April 24, 1928. 1,666,973

F. J. MILES ET AL

DOUBLE CONTACT SOCKET FOR ELECTRIC LAMPS

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Fig. 1.

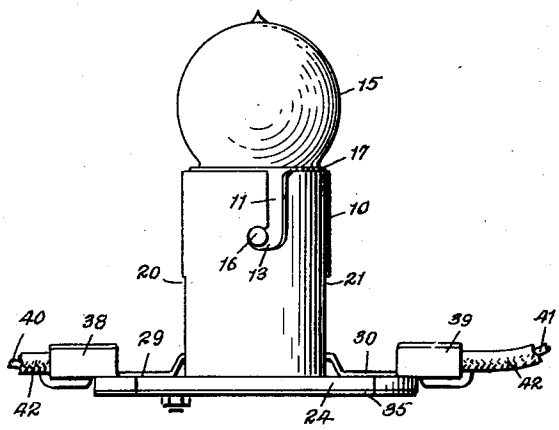


Fig. 3.

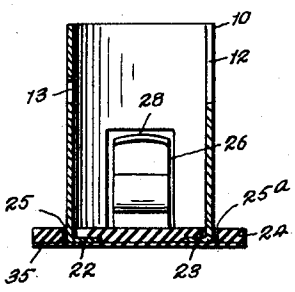


Fig. 2.

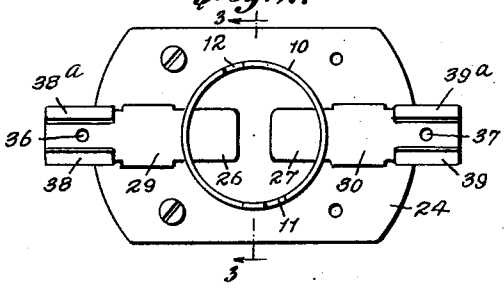


Fig. 4.

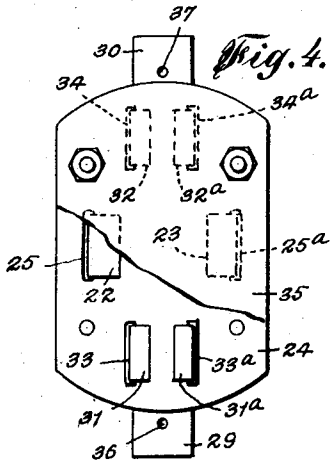
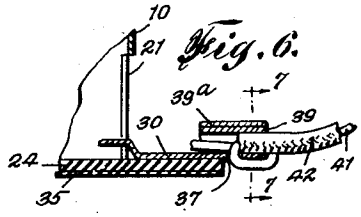


Fig. 7.

Fig. 5.

Fig. 6.



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UNITED STATES PATENT OFFICE.

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DOUBLE-CONTACT SOCKET FOR ELECTRIC LAMPS.

Application filed November 14, 1924. Serial No. 749,906.

Our invention relates to lamp sockets designed for use with small incandescent electric lamps provided with pins for engaging bayonet lock slots in the socket and having two bottom contacts instead of the customary ring and single bottom contact and more particularly our invention relates to sockets of this type for use with lamps where vibration is present and where it is necessary to guard against the lamp working loose in the socket and more particularly for use on vehicles, such as automobiles, and especially for use in signal devices for such vehicles.

The object of our invention is to provide a socket which will insure perfect contact and guard against the lamp working loose, thereby avoiding poor contact or a contact becoming entirely separated, and also to insure clean contacts. The further object is to provide a construction having the least number of parts readily made and assembled and which will permit extremely low cost of production.

To accomplish our objects we have designed a socket having only four parts, and in which screws, rivets and brazed or soldered joints are entirely dispensed with. These parts comprise a base plate of insulating material, a sleeve or socket member which may be of metal or insulating material and two bottom contact members. The socket member is preferably a tubular metal piece having two oppositely located bayonet lock slots entering from the top of the sleeve, two oppositely located openings or gaps at the lower end of the sleeve and diametrically opposite to the bayonet lock slots and projecting from the bottom of the sleeve in line with the bayonet lock slots two lugs by means of which the socket or sleeve is clamped to the base plate. The bottom contact members are identical in form and preferably each being in a single piece stamped from sheet metal and bent into shape so as to present three elements; first, the contact end which is bent into S-shape and which ends project through the gaps in the sleeve member; second, a clamping element consisting of two laterally projecting lugs which are bent downward to pass through slots in the base plate and again bent to clamp the contact piece in position; third, at the outer end two upwardly projecting lugs for clamping the circuit wires. A fifth piece may be provided in each socket, namely, a covering of insulating material on the under side of the base plate to cover the lugs of the sleeve and bottom contact pieces and thereby prevent any possible short-circuit between the two contact plates and the sleeve member of the socket.

In the drawing, Figure 1 is an elevation of the socket with the lamp mounted therein and circuit wires connected between clamping lugs of the bottom contact members; Figure 2 is a top plan view of the socket; Figure 3 is a vertical section on the line 3—3 of Figure 2; Figure 4 is a bottom view with the extra insulating plate partly broken away; Figure 5 a vertical section through Figure 2 taken at right angles to the line 3—3 showing the clamping lugs for the wire connections in the open position and a wire connected to one of the terminals; Figure 6 is a vertical section illustrating the clamping lugs for the conductor in the closed position; and Figure 7 is a cross section on the line 7—7 of Figure 6.

