

(No Model.)

F. C. ROCKWELL.  
INCANDESCENT LAMP SOCKET.

No. 435,024.

Patented Aug. 26, 1890.

Fig. 1

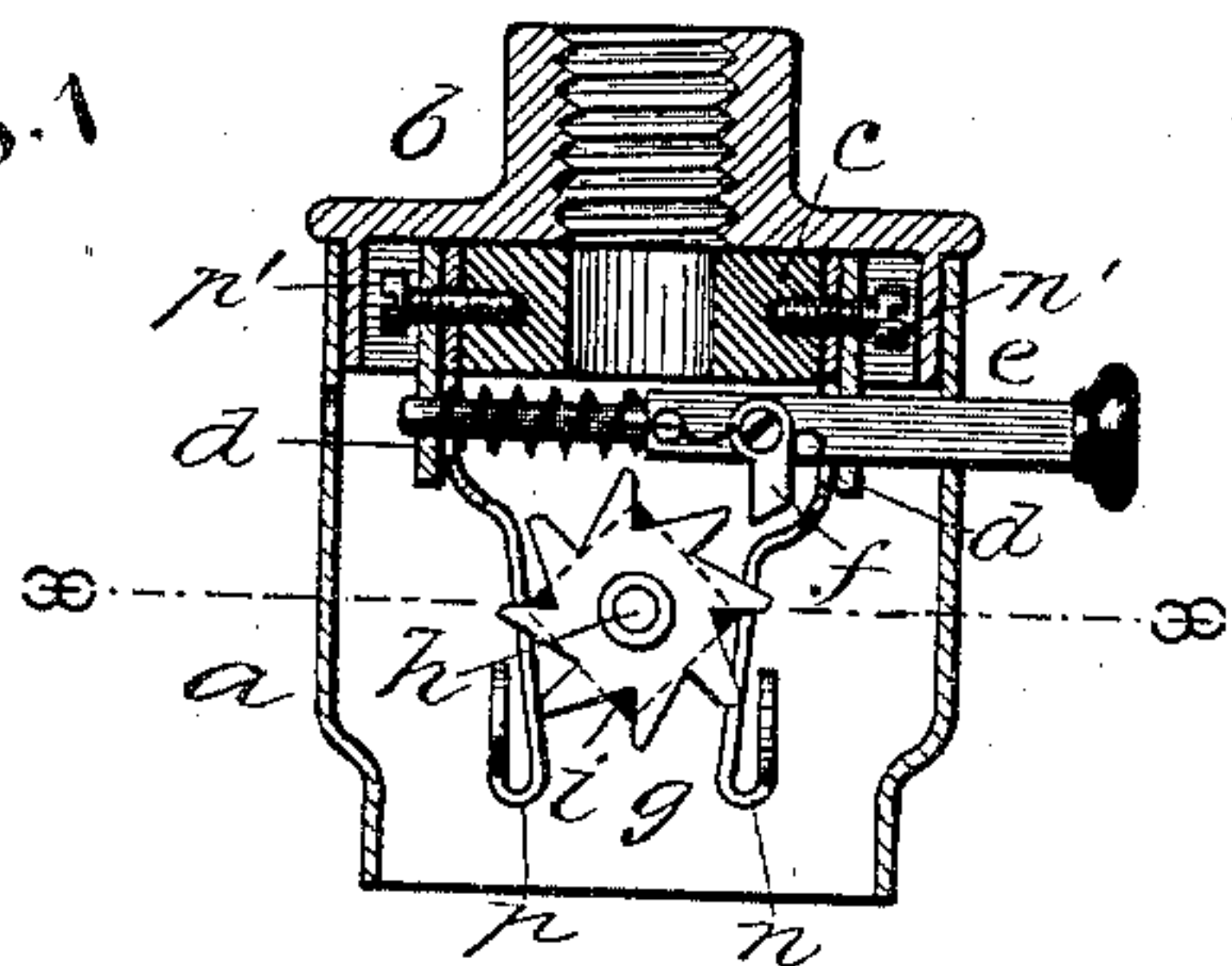


Fig. 2

