No. 625,321. Patented May 23, 1899.

A. A. CHAILLET.

SOCKET FOR INCANDESCENT LAMPS.

(Application filed Feb. 28, 1898.)

(No Model.)

Fig. 1,

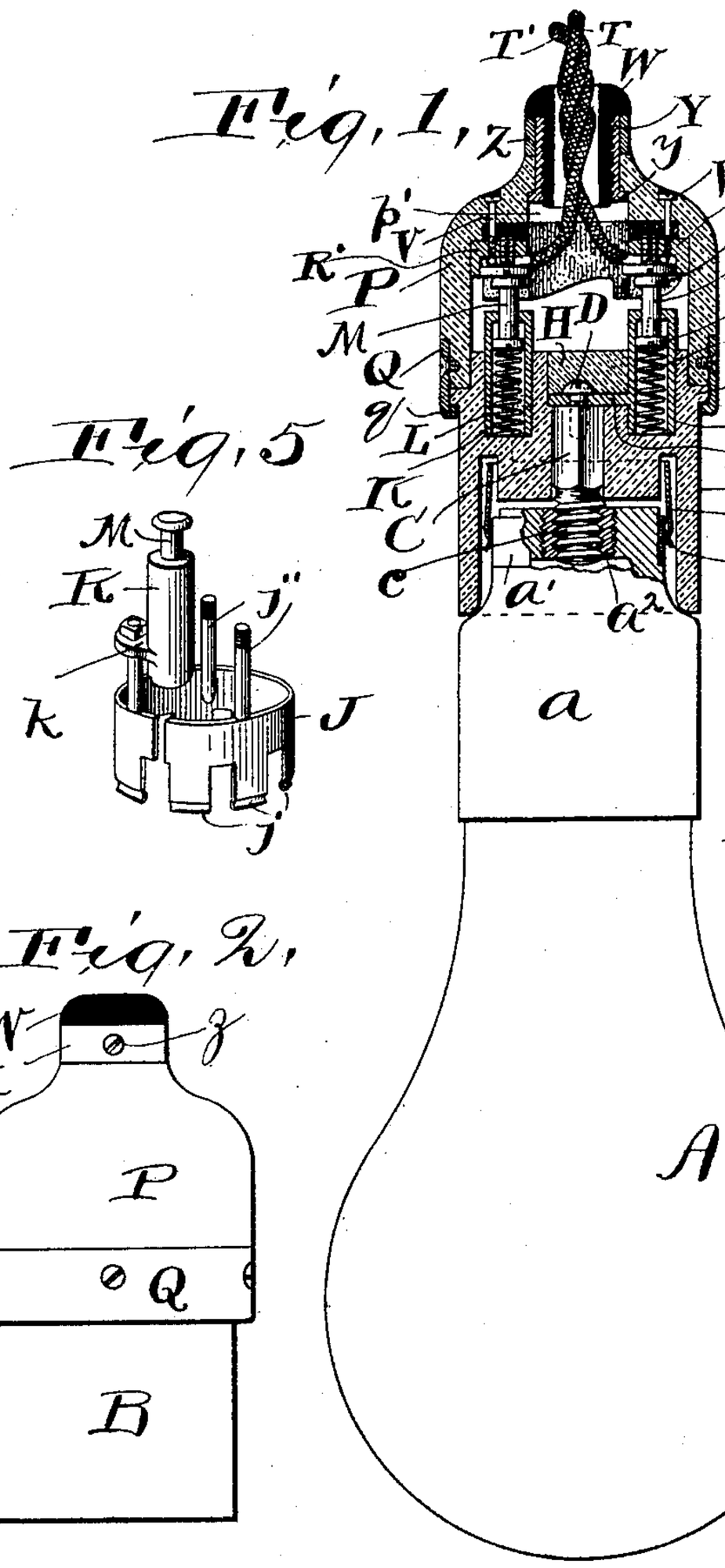


Fig. 3,

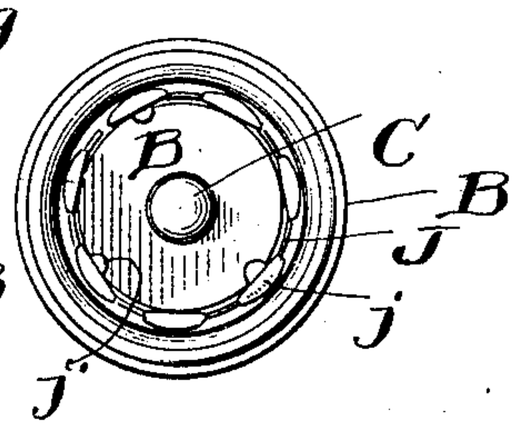


Fig. 5

Fig. 4,

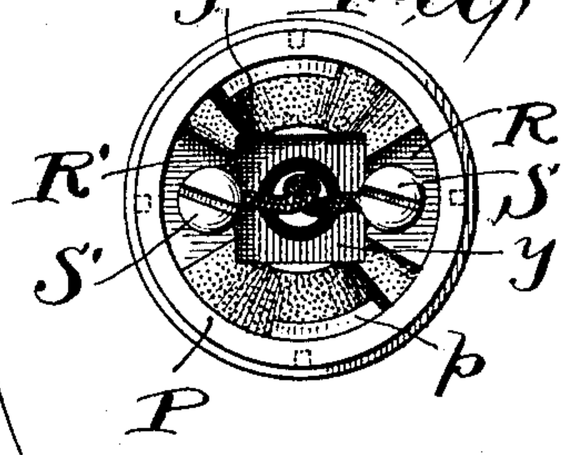
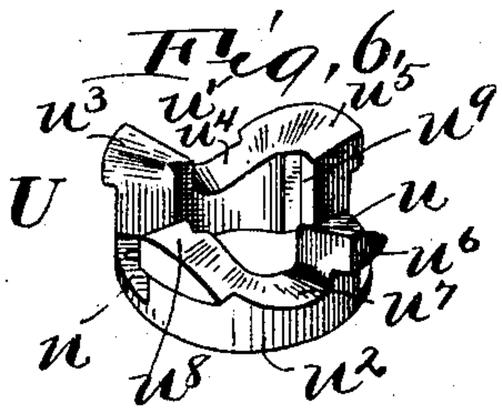


Fig. 2,

Fig. 6,



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UNITED STATES PATENT OFFICE.

ADOLPHE A. CHAILLET, OF SHELBY, OHIO, ASSIGNOR TO THE SHELBY ELECTRIC COMPANY, OF SAME PLACE.

SOCKET FOR INCANDESCENT LAMPS.

SPECIFICATION forming part of Letters Patent No. 625,321, dated May 23, 1899.

Application filed February 28, 1898. Serial No. 672,014. (No model.)

To all whom it may concern:

Be it known that I, ADOLPHE A. CHAILLET, a citizen of the French Republic, residing at Shelby, in the county of Richland and State of Ohio, have invented a certain new and useful Improvement in Sockets for Incandescent Lamps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

My invention is for a socket for incandescent lamps.

It has several objects in view, the principal of which are, first, to provide efficient means whereby the current may be turned off or on by simply turning the lamp-globe; second, to change the polarity of the lamp each time it is turned on, and thus cause a more even wearing and a longer life to the lamp, and, third, to provide a socket which may be inclosed in insulating material and in which parts connected with the terminals shall be so placed that there shall be little liability of the current arcing even when it has a very high voltage.

The invention consists in the means I employ in attaining these objects, or some of them, and may be described as composed of the combinations of parts hereinafter described, and definitely enumerated in the claims.

The drawings show my invention embodied in the best form at present known to me.

