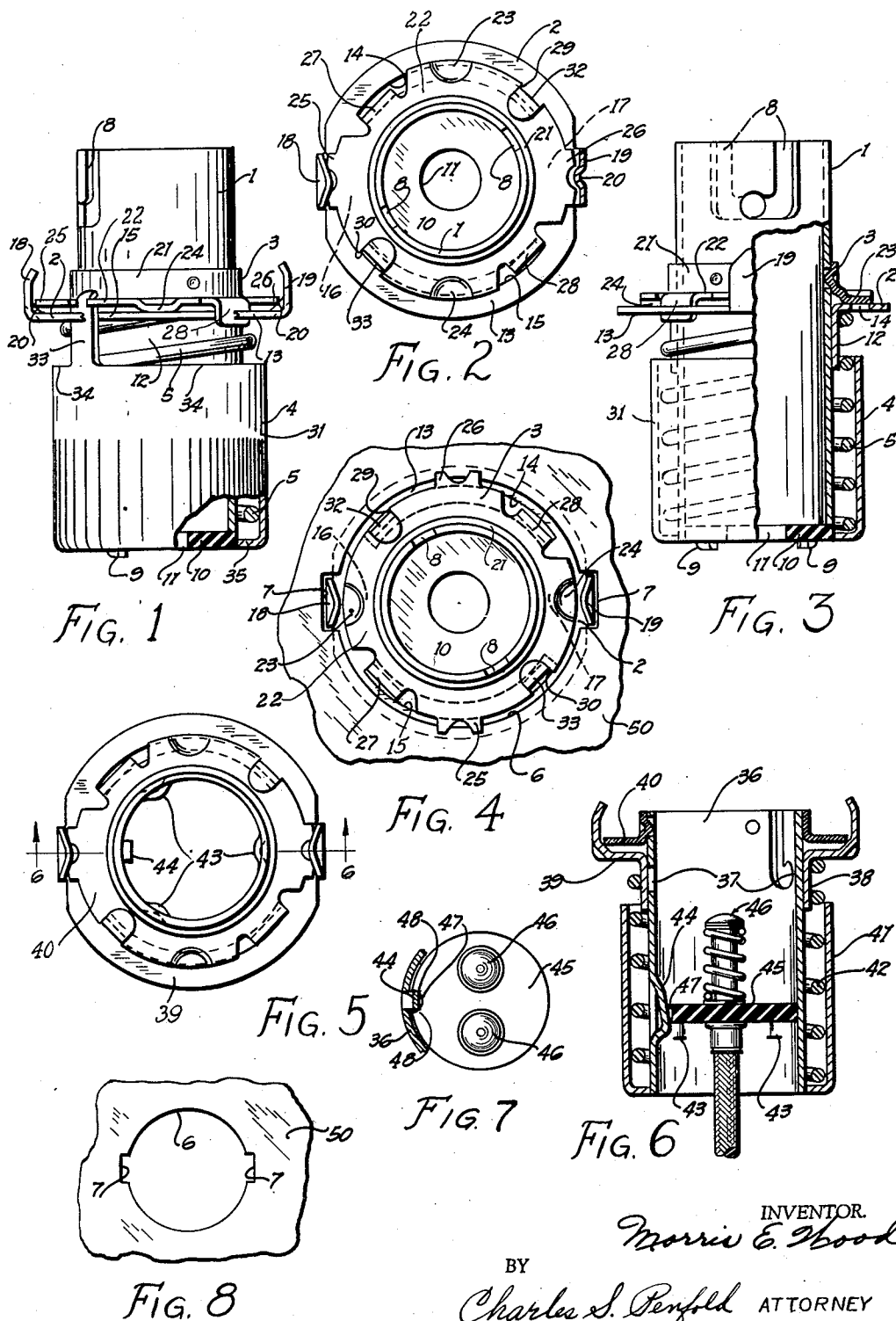


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LAMP SOCKET UNIT

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## LAMP SOCKET UNIT

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5 Claims. (Cl. 173-339)

This invention relates to lamp socket constructions.

One particular object of the invention is to provide a lamp socket unit which may be easily and quickly connected and disconnected with respect to a mounting or support.

Another object is to provide a socket unit which can be economically manufactured on a production basis.

Other objects and advantages of the invention will appear after considering the description hereinafter set forth in conjunction with the drawing annexed hereto.

