

G. WILKES.

SOCKET AND KEY FOR INCANDESCENT LAMPS.

No. 379,842.

Patented Mar. 20, 1888.

Fig. 1.

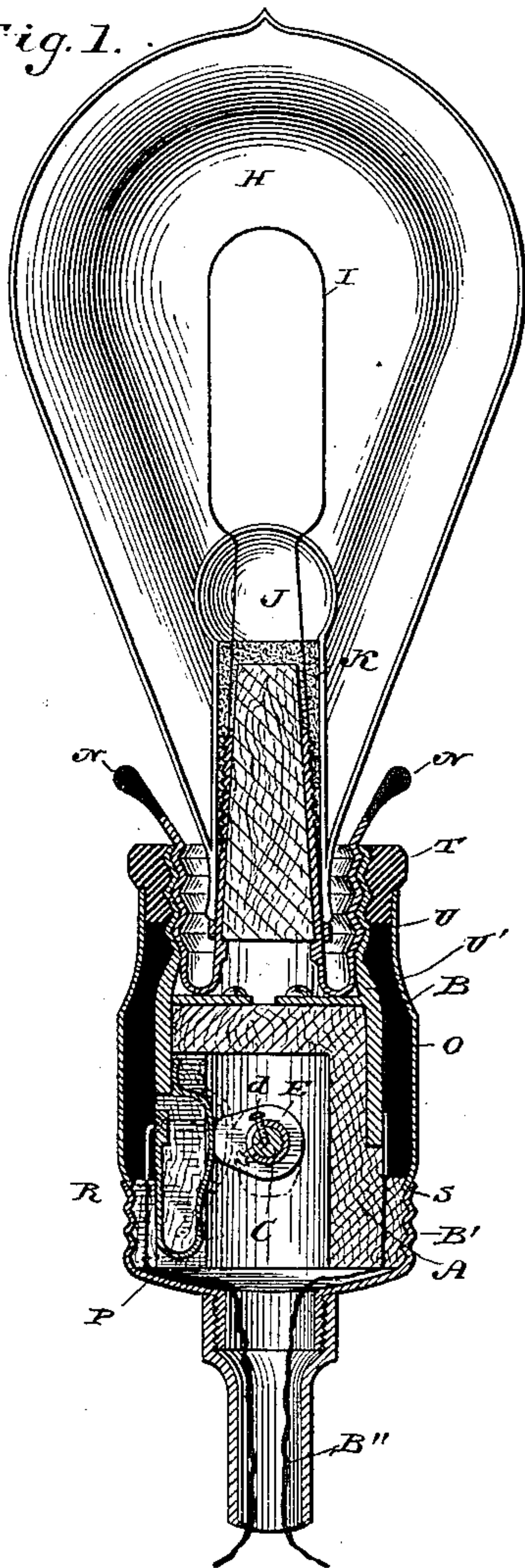


Fig. 2.

