June 18, 1929. C. H. JORDING 1,717,566

LAMP BULB SOCKET

Filed April 21, 1928

FIG. 1

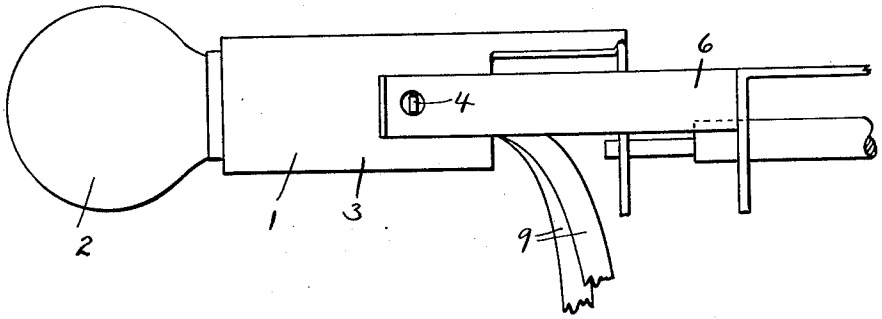


FIG. 2

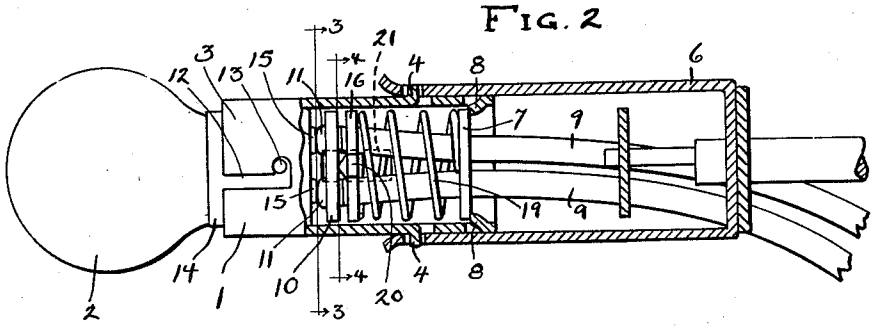


FIG. 3

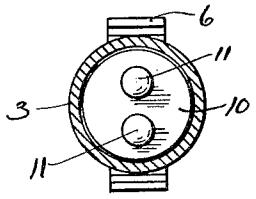


FIG. 5

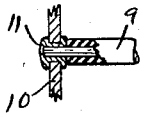


FIG. 4

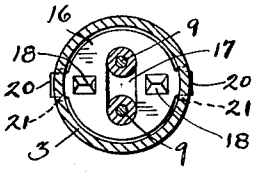


FIG. 6

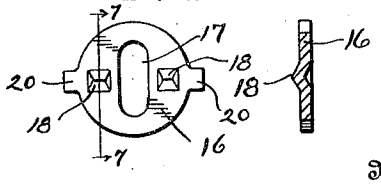


FIG. 7

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LAMP-BULB SOCKET.

Application filed April 21, 1928. Serial No. 271,735.

This invention relates to improvements in lamp sockets, and has particular reference to the socket employed in the electrical connection of motor vehicle lamps for the purpose of transmitting current from a source of current supply to the incandescent lamp employed in such head lamp as light sources.

In socket connections of this character it is customary to provide a contact disk which is resiliently mounted within the tubular shell of the connection and with which disk there is connected a pair of conductors for conveying current to and from a pair of spaced contacts carried by the disk. The shell of the connection is provided with bayonet slots adapted for the separable association with the connector of a plug or lamp base, as the case may be which plug or lamp base is provided with spaced terminals adapted for engagement with the spaced contacts formed in connection with the resiliently mounted disk member. By this customary construction, when a lamp base or plug is operatively connected with the socket connection the disk member is moved against the pressure of a spring arranged within the shell so that the disk member will exercise frictional pressure on the spaced terminals of the plug or lamp base for the purpose of producing an efficient electrical contact therebetween.

