Dec. 7, 1926. 1,610,128

C. E. GODLEY

SOCKET OR CONNECTER

Filed March 27, 1926

Fig. 1.

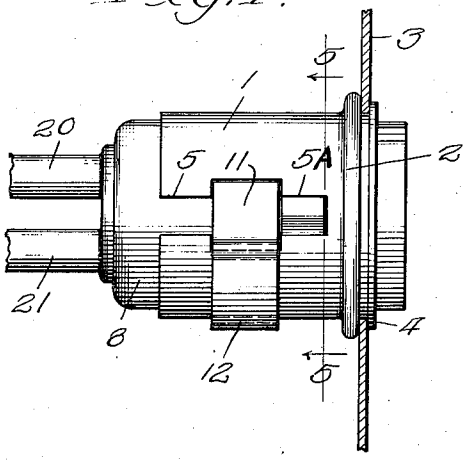


Fig. 2.

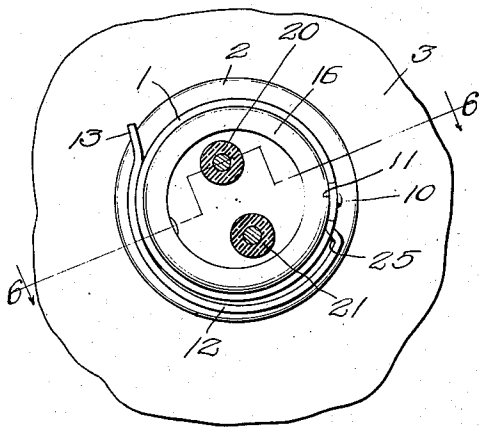


Fig. 3.

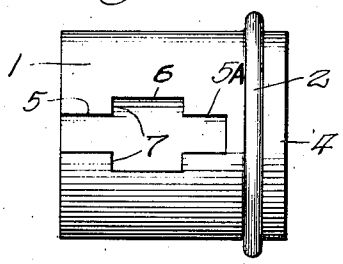


Fig. 4.

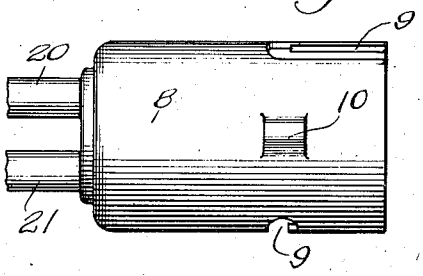


Fig. 5.

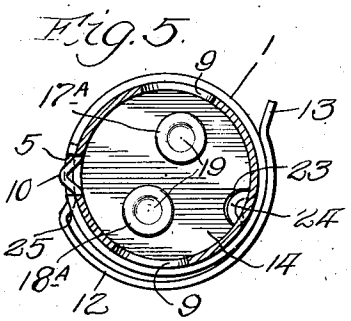


Fig. 6.

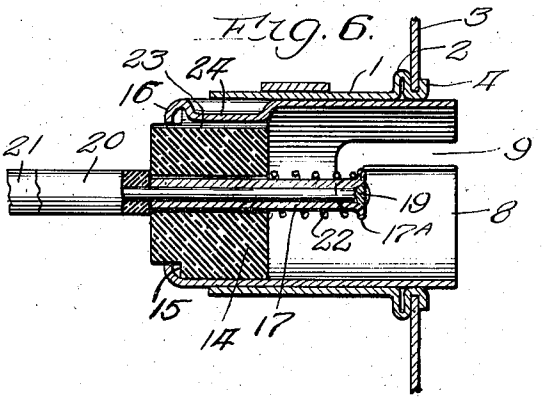
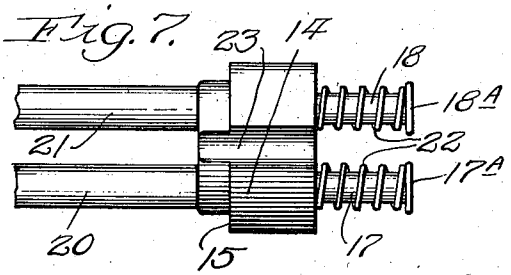


Fig. 7.



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UNITED STATES PATENT OFFICE.

CHARLES E. GODLEY, OF DETROIT, MICHIGAN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO C. M. HALL LAMP COMPANY, A CORPORATION OF MICHIGAN.

SOCKET OR CONNECTER.

Application filed March 27, 1926. Serial No. 97,958.

My invention relates to connecters of the general type in which the socket portion is at least partially housed by a tubular supporting holder, as for example by a collar secured to the body of an automobile lamp.

