No. 861,692. PATENTED JULY 30, 1907.

E. ANDERSON.

SWITCH SOCKET FOR ELECTRIC LAMPS.

APPLICATION FILED NOV. 15, 1906.

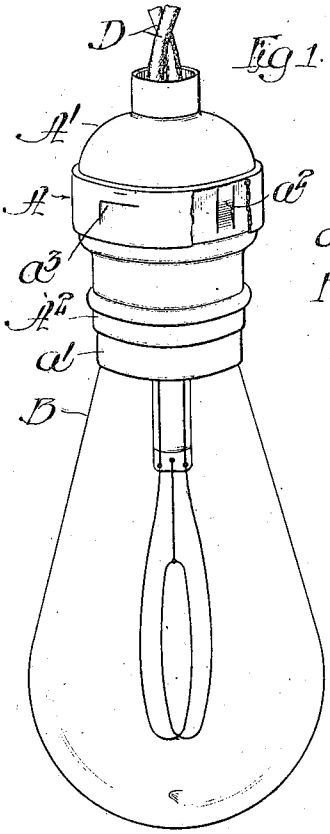


Fig. 1.

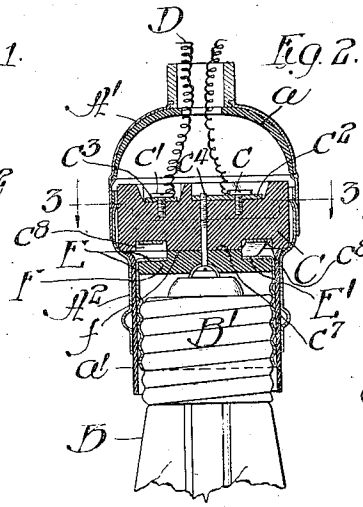


Fig. 2.

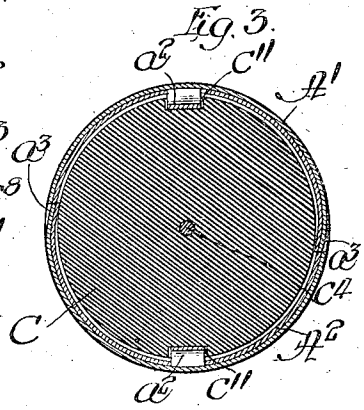


Fig. 3.

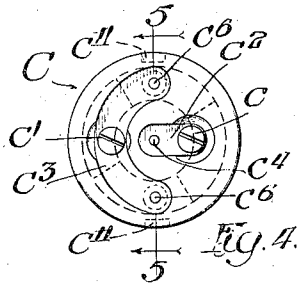


Fig. 4.

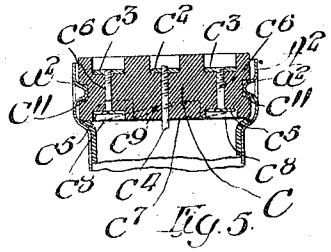


Fig. 5.

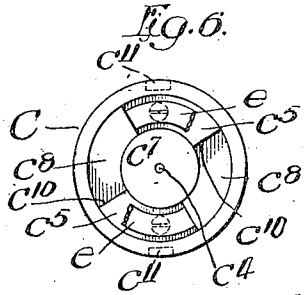


Fig. 6.

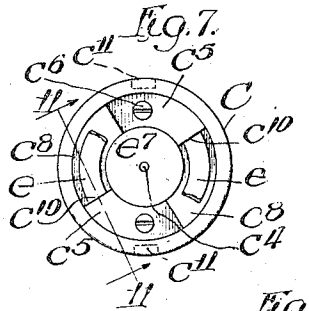


Fig. 7.

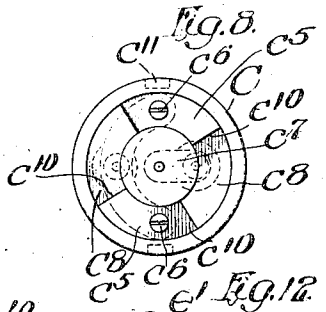


Fig. 8.

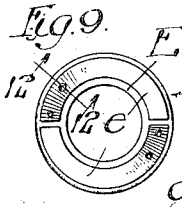


Fig. 9.