Figure 1 is a central vertical section of the socket, showing also, mostly in side elevation, the lamp in place therein. Fig. 2 is a side elevation of the socket alone. Fig. 3 is a bottom plan of the lower portion thereof—that is, the portion which immediately receives the lamp. Fig. 4 is a bottom plan of the upper portion thereof. Fig. 5 is a perspective view of the spring-terminal carried by the lower portion of the socket, and Fig. 6 is a perspective view of the piece of insulating material having a cam-face which is carried by the upper portion of the socket.

In the lamp shown, A represents the globe, a the cap, and a' and a^2 the terminals, of the lamp, which are carried by the cap, the former being a ring surrounding the cap near its end and the latter an internally-threaded thimble carried by the end of the cap.

The socket is composed of two portions, (represented by B and P,) between which there is capacity for relative rotative movement. The portion B receives the lamp and carries two terminals, which then become connected with the lamp and which are adapted to be connected with the permanent terminals carried by the portion P of the socket or be disconnected therefrom, according to the relative positions of the two sockets. The frame of the portion B is a cylindrical block, preferably of porcelain. In a square hole in the center of this block lies the shank of a stud C, the projecting end of which is threaded at c and adapted to receive the internally-threaded terminal a^2 of the lamp. The other end of this pin is suitably connected, as by the screw D, with a plate or bar e, which extends from a tubular case E. Within this case is a compression-spring F, which bears at one end against the block B and at the other against the head g of a pin G. The other end of this pin has a head g', which is adapted to contact with the terminal in the upper part of the socket, as hereinafter described.