In the drawing:

Figure 1 is a side view in elevation of one embodiment of a lamp socket unit, with portions broken away to illustrate certain parts;

Figure 2 is a top view of the socket unit illustrated in Figure 1;

Figure 3 is a different side view in elevation of the unit with parts broken away to illustrate certain details of construction;

Figure 4 is a top view of the unit as applied to a mounting;

Figure 5 is a top view of a socket unit embodying principles of design and construction different from the first embodiment;

Figure 6 is a vertical section taken substantially on line 6-6 of Figure 5 showing certain features of construction including contact assembly means;

Figure 7 is a top view of the contact assembly means adapted for association with the socket unit, including a sectional part of the socket body showing the manner in which the contact means is secured thereto;

Figure 8 is a relatively small plan view of the mounting which is adapted to receive either of the socket units above referred to.

Referring first to the embodiment of the invention illustrated in Figures 1 through 4, the lamp socket unit is specifically designed for entry into an aperture provided therefor in a mounting and, among other things, includes a socket member or shell designated 1 adapted to receive an electric lamp or plug; a locating or positioning ring 2 carried by the socket 1 adapted to engage the rear or one side of the mounting; a retaining or locking element 3 fixedly secured to the socket; operating means 4 fixedly secured to the locking element 3 so that the locking element, socket and operating means may be rotated with respect to the positioning member 2 in a manner whereby the locking element may engage the front or opposite side of the mount-

ing; and resilient means 5 for holding the socket unit in place once it is connected to the mounting.

The mounting or support 50 which receives either of the socket units above referred to, is preferably made of relatively thin sheet metal material or stock and is provided with a circular aperture 6 having diametrically opposed notches 7 which intersect the margin of the aperture.

The socket member 1 of the unit is preferably made of sheet metal stock fashioned to provide a cylindrical tubular portion with its forward or free extremity having bayonet seats 8 for receiving the bayonet pins on the base of an electric lamp bulb or other electrical connection means. The rear extremity of the socket is preferably provided with a pair of oppositely disposed axially extending lugs 9 which are bent over and upon a washer 10 of insulating material having an aperture 11 therein for receiving and centering a conductor wire which is adapted for electrical connection with the base of the electric lamp. Suitable means not disclosed are provided within the socket whereby to retain the electric lamp in place.

The locating ring or positioning member 2 as noted above is carried by the socket member and, as clearly illustrated, preferably includes a cylindrical tubular portion 12 within which the socket is disposed and a radially extending generally flat annular portion 13. The annular portion 13 is provided with a pair of diametrically disposed circumferentially extending narrow arcuate slots 14 and 15, the extremities of which are spaced apart by the intermediate portions 16 and 17. The locating member is also provided with a pair of diametrically disposed forwardly extending pilot fingers 18 and 19 which are adapted to register with the notches 7 when the socket is projected into the circular aperture 6 of the mounting 50. The pilot fingers 18 and 19 are preferably arranged in alignment with the intermediate portions 16 and 17 or more specifically, at right angles to a line passing through the midpoints of the slots 14 and 15. The extremities of the pilot fingers 18 and 19 are preferably slightly tapered and intumed to some extent so that they may be easily inserted into the notches 7 and each finger adjacent its base may be provided with an inwardly extending depression or corrugation 20 whereby to reinforce or prevent bending or distortion of the fingers. It is to be noted that the fingers are preferably inset with respect to the periphery of the locating ring and that the arcuate slots 14 and 15

are disposed exteriorly of and concentric to the socket 1. Insetting of the fingers decreases the cost of the positioning member because less stock or material is required.

The locking or retaining element 3 forming a part of the socket unit will now be described. This element as mentioned above is adapted to engage the front side of the mounting and, as clearly illustrated, is preferably made in the form of an annulus. This element includes a relatively short tubular cylindrical portion 21 within which the socket is disposed and a radially extending flange portion 22, arranged more or less in spaced apart parallel relation with respect to the radially extending portion 13 on the locating ring 2. This locking element 3 is preferably permanently secured to the socket body 1 by indenting the cylindrical portion 21 of the element at a plurality of equally spaced apart places into a plurality of apertures provided therefor in the socket body as clearly illustrated in Figures 1 and 3. The radially extending flange 22 of the locking element is preferably provided with a pair of diametrically disposed rearwardly extending arcuate bosses 23 and 24 which are adapted to normally bear against the frontal face of the positioning ring prior to entry of the socket into the mounting aperture 6. The flange is further provided with a pair of oppositely disposed extensions 25 and 26 which are of a width slightly less than the width of the notches 7. These extensions are adapted to engage the front side of the mounting when the unit is secured thereto. The flange is further provided with a pair of rearwardly or axially extending ears 27 and 28 which extend rearwardly into the arcuate slots 14 and 15, respectively, and also with a pair of oppositely disposed peripheral notches 29 and 30 which will be referred to later. As clearly illustrated, the extensions 25 and 26 are diametrically disposed and in alignment with the portions 16 and 17 including the pilot fingers 18 and 19 of the positioning ring and the bosses 23 and 24 are diametrically disposed substantially at right angles to a line passing through the extensions 25 and 26. Moreover, the ears 27 and 28 are disposed diametrically opposite each other and are located substantially midway between the depressions 23 and 24 and the extensions 25 and 26 and the same is true of the peripheral notches 29 and 30.