Generally speaking, my invention provides simple and inexpensive socket and holder parts for this purpose, arranged for slidably interfitting in predetermined positions, and also provides simple and cheap means for detachably retaining the socket shell in the holder. More particularly, my invention provides a tubular holder having a suitably formed slot, a socket shell having a protruding portion housed by a part of this slot when the shell is slid into the holder, and a retaining spring which simultaneously interlocks the shell with the holder and also prevents relative movement of the shell in any direction with respect to the holder. Still further and also more detailed objects will appear from the following specification and from the accompanying drawings, in which

Fig. 1 is a side elevation of a lamp-socket and holder combination, showing the holder as attached to the back of a lamp body.

Fig. 2 is a rear view of the same.

Fig. 3 is a side elevation of the holder alone, taken from the same side as Fig. 1 but showing the forward end of the holder in its original shape before it was attached to the lamp body.

Fig. 4 is a similar side elevation of the lamp-socket.

Fig. 5 is a transverse section, taken along the line 5—5 of Fig. 1.

Fig 6 is a longitudinal section taken along the line 6—6 of Fig. 2.

Fig. 7 is a side elevation of the body assembly housed by the socket shell, looking in the opposite direction from Fig. 1.

In the illustrated embodiment, the connecter assembly of my invention includes a tubular holder 1 which has a peripheral bead 2 near its forward end for engaging the back 3 of a lamp body which has a perforation through which the forward portion of the holder extends. This forward holder portion 4 is initially cylindrical, but is spun outward when the holder is attached to the lamp body as in Figs. 1 and 6, so as to clamp the lamp body 3 against the peripheral bead 2. Extending into the holder from the rear thereof is a longitudinal slot 5 which has a widened portion 6 at a distance from the forward end of the slot so as to afford shoulders 7 at the rear end of the widened slot portion.

The socket shell 8 is tubular also and is provided with suitable means for interlocking it with a wire terminal plug, as for example with the usual bayonet slots 9 formed at the forward end of the shell for receiving the customary anchoring pins on the base of an ordinary wire-terminal plug. The shell also has a lateral projection 10 slidably fitting the slot 5 of the holder, or at least closely fitting the portion of this slot which is forward of the widened part 6. This projection desirably consists of an outwardly projecting hump formed from the socket shell.

The hump or lateral projection 10 preferably corresponds in length to the part of the slot 5 which is forward of the widened portion 6, so that the rear end of the hump alines with the forward wall edges of this widened slot portion when the socket shell is slid into the holder (from the rear of the latter) until the hump engages the forward end 5^A of the slot in the holder. To hold the socket shell in this position with respect to the holder, I provide means detachably interposed between the slot wall portions 7 and the rear end of the projection 10. For this purpose I preferably employ an arcuate spring which has a finger 11 corresponding in width to the length of the widened slot portion, the finger being of such a limited length as to enter this widened slot portion and bear against the socket shell 8. The spring also has its main portion 12 formed so as to extend partly around the tubular holder and into engagement with the holder on the side diametrically opposite the slot 5, and this main portion is desirably curved to fit the contour of the holder for a considerable part of its length when attached, as shown in Fig. 2. The spring also desirably has at its opposite end a tip part 13 formed to extend away from the holder, so as to prevent that end of the spring from catching on the holder when the spring is attached, thereby facilitating the assembling. With the spring thus shaped and initially formed so that it tends to contract to a smaller inside diameter than the outside diameter of the holder 1, the resiliency of the spring causes its main por-

tion 12 to grip the holder tightly and also retains the spring tip 11 within the widened part of the slot in the holder, or in the position in which this spring tip is interposed between the rear walls of the widened slot portion and the rear end of the projection 10 on the socket. Hence no auxiliary means are required for retaining the spring in its operative position.

The body assembly of the socket proper may be of any desired construction. As here shown, it includes an insulator which has its main portion slidably fitting the bore of the shell 8 and adapted to be inserted into the latter from the forward end of the shell, and which is contracted at its rear end to afford an annular shoulder 15 engaging an inwardly directed radial flange 16 at the rear end of the shell. Extending slidably into longitudinal bores in this insulator are a pair of tubular wire terminals 17 and 18, each of which has an enlarged head (17A, 18A) disposed forwardly of the insulator for engaging one base terminal of an ordinary double-pole wire terminal plug. Each of these heads is desirably bored out at its forward end so that a drop of solder 19 may be dropped into the recess to anchor the end of the wire (20 or 21) which extends into the bore of the wire terminal from the rear of the latter. Spiral compression springs 22 interposed respectively between the front end of the insulator 14 and the wire terminal heads 17A and 18A continuously urge the wire terminals forwardly, and these terminals preferably are smaller in diameter than the insulation on the wires, so that the insulation will engage the rear end of the insulator to retain the wire terminals on the insulator when the plug is detached from the socket. Suitable means are also provided for maintaining the insulator in proper position rotationally of the socket shell, as by providing the insulator with a longitudinal groove 23 which fits an indentation 24 in one side of the shell.

