

W. H. KEMPTON.
LAMP SOCKET.
APPLICATION FILED FEB. 13, 1909.

932,139.

Patented Aug. 24, 1909.

FIG. 1

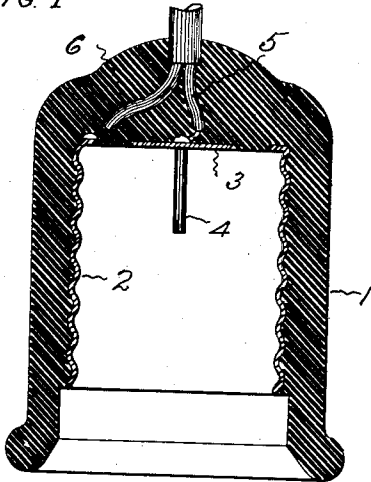


FIG. 2

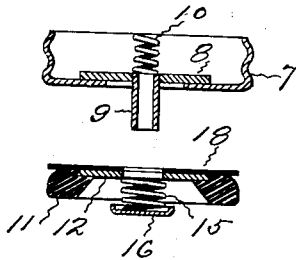
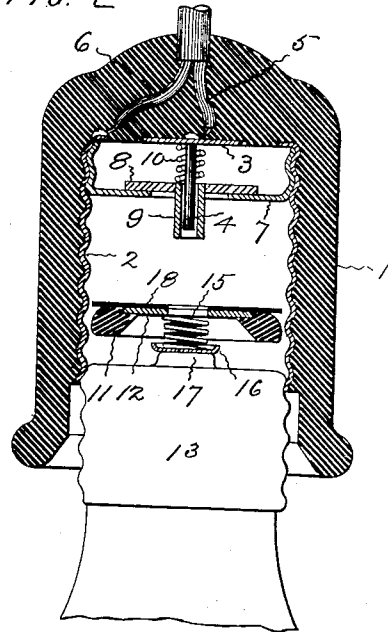


FIG. 3

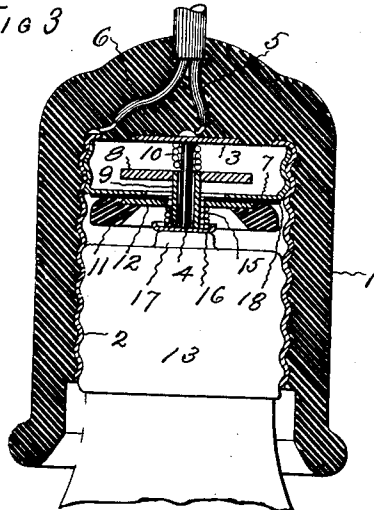
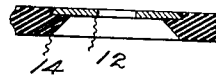


FIG. 4



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLARD H. KEMPTON, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE JOHNS-PRATT COMPANY,
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LAMP-SOCKET.

932,139.

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To all whom it may concern:

Be it known that I, WILLARD H. KEMPTON, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Lamp-Socket, of which the following is a specification.

This invention relates to sockets for incandescent lamps, and more particularly to those sockets which are provided for lamps that are to be used in a series circuit. Sockets of this class are necessarily constructed so that they will act automatically and close the circuit, in order to permit a continuance of the flow of current therethrough, whenever one or more lamps burn out, or become destroyed, or are removed from the sockets for any purpose.

The object of the present invention is to provide a simple, and cheap socket of this nature which will surely and efficiently close the circuit so that the current flow will be maintained whenever a lamp burns out, or becomes broken, or is removed, without damage to any of the permanent conducting parts, and which is so constructed that it can be easily but quickly renewed and restored to normal condition whenever a new lamp is placed therein.

Figure 1 of the accompanying drawings shows a central section of the body of a socket which embodies this invention, and also the parts which are assembled therein when the socket is in operative condition. Fig. 2 shows a similar view of the same socket with the parts in the positions occupied when a lamp is being inserted therein. Fig. 3 shows a similar view of the parts with the lamp base screwed all the way into the socket, and Fig. 4 shows a detail of a modified form of one of the parts that may be used in the interior of this socket.

