Aug. 13, 1940. W. H. CHURCHILL 2,211,739

LAMP SOCKET AND LAMP SOCKET INSTALLATION

Filed July 20, 1937

Fig. 1

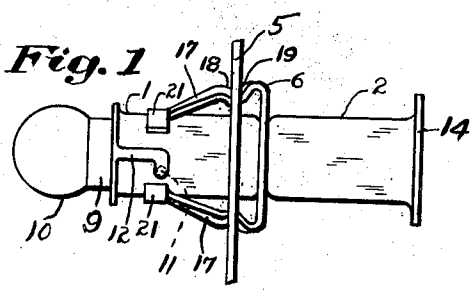


Fig. 2

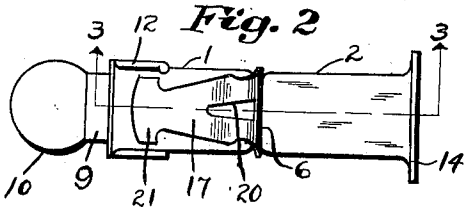


Fig. 3

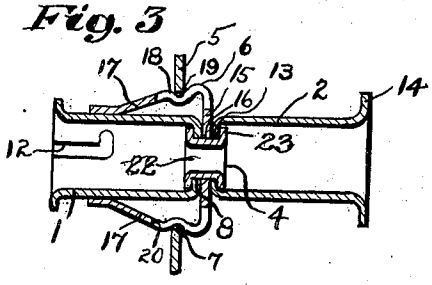


Fig. 4

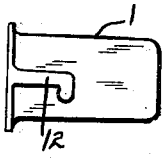


Fig. 6

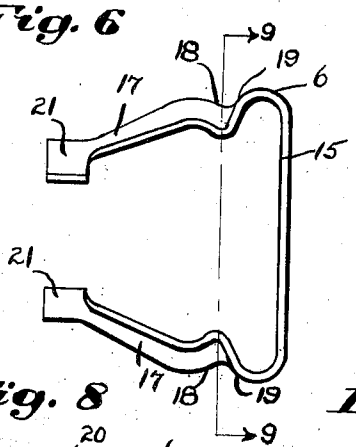


Fig. 5

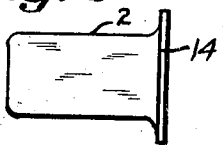


Fig. 7

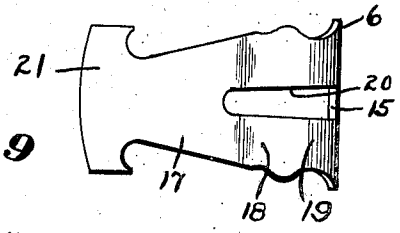


Fig. 8

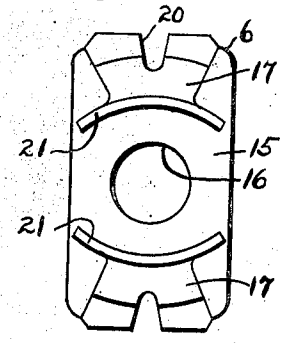
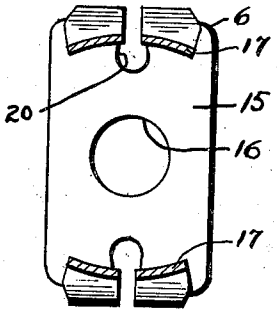


Fig. 9



Inventor:
Wilmer H. Churchill.
by Walter S. Jones Att'y.

Patented Aug. 13, 1940 2,211,739

UNITED STATES PATENT OFFICE

2,211,739

LAMP SOCKET AND LAMP SOCKET INSTALLATIONS

Wilmer H. Churchill, Saugus, Mass., assignor to United-Carr Fastener Corporation, Cambridge, Mass., a corporation of Massachusetts

Application July 20, 1937, Serial No. 154,609

6 Claims. (Cl. 173—339)

My invention relates to an improved lamp socket device having snap fastener means for attaching it to a supporting structure.