In practice, however, it has been found that some considerable difficulty is encountered in securing equalized pressures and physical engagement between the contacts of the lamp base or plug and the contacts of the disk member. This is frequently due to inequalities in manufacture wherein one of the contacts may be slightly longer or shorter than the remaining contacts, with the result that inefficient electrical communication is obtained between the contacts. To avoid this condition and to produce improved electrical communication between said contacts without excessive manufacturing costs or refinement of manufacturing operations, the present invention resides in the provision of a fulcrum plate which is arranged within the shell or casing of the connection immediately to the rear of the contact carrying disk member, so that the rear wall of said disk member will be positioned in engagement with a pair of fulcrum projections integrally formed with and protruding from the forward surface of the fulcrum plate, the latter being pressed forwardly into engagement with the disk member by an associated spring, the arrangement being such that the contact carrying disk member may rock to a limited extent on the projections of the fulcrum plate, so that the spaced contacts of said disk member may be brought into proper engagement with the complimental contacts of the lamp base or plug for the purpose of securing equalized pressures on such contacts and to thereby provide for efficient electrical communications therebetween.

It is a further object of the invention to mount the fulcrum plate in the shell of the connection so that the projections on said fulcrum plate will be situated in plane at right angles to those of the contact disk.

With these and other objects in view, as will appear as the description proceeds, the invention consists in the novel features of construction, combinations of elements and arrangements of parts hereinafter to be more fully described and pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a side elevation of a lamp base socket of the type employed in connection with vehicle head lamps,

Figure 2 is a vertical longitudinal view taken through the socket and illustrating more particularly the mechanism comprising the present invention,

Figure 3 is a transverse vertical sectional view on the plane indicated by the line 3—3 of Figure 2,

Figure 4 is a similar view on the line 4—4 of Figure 2,

Figure 5 is a detail view disclosing the connection between one of the leads and one of the contacts of the disk member,

Figure 6 is a front elevation of the fulcrum plate, and

Figure 7 is a vertical sectional view on the line 7—7 of Figure 6.

Referring more particularly to the drawings the numeral 1 designates a lamp base socket or connection of the type found in motor vehicle lamps and used particularly for supporting in an operative position the incandescent lamp 2 which constitute light sources for said head lamps. It will be understood, however, that the invention is not limited to a socket connection for this specific purpose but may be used in any capacity, as will be later apparent, where it is desired to

electrically unite a pair of separable connections.

The connection 1, in the specific form of the invention illustrated, comprises a cylindrical shell or casing 3, provided midway of its length with a pair of trunnion projections 4, which are receivable within openings provided in a suitable form of support 6. Usually, the support 6 comprises means whereby the casing 3 may be adjusted longitudinally and also oscillated in a vertical plane for the purpose of securing a desired focal adjustment of the bulb 2 with respect to an associated reflector, not shown.

Arranged within the hollow tubular confines of the casing 3 is a guide washer 7 of a di-electric material, and this washer is seated upon inwardly pressed fingers 8 integrally formed with the casing 3. The washer 7 is apertured for the reception of a pair of electrical conductors 9, suitably insulated by any appropriate covering.

Movably mounted in the casing 3 and spaced from the washer 7 is a contact disk 10, also formed from an insulating material. This contact disk is provided with a pair of spaced terminal contacts 11 which, as shown in Figure 5, are suitably secured in electrical communication with the cables or conductors 9. It will be observed that the forward end of the casing 3 is, as usual, provided with a bayonet slot 12 in which is positioned a pin 13 carried by the base 14 of the lamp bulb 2. The inner wall of the base 14 is provided with a pair of spaced contacts 15, which are adapted to be engaged with the contacts 11 provided in connection with the disks 10, in order that the current conducted by the cables 9 may be transferred in the customary manner to the filament of the bulb.

In order to maintain proper contact between the contact heads 11 and 15 and to compensate for irregularities due to manufacturing methods or other causes, there is arranged in the casing 3, immediately to the rear of the disk 10, a fulcrum plate 16. This plate is of circular form which may be also formed from an insulating material, and is provided centrally with an elongated slot 17 adapted for the accommodation of the conductors 9. The front face of the plate 16 is suitably formed with a pair of trunnion projections 18 which are adapted to engage with the rear wall of the disk 10, so that said disk may rock about the fulcrum line provided by the projections 18. Surrounding the conductors 9 and interposed between the washer 7 and the plate 16 is a coiled expansible spring 19, which is employed to force the plate 16 and the disk 10 forwardly, maintaining proper contact between the contact heads 11 and 15 and also serving to press the projections 18 into frictional engagement with the rear surfaces of the disk 10.