The body 1 of the socket shown, is made of weatherproof insulating material, such as porcelain or a molded waterproof insulating compound. If the body of the socket, as is illustrated in the drawing, is formed of a molded insulating compound, a metallic threaded shell 2, preferably brass, is molded in the interior so as to line the side wall of the recess and provide the outer terminal, and a plate 3 with a centrally projecting stud 4, also brass, is molded in the end wall of the recess in the body to provide the central terminal. Lead wires 5 and 6, may be

embedded in the end of the socket when it is formed, one of the leads being connected with the central terminal plate or stud, and the other being connected with the shell or outer terminal, to provide the usual connections between the circuit wires and the lamp terminals of the socket. A conductor 7, preferably made of brass, in the form of a cup with a threaded side wall and a perforated end wall, is located in the recess and electrically connected with the shell near the inner end thereof. Loose inside of the cup is a disk 8, that has a tubular stem 9 which extends through the opening in the end of the cup. The stud that projects from the central terminal plate in the body, at the end of the recess, extends through this stem of the loose conductor disk. Coiled around the stud and thrusting against the central terminal in the body, and the loose disk in the cup, is a spiral spring 10. When there is nothing beneath the tubular stem of the loose disk to hold it up, this spring presses the disk against the end of the cup and completes a circuit comprising the central contact plate, spring, loose disk, cup and shell or outer contact, from one lead wire to the other so that a flow of current can be maintained through an empty socket.

The ring 11, of insulating material, either porcelain or molded insulating compound, bearing a metallic plate 12, is placed in the socket between the cup and the lamp base 13. This ring can be of such size that it may be simply thrust up into the socket, as is the ring 11, shown in Figs. 2 and 3, or, it may have its exterior threaded, as is the ring 14, shown in Fig. 4, so that it may be screwed up into the shell. It is preferred to arrange the spring 15 between the plate carried by the ring and the cap 16, which is designed to engage the central contact 17 on the lamp base. Between the bottom of the cup and the plate carried by the ring, a thin washer 18 of insulating material, is placed. This washer may be made of paper, but it is preferably made of a substance, rich in carbon, such as bitumen, although of course it could be made of thin mica, having one or more perforations therethrough.

If there is no lamp in the socket, the loose disk is thrust by the spring above it, or it drops by gravity if there is no spring against the bottom of the cup, which is in metallic engagement with the lining, and the circuit

from one lead wire to the other is closed through these parts. When a lamp base is screwed into the socket with a ring and insulating washer placed above it, the spring below the plate carried by the ring thrusts the plate and ring upwardly, and holds them up with the insulating washer close against the underside of the cup and forces the cap down against the central contact on the lamp base. With the parts in this position, the engagement of the end of the stem with the cap holds the loose disk up and out of engagement with the bottom of the cup, so that the circuit is opened between the disk and cup, but is closed through the stem and central contact of the lamp base, the shell on the base of the lamp engaging the shell in the socket and completing the circuit in the usual manner. Whenever a lamp held by one of these sockets burns out, or becomes broken, or has its filament ruptured from any cause, there is a momentary concentration of electrical pressure between the bottom of the cup and the plate carried by the ring, which, if the washer separating these parts is of paper, is sufficient to puncture the paper and cause the insulation to break down and establish a circuit between the plate carried by the ring, which is in electrical connection with the central terminal, and the bottom of the cup, which is in electrical connection with the outer terminal. If the disk is of mica with perforations, the circuit is completed through the perforations in the mica, but if the preferred form of insulating washer is used, that is the washer is made of a substance rich in carbon, such as bitumen, which under normal conditions provides a complete electrical insulation of the parts, but when subjected to heat and abnormal electrical pressure, becomes carbonized and forms a good conductor, the current will flow from one lead to the other through the washer and the metallic parts each side of it. When the lamp is removed, the circuit which is then opened through the lamp, is immediately completed by the loose disk so that the other lights on the circuit are not interfered with. All that it is necessary to do, in order to restore the parts to normal condition, is when another lamp is screwed into the socket to substitute a new insulating washer between the ring and the cup for the one ruptured, which washers are very light, small and cheap, and can be quickly and easily supplied.