Referring to the drawing, in which I have illustrated a preferred form of my invention:

Figure 1 is a plan view of a complete installation showing my improved socket device secured to a supporting panel and a lamp bulb assembled with the socket device;

Fig. 2 is a view of an installation similar to that of Fig. 1 but with the installation turned 45°;

Fig. 3 is a section taken along the line 3—3 of Fig. 2, the lamp being omitted;

Fig. 4 is a view of the lamp-receiving member of my socket device;

Fig. 5 is a view of the handle member of my socket device;

Fig. 6 is an enlarged side view of the attaching member of my socket device;

Fig. 7 is a top view of the attaching member shown in Fig. 6;

Fig. 8 is a front view of the attaching member shown in Figs. 6 and 7; and

Fig. 9 is a section taken along the line 9—9 of Fig. 6.

An object of my invention is to provide an improved lamp socket device of the type having a snap fastener means associated therewith for detachably securing the device to a panel or other supporting structure by a snap fastener action. As a result of the construction of my device, a lamp may be assembled with the socket before the socket is attached to the supporting structure whereby the lamp, which is to be used on the front of the supporting structure, may be inserted from the rear of the same.

Referring to my preferred socket device as illustrated in Figs. 1–3 of the drawing, I have shown a socket member in the form of a tubular shell 1 and a tubular handle member 2 secured in end-to-end relation through means of a tubular rivet 4 (Fig. 3). As a means for attaching my device to a supporting structure 5 I have provided an attaching member 6 having a base portion intermediate the connected ends of the tubular members 1 and 2 and assembled with the device through means of the rivet 4. The attaching member 6 has yieldable shouldered fingers adapted to extend from the base portion through an aperture 7 (Fig. 3) of the supporting structure for snap fastener engagement with the material of the support 5 adjacent the aperture 7 whereby the device is secured to the support.

Referring in detail to the separate parts of my socket device, my preferred form of socket member 1 is in the form of a tubular metal shell of the type which is adapted particularly for use with a single contact lamp of the type almost universally used on automobile installations. It should be noted, however, that I do not wish to be limited by this particular type of socket shell because changes may be made to accommodate different types of lamps without departing from the spirit and intent of my invention. The tubular socket member 1 is adapted to receive and hold a lamp base and also provides a suitable supporting means for an electrical contact device (not shown) which is adapted to transmit current to the lamp. The shell of the socket member 1 is preferably formed of sheet metal through a drawing or folding operation and is provided with an opening 8 at one end (Fig. 3) to allow passage of a tubular shank of a rivet 4 therethrough. The shell 1 is opened at its end opposed to that having the opening 8 for the purpose of receiving and holding the base 9 of a lamp 10 (Figs. 1 and 2). The lamp 10 is secured to the shell 1, in my preferred form, through means of pins 11 (Fig. 1) extending from the lamp base 9 and cooperating with bayonet slots 12 pressed out of the material of the shell.

The handle member 2, in my preferred form, is identical with the socket member 1 except that it provides no fastener means such as the bayonet slots of the last-mentioned member for engagement with cooperating fastener means of a lamp base. Thus the handle member 2 is formed of sheet metal through a drawing or folding operation and has an opening 13 (Fig. 3) at its end to be connected to the socket member 1. The opening 13 is adapted to receive the shank of the rivet 4, through means of which the members 1 and 2 are secured together. The handle member 2 is open at its end opposed to that having the opening 13 and material 14 of the handle member adjacent the open end is flared outwardly, as most clearly shown in Fig. 3, so as to provide a smooth bearing surface for an electrical wire (not shown) adapted to be extended into the handle member through its open end.

The attaching member 6, as most clearly illustrated in Figs. 6–9 of the drawing, is in the form of a substantially U-shaped member made from one piece of sheet metal. The member 6 has an elongated substantially rectangular base portion 15 having an aperture 16 therein (Figs. 8 and 9) for receiving a shank of the rivet 4 whereby the attaching member may be assembled with the

