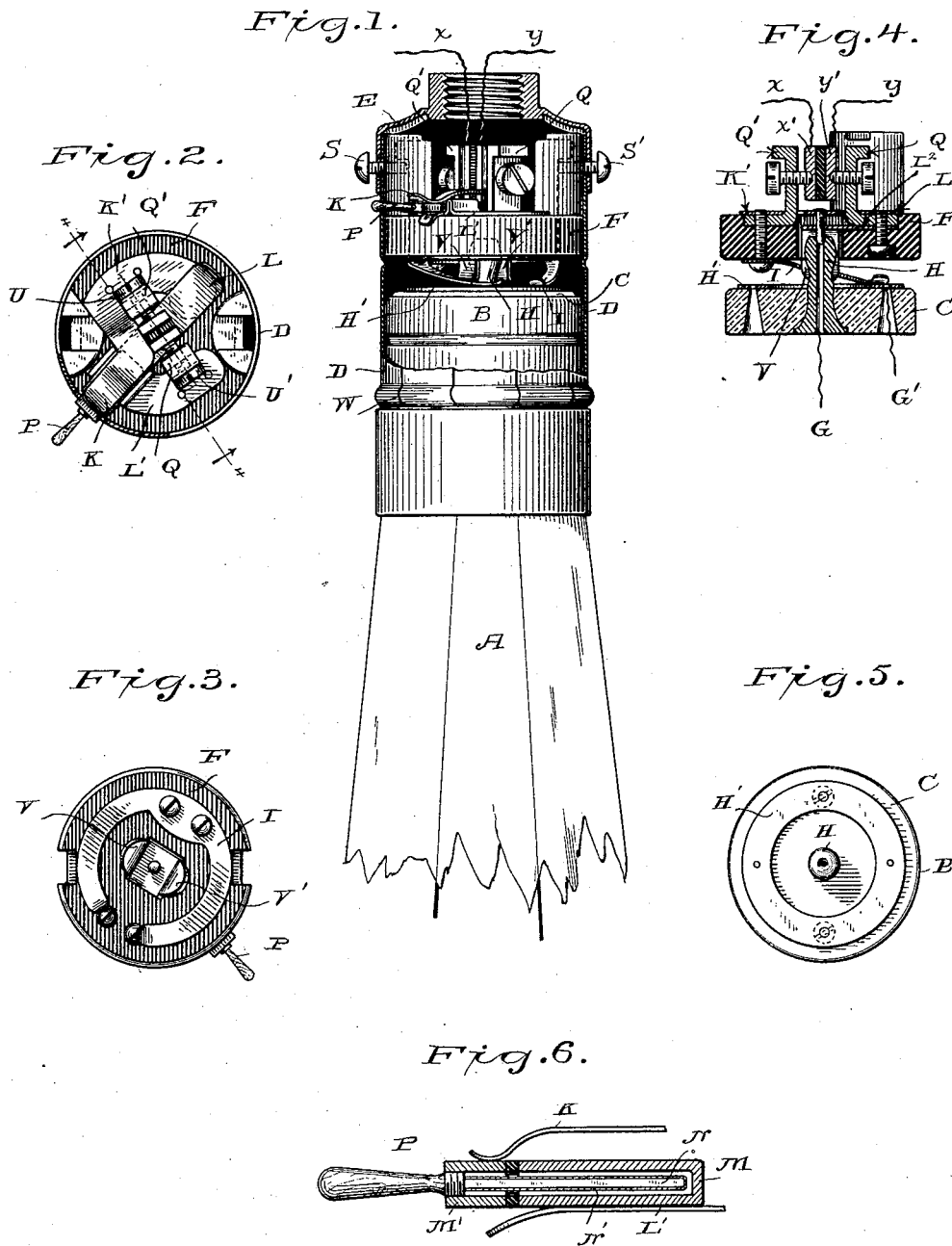


(No Model.)

J. W. PACKARD.  
INCANDESCENT LAMP SOCKET.

No. 417,787.

Patented Dec. 24, 1889.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## INCANDESCENT-LAMP SOCKET.

SPECIFICATION forming part of Letters Patent No. 417,787, dated December 24, 1889.

Application filed April 25, 1889. Serial No. 308,572. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES WARD PACKARD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Incandescent-Lamp Sockets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists in the peculiar arrangement of electrical circuits in an incandescent-lamp socket, hereinafter to be described and claimed.

In the drawings, Figure 1 shows a part of the lamp-bulb and the socket with a portion of the shell broken away. Fig. 2 shows a bottom view of the insulating-base with the electrical connections and cut-outs thereon arranged. Fig. 3 shows a top view of the same. Fig. 4 shows an axial section of the insulating-base, together with the base of the cup in which the lamp-bulb is supported. Fig. 5 is a bottom view of said cup. Fig. 6 shows a longitudinal section of the cut-out plug.

Throughout the drawings like reference-letters refer to like parts.

When incandescent lamps are connected in series, it is necessary that some sort of an automatic circuit-closer in a shunt-circuit about the lamp or an automatic cut-out should be arranged to short-circuit the current around the lamp when the carbon breaks, thereby preserving the rest of the system of lamps in operation.

