Sept. 29, 1942. R. A. FUNK 2,297,615

SOCKET ASSEMBLY

Filed April 29, 1940

FIG.1.

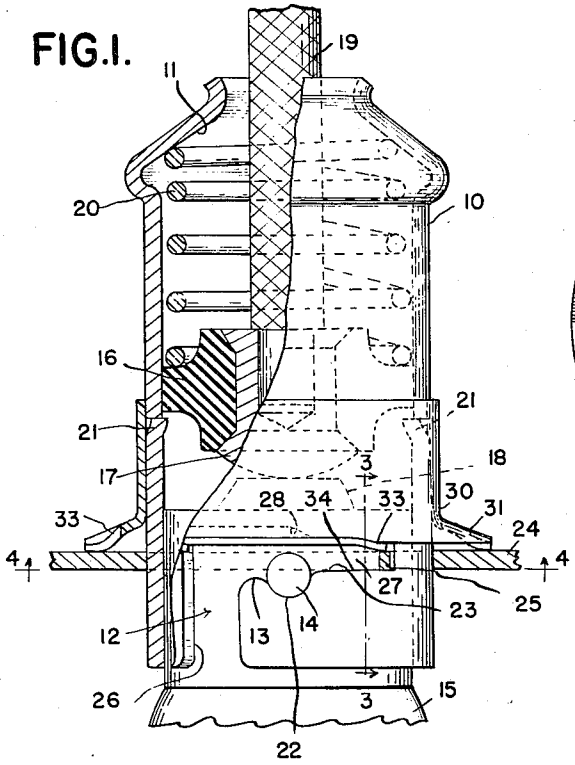


FIG.2.

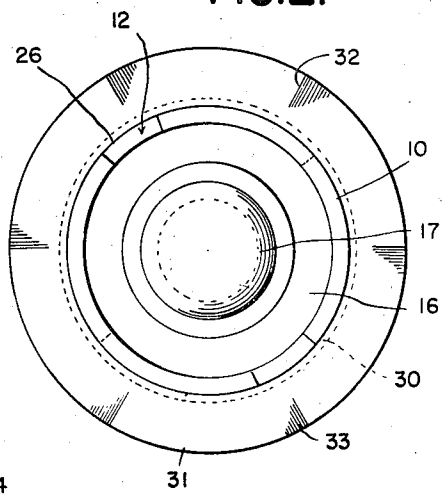


FIG.3.

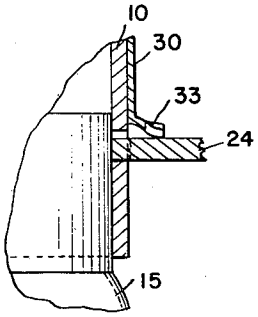
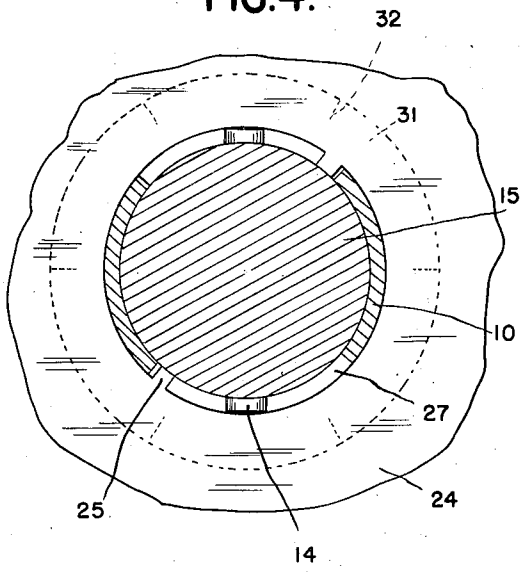


FIG.4.



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SOCKET ASSEMBLY

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6 Claims. (Cl. 173—339)

This invention relates generally to lamp socket assemblies and refers more particularly to lamp sockets of the type adapted to be secured to a mounting plate or support.

It is one of the principal objects of this invention to provide a lamp socket assembly composed of a relatively few, simple parts capable of being inexpensively manufactured, assembled and installed.

Another advantageous feature of this invention resides in the provision of a socket capable of being readily attached to the mounting means by slight rotation of the socket relative to the mounting means in one direction and having means preventing rotation of the socket in the opposite direction to release the socket from the mounting means. The arrangement is such as to provide a permanent, non-rattling connection between the mounting means and socket which may be readily secured in place by merely applying a slight twist to the socket.