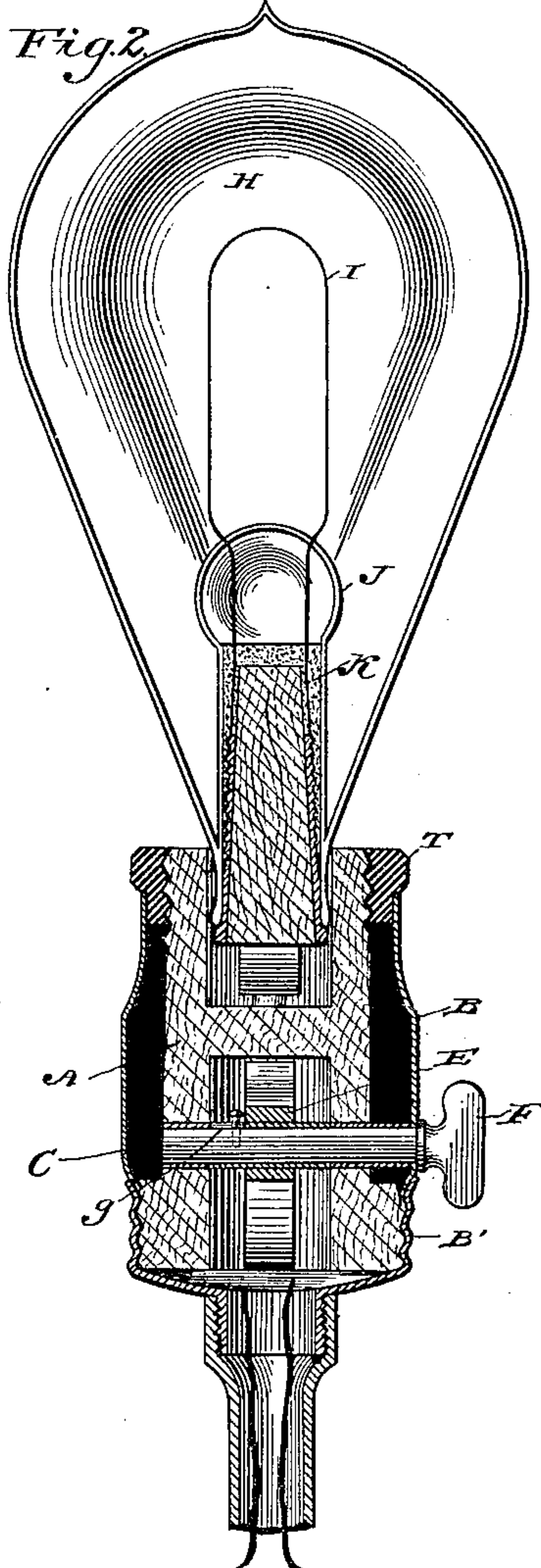


Fig. 3.