In the form shown in the drawings the head g of the pin G is the head of a screw which screws into the end of the shank of the pin, thus providing convenient means for installing the pin. The stud C, the screw D, the plate or bar e, the casing E, and the pin G being all of metal, it will be seen that a conductor is formed from the thimble a^2 of the lamp to the head g' of the pin G. After these parts are in place a suitable block of insulating material or a filling of cement H is placed in the end of the block B over the plate or bar e, the other terminal carried by the lower portion B of the socket consisting of a metallic spring-ring J, having fingers j adapted to bear against the terminal a', carried by the cap of the lamp. This ring J has pins j', soldered or otherwise secured to it, which extend into the block B and are secured by nuts screwing onto their free ends. These nuts preferably lie in depressions in the block B

and are covered by suitable cement. One of these pins *j'* passes through and has its nut bear down upon a plate *k*, which projects from a casing K. This casing carries a spring L and a pin M, similar to the spring and pin carried by the casing E. Thus a conductor is formed from the other terminal of the lamp to the pin M. The pins M and G constitute the contact members of the lower portion of the socket. In Fig. 5 the casing K is turned forward from its natural position for purposes of illustration.

The frame of the upper part of the socket, consisting of the hollow block P, is likewise of insulating material, preferably porcelain, and is secured to the lower part in a manner which allows rotation between the two, the means shown being the collar Q, secured to the block P (preferably set into the same and held by countersunk screws) and having an internally-extending flange *q*, taking over an outward flange *b* on the block B.

In the interior of the block P are two diametrically-opposed metallic plates R and R', between which and the heads of screws S and S', which are countersunk in the plates, are bound the ends of the conducting-wires, (indicated by T and T'.) These screws and plates are the contact members of the lower portion of the socket. Between the blocks R and R' are segmental pieces of insulating material having cam-faces which are of a ratchet form. These two insulating-segments are preferably made of one integral piece of hard rubber U of the form shown in Fig. 6 and having the flat segmental portions *u u*, which are adapted to stand under the plates R R', and the elevated segmental portions *u'* and u^2. The exposed surface of these latter portions have the cam-faces referred to, the course of which is as follows: gradually rising from the plate R', as at u^3, then abruptly descending to an approximately flat face u^4, then gradually rising to the height u^5 and abruptly descending to the edge of the plate R. From the plate R the course is similar, thus: gradually rising at u^6 and abruptly descending to u^7, then gradually rising at u^8 and abruptly descending onto the plate R' again.

From the foregoing it will be seen that the face of the insulating-block U presents a ratchet, allowing movement over its surface in a right-hand direction, but preventing it in a reverse direction. This insulating-block preferably sits in a depression in the block P and between segments *p*, carried in the inner side of that block, the elevated portions u^3 u^5 u^6 u^8 projecting radially beyond the rest of the ihsulating-block and extending over the top of these segments *p*. This insulating-block U and the metallic blocks R R' are locked together and held in place in the frame by screw-bolts V, which screw through the frame P and the thin portions *u* of the insulating-block into the metallic blocks and have their heads covered by suitable cement.

From the construction just explained it will be understood that when the lamp is in the lower part of the socket and the pins G and M on the plates R and R', which is the position shown in Fig. 1, the circuit will be established from the wires T and T' through the filament of the lamp. If, however, the lamp is turned to the right a quarter of a revolution, the pins G and M slide up the inclines u^6 and u^3, respectively, and pass over onto the portions u^7 and u^4 of the insulating-block, thus opening the circuit and putting out the light. If the lamp is rotated to the right another quarter of a revolution, the pin M comes into contact with the plate R and the pin G with the plate R', and the circuit is established through the lamp, but in the opposite direction. Another quarter of a revolution brings the pins G and M onto the portions u^4 and u^7, respectively, of the insulating-block, and again breaks the current. Thus each quarter of a revolution of the lamp to the right changes the condition of the lamp from one of connection or disconnection to the reverse, while every time the lamp is turned on the polarity of the filament is changed. This change is an important feature for lamps burning on direct-current circuits, as it wears the filament more evenly, makes the lamp last longer, and diminishes the darkening of the globe by the deposit of carbon on its inner side. When the lamp is turned in the opposite direction, the ratchet form of the insulating-block U prevents the rotation of the portion B of the socket, and the lamp is simply screwed out. Thus turning the lamp in one direction screws it out of the socket, while turning it in the other direction turns on or off the light, as the case may be. The use of any key, and the consequent hole in the socket through which dirt may pass, is thus avoided.

I have shown in the drawings the socket as applied to a drop-cord. When such cord is used, an insulating-thimble W is screwed into the metallic sleeve Y, which when the lamp is secured to a fixture receives the threaded end of that fixture. This sleeve Y has on its inner end a flange *y*, which is preferably in the form of a square plate. The corners of this square plate are passed through the squared-out corners u^9 in the insulating-block U and lie in a square recess *p'* in the block P, whereby the sleeve Y is locked against rotation. An outer sleeve Z surrounds and is secured to the sleeve Y, and thus forms a shoulder bearing against the end of the frame P and locking the sleeve Y against longitudinal displacement. The usual set-screw *z*, carried by this latter sleeve and the sleeve Y, screws through these sleeves and is adapted to lock the socket to the fixture.

