

(No Model.)

W. J. McCUTCHEON, Jr.

KEY SOCKET FOR DOUBLE FILAMENT INCANDESCENT LAMPS.

No. 462,574.

Patented Nov. 3, 1891.

FIG. 1.

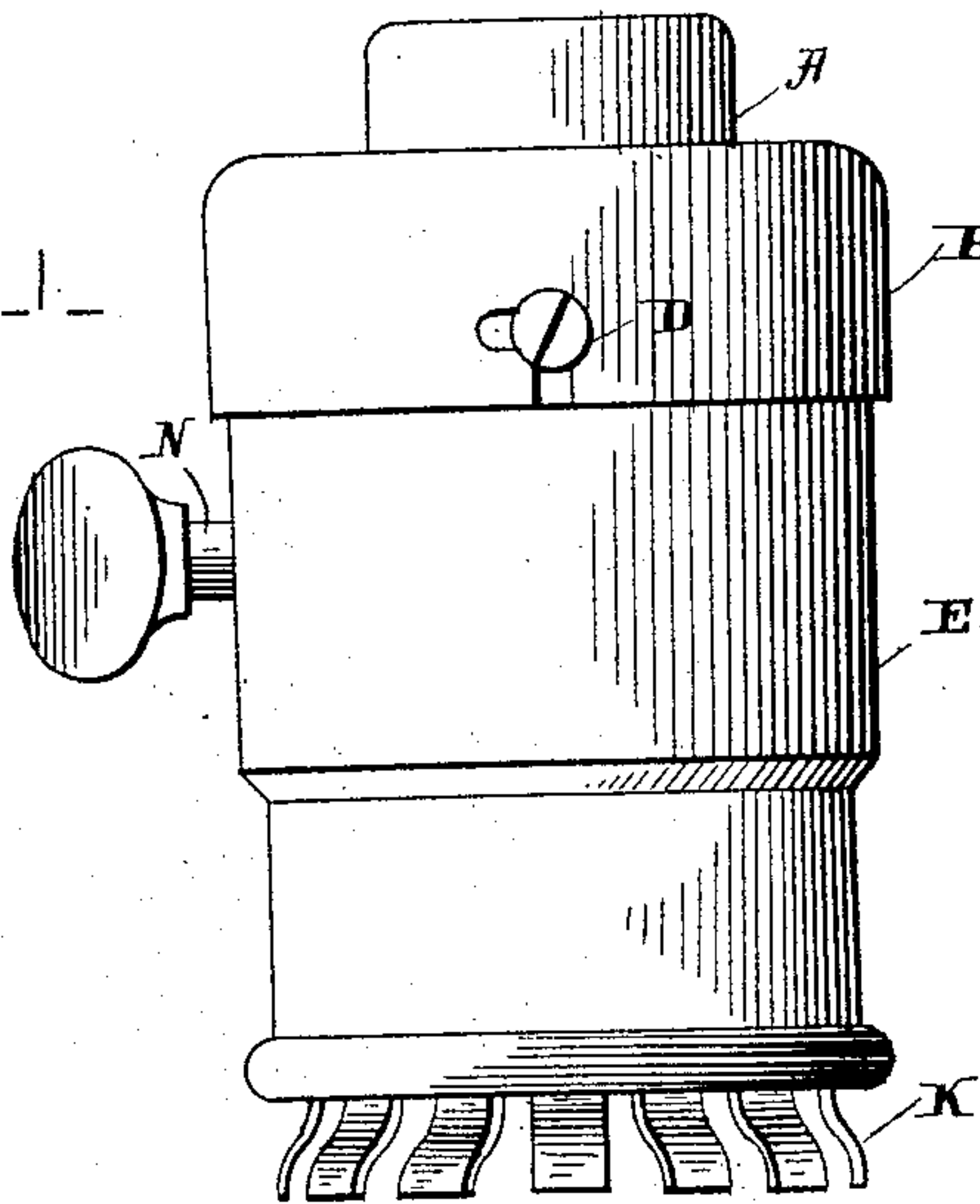


FIG. 2.