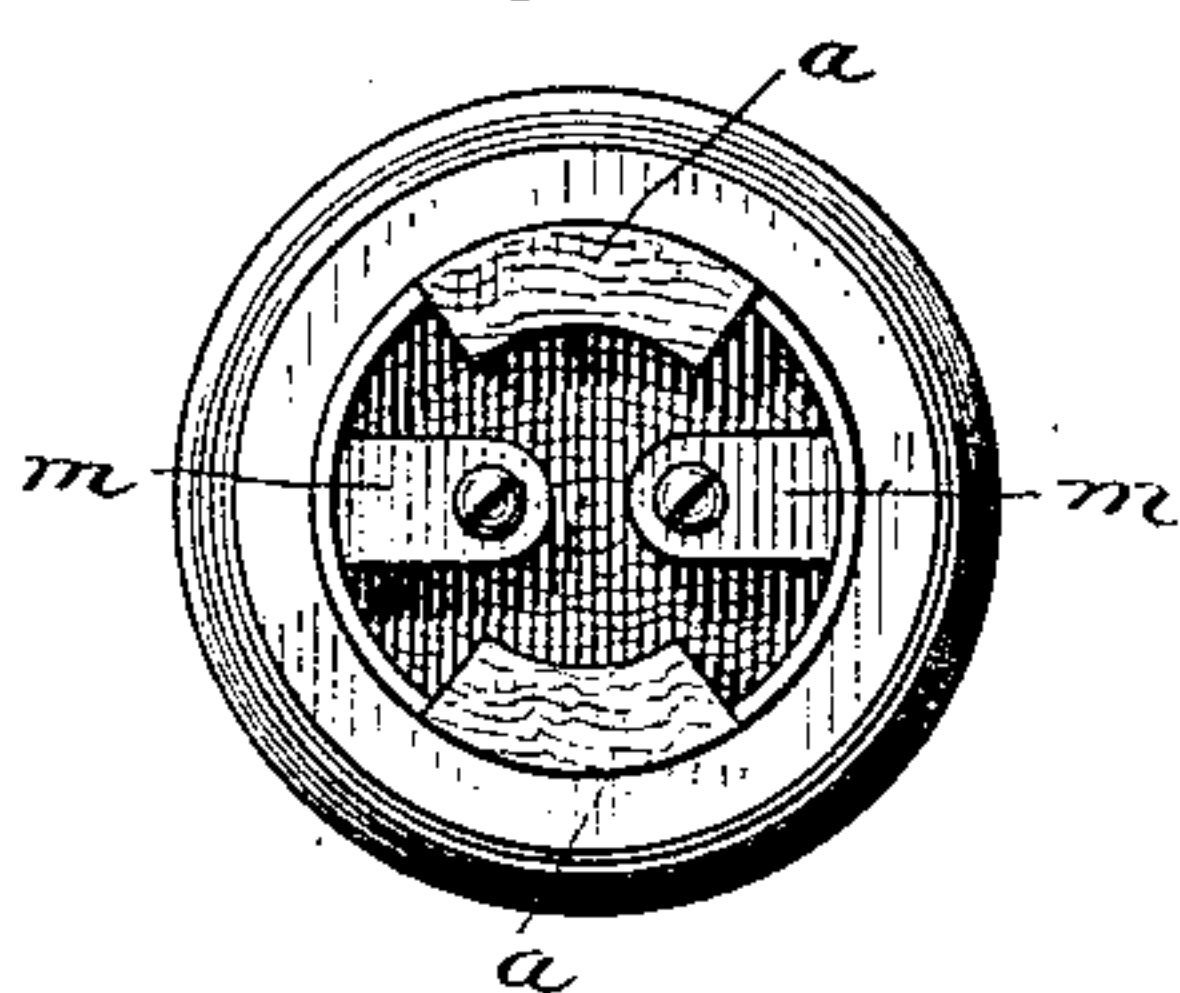
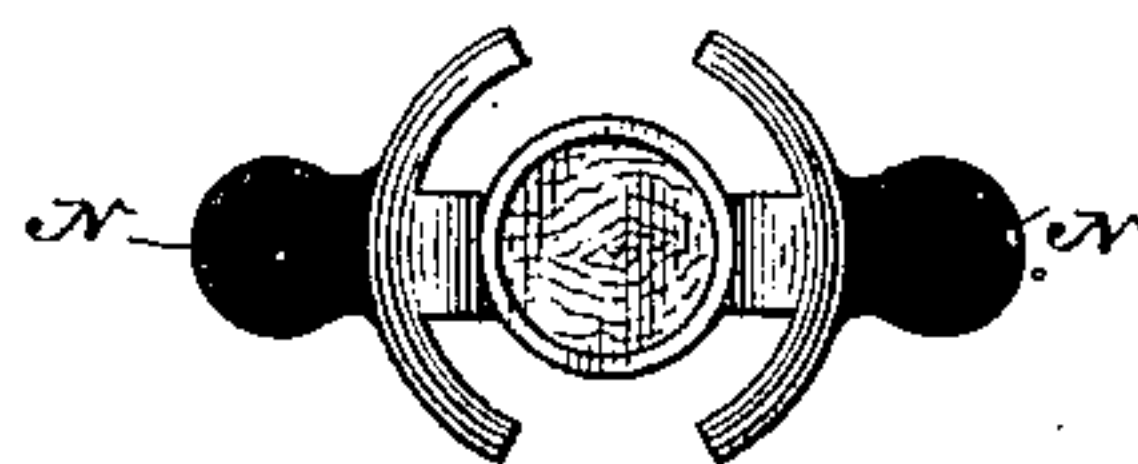


Fig. 4.



Witnesses.

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By his Attorney.

John C. Peunie

(No Model.)

2 Sheets—Sheet 2.

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Fig. 5.