other parts of the socket device. Spring fingers 17 integral, in my preferred form, with opposed ends of the base portion 15 extend from the base portion in angular relation thereto and are adapted to pass through an aperture 7 of the support 5. The fingers 17 diverge from their free ends and then converge providing shoulder means 18 intermediate their free ends and the points of junction with the base portion 15. The shoulder means 18 are adapted for spring engagement with the material of the support 5 adjacent an aperture 7 for securing the socket device to the structure. As a means for limiting movement of the socket device axially of the aperture 7, each of the fingers 17 has an inclined portion providing a stop means 19 substantially facing the shoulder 18, as most clearly shown in Fig. 6. As the distance between points on the outer surfaces of the stop means 19 of the fingers 17 is greater than the diameter of the aperture 7 of the support 5, the stop means 19 are adapted to abut the rear surface of the support 5 so as to limit movement of the socket device in one direction through the aperture. In order to increase resiliency of the arms 17—17, I have preferably provided openings 20 extending from the fingers into the base portion 15, as most clearly shown in Fig. 3 of the drawing. Each of the fingers 17, in my preferred form, is of bowed cross-section (Fig. 9) whereby material of the fingers at the shoulders 18 substantially follows the wall of the aperture 7 of the support 5 with the result that the wider engaging surfaces thus provided effect a more secure engagement between the parts. Each of the outermost free ends of the fingers 17 has a free end portion 21 of greater width than the fingers. The portions 21 are preferably bowed to follow the curve of the outer surface of the shell 1 and portions of the free end portions 21 may engage the outer surface of the shell 1 for aid in maintaining the fingers 17 in proper fixed relation to the shell 1.

In assembling the parts of my socket device the attaching member 6 is positioned with respect to the socket member 1 so that its base portion 15 is in adjacent relation to the end of the socket 1 having the aperture 8 with the aperture 16 of the base portion in alignment with the aperture 8. When the attaching member 6 is in this position the fingers 17 extend toward the end of the socket member having the lamp-receiving means and portions of the free end portions 21 may engage the outer surface of the socket member 1. Next the handle member 2 is moved toward the other parts of the device so that the end of the same having the aperture 13 is disposed substantially adjacent the outer surface of the base portion 15 of the attaching member with the opening 13 of the handle member 2 in alignment with the opening 16 of the attaching member and the opening 8 of the socket member. The parts may now be secured together through means such as the tubular rivet 4 providing a shank portion 22 extending through the openings of the parts and a head portion 23 at each end of the shank portion engaging material of the socket member and handle member adjacent the respective openings 8 and 13, as most clearly shown in Fig. 3. The rivet 4 is of tubular form with an opening at both ends to allow passage of an electrical conductor (not shown) from the handle member 2 to the electric contact device (not shown) contained within the socket member 1. The socket device is now ready to be assembled with the supporting structure 5, but prior to this act the lamp 10 may be secured to the lamp-receiving end of the socket member 1.

The socket device is secured to the supporting structure through moving it toward the support so as to insert the lamp 10 and fingers 17 into the aperture 7 which is larger than the diameter of the lamp but smaller in diameter than the distance between points on the outside surfaces of the diverging portions of the fingers 17. Upon exerting pressure upon the member 2, which acts as a handle for the device, the socket device is moved axially of the aperture 7 until the stop means 19—19 of the spring fingers 17—17 abut a surface of the supporting structure 5 (Fig. 3). When the socket device is in this position the shoulders 18—18 of the spring fingers 17—17 engage material of the supporting structure adjacent the aperture 7 with the result that the device is rigidly held in position upon the support 5. As a result of the bowed cross-sectional shape of the fingers 17—17, a substantial bearing surface is provided upon the material of the support adjacent the aperture 7 whereby an extremely secure assembly is effected.

Although I have illustrated and described a preferred form of my invention, I do not wish to be limited thereby because the scope of my invention is best set forth in the following claims.

I claim:

1. An electric socket device adapted to be suspended from an independently positioned support by engagement with an aperture in the support, comprising a tubular shell having one open end forming a socket member into which the lamp base may be inserted to be directly supported by the shell, an apertured wall at the opposite end of said socket member, an attaching member permanently secured to said shell prior to attachment of the device to said support and having a base portion secured to the apertured end of the shell and a plurality of resilient finger members extending forwardly from said base portion in a direction toward the open lamp-receiving end, said fingers being of single thickness material and having portions successively inwardly converging and outwardly diverging providing support-contacting means forwardly of the base portion to be snapped into and out of the aperture in the support by axial pressure exerted upon the socket, permitting the socket and lamp to be readily inserted in and withdrawn as a unit from said apertured support without separate manipulation of said fingers.