The foregoing, as well as other objects, will be made more apparent as this description proceeds, especially when considered in connection with the accompanying drawing, wherein:

Figure 1 is a side elevational view, partly in section, of a socket constructed in accordance with this invention and showing the same attached to a typical mounting member or plate;

Figure 2 is an end elevational view of the socket assembly;

Figure 3 is an enlarged sectional view taken substantially on the plane indicated by the line 3—3 of Figure 1;

Figure 4 is a cross sectional view taken on the plane indicated by the line 4—4 of Figure 1.

Although the invention defined in the appended claims may be advantageously used in connection with different types of socket assemblies, nevertheless, for the purpose of illustration, I have selected a socket assembly of the type having a single electrical contact directly connected to the source of electrical energy and having a casing electrically connected to a common ground with the source of electrical energy to provide the return side of the circuit. The above general type of socket assembly is particularly adapted for use in the single wire electrical circuit usually provided in motor vehicles.

Referring now more in detail to the drawing, it will be noted that my improved socket assembly is provided with a casing or shell 10 in the form of a sheet metal tube having one end reduced to form an annular shoulder 11 and having bayonet slots 12 formed at diametrically opposite sides of the opposite end. In accordance with conventional practice, the circumferentially extending portions 13 of the bayonet slots extend in opposite directions and cooperate with suitable pins 14 extending outwardly from diametrically opposite sides of the base of an electric light bulb 15 to detachably secure the latter in place.

Mounted within the casing 10 for sliding movement relative to the latter is a suitable contact carrying member 16 formed of a dielectric material and having a contact 17 secured to the side thereof adjacent the electric light bulb in a manner to engage the cooperating contact 18 projecting from the base of the light bulb. The electrical contact 17 is secured to an electrical conductor 19 which projects out of the casing 10 through the reduced end of the latter. The contact 17 is normally yieldably urged into engagement with the cooperating contact 18 on the bulb by means of a coil spring 20 supported in the casing 10 with one end engaging the shoulder 11 and with the opposite end seated against the contact carrying member 16.

In order to retain the contact carrying member 16 in assembled relation with the casing 10 when the bulb 15 is removed, I provide a pair of lugs 21 on diametrically opposite sides of the casing in positions to form an abutment for the contact carrying member 16. In the present instance, the lugs 21 are struck inwardly from the opposite side walls of the casing 10 and are located in such a position that when the electric light bulb is in assembled relation with the socket, the contact carrying member 16 is spaced from the lugs 21. In other words, the arrangement is such that the thrust exerted by the spring 20 is applied to the contact 18 on the base of the bulb through the member 16 with the result that the spring resists movement of the pins 14 out of the recesses 22 formed in the sides 23 of the bayonet slot 12. Attention is also called to the fact that the free ends of the lugs 21 face the reduced end of the casing 10 so that these lugs may be flexed outwardly during assembly of the contact carrying member 16 in the casing.

The socket assembly is adapted to be readily attached to a mounting member 24 having an opening therethrough for receiving the end of the casing 10 containing the bayonet slots 12 and having a pair of lugs 25 projecting into the opening from opposite sides of the latter. The lugs 25 are arranged in such a manner as to be respectively received in the entrant portions 26 of the bayonet slots 12 and the circumferen-

tially extending portions 13 of the latter slots are formed with extensions 27 for receiving the lugs 25 upon rotation of the casing 10 in one direction.

The sides of the circumferentially extending portions 13 of the bayonet slots opposite the recesses 22 are formed with cam surfaces 28 for the purpose of respectively guiding the lugs 25 into the extensions 27. It may be pointed out at this time that the width of the lugs 25 and the width of the extensions 27 are less than the diameter of the pins 14 on the base of the electric light bulb so that there is no danger of the pins entering the extensions 27. It will, of course, be understood that the casing 10 is assembled with the mounting member 24 before the electric light bulb 15 is secured to the casing.

In the present instance, accidental rotation of the casing 10 relative to the mounting member 24 in the reverse direction or in a direction to move the lugs 25 toward the entrant portions 26 of the slots is prevented by means of a collar 30. The collar 30 is provided with a hub portion telescopically mounted on the tubular casing 10 and permanently secured thereto. The collar is preferably formed of sheet metal and is provided with an annular flange 31 extending outwardly from one end of the hub portion. Upon reference to Figure 1, it will be noted that the flange is inclined slightly toward the bulb end of the socket and the peripheral edge portion of the flange is slit at a plurality of circumferentially spaced points in the manner designated by the reference character 32 in Figure 2. The slit portions of the periphery of the flange 31 are bent to form a plurality of spring fingers 33 having the free edge portions frictionally engageable with the adjacent side of the mounting member 24. The spring fingers are so arranged that the edge portions thereof merely slide over the surface of the mounting member 24 during assembly of the socket with the latter member and bite into the surface of the mounting member in the event an attempt is made to rotate the socket in the opposite direction.