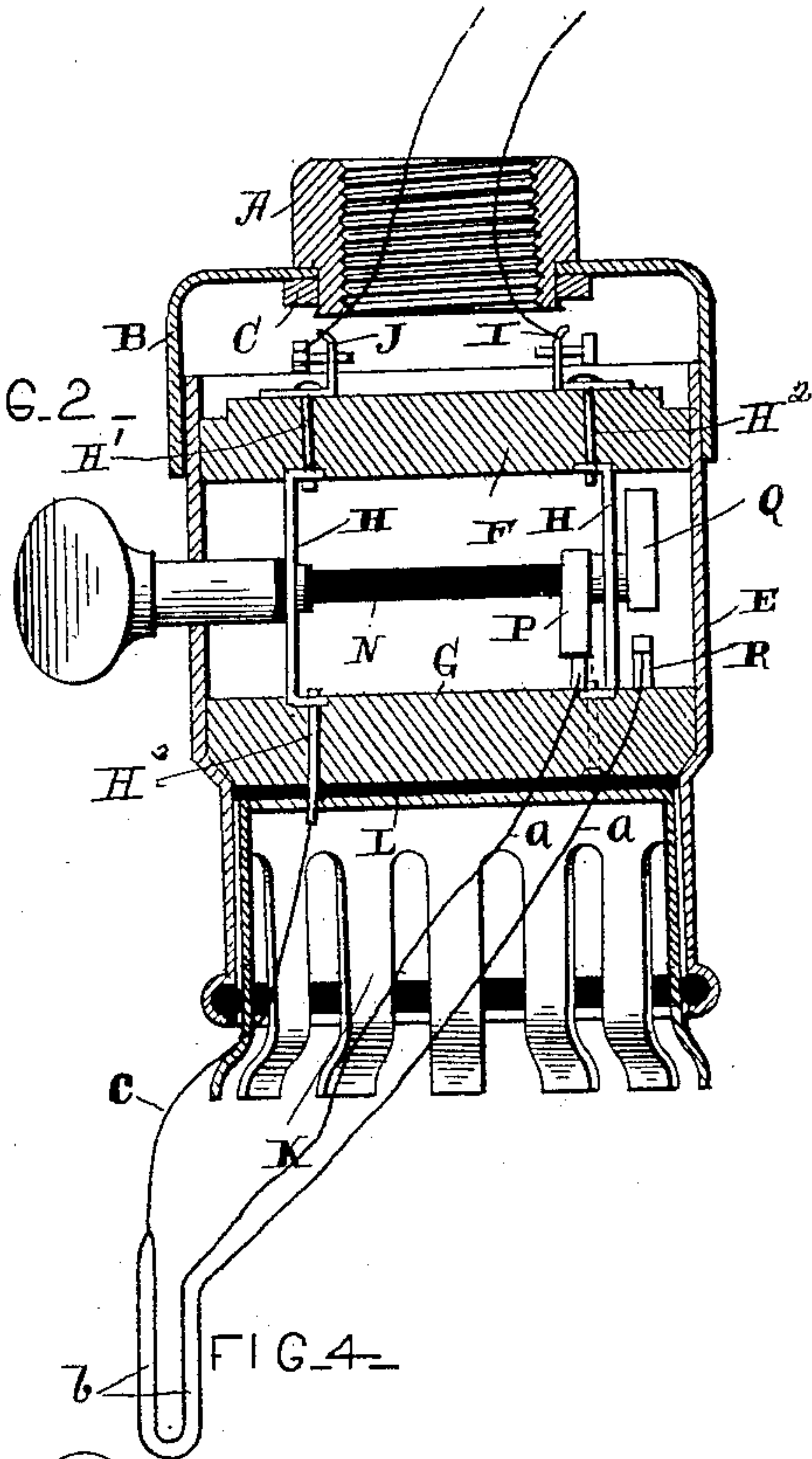


FIG. 3.