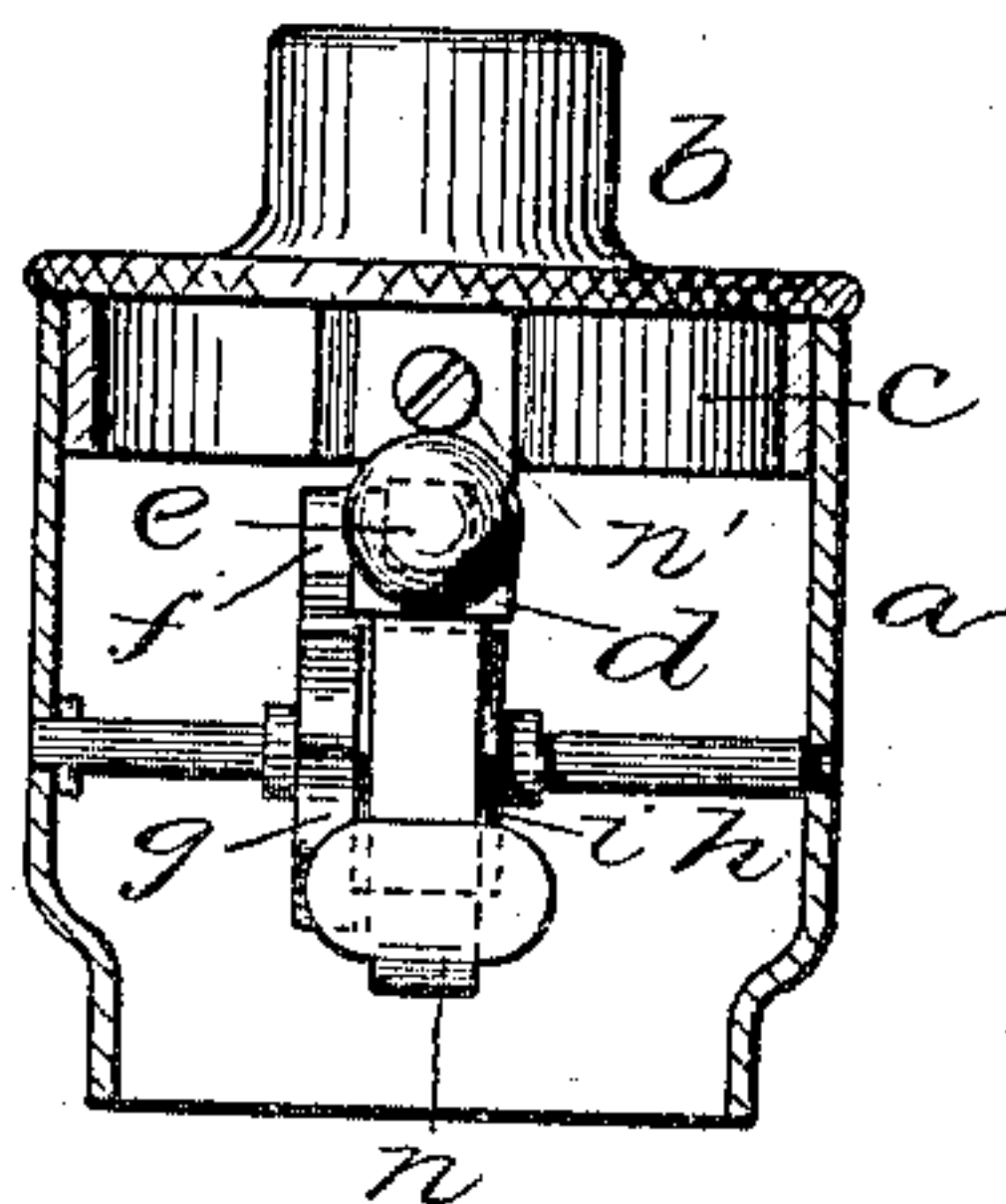


Fig. 3

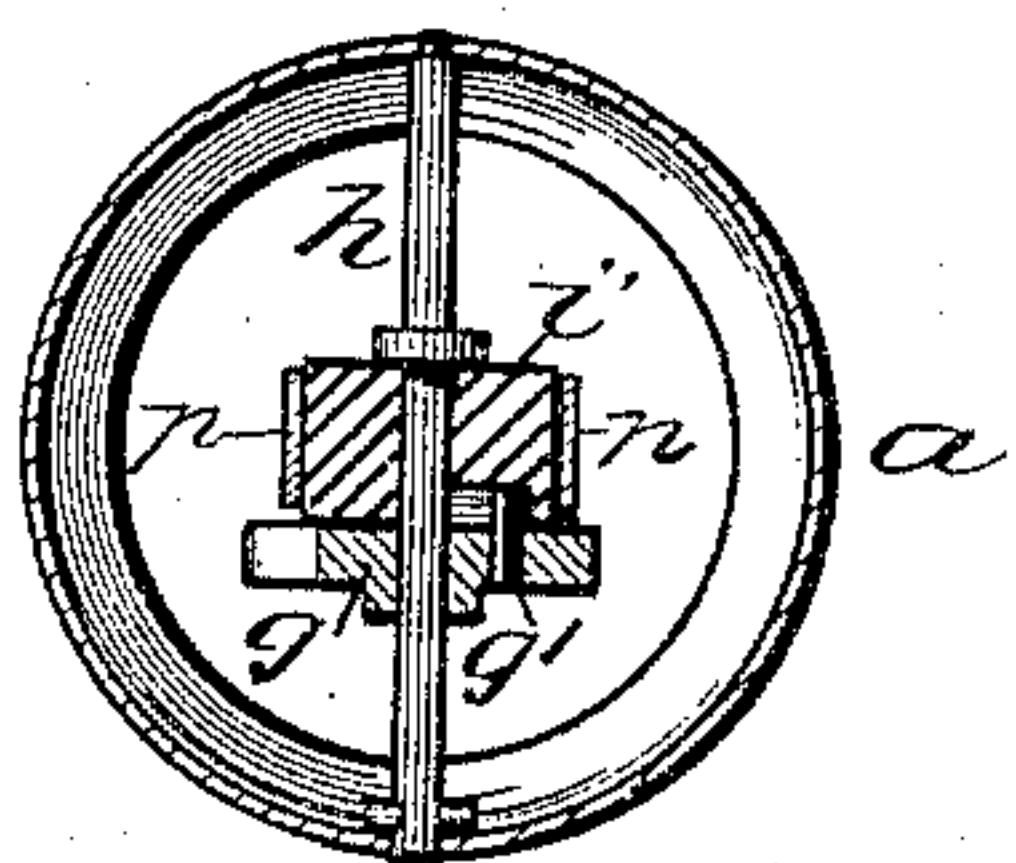


Fig. 4