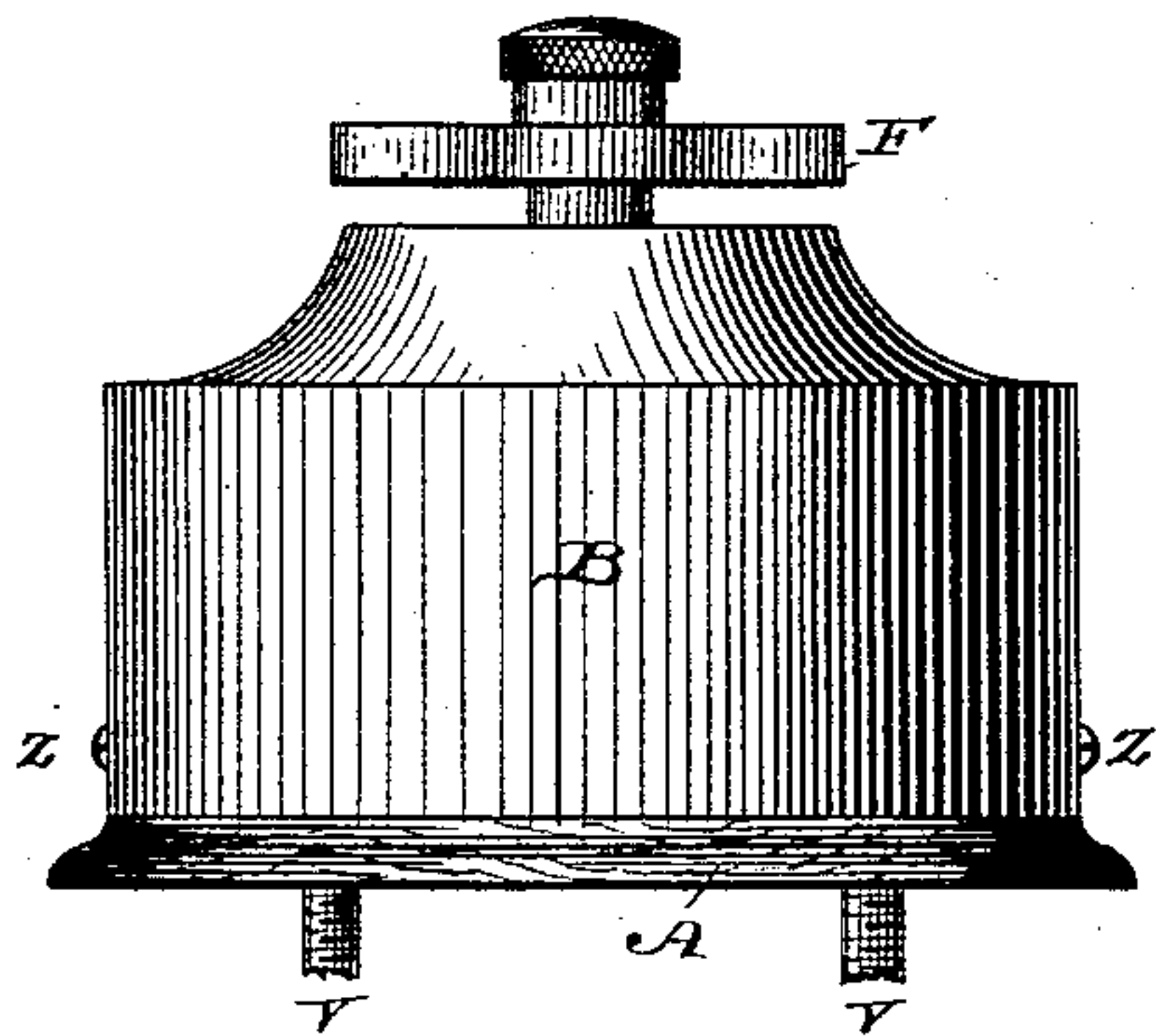


Fig. 6.