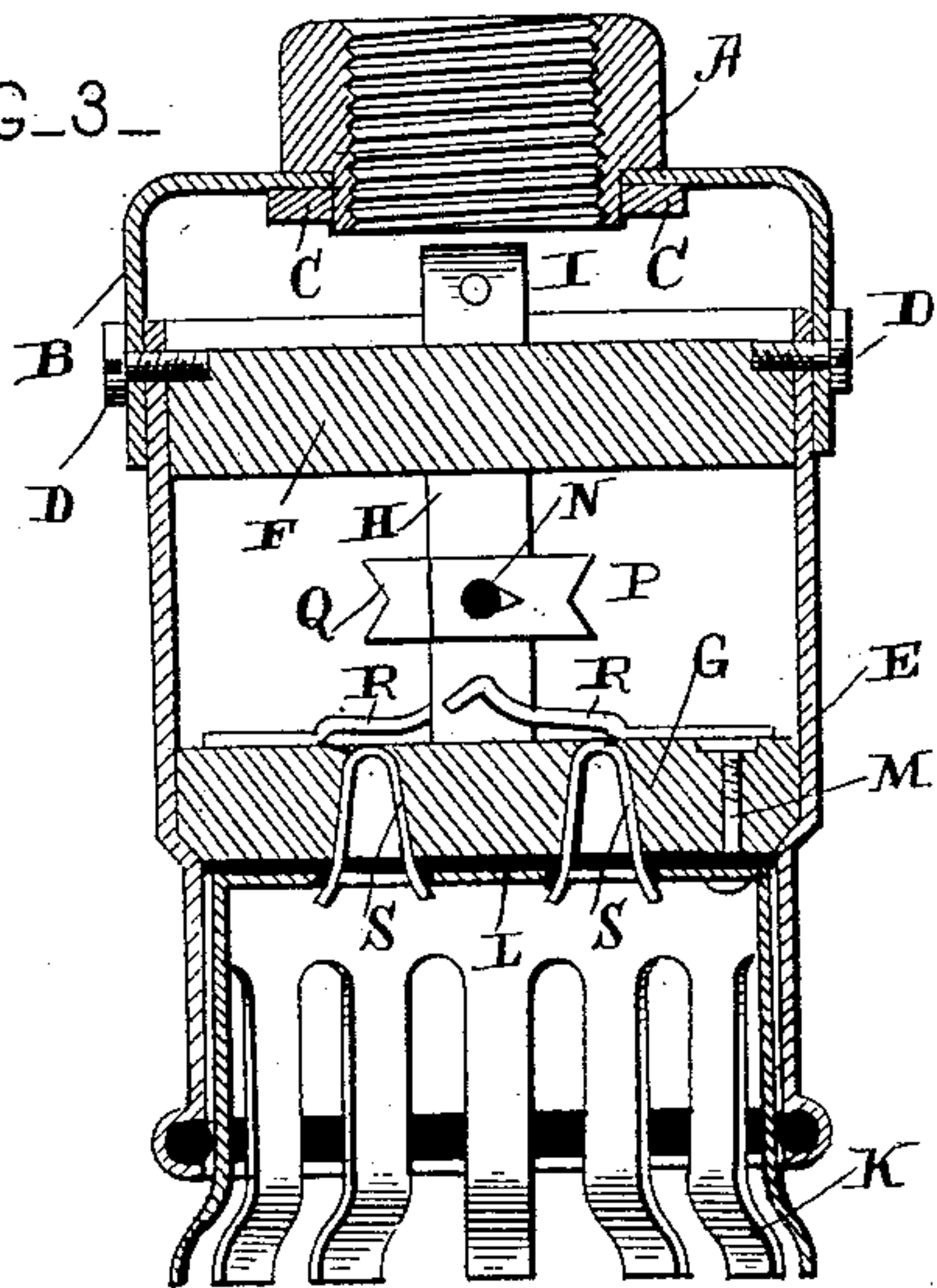


FIG. 4.