The operating means 4 as noted above is fixedly connected to the locking element 3 in a manner whereby the socket, locking element and operating means may be slidably and rotatably mounted with respect to the locating or positioning member 2. The operating means includes a cylindrical tubular portion 31 of a diameter somewhat greater than the diameter of the socket body 1. The forward extremity of this tubular portion 31 is preferably provided with a pair of diametrically disposed forwardly extending continuations 32 and 33 which extend through the arcuate slots 14 and 15, and the free ends of the continuations are provided with reduced bendable portions which fit into the peripheral notches 29 and 30 of the locking element 3 and are bent over and upon the flange of the latter so as to permanently secure the operating means 4 to the locking element 3. The tubular portion 31 of the operating means is thus held in concentric spaced apart relation with respect to the socket body 1. It will be noted that the forward marginal end portions 34 between the continuations provide abutments spaced apart from the locking element 3. It is within this space that the locating ring is adapted

for axial and rotational movement. By this arrangement it will be evident that the continuation 32 and projection 27 extend into the arcuate slot 14 and the continuation 33 and projection 28 into the slot 15; also that the continuation 32 and ear 28 receive the portion 17 of the locating ring and that the continuation 33 and ear 27 receive the portion 16 of the ring.

The rear extremity of the cylindrical portion 31 of the operating means is preferably inturned at 35, as clearly illustrated in Figures 1 and 3, and provides an abutment for one extremity of the resilient means 5 which is in the form of a helical spring. This spring surrounds the socket body and is arranged in the annular space between the socket body and operating means with its opposite extremity normally bearing against that portion of the positioning ring more or less defined by the arcuate slots 14 and 15, so that the locating member 2 is normally pressed forward into engagement with the boss portions 23 and 24 of the locking element and at the same time cause the projections 27 and 28 to project into the arcuate slots 14 and 15.

To assemble the socket unit with the mounting 50, the enlarged tubular portion 31 of the operating means 4 is first grasped by the hand and the socket body 1 is then projected forwardly into the circular aperture 6 of the mounting so that the pilot fingers 18 and 19 will register with the notches 7 and the locating ring 2 will engage the rear side of the mounting. The operating means, locking element 3, and socket body are then pushed axially forward, overcoming the action of the resilient means 5, while the locating ring remains static against the rear side of the mounting and when the operating means, locking element, and socket body have reached a predetermined advanced position they are rotated in a clockwise direction substantially through an arc of 90°, whereupon the ears 27 and 28 will ride over the portions 16 and 17 of the ring and the extensions 25 and 26 of the locking element will bear against the front side of the mounting 50 as illustrated in Figure 4, at points substantially mid-way between the notches 7, and the bosses 23 and 24 of the locking element against the portions 16 and 17, respectively of the locating ring. This arrangement provides a well-balanced construction and avoids any tilting of the unit after it is secured in place. Also, it will be evident that when the socket unit is so positioned, the operating means, the locking element 3, and the socket body 1 will lock against rotational movement with respect to the panel and the locating ring. This results from the fact that the ear 27 on the locking element 3 and the continuation 32 on the operating means 4 receive the portion 16 of the locating ring between the slots 14 and 15, and that the ear 28 and continuation 33 receive the portion 17 of the ring. More specifically, the ear 27 and continuation 32 normally project into the arcuate slot 14 and the ear 28 and continuation 33 into the slot 15 prior to securing the socket unit to the mounting, but when the unit is secured in place, the ears 27 and 28 project into the slots 15 and 14, respectively. The unit may be easily and quickly disconnected from the mounting by merely reversing the procedure above referred to.