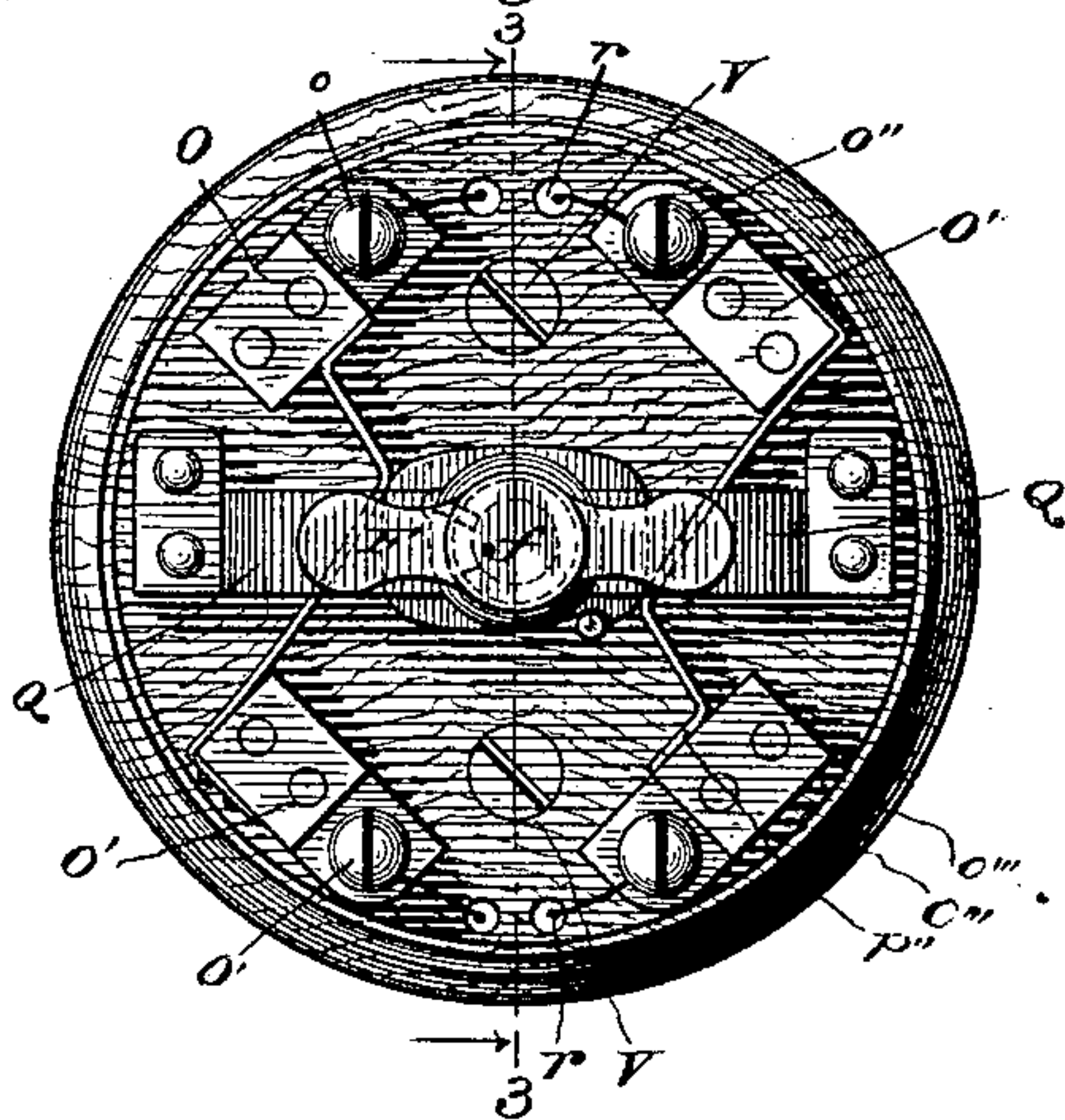


Fig. 7.