It will be seen that the only exposed metal of the socket is the sleeve Z and the collar Q. Of these the former is protected by the insu-

lation of the conducting-wires and when a drop-cord is used is doubly insulated from the conducting-wires by the thimble W and when the circuit is secured to a fixture becomes connected with the metal thereof and is ordinarily grounded. The collar Q is entirely outside of the porcelain frame of the socket and cannot receive an arc from the inside. It is thus evident that the socket may be handled with impunity. If the socket is on a drop-cord, it is only necessary in turning on or off the light to take hold of the portion P of the socket near its lower end and turn the lamp. If the socket is secured to a fixture, it need not be touched at all.

Having described my invention, I claim—

1. In a socket, in combination, a block carrying diametrically-opposed contact members insulated from each other and each adapted to be connected with an electric conductor, and a second block rotatable relative to the first block and carrying a pair of contact members adapted to contact with the contact members of the first block or to stand in the space between them according to the relative position of said two blocks, a ratchet preventing one block from moving effectively relative to the other in one direction, a screw-threaded member carried by one of the blocks and adapted to support an incandescent lamp and form one of the electric conductors therefrom, another member carried by said block and adapted to engage with said lamp and form the other conductor therefrom, said two conductors being connected with the pair of contact members carried by that block, the thread on said screw-threaded member being in the same direction as the movement allowed by the ratchet to the block carrying that member, whereby by turning the lamp in the direction of that thread the current is turned on or off, and by turning it in the opposite direction the lamp becomes released, substantially as described.

2. In a socket, in combination, a block P, diametrically-opposed contact members carried thereby, ratchet-faced cams interposed between such contact members, a block B rotatably secured to said block P, pins carried by said block B and adapted to engage with said contact members and with said ratchet-faced cams, a screw-threaded member carried by said block B and having a thread which turns toward the block P in the direction which is the direction of movement allowed said block by said ratchet-faced cams, whereby a lamp engaging with said screw-threaded member turned in one direction turns on or off the current and in the other direction screws out of the socket, and an electrical connection between one of said pins and said screw-threaded member, substantially as described.

3. In a socket, in combination, a block P, separated electric terminals therein, ratchet-cams of insulating material between said terminals, a block B rotatably secured to said block P, casings E and K carried by said block B, pins M and G projecting therefrom and adapted to contact with the said electric terminals or with the face of the insulating material, a screw-threaded member and another member carried by said block B and adapted to support an electric lamp and convey current to it, and connections between these two members and the pins M and G, substantially as described.

4. In a socket, in combination, a block of insulating material carrying a screw-threaded stud C, and a split spring-ring J, spring-pressed terminals M and G, one connected with said stud and the other with said ring, a second insulating-block carrying in its interior alternately-disposed conductive and insulating members, said conductive members being adapted to be connected with conducting-wires, said terminals being adapted to contact with said conductive members or to be out of contact therewith according to the relative position of the blocks, and means whereby the block carrying the stud C may be rotated independently of the other block in the direction of the thread on that stud but not in the opposite direction, substantially as described.

5. An engaging member for a lamp-socket, consisting of a metallic spring-ring having fingers projecting in one direction, and rigidly-secured pins projecting in the opposite direction, combined with a block of insulating material having holes into which said pins pass, and means for preventing the withdrawal of the pins from the holes and thus locking the ring to the block, substantially as described.

6. In a socket, in combination, a block of insulating material having a recess adapted to receive the end of a lamp and an additional depression at the base of said recess, and a spring-ring occupying said depression and being guarded by the walls thereof and having projecting from it, toward the entrance to the recess but not extending to that entrance, fingers adapted to clasp a lamp and having projecting from it toward the block pins which enter said block and secure the ring to it, substantially as described.

7. A cam member for an incandescent-lamp socket consisting of the insulated block U having depressions u, the upper surfaces of which are substantially horizontal when the axis of the socket is vertical, whereby said depressions are adapted to receive metallic plates in a plane at right angles to the lamp-axis, said block having the elevated portions u' u^2 each of which is cam-faced by having its surface gradually rising and then abruptly descending as shown, substantially as described.

8. A cam member for an incandescent-lamp socket consisting of the annular insulated

block U, said block being flat on its base but having on its top surface ratchet cam-faces u^3, u^5, u^6, u^8 formed as shown, there being depressions between the faces u^3 and u^5 and between the faces u^8 and u^6 and deeper depressions between the faces u^8 and u^3 and between the faces u^5 and u^6, said deeper depressions being adapted to receive metallic plates which form electric terminals, substantially as described.

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

ADOLPHE A. CHAILLET.

Witnesses:

JOHN C. FISH,

W. H. MYERS.