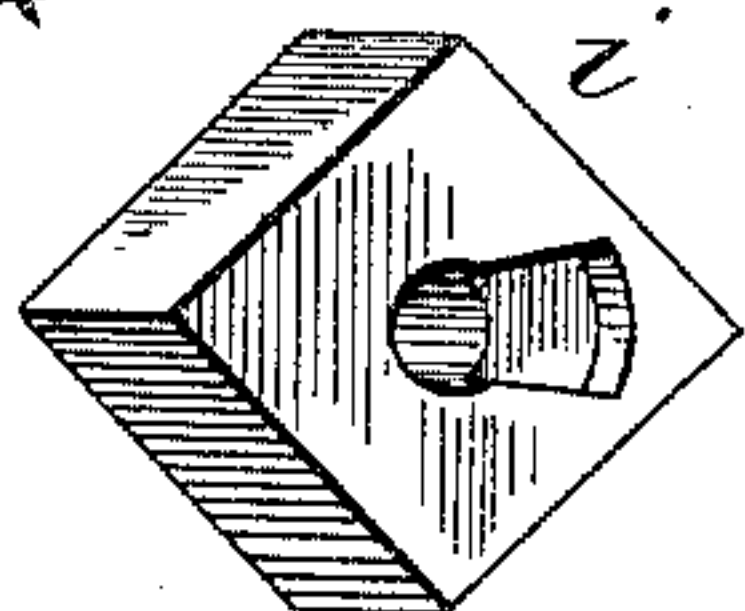


Fig. 5

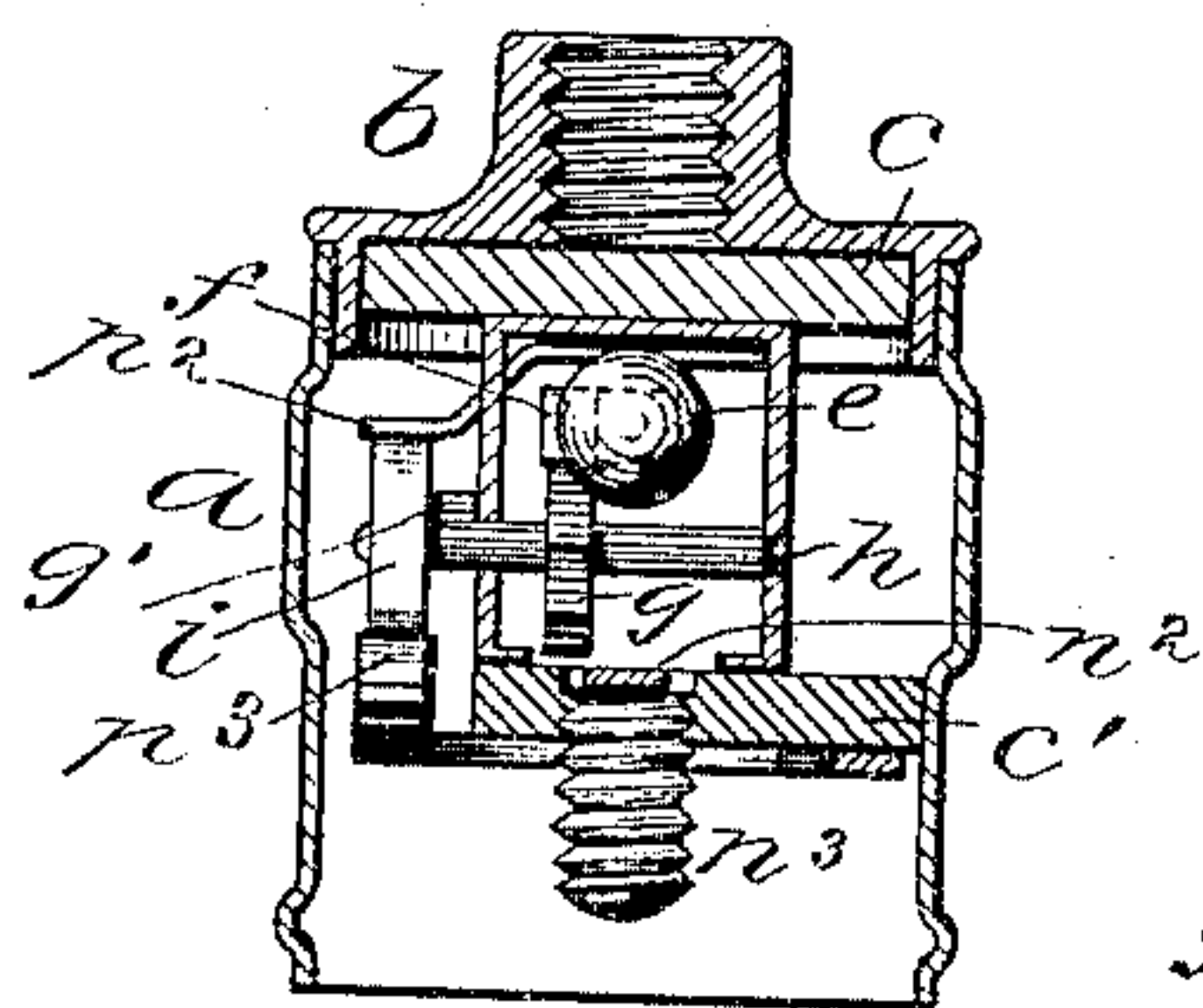