2. An electrical socket device having a tubular shell, said shell having means at one end for receiving and holding a lamp base and the like and an attaching member assembled with said shell, said attaching member having an elongated base portion secured to an end of said shell opposed to the end having said lamp-receiving means and a pair of yieldable fingers extending from said base portion, each of said yieldable fingers being disposed outside and above the surface of said shell and having a shoulder means facing said base portion, portions of said fingers being spaced from said shell and contractible toward said shell during passage thereof through an aperture of a support and expansible after passage of said shoulder means through said aperture to dispose said shoulders behind said support whereby said socket device is detachably secured thereto, and at least one of said fingers having an opening extending into said base portion for increasing the yieldability of said fingers.

3. An electrical socket device having a tubular

shell, said shell having means at one end for receiving and holding a lamp base and the like and an attaching member assembled with said shell, said attaching member having an elongated base portion secured to an end of said shell opposed to the end having said lamp-receiving means and a pair of yieldable fingers extending from said base portion, each of said yieldable fingers being disposed outside and above the surface of said shell and having a shoulder means facing said base portion, portions of said fingers being spaced from said shell and contractible toward said shell during passage thereof through an aperture of a support and expansible after passage of said shoulder means through said aperture to dispose said shoulders behind said support whereby said socket device is detachably secured thereto, and said fingers being bowed in cross-section at their free ends to follow the contour of said shell and substantially engage the same.

4. An electric socket device adapted to be suspended from an independently positioned support by engagement with an aperture in the support, comprising a tubular shell having one open end forming a socket member into which the lamp base may be inserted to be directly supported by the shell, an apertured base at the opposite end of the shell, a separate handle member connected to the apertured base end of said socket member, an attaching member having a transversely disposed base portion positioned intermediate said socket member and handle member and assembled with said members prior to attachment of the device to the support, a plurality of finger members of single thickness material extending forwardly from said base portion in a direction toward the open lamp-receiving end, said fingers having intermediate their base and ends successive inclined converging and diverging portions permitting support-contacting means forwardly of the base portion capable of being snapped into and out of the aperture in the support, and permitting the socket and assembled lamp to be inserted and removed from the apertured support as a unit by axial pressure exerted upon the socket and without independent manipulation of said fingers.

5. An electric socket device adapted to be suspended from an independently positioned support by engagement with an aperture in the support, comprising a tubular shell having an open end forming a socket member into which the lamp base may be inserted to be directly supported by the shell, a separate tubular handle member connected to the base end of said socket member, an attaching member having a transversely disposed base portion interposed between and clamped by said connected socket and handle member prior to attachment of the device to the support, and said attaching member having a plurality of yieldable fingers of single thickness material disposed outside said shell and having converging portions adjacent their free ends and diverging portions disposed between the converging portions and base portion so as to be snapped into and out of engagement with the aperture of the support, said assembled lamp, socket, handle and attaching member being insertible in and removable from said apertured support solely by axial pressure applied to the device and without independent manipulation of said fingers.

6. An electric socket device adapted to be suspended from an independently positioned support by engagement with an aperture in the support, comprising a tubular shell having an open end forming a socket member into which the lamp base may be inserted to be directly supported by the shell, a separate tubular handle member, a tubular connection connecting said socket and handle member providing a continuous passage through the handle member to the socket member for the reception of an electrical conductor, an attaching member having a transversely disposed base portion interposed between and clamped by said connected socket and handle member prior to attachment of the device to the support, and said attaching member having a plurality of yieldable fingers disposed outside said shell and having converging portions adjacent their free ends and diverging portions disposed between said converging portions and base portion so as to be snapped into and out of engagement with the aperture of the support, said assembled lamp, socket, handle and attaching member being insertible in and removable from said apertured support solely by axial pressure applied to the device and without independent manipulation of said fingers.

WILMER H. CHURCHILL.