Referring now to the second embodiment of the invention illustrated in Figures 5 through 7, it will be noted that the same substantially corresponds to the construction illustrated in Fig-

ures 1 through 4. In the second embodiment, the socket body 36 is foreshortened and the bayonet seats 37 are concealed from view by the cylindrical tubular portion 38 of the locating ring 39. It will also be evident that the locking element 40 is secured to the front extremity of the socket body 36 in the same manner as described above in connection with the first embodiment. Moreover, it will be apparent that the socket unit includes operating means 41 which is secured to the locking element 40 by means of continuations and that the resilient means in the form of a helical spring 42 is operatively related to the parts for the same purpose as described above. Since the parts substantially correspond to those above referred to, movement of the operating means 41 will cause a corresponding movement of the socket body 36 and locking element 40 with respect to the locating ring 39 when the unit is being connected and disconnected to the mounting 50.

The socket body 36 is preferably provided with a plurality of equally spaced apart inwardly extending projections or seats 43 and with an inwardly extending resilient angular portion 44. A disk 45 of insulating material is arranged within the socket body upon the projections or seats 43 so as to prevent movement of the disk rearwardly. This disk preferably carries a pair of spring pressed contacts 46 which are adapted to bear against the contacts provided adjacent the base of an electrical lamp or other plug. This particular embodiment may be classed as a socket of the two-pole type whereas in the first embodiment the socket is of the single pole type. The periphery of the disk 45 is preferably interrupted by an arcuate notch 47 which is of a predetermined size for the snug or pressed fit reception of the angular resilient portion 44. The notch 47 and portion 44 are so constructed and arranged that when the contact assembly means is inserted into the socket body, and the disk 45 is pressed into place the sharp arrises or edges of the portion 44 will bite into the notch 47 as indicated at 48. This arrangement has proven satisfactory and provides at least a temporary means for securing the contact assembly means to the socket body.

Having thus described my invention, it is obvious that various modifications may be made in the same without departing from the spirit of the invention; and, therefore, I do not wish to be understood as limiting myself to the exact forms, constructions, arrangements, and combinations of parts herein shown and described.

I claim:

1. A mounting provided with an aperture having notches intersecting the margin of the aperture, a socket unit including a socket body disposed in said aperture, slotted locating means engaging one side of said mounting and having means cooperating with said notches whereby to prevent rotation of said locating means with respect to said mounting, locking means permanently secured to said socket body, operating means having continuations projecting through the slots of the locating means and permanently secured to said locking means in a manner whereby said locking means may be moved to engage the opposite side of said mounting, and resilient means functioning to clamp said mounting between said locating means and said locking means.

2. A structure as defined in claim 1, in which the locating means is provided with slots and

the operating means is provided with continuations which project through the slots and through the aperture in the mounting for connection with the locking means, and the locking means is provided with ears which cooperate with said continuations in a manner whereby to receive portions of said locating means so as to prevent rotation of the operating means locking means and socket body with respect to the locating means and the mounting when the socket unit is attached to the mounting.

3. A socket body adapted to be disposed in the aperture of a mounting having notches intersecting the margin of the aperture, said socket body being provided with slotted locating means adapted to engage one side of the mounting and having means cooperable with the notches whereby to prevent rotation of the locating means with respect to the mounting when the socket body is disposed in the aperture, locking means permanently secured to said socket body, operating means having continuations projecting through the slots of the locating means and permanently secured to said locating means in a manner whereby said locking means may be moved to engage the opposite side of the mounting, and resilient means functioning to urge said locating means and said locking means toward each other to clamp the mounting therebetween when the body is applied to the mounting.

4. A mounting provided with an aperture having notches intersecting the margin of the aperture, a socket unit including a socket body disposed in said aperture, slotted locating means engaging one side of said mounting and having means cooperable with said notches whereby to prevent rotation of said locating means with respect to said mounting, locking means permanently secured to said socket body, operating means having continuations projecting through the slots of the locating means and permanently secured to said locking means in a manner whereby said locking means may be moved to engage the opposite side of the mounting, and resilient means engaging said locating means and said operating means tending to urge same in opposite directions and functioning to clamp said mounting between said locating means and said locking means.

5. A mounting provided with an aperture having notches intersecting the margin of the aperture, a socket unit including a socket body disposed in said aperture, slotted locating means engaging one side of said mounting and having means cooperating with said notches whereby to prevent rotation of said locating means with respect to said mounting, locking means permanently secured to said socket body, operating means having continuations projecting through the slots of the locating means and permanently secured to said locking means in a manner whereby said locking means may be moved to engage the opposite side of the mounting, said operating means being generally tubular in shape and surrounding at least a portion of said socket body so as to provide an annular space between said socket body and said operating means, and helical spring means disposed in said annular space tending to urge said locating means and said operating means in opposite directions and functioning to clamp said mounting between said locating means and said locking means.

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