Fig. 6

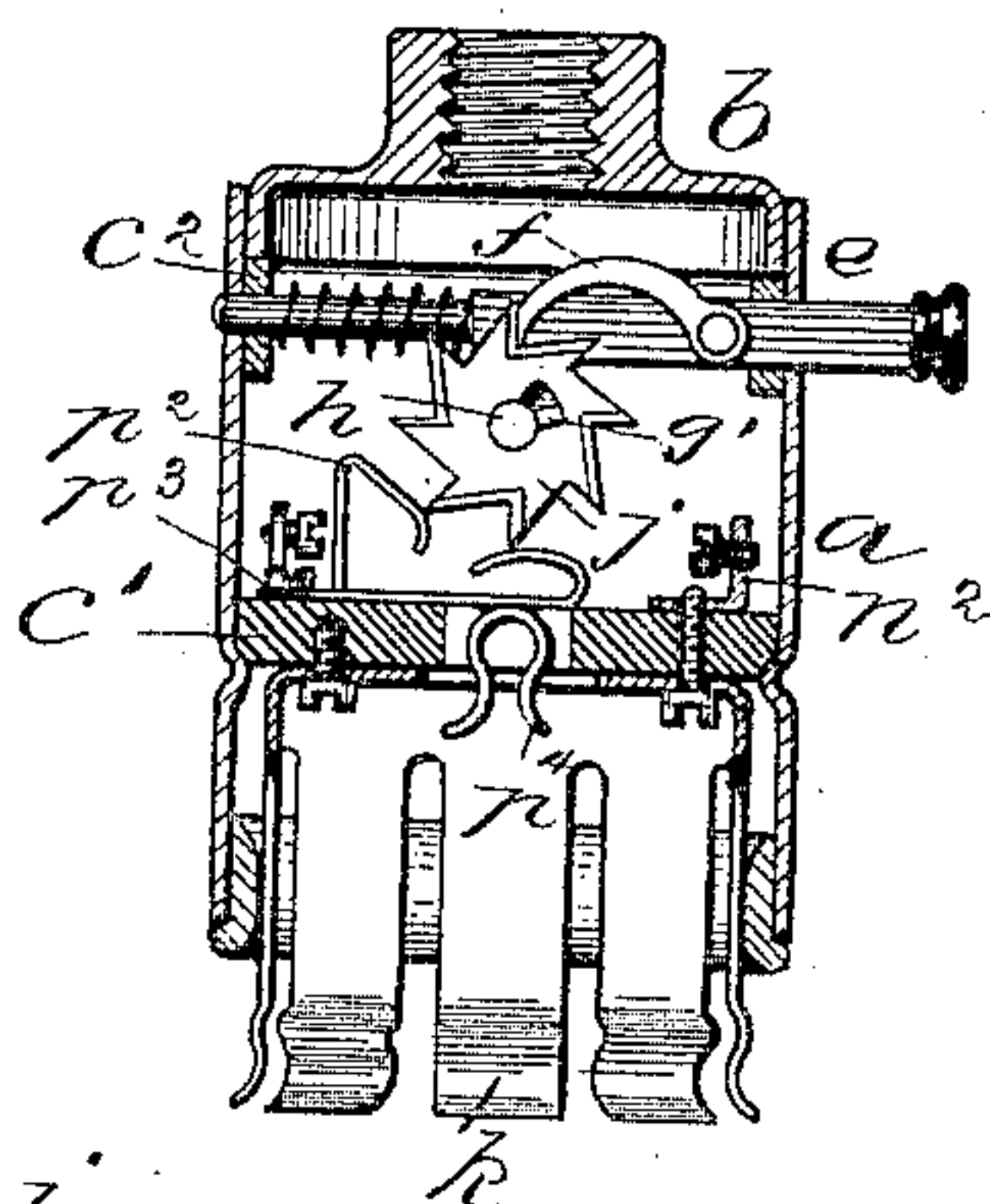
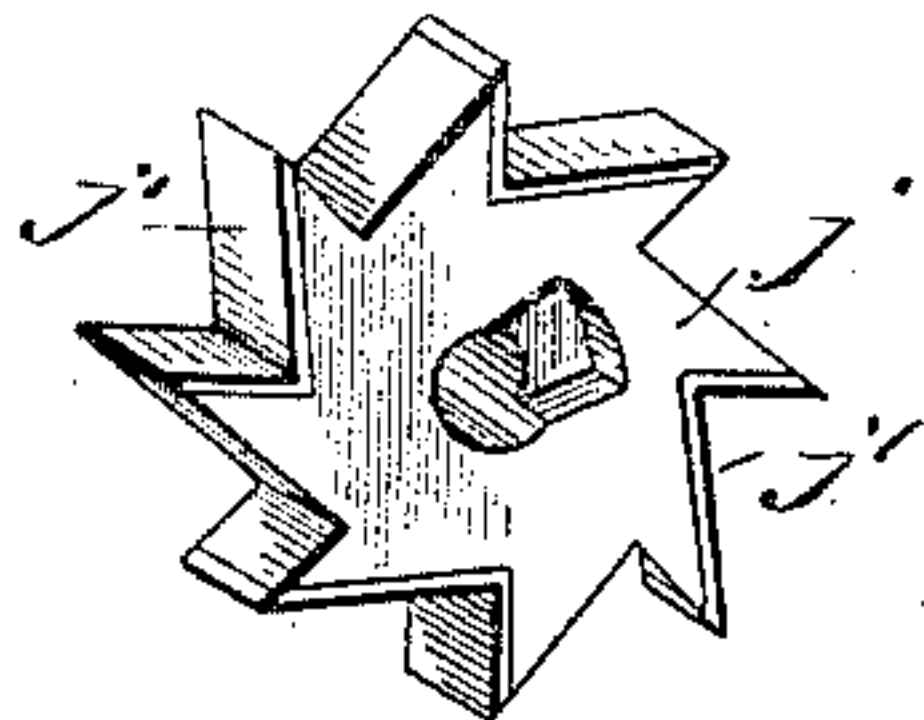