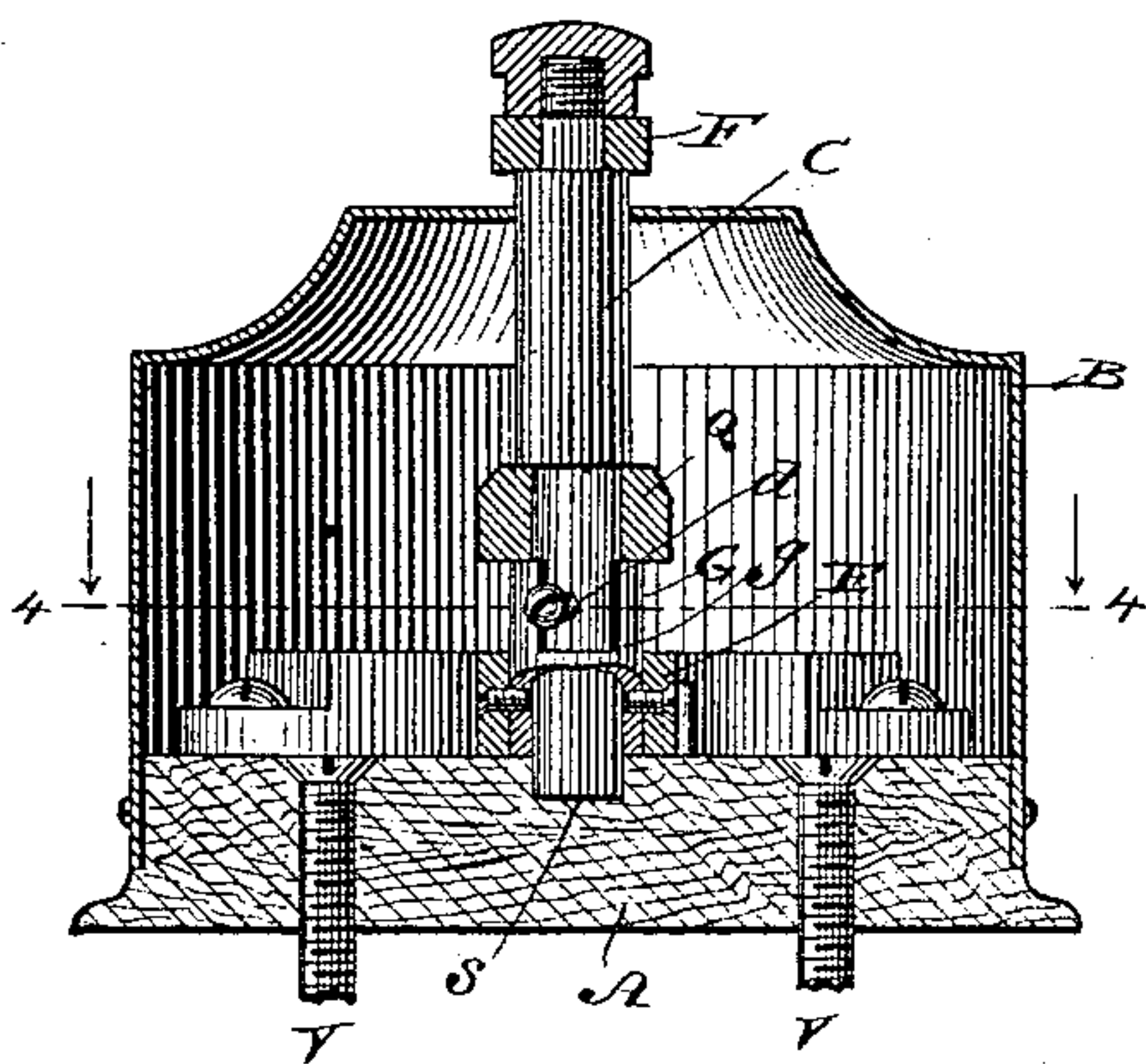
