

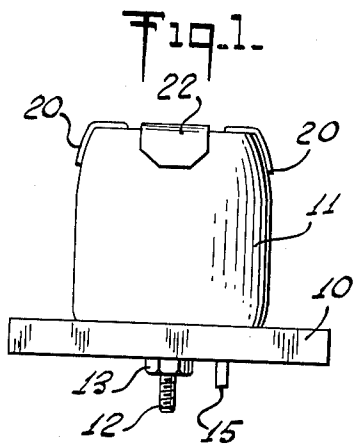
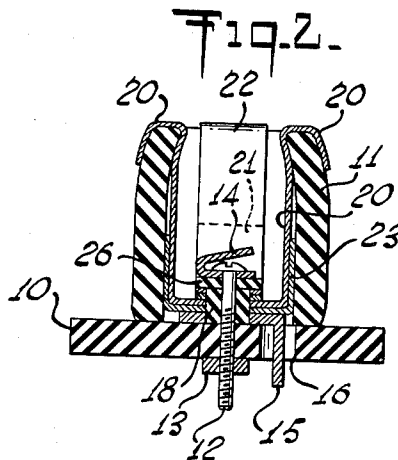
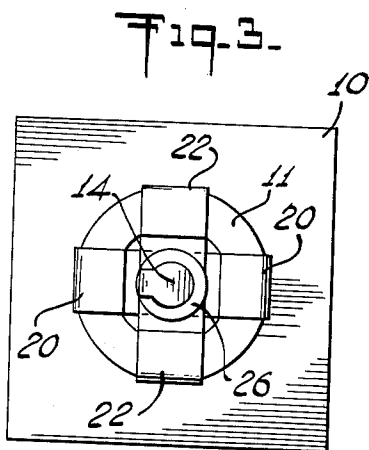
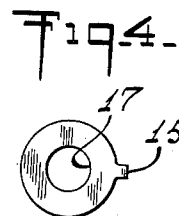
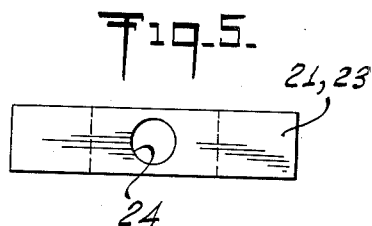
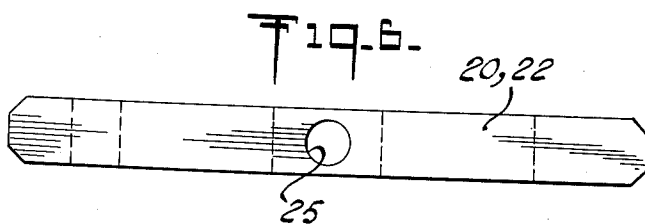
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3,076,950

LAMP SOCKET

Filed June 17, 1960



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3,076,950

LAMP SOCKET

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This invention relates to a socket for candelabra type lamp bulbs and has particular reference to a socket which will hold a light bulb securely without the necessity of turning the lamp bulb when inserting it into or withdrawing it from the socket.

Many types of lamp sockets have been devised and used, the most important and widely used type being the screw base arrangement in which the lamp must be turned or threaded in order to make electrical contact with both terminals. This action consumes considerable time and considerable pressure must be applied to the bulb in order to be sure that the base is well seated. The bayonet type of socket is used in some applications where there is considerable vibration and a bayonet locking means is necessary to retain the lamp in its operating position. The bayonet type of socket is not entirely satisfactory since the lamp base has considerable play within the socket tube and the electrical connection to the central lamp terminal depends entirely upon the resiliency of the central socket electrode. The socket herein described has none of the difficulties listed above and in addition is quick acting. An operator need only push the lamp into the socket to obtain complete and reliable connection to both electrical conductors.

One of the objects of this invention is to provide an improved socket for electric lamps which avoids one or more of the disadvantages and limitations of prior art sockets.

Another object of the invention is to provide a socket which will hold a lamp base securely in contact with its electrical connections.

Another object of the invention is to reduce the cost of sockets by providing a structure which uses easily manufactured parts which can be assembled in a short time.

Another object of the invention is to provide a socket which will accommodate bulbs of various sizes.

Another object of the invention is to provide a socket which is interchangeable with the standard sockets now in use.

The invention comprises a plurality of strip conductor members which are arranged to form a pronged open shell for receiving the lamp base and which are urged into engagement with the lamp base by a plurality of tension spring members adjacent portions of the outer surfaces of the conductor members. The conductor members and spring members are held together and in engagement with a flat electrode by a single screw means. The screw means also holds a central contact spring near the base of the pronged shell to form a second electrode. The entire shell assembly is housed in a resilient rubber cylinder and the ends of the conductor members are bent over the upper rim of the rubber cylinder to hold it in place and to provide a curved lead-in surface for the lamp base. The socket may be mounted on a flat base with the single screw means, suitable holes being provided in the base for the screw means and for the second electrode.

For a better understanding of the present invention, together with other and further objects thereof, reference is made to the following description taken in connection with the accompanying drawing.

FIG. 1 is a side view of the socket.

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FIG. 2 is a vertical sectional view of the socket taken along a line which intersects the axis of the socket.

FIG. 3 is a top view of the socket.

FIG. 4 is a top view of one of the electrodes removed from the socket.

FIG. 5 is a development view of one of the spring members used within the resilient cylinder.

FIG. 6 is a development view of one of the conductor members used within the resilient cylinder.