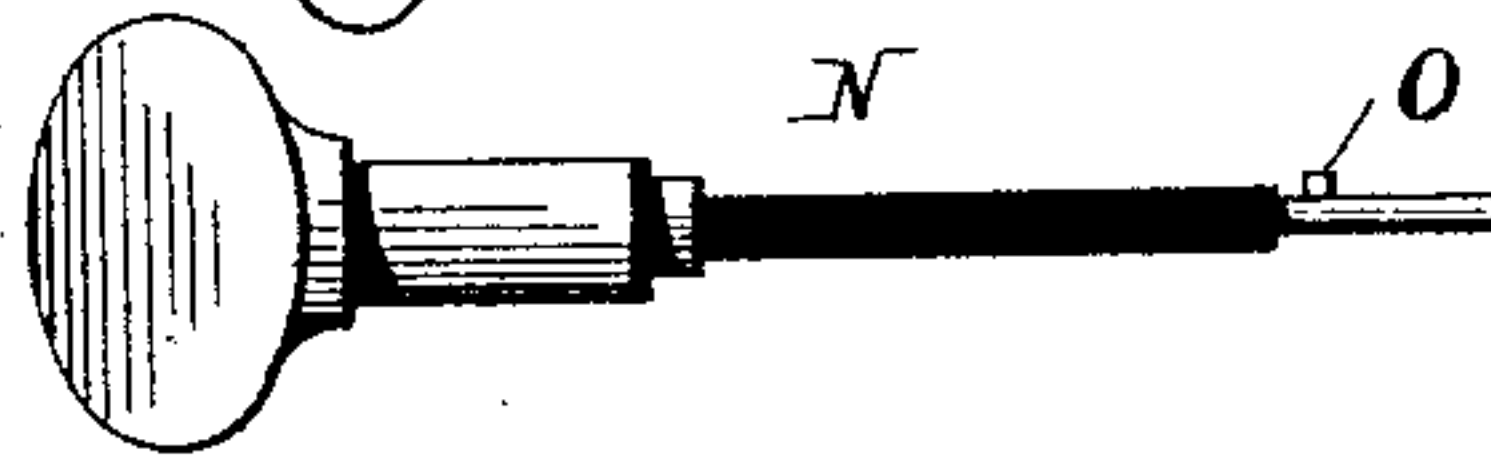
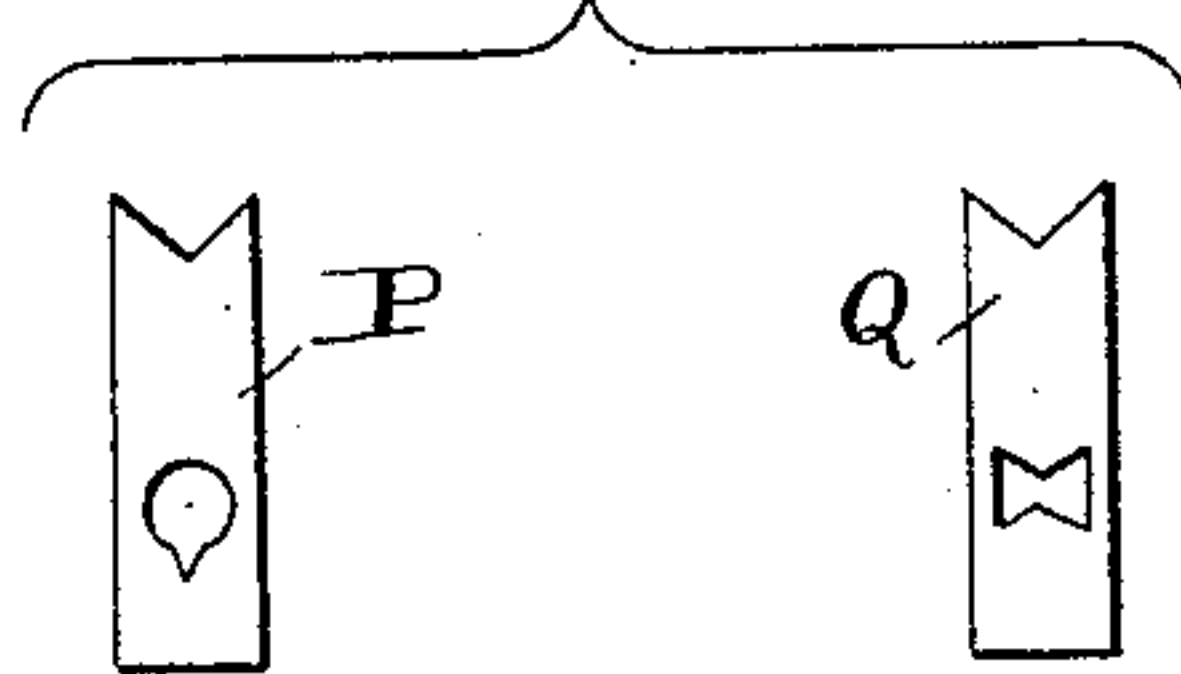


FIG. 5.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## KEY-SOCKET FOR DOUBLE-FILAMENT INCANDESCENT LAMPS.