With the socket and holder assembly thus constructed, the wire terminals, springs and wires can be initially assembled as shown in Fig. 7 and this assembly can be slid into the socket shell either before or after the shell is attached to the holder 1. When the shell is inserted into the holder as in Fig. 1 and the spring is slipped into position, the latching finger 5 of the spring snaps between the shoulders formed by the slot wall portions 7, and the rear end of the projection (hump) 10 on the socket shell, thereby clamping this projection against the forward end 11 of the slot in the holder and definitely determining the relative position of this shell longitudinally of the holder. The contracting tendency of the spring causes the latter to press the socket shell firmly against the side of the holder opposite the slot in the latter, thereby avoiding any looseness in case the said shell does not snugly fit the bore of the holder, and also retains the spring in its operative position. To facilitate this action of the spring, I preferably offset the finger 11 radially inward of the spring from the main arcuately bent part 12 of the spring by interposing a short spring portion 25 which extends substantially radially of the holder when the spring is in its operative position.

However, I do not wish to be limited to the particular shape of spring as above described, nor to other details of the construction and arrangement here disclosed, as many changes might obviously be made without departing either from the spirit of my invention or from the appended claims. Neither do I wish to be limited to the use of my invention in connection with a wire-terminal plug, as it obviously could also be employed in direct connection with an ordinary lamp-bulb.

I claim as my invention:

1. A socket or connecter assembly comprising as one member a tubular holder having a longitudinal slot open at the rear end of the holder and closed at its forward end, and as another member a socket slidably inserted in the holder from the rear end of the latter and having a projection engaging the closed end of the slot; and detachable means carried by one of the said members for clamping the projection against the said closed slot end.

2. A socket or connecter assembly comprising as one member a tubular holder having a longitudinal slot open at the rear end of the holder and closed at its forward end, and as another member a socket slidably inserted in the holder from the rear end of the latter and having a projection engaging the closed end of the slot; and a spring detachably interlocked with the holder and clamping the projection against the closed slot end.

3. A socket or connecter assembly comprising a tubular holder having a longitudinal slot open at the rear end of the holder, the slot having a closed forward end, the holder also having a shoulder formation spaced from the rear end of the slot; a socket slidably inserted in the holder from the rear end of the latter and having a projection engaging the closed slot end; and detachable means interposed between the shoulder formation and the projection for clamping the latter against the closed slot end.

4. A socket or connecter assembly comprising a tubular holder having a longitudinal slot open at one end of the holder, the slot being closed at its other end, the holder also having a shoulder formation spaced from the rear end of the slot; a

socket fitting the bore of the holder and having a projection engaging the said closed slot end; and a spring partially encircling the holder and having a portion interposed between the shoulder formation and the projection to clamp the latter against the closed slot end.

5. A socket or connecter assembly comprising a tubular holder having a longitudinal slot extending into it from the rear end of the holder, the slot having an end wall spaced from the forward end of the holder and having a widened part between its ends; a socket shell slidably inserted in the holder from the rear end of the latter and having a projection engaging the said slot end wall; and a retaining member having a portion jammed between the rear edge of the widened slot portion and the projection, for clamping the projection against the said slot end wall.

6. A socket or connecter assembly as per claim 5, in which the retaining member comprises a spring, the spring having an arcuate main portion partially encircling the holder and having a finger seated in the widened slot portion and engaging the socket shell, the finger having its forward edge in engagement with the rear end of the projection and its rear edge in engagement with the rear edge of the widened slot portion.

7. A socket or connecter assembly as per claim 1, in which the projection engages both of the lateral walls of the slot to prevent rotational movement of the socket with respect to the holder.

8. A socket or connecter assembly comprising a tubular holder and a socket shell slidably insertible in the holder from one end of the latter, the shell and holder having interengaging formations for limiting the insertion of the shell in the holder and for preventing rotation of the shell in the holder, and a retaining spring having a portion jammed between a part of the holder and a part of the shell for preventing movement of the shell towards the said end of the holder.

Signed at Detroit, Michigan, March 17, 1926.

CHARLES E. GODLEY.