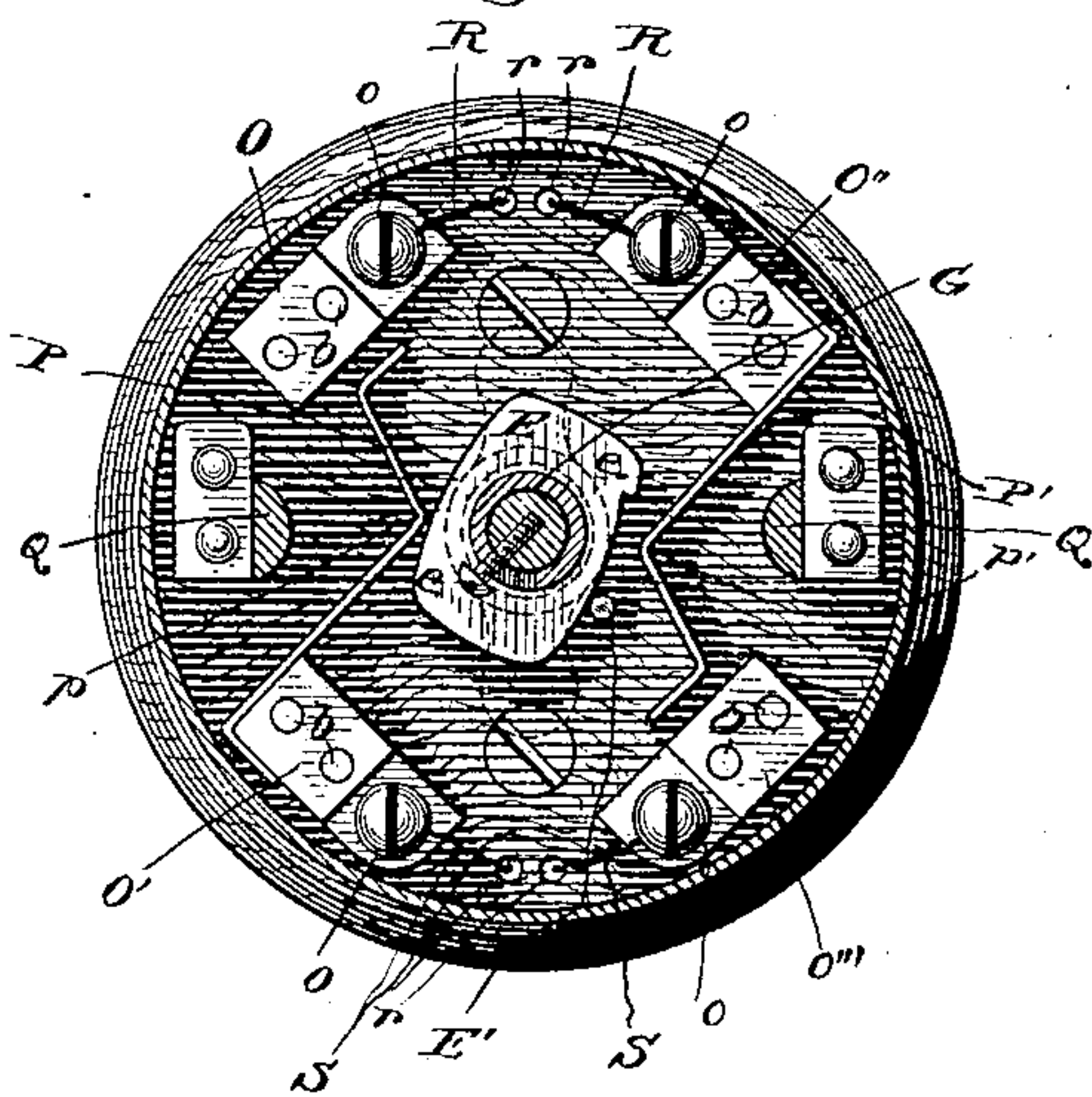