Fig. 7



Witnesses:

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# UNITED STATES PATENT OFFICE.

FREDERICK C. ROCKWELL, OF HARTFORD, CONNECTICUT.

## INCANDESCENT-LAMP SOCKET.

SPECIFICATION forming part of Letters Patent No. 435,024, dated August 26, 1890.

Application filed February 19, 1890. Serial No. 340,994. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK C. ROCKWELL, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Incandescent-Lamp Sockets, of which the following is a full, clear, and exact specification.

The invention relates to the class of sockets provided for the base of electric incandescent lamps which bear switches for controlling the current; and the object of the invention is to so construct a socket and its switch mechanism that a reciprocating movement given in one direction to a push-button will alternately throw into and out of the circuit the filament, so that the lamp may be readily lighted and extinguished by the use of the fingers of one hand only, which is particularly advantageous where the lamps are held by flexible supports, as cords or wires.

Referring to the accompanying drawings, Figure 1 is a view in a central vertical section of the socket adapted to a common form of lamp, showing the switch mechanism in side elevation. Fig. 2 is a similar sectional view of the socket rotated a quarter of a revolution from the position shown in Fig. 1. Fig. 3 is a transverse sectional view on plane denoted by the broken line *xx* of Fig. 1. Fig. 4 is a detail enlarged view of the insulating-piece used in making the connection in this socket. Fig. 5 is a view in central vertical section of the socket adapted to another common form of lamp. Fig. 6 is a similar view showing the socket adapted to still another form of lamp. Fig. 7 is a detail enlarged view of the insulating-piece used in this last form of socket.

In the views, the letter *a* indicates the shell of the socket, which is formed into any desired shape from any suitable material and provided with any common cap *b* for closing one end. A piece of insulating material *c*, with proper openings for the circuit-wires, is placed in the end of the shell or in the cap, and to this are secured spring-fingers *p* and *n*, which are adapted to form the connections between the circuit-wires and the leads of the filament, the circuit-wires being clamped to the spring-fingers, as is common in this form of socket, by the screws *p'* and *n'*, that secure

the fingers to the insulating-piece *c*. Plates *d* are secured to the insulating-piece by the screws that clamp the spring-fingers and the circuit-wires, and a sliding bolt *e*, preferably formed of insulating material that terminates in a knob or push-button without the shell of the socket, is supported in bearings formed in these plates. This bolt which is normally thrust outward by a spring, so that after being pushed inward it will immediately return to its outward limit, bears a pawl *f*, that is held against movement in one direction by a stop and in the other by a light spring.

A ratchet-wheel *g* is secured to a shaft *h*, that extends across the socket at right angles to the sliding bolt in the path of the pawl, so that when the bolt is pressed inwardly the wheel is driven one space and the shaft rotated part of a revolution. Upon this shaft a button *i*, having diameters of different length, preferably a piece of insulating material is so mounted between the spring-finger *p* and *n* that when the shaft is rotated so as to bring the longest diameter of the button in the form shown—the diagonal of the square between the spring-fingers—they are spread outwardly to make contact with posts that project from the ends of the leads of the common form of lamp to which this socket is adapted, so as to complete the circuit and light the lamp; but when the shorter diameter of the button is between the fingers they are free to spring by their resiliency away from the contact-posts and cut out the lamp. In order that the contact may be broken quickly to prevent sparking, the button *i* is loosely supported on the shaft *h*, and caused to rotate with it by means of a pin *g'*, which projects from the side of the ratchet or from the shaft into a socket in the button larger than the pin, so that after the rotation of the button is started by the movement of the ratchet the pressure of the spring-fingers suddenly throws the button around until the shortest diameter is between the fingers, allowing them to spring away from the contact-posts.