Referring now to the drawing, a base 10 of any desired shape or thickness may be used to support the socket components. The base is made of hard rubber or Bakelite or any other convenient stiff insulating material. A resilient cylinder 11 is positioned on the base 10 and is made of sponge rubber or other similar material. All the socket components are retained in their operating position by means of a machine screw 12 which passes through a hole in the base 10 and is held in place by a nut 13. The machine screw 12 is made of conductive material and makes contact with a contact spring 14 at its upper end, this spring making contact with one of the terminals of the lamp base. The spring conducts current to the lamp by means of a source of electric power connected to the lower end of screw 12.

A second electrode 15 (shown in detail in FIG. 4) is mounted on the top surface of the base 10 and one end of the electrode 15 may extend through a hole 16 in the base for connection to the source of electric power. The other end of electrode 15 is formed with a disc portion having a hole 17 which surrounds the screw 12 but is separated therefrom by an insulator sleeve 18.

Contact to the sides of the lamp base is made by the prongs of conductor members 20 and 22 which are made from strips of spring material. The conductor members 20 and 22 (shown in detail in FIG. 6) are provided with a central hole 25 and are bent into a U-shape. The conductor members extend up to the top of the resilient cylinder 11 with their ends being bent over the rim of the resilient cylinder. The curved inner ends of conductor members grip the sides of the lamp base and hold it firmly in place. Positioned flush against portions of the outer surface of the conductor members are spring members 21 and 23 which are also made from spring material. These spring members (shown in detail in FIG. 5) are also provided with a central hole 24 and are bent into a U-shape like that of conductor members 20 and 22 to press against the outer surface of the conductor members. The spring members reinforce the gripping pressure of the conductor members and urge the conductor members to engage the sides of the lamp base. In the embodiment shown in FIG. 2 of the drawings the spring members extend about halfway up the length of the conductive members. However, the length of the spring members may be changed according to the degree of reinforcement desired.

When the socket is assembled screw 12 is inserted through electrode 14 and then through washer 26 which is made from insulating material. The screw 12 is then inserted through an insulating sleeve 18, the diameter of which is selected to give a snug fit within the holes of the conductor and spring members and of the electrode 15. The base of the conductor 22 is then moved up on the screw into engagement with the base of the insulating washer 26. Spring member 21 is next assembled on the screw and its base moved into engagement with the base of conductor 22. The same procedure is followed with conductor 20 and spring member 23. Then electrode 15 is moved up against the bottom-most spring member 23. The entire assembly is then placed within the resilient rubber cylinder 11 and screw member 12 and electrode 15 are inserted into holes in the base 10. Nut 13 is screwed up against the base 10 to secure the

socket to the base. The ends of the conductor members 20 and 22 are bent over the upper rim of the resilient cylinder and the socket is ready for use.

To connect a lamp bulb to the socket, the base of the lamp need only be pushed into the socket by pressing on the bulb. No rotation of the lamp in the socket is needed. To remove the lamp from the socket it is simply pulled out. While the lamp base is in the socket it is held firmly in place by the grip of the inner curved ends of conductor members 20 and 22, this gripping force being considerably reinforced by the spring members 21 and 23 and by the resilient cylinder 11. The lamp base is retained in contact position even though the socket be subjected to considerable vibration. From the embodiment of the invention heretofore described it will be seen that a socket is provided which receives lamp bases of various shapes and sizes whether of the bayonet, screw thread or straight cylindrical type. The lamp base is firmly mounted and easily removed from the socket simply by push pull movements without the need for rotation in either case. The socket may be mounted singly on a flat base or in groups of two or more on large panels.

The foregoing disclosure and drawings are merely illustrative of the principles of this invention and are not to be interpreted in a limiting sense. The only limitations are to be determined from the scope of the appended claims.

I claim:

1. An electric lamp socket comprising a cylindrical shell of resilient insulating material, a plurality of U-shaped strip conductors made from flat spring material and positioned on the inside surface of the shell, the ends of some of said conductors being bent over the upper rim of the shell for securing the shell relative to the conductors, the remaining conductors extending partly up along the inside surface of the shell and pressing against outer surfaces of the longer conductors to urge said longer conductors radially inward, a first lead-in electrode positioned in contact with said conductors for connection to an external circuit, an axial conductive retaining means for securing the conductors and the first lead-in electrode together, said retaining means forming a second lead-in electrode for connection to an external circuit, and insula-

tion means positioned between said retaining means and said conductors.

2. An electric lamp socket comprising a cylindrical shell of resilient insulating material mounted on a base, a plurality of U-shaped strip conductors made from flat spring material and positioned on the inside surface of the shell, the ends of some of said conductors being bent over the upper rim of the shell for securing the shell relative to the base, the remaining conductors extending partly up along the inside surface of the shell and pressing against outer surfaces of the longer conductors to urge said longer conductors radially inward, a first lead-in electrode positioned in contact with said conductors for connection to an external circuit, an axial conductive retaining means passing through a hole in the base and through holes in the conductors for securing the conductors to the base, said retaining means also forming a second lead-in electrode for connection to an external circuit, and insulation means positioned between said retaining means and said conductors for preventing conduction between the lead-in electrodes.

3. An electric lamp socket as set forth in claim 2 wherein a spring contact electrode is secured to the inner end of the retaining means for making contact with an axial terminal on a lamp base.

4. An electric lamp socket as set forth in claim 2 wherein said insulation means includes a tube of insulating material surrounding the retaining means for part of its length and an insulating washer in engagement with said conductors.

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