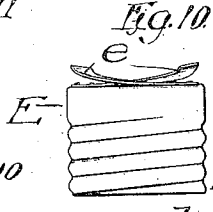


Fig. 10.



Fig. 12.



Fig. 11.

Witnesses:

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W. Wm. Hall

Inventor

Ernst Anderson

by Poole & Brown

his Attys.

UNITED STATES PATENT OFFICE.

ERNST ANDERSON, OF CHICAGO, ILLINOIS.

SWITCH-SOCKET FOR ELECTRIC LAMPS.

No. 861,692. Specification of Letters Patent. Patented July 30, 1907.

Application filed November 15, 1906. Serial No. 343,528.

To all whom it may concern:

Be it known that I, ERNST ANDERSON, a citizen of the United States, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Switch-Sockets for Electric Lamps; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in switch sockets for electric lamps and the invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

Among the objects of the invention is to provide a keyless switch socket in which the switch mechanism of the socket is actuated through force applied to the lamp fitted to the socket, to provide a socket in which the switch mechanism is completely inclosed, thereby avoiding liability of dust and other foreign substances finding their way into the interior of the socket in a manner tending to short circuit the current, and to otherwise simplify and improve the socket, as will hereinafter appear.

As shown in the drawings:—Figure 1 is a side elevation of a socket embodying my invention, partially broken away, showing a lamp fitted thereto. Fig. 2 is an axial section of the socket. Fig. 3 is an enlarged transverse section, taken on line 3—3 of Fig. 2. Fig. 4 is a rear end elevation of the socket-base. Fig. 5 is a section, taken on line 5—5 of Fig. 4. Fig. 6 is a face view of the socket-base showing the switch terminals carried thereby and indicating also the movable switch terminals in contact therewith. Fig. 7 is a similar view showing the movable switch terminals out of contact with the stationary terminals. Fig. 8 is a view similar to Fig. 7 with the movable switch terminals omitted. Fig. 9 is an end view of the socket-sleeve, showing the movable switch terminals thereof. Fig. 10 is a side elevation of said socket-sleeve. Fig. 11 is a section, taken on line 11—11 of Fig. 7. Fig. 12 is a section, taken on line 12—12 of Fig. 9.

As shown in the drawings, A designates, as a whole, the socket and B the lamp fitted thereto.

C designates the socket-base which carries the binding-posts c c^1 to which are connected the circuit wires D D, and E designates the socket-sleeve which receives the threaded plug B^1 of the lamp. In the present instance, said socket-sleeve is rotatively mounted on the base and the switch is actuated by rotation of the sleeve. The binding posts c c^1 are connected by the usual conducting plates c^2 c^3, respectively, with the central terminals c^4, extending axially through the base and designed for contact with the central terminal of the lamp plug, and two terminal plates c^5 c^5 adapted for electrical connection with the shell E through switch terminals on said shell as will hereinafter be described. Said conducting plates c^3 are connected with the terminal plates c^5 through the medium of pins or screws c^6. The said base and socket-sleeve are inclosed in a two-part casing or shell comprising the parts A^1 A^2, the former inclosing the base and the latter the socket-sleeve. Said shell members are provided with insulating linings a a^1 in the usual manner.

In accordance with my invention, the switch mechanism by which the current is switched on and cut out from the lamp comprises switch terminals carried by the socket-sleeve and base, respectively, the base terminals comprising the plates c^5. Said sleeve carries the movable switch terminals, and, as herein shown, said movable terminals are moved into and out of contact with the terminals c^5 by rotation of said sleeve. The said socket is conveniently mounted to rotate on the screw-pin c^4. The construction herein shown which embodies this feature of my invention is made as follows:

F designates a disk made of insulating material which is contained within the inner end of the socket-sleeve and is provided with a central opening through which the screw-pin c^4 loosely extends, whereby said pin serves to connect the disk and base and about which the disk and sleeve rotate. The disk fits closely in said sleeve and an annular flange E^1 at the inner end of the sleeve overlaps the rear face of said disk, the parts being thus connected in such manner that the disk rotates with the sleeve. The said disk is cut away on its rear face to provide a central, plain faced hub f that engages a central flat bearing portion c^7 of the base.