In the socket shown in Fig. 5 a second piece of insulating material *c'*, bearing a threaded hub *n'''*, adapted to be screwed into a thread opening in the base of the lamp, for which this form is intended, is placed near



the center of the socket, one of the spring-fingers  $p'''$  being secured to this insulating-piece  $c'$ , and so bent as to project upward, while the other  $p^2$  is secured to the insulating-piece  $c$  and projects downward, the connection being made between them by the button  $i$  having diameters of different length, which is loosely mounted on the transverse shaft, as in the form above described. The button in this form is made of a conducting material. The current passes from one circuit-wire to the spring-finger  $p''$  through the button  $i$ , and the other finger  $p'''$  to one of the leads of the filament. After passing through the filament it is conducted by the screw  $n''$ , that enters the base of the lamp and there makes contact with the other lead, to the connection  $n''$ , to which the return-wire is clamped. The sliding bolt bearing the pawl when pushed inwardly drives the ratchet in one direction, causing the button  $i$  to alternately make and break the connection, as the different diameters of the button alternate between the spring-fingers.

25 In the form shown in Fig. 6 the ratchet-wheel and the make-and-break button are formed integral, instead of being mounted separately on the shaft, as in the forms previously described. This button  $j$  is preferably molded under heat and pressure from insulating material into the shape of a ratchet-wheel, with every alternate serration provided with a conducting-strip  $j'$ , as copper, and the spring-fingers  $p''$  and  $p'''$  are bent into the path of the teeth of the ratchet. As the ratchet is turned by the sliding bolt and pawl, the circuit is completed each time the points of two teeth, which are connected by a conducting-strip, come in contact with the fingers; but when the fingers are in contact with teeth that are not joined by the strips no current can pass from one to the other. The current is passed from one circuit-wire through the finger  $p''$  and a strip  $j'$  on the ratchet to the finger  $p'''$ , that is connected by the clasp  $p''''$  to one of the leads of the filament, and after traversing the filament is passed by the fingers  $k$ , which grasp the base of the lamp, to the conductor  $n''$ , to which the other circuit-wire is clamped. An inward push given to the bolt  $e$  imparts a rotary movement to the ratchet-wheel, which so turns the button on the same shaft that an electrical path is formed through the socket, while the next in-

ward push given to the bolt so rotates the ratchet and button that the electrical path is broken—that is, each alternate push on the bolt makes and breaks the circuit, or when the lamp is dark a push on the bolt lights it, and when lighted a push on the bolt darkens the lamp. This action is especially advantageous when the lamp is suspended by a flexible cord or wire, as the socket may be held on the opposite side by a finger while the thumb pushes in the knob, while with the turn-button switch it is necessary to use both hands—one to hold the socket and the other to turn the button and operate the switch. There is but one part which is capable of movement that is visible outside of the socket—the push-knob—and as there is but one direction in which this can be moved it is perfectly evident to any one that the knob must be pressed inwardly to operate the lamp, either to light or darken it.

I claim as my invention—

1. In combination, in a socket bearing electrical conductors, a reciprocating bolt projecting through the wall of the socket, a ratchet in the path of a projection from the bolt, and a rotary button connected with the ratchet, so placed between the conductors that at alternate periods during rotation the conductors are forced to make and break a circuit, substantially as described, and for the purpose specified.

2. In combination, in a socket bearing electrical conductors, a reciprocating spring-bolt projecting through the wall of the socket, a ratchet in the path of a projection from the bolt, and a rotary button of varying diameter located between a break in one of the conductors, connected with the ratchet, substantially as described, and for the purpose specified.

3. In combination, in a socket bearing electrical conductors, a reciprocating bolt projecting through the wall of the socket, and a ratchet in the path of a projection from the bolt in contact with the conductors, a portion of said ratchet being of conducting and a portion of non-conducting material, substantially as described, and for the purpose specified.

FREDERICK C. ROCKWELL.

Witnesses:

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