The invention claimed is:

1. A lamp socket having a recessed body of insulating material with a closed upper end, a shell located in the body, a central conducting contact at the end of the recess in the body, a circuit wire connected with the shell, a circuit wire connected with the central contact, a conductor removably located in the recess through the bottom of the

socket, and connected with the shell, and a conductor located in the recess and connected with the central contact, one of said conductors being movable whereby they are engaged when there is no lamp in the socket, but are disengaged when there is a lamp in the socket.

2. A lamp socket having a recessed body of insulating material with a closed upper end, a conducting shell located therein, a central conducting contact located at the end of the recess, a circuit wire connected with the shell, a circuit wire connected with the central contact, a conductor removably located in the recess through the bottom of the socket and connected with the shell, a conductor loosely located in the recess and connected with the central contact, and a spring arranged to force the conductor connected with the central contact against the conductor connected with the shell.

3. A lamp socket having a recessed body of insulating material with a closed upper end, a conducting shell arranged within the body, a conducting contact located centrally of the end of the shell, a circuit wire connected with the shell, a circuit wire connected with the central contact, a conductor removably located in the recess through the bottom of the socket and connected with the shell, a conducting plate arranged in and insulated from the shell, and connected with the central contact, and an insulating washer arranged between said conducting plate and the conductor connected with the shell.

4. A lamp socket having a recessed body of insulating material, a conducting shell located in the body, a contact located centrally at the end of the recess in the body, a conductor located in the recess and connected with the shell, a conductor loosely located in the recess, said conductor being connected with the central contact and adapted to be engaged with the conductor connected with the shell, a conducting plate arranged and insulated from the shell, and an insulating washer arranged between the said conducting plate and the conductor connected with the shell.

5. A lamp socket having a recessed body of insulating material, a conducting shell located in the body, a conductor located centrally of the body, a conductor located in the recess and connected with the shell, a conductor loosely arranged in the recess, said conductor being connected with the central contact and adapted to be engaged with the conductor connected with the shell, a conducting plate arranged in and insulated from the shell, an insulating washer arranged between the said plate and the conductor connected with the shell, a spring arranged between the end of the recess and the movable conductor connected with the central contact, and a spring arranged to

thrust the contact plate and insulating washer upwardly against the conductor connected with the shell, when a lamp base is turned full way into the shell.

5 6. A lamp socket having a recessed body of insulating material, a threaded conducting shell located in the body, a contact plate located at the end of the recess in the body, a stud projecting from said plate, a disk
10 with a tubular stem movable on said stud, a cup screwed into the shell, a ring of insulating material bearing a contact plate and an insulating disk arranged below the cup, and a spring and cap arranged to thrust the
15 plate, ring and the insulating disk upwardly against the bottom of the cup when a lamp base is screwed full way into the socket.

7. A lamp socket having a recessed body of insulating material, a shell of conducting
20 material located in the body, a central conducting contact, a removable conductor extending across the recess and connected with the shell, and a conductor electrically connected with the central contact and movable
25 in the recess in the socket above the removable conductor, said movable conductor being adapted to engage the conductor connected with the shell when there is no lamp

in the socket, and to be moved out of engagement therewith when a lamp base is
30 turned full way into the shell.

8. A lamp socket having a recessed body of insulating material, a shell of conducting material located in the socket, a central contact, a conductor extending across the recess
35 and connected with the shell, a conductor connected with the central contact, and an insulating washer arranged between said latter conductor and the conductor connected with the shell.
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9. A lamp socket having a shell of conducting material, a yielding central conducting contact, a conductor removably inserted into the socket and connected with the shell
45 above the lower end of the central contact, a conducting plate arranged below said conductor and yieldingly connected with the central contact, and a piece of carbonizable material arranged between said plate and
50 said conductor that is connected with the shell.

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Witnesses:

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