The outer face of the base, radially outside of said flat bearing portion c^7 is cut away to provide a series of curved indentations or recesses c^8 c^8 disposed concentrically about the axis of said base. The said recesses are formed with sloping bottom walls c^9 and the lowest part of each recess is separated from the highest part of the adjacent recess by an offset portion c^{10}. Four of such recesses are employed when two stationary terminals c^5 c^5 are used, and said terminals c^5 constitute the bottoms of two oppositely disposed recesses. The terminals are thus separated and insulated from each other. The socket-sleeve E carries at its inner end two spring terminals or arms e e which are attached to the flange E^1 of said sleeve in any suitable manner. Said terminals each constitutes substantially a one-half circle and they are curved from their points of attachment to the sleeve-flange to correspond with the general curvature of the sleeve. The free end of each terminal is located adjacent to the attached end of the other terminal, as clearly shown in Fig. 9. The said free or outwardly turned ends of the terminals are adapted to engage the notched face of the base and ride over the bottoms of said recesses as the sleeve is rotated. They are so disposed that the free ends thereof simul-

taneously engage the terminal plates c^5 c^5 or the bottoms of the two plain notches c^6 intermediate said terminals. The lighting circuit is completed through the terminals c^5 and e at the time said terminals e are engaged with said plates. Upon rotation of the sleeve the spring terminals are carried out of engagement with the stationary terminal plates, said spring terminals snapping out of contact with the stationary terminals at the highest points of the recesses of which said plates constitute the bottoms. In this position of the parts, the terminals are separated and the circuit broken, as most clearly shown in Figs. 7 and 11. Further rotation of the sleeve, through force applied to the lamp, operates to carry the terminals e over the sloping bottoms of the plain notches of the base and said terminals snap off the highest parts of the bottoms of the plain notches into contact with the terminals thereby completing the circuit.

The parts are so arranged that the disk is held frictionally from rotation under the rotative force required to turn the lamp into place, but rotates freely in the same direction as the lamp is rotated to turn it into place when the lamp is seated and additional force is applied. The arrangement of the co-acting terminals of the base and sleeve are such, however, as to prevent rotation of the sleeve in the opposite direction, or in a direction in which the free ends of the sleeve terminals are carried toward the abrupt shoulders of the notches on the base.

A convenient means of attaching the terminals e to the sleeve-flange is shown in Fig. 12 and consists in stamping hollow rivets e^1 from the flange E^1 of the sleeve and providing the terminal arms with apertures through which said hollow rivets extend, the latter being thereafter upset or riveted on the arms. This means of attachment is an economical one and insures a good electrical connection.

I have herein shown means for attaching the two parts A^1 A^2 of the socket inclosing shell together and to the socket without the necessity of providing screws for that purpose as has been heretofore common. For this purpose the member A^2 of the shell is provided on opposite sides thereof with spring arms a^2 cut and bent inwardly therefrom, and said spring arms engage sockets c^{11} formed in the curved or cylindric face of the base. The arms a^2 being resilient yield to permit the separation of the shell member A^2 from and its attachment to the socket-base. The means for attaching the shell member A^1 to the shell member A^2 comprises spurs a^3 a^3 which are cut and bent inwardly from the cylindric body of said shell member and engage correspondingly located recesses formed in a like manner on the adjacent end of the other shell member. This construction simplifies and reduces the cost of the connections between the two members and enables the parts to be more readily separated and locked together, as compared to the present mode of connecting the inclosing shells of switch-sockets.

It will be obvious that my improvements may be applied to other forms and types of electric lamp sockets than as herein shown, such, for instance, as wall or bracket sockets, and furthermore that it may be applied to sockets other than those having a screw-threaded socket-sleeve to receive a screw-thread-lamp plug.

It is also to be understood that variations may be made in the details when applied to the type of socket shown or otherwise, and I do not wish to be limited to such details except as hereinafter made the subject of specific claims.

I claim as my invention:—

1. In a switch socket for electric lamps, the combination with a stationary socket-base and a rotative lamp-plug receiving sleeve, having a rotative bearing in line with its axis of rotation, of a switch comprising terminals on the base and sleeve respectively, adapted to be brought into and out of contact by rotation of the sleeve.