SPECIFICATION forming part of Letters Patent No. 462,574, dated November 3, 1891.

Application filed June 18, 1891. Serial No. 396,749. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM JAMES McCUTCHEON, Jr., of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Key-Sockets for Double-Filament Incandescent Lamps; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in key-sockets for double-filament incandescent lamps.

The objects of my invention are to provide a socket for incandescent lamps with two filaments or carbons, which are alternately brought into use, whereby the lamp is made to last twice as long, and to simplify and cheapen the construction of the socket.

My invention consists in certain novel features of construction and in combination of parts more fully described hereinafter, and particularly pointed out in the claim.

Referring to the accompanying drawings, Figure 1 is a side elevation of a key-socket which embodies my invention. Fig. 2 is a vertical section of the same, the circuits and filaments being shown therein in diagram. Fig. 3 is a vertical section taken at right angles to Fig. 2. Figs. 4 and 5 are detail views.

A represents a screw-collar, which is designed to screw upon a fixture of any suitable construction and which is to be fastened in place by means of a set-screw. The lower end of this collar is slightly reduced and is passed through the top of the cup-shaped upper portion B of the inclosing case or frame, and which case or frame is fastened to the screw-collar A by means of a ring C, which surrounds the lower end of the collar A, which may be soldered, screwed, bent over, or otherwise fastened into or over the ring C, as may be desired. Through the lower edge of this cup-shaped portion B of the frame upon opposite sides are formed suitable slots through which pass the screws D, by means of which the lower portion E of the inclosing frame is secured in position. This portion E of the frame may either be shaped as here shown,

or in any other way that may be preferred, and which has through opposite edges suitable openings through which the headed screws D pass. The upper part of this portion E may be increased in thickness, so as to enable threads to be made in this portion to engage with the screws D, or, if preferred, the lower edge of the upper portion B can be made so as to be placed inside of the lower portion E, and then the threads be formed in the part B, and the slots be made in the portion E. The screws D are provided with heads, so as to clamp the two parts of the frame B E together, and the inner ends of the screws engage the upper non-conducting plate or disk F to hold said plate in position. When it is desired to make connection with the conductors or to make repairs or changes of any kind, the screws are loosened, and then the lower portion of the frame E can be lowered so as to give the workman free access to all of the operating parts. The two non-conducting plates or disks F G, of any desired shape, size, and thickness and separated any suitable distance from each other, extend parallel, and upon or to these plates or disks the operating parts are secured. These two plates or disks are united by means of the two brackets II, which have their ends turned at right angles. Suitable clamping-screws II' II<sup>2</sup> are passed through the plates or disks and in the ends of the brackets, as shown, so that the threads of the screws will catch in the metal, and thus prevent any heat from the lamp from warping the plates or disks in such a manner as to loosen the screws, as is always liable to be the case where the threads of the screw catch in the wood or other material out of which the plates or disks F G are preferably made. Upon the top of the upper disk F are secured the two binding-posts I J, and the same screws II' II<sup>2</sup> which secure the brackets in position also fasten the binding-posts and serve as conductors for the current through the disks. The screw which secures the lower end of the right-hand bracket II in position simply passes through the lower disk G, while the screw II<sup>3</sup>, which passes through the other bracket, also passes through the upper edge of and electrically engages the socket K, which is secured to the under side of the disk or plate G, but is insulated therefrom by a sheet L of mica or



othersuitableinsulating material. The screw M, which also passes through the disk or plate G and the upper edge of the socket K, has its upper end held by a nut which is counter-sunk in the upper edge of the plate or disk G, and which screw M simply serves to assist in securing the socket in position.