The projections 18 are situated in a plane perpendicular to that of the heads 11, as will be apparent by reference to Figures 3 and 6. This arrangement of the projections 18 permits of rocking movement on the part of the disk 10 by means of which irregularities in the length or formation of the heads 11 and 15 will be automatically corrected so that both sets of heads will contact firmly and securely irrespective of slight variations in their respective sizes or lengths. The plate 16, to insure this feature, is provided with offset projections 20 at the perimeter thereof, which projections or wings are receivable within elongated slots 21 provided in the sides of the casing 3.

In view of the foregoing it will be seen that the present invention provides simple, positive and efficient means for improving the engagement between the conductor heads 11 and 15. The construction is peculiarly applicable to quantity manufacturing methods in that the various parts comprising the connection may be made by the use of automatic machinery in large quantities without the necessity of careful inspection and yet very satisfactory results from a practical operating standpoint are obtainable. The construction serves to minimize resistance in the electrical circuit including the head lamp bulb at the same time to enable the latter to provide the steady, uniform bright light necessary in head lamp operations.

What is claimed is:

1. A socket connector comprising a casing, a disk member slidably mounted within said casing, said disk member being provided with a pair of contact heads to which are connected rearwardly extending cables, a base member at one end of said casing, a fulcrum plate arranged within said casing between said base member and said disk member, said fulcrum plate being provided with a pair of enlargements arranged to engage with the disk member to permit of limited oscillatory movement on the part of the latter, and a coil spring situated between said base member and said fulcrum plate.

2. A socket connector comprising a casing, a disk member movably mounted within said casing, said disk member being provided with a pair of spaced contact heads, said heads being adapted for connection with a plurality of rearwardly extending cables, a fulcrum plate situated within said casing, said fulcrum plate being provided with a pair of projections arranged to engage with said disk member to permit of limited oscillatory movement on the part of the latter, and spring means arranged within said casing and engaging with said fulcrum plate to maintain the projections of the latter in engagement with said disk member.

3. A socket connector comprising a casing, a disk member situated for movement within said casing, said disk member being pro-

vided with a pair of spaced contact heads, said heads being connected with a pair of rearwardly extending conductors, a plate provided with a slot through which said conductors extend, trunnion projections provided upon said plate and arranged for engagement with said disk member to permit of limited oscillatory movement on the part of said disk member relative to said plate, and spring means engaging with said plate and tending to maintain the projections thereof in contact with said disk member.

4. A socket connector comprising a casing, a disk member situated within said casing and provided with a pair of spaced contact heads to which are connected rearwardly extending cables, a plate arranged within said casing and provided with a slot through which said cables pass, trunnion projections provided upon said plate and arranged for engagement with the rear surface of said disk member, said trunnion projections being situated in a plane perpendicular to that occupied by said contact heads, and spring means arranged within said casing and cooperating with said plate to maintain the projections of the latter in contact with said disk member.

5. A socket connector comprising a tubular casing, a disk member of insulating material positioned within said casing, said disk member being provided with a pair of spaced contact heads, cables connected with said heads and extending rearwardly through said connector, a fulcrum plate positioned within said casing and having the perimeter thereof provided with a pair of outwardly projecting wings, said wings being receivable within longitudinal slots provided in said casing, trunnion projections provided in connection with said fulcrum plates and disposed for engagement with the rear surface of said disk member, said projections being arranged in a plane perpendicular to that of said contact heads, and spring means arranged within said casing and operating upon said plate to force the projections of the latter normally into contact with said disk member.

6. As a new article of manufacture, a fulcrum plate for socket connectors embodying a disk of insulating material, said disk being provided with a centrally located slot, and a plurality of aligned projections constituting fulcrums formed upon one side of said plate.

7. As a new article of manufacture, a fulcrum plate for socket connectors comprising a disk of insulating material, said disk being provided centrally with a cable receiving slot, a plurality of aligned trunnion projections protruding from one side of said plate, and a pair of wings extending laterally from the perimeter of said plate.

In testimony whereof I affix my signature.

CHRISTIAN H. JORDING.