2. In a switch socket for electric lamps, the combination with a socket-base and a rotative lamp plug receiving sleeve, of a pin located in axial alinement with said sleeve and constituting the bearing for the sleeve, and also means for connecting said sleeve with the base, and switch terminals carried by said base and sleeve respectively, and adapted to be brought into and out of contact by rotation of the sleeve.

3. In a switch socket for electric lamps, the combination with the socket base and the lamp plug receiving sleeve, the latter being rotative but endwise immovable relatively to the base, of connecting means in axial alinement with said sleeve and base, one of said parts being provided with a recess formed with an inclined bottom and an abrupt end and provided also with a terminal, and a resilient terminal carried by the other part and adapted, by rotation of the socket-sleeve, to be brought into and out of contact with said terminal of the recessed part.

4. In a switch socket for electric lamps, the combination with the socket-base and the lamp-plug receiving sleeve, the latter being rotative, but endwise immovable, relatively to the base, and having a rotative bearing in its axis of rotation, said base being provided in its outer face with a plurality of recesses, of a stationary terminal in one of said recesses, and a resilient terminal carried by said sleeve adapted, by rotation of the sleeve, to be moved into and out of contact with said stationary terminal.

5. In a switch socket for electric lamps, the combination with the socket-base and the lamp-plug receiving sleeve, the latter being rotative, relatively to the base, of a pin connecting said parts and located in the axis of rotation of said sleeve, a plurality of notches in the base provided with sloping bottoms, the highest point of the bottom of each notch being separated from the lowest point of the bottom of an adjacent notch by an abrupt offset, a terminal plate constituting the bottom of one of said notches and a spring terminal carried by the sleeve and adapted by rotation of the sleeve to be brought into and out of contact with said terminal plate.

6. In a switch socket for electric lamps, the combination with the socket-base and its lamp-plug receiving sleeve, said sleeve being provided with a bottom disk, a pin extending through said disk into said base and constituting the axis of rotation of said disk and sleeve, and a switch, one member of which is carried by the rotative part and the other by said socket-base.

7. In a switch socket for electric lamps, the combination with the socket-base and its lamp-plug receiving sleeve, the latter being rotative relatively to the base, of an insulating disk fitted to the inner end of the sleeve and having bearing on the base, a pin extending through said base and disk and constituting the axis of rotation for said disk and sleeve, and terminals on said base and sleeve adapted to be moved into and out of contact by rotation of the sleeve.

8. In a switch socket for electric lamps, the combination with the socket-base and its lamp-plug receiving sleeve, the latter being rotative relatively to the base, of an insulating plate fitted to the inner end of the sleeve and having bearing on the base, a pin extending through said base and plate and constituting the axis of rotation for said disk and also the terminal for contact with the central terminal of the lamp-plug, and terminals on said base and sleeve adapted to be moved into and out of contact by rotation of the sleeve.

9. In a switch socket for electric lamps, the combination with the socket-base and the lamp-plug receiving

sleeve, the latter being rotative relatively to the base, of stationary terminals carried by said base, and terminal arms carried by said sleeve, said sleeve being provided at its inner end with a flange and the arms being attached to the flange by hollow rivets struck upwardly from the flange which extend through openings in the arms and are upset or riveted thereover.

10. In a switch socket for electric lamps, the combination with the socket-base and the lamp-plug receiving sleeve, screw-threaded to receive the lamp plug or base, said sleeve being rotative relatively to the base, of a switch comprising terminals on the base and sleeve, respectively, adapted to be brought into and out of contact by rotation of the sleeve, said terminals being arranged to permit the sleeve to rotate freely in the direction in which the lamp is rotated to turn the same into the sleeve but preventing the sleeve from rotation in the other direction.

11. In a switch socket for electric lamps, the combination with the socket-base and the lamp-plug receiving sleeve, the latter being rotative, but endwise immovable, relatively to the base, of connecting means located in axial alinement with said parts and a switch comprising terminals on the base and sleeve, respectively, adapted to be brought into and out of contact by rotation of the sleeve, said terminals being arranged to permit the sleeve to rotate in one direction but to lock or restrain the rotation of the sleeve in the other direction.

In testimony, that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 9th day of November A. D. 1906.

ERNST ANDERSON.

Witnesses:

WILLIAM L. HALL,

GEORGE R. WILKINS.