In my invention the cut-out plug is mounted in the socket of the lamp, and the usual automatic cut-out, which operates when the lamp is withdrawn from the socket to close the circuit, is so combined with the cut-out plug and its connections as to have a neat and simple structure, composed of few parts and not liable to get out of order.

A is an ordinary lamp mounted in a cup B, which has any suitable non-conducting base C. Upon this base C is mounted the metallic ring H' and the projecting metallic plug H, to which the electrodes of the lamp are connected by suitable wires G and G', all in the usual manner. The cup B, in which the lamp

is mounted, slips in the shell D of the lamp-socket, which has certain slits W cut in it in order to permit of the insertion and retention of the cup B in the usual manner.

Within the shell of the lamp-socket D is the insulating-base F, of any suitable material, upon which the metallic parts furnishing electrical connections for the lamp-socket are mounted. This part F is held in place by the screws S and S', which also pass through and hold in place the cap E, which closes the end of the shell D, all as shown in Fig. 1.

Upon the base F are mounted the metallic posts Q and Q', with which the terminals of the main circuit X and Y have electrical connection through the metallic pieces X' and Y' and the screws U and U', (shown in Figs. 1 and 4,) which hold the said pieces X' and Y' pressed against a suitable intervening insulating medium.

Connected to the post Q is the plate L', which has the spring-extension L. Connected to the post Q' is the plate K', which has the spring-extension K. These two plates K' and L' are so arranged, as best shown in Fig. 2, that the spring-extension of each rests upon the rigid portion of the other, thereby furnishing a double spring-operated cut-out for the lamp-socket.

When the lamp-holding cup B is inserted in the shell of the lamp-socket, the projection H touches the pin, which is rigidly attached to the spring L', as best shown in Fig. 4, and lifts the spring-extension L from off the contact-piece K', and throws one part of the double cut-out out of operation. The projection H then touches the plate L', connected to post Q. At the same time the U-shaped spring contact-piece I, (best shown in Figs. 3 and 4,) which is electrically connected with the binding-post Q', touches the metallic ring H' on the bottom of the piece C, and thereby the circuit through the carbon of the lamp is completed. If now the other branch of the double spring-operated cut-out be thrown out of operation by lifting the spring-extension K from off the contact-piece L', the current of the main circuit will be compelled to pass through the lamp, and the latter will burst into incandescence. This is brought about by inserting any suitable cut-out plug

P between the parts K and L', as is shown in Figs. 1 and 2.

When lamps are connected in series, it is desirable that the cut-out plug P should be one of a number of automatic plugs which shall act to complete the circuit on the breakage of the lamp-carbon. I have illustrated one form of plug in Fig. 6, where the main portion of the plug M is separated from the portion M' by suitable insulation, and in electrical connection with M' is the metallic spindle N, which is coated with a thin film of some fusible material N'. This plug P, therefore, as shown in Fig. 6, keeps the spring K out of contact with the piece L' under ordinary circumstances, and the current is sent through the lamp whenever the latter is in the socket. If the carbon of the lamp break, a spark jumps from the spindle N to the metallic sheath M, and in so doing fuses the film of fusible material N', which collects in a globule at some point and furnishes a metallic short-circuit through which the current passes, and the operativeness of the remainder of the system of electrical connections of which the lamp A is a part remains unimpaired. The springs V and V' seize the projecting knob H and assist in holding the cup B in place in the socket. It is evident, therefore, that by the combination of the parts, as above set out, a compact and convenient form of lamp-socket is produced, which has the necessary qualities of a socket for lamps to be connected in series—to wit, that the circuit shall be automatically closed on the contingency of the removal of the lamp or of the breakage of the lamp-carbon—while this object is brought about by a neat and simple combination of few parts, some of which perform a double function.

Having therefore described my invention,

what I claim as new, and desire to protect by Letters Patent, is—

1. In an incandescent-lamp socket, the combination of the contact-piece K', which has the spring-contacts K and I connected thereto, the contact-piece L', which has the spring-contact L connected thereto, and the cut-out plug P, together with the contact-ring H' and the projection H, which are connected with the electrodes of the lamp, substantially as described.

2. In an incandescent-lamp socket, the combination of the double spring-operated cut-out, which consists of two separate and mechanically-independent branches, a suitable cut-out plug, which normally holds one spring-operated branch cut-out out of operation, and a suitable projection upon the lamp which holds the other spring-operated branch cut-out out of operation when the lamp is in the socket, substantially as described.

3. In an incandescent-lamp socket, the combination of the double spring-operated cut-out, which consists of two separate and mechanically-independent branches, a suitable cut-out plug, which normally holds one spring-operated branch cut-out out of operation, and which plug consists of two insulated portions with a coating of fusible material, which on the passage of a spark makes connection between said insulated portions, together with a suitable projection upon the lamp which holds the other spring-operated branch cut-out out of operation when the lamp is in the socket, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES WARD PACKARD.

Witnesses:

JOHN VON DER KAMMER,  
JAMES BOYLAN.