Referring again to Figure 1 of the drawing, it will be noted that the sides 34 of the circumferentially projecting extensions 27 of the bayonet slots 12 are tapered from the entrant ends of the extensions toward the opposite sides of the latter so that the sides 34 have a wedging engagement with the lugs 25 on the mounting member upon rotation of the socket assembly in a direction to move the lugs into the extensions 27. As a result, the socket assembly is drawn toward the mounting member during assembly and the spring fingers 33 are placed under tension against the mounting member. Any tendency to rotate the socket in a direction to disengage the socket assembly from the mounting member is resisted by the biting action of the free edges of the spring fingers on the adjacent surface of the mounting member. It follows, therefore, that the socket assembly is, in effect, permanently secured to the mounting member and this is accomplished without interfering with inserting the bulb 15 into the socket or removing the same from the latter.

What I claim as my invention is:

1. In combination, a mounting member having an opening therethrough, a light socket having one end portion extending into the opening of the mounting member, means responsive to rotation of the socket relative to the mounting member in one direction to secure the socket to the mounting member and to effect an axial movement of the socket toward said mounting member, and a plurality of spring fingers carried by the socket in positions to engage the adjacent surface of the mounting member upon axial movement of the socket toward the mounting member by said means and having edge portions adapted to bite into the adjacent surface of the mounting member upon rotation of the socket relative to the mounting member in a direction opposite the direction of rotation aforesaid.

2. In combination, a mounting member having an opening therethrough, a light socket comprising a casing having one end extending through the opening in the mounting member and having a slot therein, a projection on the mounting member engageable in said slot upon rotation of the casing in one direction relative to the mounting member, one side of the slot being tapered to cooperate with the projection in drawing the casing axially toward the mounting member, and spring fingers carried by the casing in positions to frictionally engage the adjacent side of the mounting member upon axial movement of the casing relative to the mounting member and having edge portions adapted to bite into the adjacent surface of the mounting member upon rotation of the casing relative to said member in a direction opposite the direction of rotation aforesaid.

3. In combination, a mounting member having an opening therethrough, a light socket comprising a casing having one end extending through the opening, a plurality of spring fingers carried by the casing and having the free ends engageable with one side of the mounting member in a manner to bite into engagement with the mounting member upon rotation of the casing in one direction relative to the mounting member, and means responsive to rotation of the casing in the opposite direction to secure the casing to the mounting member and having provision for shifting the casing axially relative to the mounting member in a direction to tension the spring fingers against the mounting member.

4. In combination, a mounting member having an opening therethrough, a light socket comprising a casing having one end extending through the opening, a flange extending outwardly from the casing and having a plurality of circumferentially spaced spring fingers adapted to bite into engagement with the adjacent side of the mounting member upon rotation of the casing in one direction relative to the mounting member, cooperating means on the mounting member and casing engageable with each other upon rotation of the casing in the opposite direction relative to the mounting member to secure the casing to the mounting member and having provision for shifting the casing axially of the mounting member in a direction to tension the spring fingers against the mounting member.

5. In combination, a mounting member having an opening therethrough, a light socket having one end portion extending into the opening of the mounting member, means responsive to rotation of the socket relative to the mounting member in one direction to secure the socket to the mounting member and to cause a shifting movement of the socket in an axial direction toward said mounting member, and a flange extending generally radially outwardly from the socket and having circumferentially spaced spring fingers at the periphery thereof adapted to be tensioned by the mounting member upon

axial movement of the socket toward the mounting member by the means aforesaid, said spring fingers having edge portions adapted to slide over the adjacent surface of the mounting member upon rotation of the socket in a direction to secure the socket to the mounting member and adapted to bite into the mounting member upon rotation of the socket relative to the mounting member in the opposite direction.

6. In combination, a mounting member having an opening therethrough, a light socket having one end portion extending into the opening of the mounting member, cooperating interengaging means on the socket and mounting member responsive to rotation of the socket in one direction relative to the mounting member to secure the socket to the mounting member and to shift the socket axially toward the mounting member, and a flange extending generally radially outwardly from the socket and having circumferentially spaced portions at the periphery thereof slit in a generally radial direction to provide spring fingers adapted to be tensioned by the mounting member upon axial movement of the socket toward the mounting member, said spring fingers being arranged to slide over the adjacent surface of the mounting member upon rotation of the socket relative to the mounting member in a direction to secure the socket to said mounting member and adapted to bite into the mounting member upon rotation of the socket in the opposite direction relative to the mounting member.

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