Referring now to the drawings, 10 indicates the sleeve or socket member which may be of metal or insulating material, but preferably of metal, and having bayonet type slots as indicated at 11 and 12, which are adapted to receive the locking pins 16 projecting laterally from a collar 17 on the base of lamp 15. The sleeve 10, at the end which is seated upon the base plate 24, of insulating material, is provided with two oppositely located gaps 20 and 21 and preferably so located as to be diametrically opposite to the bayonet slots, and projecting from the lower end of the sleeve in line with the two bayonet slots are lugs 22 and 23 which are inserted through slots 25 and 25^a in the base plate and bent over as shown in Figures 3 and 4 to clamp the sleeve member 10 firmly upon the base plate. The base plate 20 may be of any desired shape but preferably of the shape shown in Figures 2 and 4 and is provided in addition to the two centrally located slots 25 and 25^a, above referred to, with two pairs of similar slots, 33, 33^a, 34 and 34^a, a pair being located at each end of the base plate and somewhat closer together than the first mentioned slots. These slots are for securing the contact members in position as hereinafter referred to. The base plate is also

provided with holes to receive pins or screws whereby the same may be secured to any desired support or fixture or within an automobile lamp chamber. The bottom contact members 26 and 27 are preferably identical in shape each being stamped from one piece of sheet metal such as brass or copper, in the form of a long narrow strip with four projecting lugs; the contact 26 at its mid-section 29 being provided with two laterally projecting lugs 31 and 31ª which are bent downward and two vertically projecting lugs 38 and 38ª, and likewise contact 27 at its mid-section 30 is provided with two laterally projecting lugs 32 and 32ª which are bent downward, and two vertically projecting lugs 39 and 39ª. The lugs projecting from the mid sections 29 and 30 are bent downward for the purpose of passing same through the slots 33, 33ª, and 34, 34ª respectively, and are of sufficient length to be bent over as indicated in Figure 4 so as to clamp the contact members in position on the base plate. The lugs at the ends of the contact members are bent upward prepared to receive a circuit wire, as will be presently explained. The inner end of the contact members 26 and 27 are preferably bent into approximately S-shape so as to present a contact surface at 28 as indicated in Figure 5 where the contact buttons 18 and 19 projecting downwardly from the lamp base are shown in position within the sleeve 10. The mid-sections of the contact plates have a rectangular bend so as to present two sections substantially parallel with the base plate but out of contact therewith, see Figure 5, and then have the upward bend and return bends 27 and 26 which complete the approximate letter S-shape. The contact points 28 of the two contact members are so positioned vertically within the sleeve 10, that when the lamp is inserted the bottom contacts 18 and 19 of the lamp will engage therewith before the pins 16, projecting from the collar 17, reach the locking ends of the bayonet-slots so that as the lamp is pressed further downward toward the locking position, the spring contacts 26 and 27 will be under considerable pressure tending to push the lamp upward and holding pins 16 firmly within the bayonet-locks. When thus inserting the lamp and applying pressure to the spring contacts, it will be readily observed that the act of bending the contacts will produce a relatively rubbing action between same and the contact buttons 18 and 19, thus insuring clean contacts. The purpose in having two openings or gaps 20 and 21, oppositely spaced and higher than the height of the contact springs 26 and 27, is not only to provide a clear entrance for the contact springs, but also to guard against the springs making contact with the sleeve 10, and by having the slots opposite to each other, no mistake can be made in mounting the sleeve upon the base plate, since it makes no difference which of the gaps are adjacent to the ends of the base plate upon which the contact plates are clamped. For the purpose of facilitating the attachment of conducting wires to the contact plates, holes 36 and 37 are provided at a point about midway of the lugs 38 and 39, respectively, and when attaching a circuit wire the end is bared of insulation and inserted downward through such hole and then bent under and over the end of the plate and back between the lugs 38, 38ª, and 39, 39ª, so that the bared end of the wire will be parallel with the covered portion of the conductor as shown in Figures 5 and 6, and thereupon one lug as shown at 39 Figure 7, is bent down firmly against the conductor, a pair of ordinary pliers being employed for the purpose, and then the second lug, 39ª, is similarlly bent over, overlapping the lug 39, completing the joint as shown in cross section in Figure 7. This mode of joining the wire to the contact plate produces a long close contact doing away entirely with the use of screws, or solder.

When a socket is assembled it is provided with a bottom insulating plate 35, which is held in position by small bolts as shown in Figures 1 and 4, and these bolts may be employed for securing the socket in position upon the fixture or within a lamp chamber.

From the foregoing it may be observed that the construction of our improved lamp socket is extremely simple and as above stated, comprises only four parts and does away entirely with screws, rivets, or soldered joints in the assembly of the socket parts proper, and that the only screws, or bolts employed are those for securing the socket in position upon the fixture or within the lamp chamber, and it is also evident that this form of socket will withstand extreme jarring and considerable vibration without any liability of the parts becoming loose in such manner as to result in poor contact or broken circuit.

What we claim is:

An electric lamp socket consisting of five parts, a base member of insulating material having a plurality of slots formed therein; a cylindrical sleeve or socket member having at one end two oppositely located bayonet-lock slots adapted to receive the laterally projecting pins of a lamp base, two oppositely located gaps at the other end and positioned diametrically opposite to the bayonet-lock slots, and two oppositely located lugs positioned between said gaps and adapted to pass through slots in the base, and bent over to clamp the sleeve in position; two contact members mounted on said base and projecting into the sleeve member through said gaps, each of said contact members be-

ing formed in one piece, stamped from sheet metal and having the contact end in the form of the letter S, lugs projecting from the mid-section adapted to pass through slots in the base plate and bent over to clamp the contact piece in position, and at the outer end having lugs for clamping a circuit wire thereto, and a plate of insulating material covering all said lugs on the under side of the base plate.

This specification signed this 13" day of November, A. D. 1924.

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