Journalled in the two brackets H is the shaft N, which is provided with a handle at its outer end that is made of some insulating material, and which material extends through the left-hand bracket H and through the vertical slot in the frame E, made for this purpose. This insulating material prevents the current from passing from the shaft N to the left bracket H, and, if desired, a ring of metal or other suitable substance may be applied to the inner end of the insulating material where it passes through the bracket. This shaft N is designed to turn in either direction, and is preferably reduced in size at its inner end and provided with a lug or projection O. Placed upon this shaft N between the brackets is the cam P, which is provided with an opening in its inner end, so as to allow the end of the shaft to pass through it, and in one side of this opening is formed a slot or groove in which the projection O catches. This slot or groove allows the shaft a slight turning movement independently of the cam P, and so that when the cam is moved it will move suddenly. This cam P is separated from the right bracket by means of a washer, and applied to the shaft outside of the right bracket is a second washer, and placed on the inner end of the shaft N is a second cam Q, which has a transverse slot made in its outer side, and which slot is wider at its ends than its center. Passing through the end of the shaft is a pin which catches in the transverse slot and thus allows the shaft a slight movement independently of the cam. If desired, the end of the shaft may be turned over instead of having a pin passed through it, as here shown; but whether a pin is used or the end of the shaft is bent over, the shaft has a slight turning movement before the cam is made to move. These two cams extend outwardly in opposite directions and are held in their proper places by the washers, which are placed upon opposite sides of the bracket and preferably made of some thin, elastic, hard, conducting material. The cams can be so constructed that the washers can be done away with; but by putting one or more washers of metal independent of each other between the cams and the bracket greater elasticity is given to the cams. The outer ends of the cams, which extend in opposite directions, are grooved or recessed, as shown, so as to make a perfect connection with the elastic contact-points R, secured upon the top of the lower disk or plate G by screws which pass from the bottom of the disk, and which are either formed with or make connection with the U-shaped plates S, which extend through openings in

the lower plate or disk and with which the terminals of the lamp make connection when the lamp is inserted in the socket K. When the shaft N is turned in either direction, one of the cams P Q makes connection with one of the contacts R, and then the current passes from the binding-post I through the screw H<sup>2</sup>, right-hand bracket H, shaft N, one of the conducting contact-cams, and its respective contact R, engaged thereby, and the particular plate S of said cam to a leading-in wire *a* of one of the filaments *b*, and thence through leading-in wire *c* to conducting-socket K, screw H<sup>3</sup>, bracket H, screw H', and post J to the other circuit-wire. This peculiar key-socket is adapted for use with the peculiar bulb-holder of my application, Serial No. 387,611, the upwardly-extending conducting-tubes of which engage plates S S, while the conducting-frame of said holder engages socket K. It is immaterial which one of the cams is brought into play, for either one completes the circuit through the lamp and causes one of the carbons or filaments to be brought into use. There being two carbons or filaments in the lamp, either one may be brought into use at the will of the operator, and hence the lamp will last twice as long as a lamp which has only one. If the shaft is turned continuously in one direction, these filaments or carbons will be alternately brought into use and neither one used in excess of the other.

The socket K is constructed as shown, and being insulated from the lower plate or disk G by the sheet or plate of non-conducting material L the current can only pass from it to the screw which fastens the lower end of the left bracket in position. In order to prevent the prongs of this socket K from coming in contact with the lower end of the frame E, when the lamp is inserted a suitable insulating material is placed inside of the lower end of the frame, as shown, so that if the prongs of the socket strike against the insulating material none of the current will pass through to the frame E.

It will be seen that the current passes from the right bracket directly to the shaft N, and from the shaft to the cams, thus doing away with all intermediate devices which have heretofore been employed in connection with the binding-post, and hence the construction of the lamp is cheapened and simplified.

Having thus described my invention, I claim—

The socket consisting of the frame, the two parallel non-conducting plates therein, the two connecting means, such as J L, on the upper plate, the two conducting-brackets H H, respectively and separately electrically connected with said connecting means, an insulated socket K, permanently electrically connected with one of the said brackets, the two separate contact-plates S S in the under side of the lower non-conducting plate having their respective contacts R R on the upper side

thereof, the key-shaft N, mounted in said  
brackets and insulated from the bracket con-  
nected with socket K and provided with the  
two contacts P Q in electrical connection with  
5 the other bracket and arranged to alternately  
and respectively electrically engage contacts  
R R, as and for the purposes set forth.

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

WILLIAM JAMES McCUTCHEON, JR.

Witnesses:

JOHN WEITHAER,  
FRANK OWENS.