.

It is an object of my invention to provide a socket not requiring a metallic shell and which at the same time is adaptable for use with standard plugs. It is also an object of my invention to produce an electrical socket of improved construction which will be of low cost of manufacture.

In accordance with my invention, the necessity of a threaded metallic shell is dispensed with as a means for threading the plug in the socket and making an electrical connection with the metallic shell on the plug. To provide means for threading the plug in the socket threads are molded in the insulating body member. To make electrical connection with the shell on the plug a contact is provided with fingers extending from the base of the body member toward its mouth and outward substantially to the wall of the body member. The fingers of this contact are resilient and serve to engage the lower part of the shell on the plug as it is threaded in the socket. These fingers may be made sufficiently long so they will engage the wall of the body member as they are forced back by engagement with the plug or the resilience of the fingers may be relied upon alone to provide a sufficient contact pressure with the plug shell.

Referring to the accompanying drawing, Fig. 1 is a view in cross section of my improved socket and Fig. 2 is an exploded view of the socket in perspective.

In Fig. 1, 10 indicates a socket made of insulating material and having molded threads 11 adapted for the reception of a standard plug. By the term "plug" it is meant, to include a threaded attachment cap and the base of an incandescent lamp as well as what is ordinarily termed a plug. In the base of socket 10 connector 12 and contact 13 are secured. Contact 13 is provided with resilient fingers 13' which are adapted to engage the outside shell of a plug when it is inserted in socket 10. Terminal prongs 14 and 15 are provided to complete electrical connection with connector 12 and contact 13 respectively. Terminal prongs 14 and 15 are of the pin prick type and adapted to pierce the insulation of stranded conductors and thereby make electric connection with the stranded wires located in said conductors. Conductors 16 are shown connected to terminal prongs 14 and 15. To space the connector 12 and contact 13 apart and insulate them from each other, a washer 17 of insulating material is provided. To assist in securing connector 12, contact 13, and washer 17 in the base of the socket metallic cap 18 is provided. To secure connector 12 and contact 13, washer 17 and metallic cap 18 in position in the base of socket 10, a bolt 19 is provided with cooperating nut 20. The head of bolt 19 also serves as a contact to engage the tip contact of a plug and is electrically connected to connector 12. To hold conductors 16 in engagement with terminal prongs 14 and 15, an insulating cap 21 is provided which engages threads on the extensions from the base of socket 10.

As best indicated in Fig. 1, the fingers 13' of contact 13 extend longitudinally and radially from the base of socket 10 substantially to the end of molded threads 11 contacting with the wall of socket 10 adjacent to the end of threads 11. By this arrangement when a plug is threaded into the socket 10 the tapered portion between the tip contact and the threaded portion of the shell engages fingers 13' expanding them to conform with the tapered end of the shell. By this arrangement a considerable contact area is provided between each of the fingers 13' and the tapered portion of the shell on the plug when threaded in the socket 10. This produces a large

contact area between the shell contact of the plug and contact 13.

To assemble the parts in socket 10, the cap 18, connector 12, washer 17 and contact 13 are inserted in the order named on bolt 19. The bolt 19 is then inserted in the center opening in the base of socket 10 and nut 20 threaded on the end of the bolt. Nut 20 is tightened to hold the parts securely in position. Terminals 14 and 15 are inserted through openings provided in the base of the socket and apertures in the corresponding contacts. The ends of the terminal prongs are expanded to prevent their removal and to make a good electrical connection with the contacts. To connect the socket with an electrical circuit the conductors 16 are laid in the recesses 22 provided therefor and forced into engagement with the terminal prongs 14 and 15. Cap 21 is then threaded over the extension on the base of the socket into engagement with conductors 16.

The socket of my invention is of simple and rugged construction and easy to assemble. By dispensing with the necessity of a metallic shell, I have reduced the cost of manufacture and at the same time done away with one of the sources of difficulty. In the use of such devices, the contacts have no tendency to be pulled away from the securing means as a plug is threaded into the socket because of the fact that the body member itself resists the force exerted in threading the plug into the socket.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. A socket comprising an insulating shell having molded threads to receive a threaded plug, a contact member having a plurality of contact fingers extending longitudinally and radially from the base of the shell to the end of the molded threads and adapted to engage and conform with the tapered end of the shell contact of a plug, a washer of insulating material, and a bolt securing said contact member and washer in the base of said shell and adapted to engage the tip contact of a plug.

2. A socket comprising an insulating shell having molded threads to receive a threaded plug, a contact member seated in the base of said shell and having a plurality of resilient contact fingers extending longitudinally and radially from the base of the shell to the end of the molded threads and adapted to engage and conform with the tapered end of the shell contact of a plug, a washer of insulating material, and a bolt securing said contact member and washer in the base of said shell and adapted to engage the tip contact of a plug.

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