Fig. 8.



Witnesses.

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UNITED STATES PATENT OFFICE.

GILBERT WILKES, OF THE UNITED STATES NAVY, ASSIGNOR OF ONE-HALF
TO LOUIS DUNCAN, OF BALTIMORE, MARYLAND.

SOCKET AND KEY FOR INCANDESCENT LAMPS.

SPECIFICATION forming part of Letters Patent No. 379,842, dated March 20, 1888.

Application filed March 23, 1887. Serial No. 232,161. (No model.)

To all whom it may concern:

Be it known that I, GILBERT WILKES, en-
sign United States Navy, a citizen of the United
States, residing at Baltimore, in the State of
5 Maryland, have invented certain new and use-
ful Improvements in Sockets or Holders for
Incandescent Lamps and the Like; and I do
hereby declare the following to be a full, clear,
and exact description of the invention, such
10 as will enable others skilled in the art to which
it appertains to make and use the same.

My invention relates to the construction of
sockets or holders for incandescent electric
lamps, and has reference particularly to means
15 for forming an electrical connection between
the lamp and conductors supplying current
thereto when the lamp is inserted in its socket,
in combination with a key of peculiar con-
struction, by which said connection can be
20 made and broken at will without removing the
lamp from its socket.

The object of the invention is to furnish a
socket-switch and key of such construction as
will enable the lamp to be inserted or removed
25 readily; also to furnish a lamp adapted to be
used upon more than one form of socket, and in
connection therewith a key or switch for se-
curing reliable electrical connections between
the conductor leading from the main or sup-
ply and the socket terminals, and by which
30 said connection can be broken at will without
liability of sparking at the contact-points.

The invention consists in making the termi-
nals of an incandescent lamp of flattened strips
35 of brass or other resilient metal, which strips,
upon emerging from the base of the lamp, are
bent backward until they are substantially
parallel with the exterior thereof and slightly
separated therefrom, and in roughening or
40 corrugating these strips and adapting them to
take a firm hold within a socket provided with
like roughened or corrugated surfaces, and so
as to be held firmly in position by the elastic
action of the said springs.

45 The invention consists, further, in provid-
ing said springs or terminals with extensions
to be grasped between the thumb and fingers
for effecting the removal of the lamp, the con-
struction being such that the lamp can only
50 be removed by pressing upon said terminals,

thereby throwing the corrugated terminals
out of engagement with the corrugated socket.

The invention further consists of a cut-out
key or switch by which a flexible spring, form-
ing either one of the socket-terminals or one 55
of the terminals of the conductor leading to
the lamp, is made to close the circuit there-
through, being actuated by a cam-shaped but-
ton affixed to a sleeve having a limited move-
ment upon a spindle forming the axis of the 60
key, the arrangement being such that when
the circuit is to be broken, no matter how
slowly the key may be turned, upon reaching
a certain point in its revolution the cam-
shaped button will be thrown by the action of 65
the flexible spring-terminal quickly out of the
way, allowing it to snap away from the con-
tact-surface without allowing time for the for-
mation of a destructive spark.

In the accompanying drawings, illustrative 70
of my invention, Figure 1 represents a verti-
cal section of the lamp and socket, taken at
right angles to the axis of the key. Fig. 2 rep-
resents a vertical section of the same along
the axis of the key. Fig. 3 represents a plan 75
view of the top of the socket with the lamp
removed. Fig. 4 represents a plan view of
the base of the lamp. Fig. 5 represents in ele-
vation a modification in the form of a cut-out
or switch. Fig. 6 represents a top view of the 80
same with the casing removed. Fig. 7 repre-
sents a vertical section of the same taken on
the line 3 3. Fig. 8 represents a horizontal
section taken on the line 4 4.

Similar letters of reference indicate similar 85
parts throughout the several views.

Referring to the drawings, A indicates a
block, of wood or other similar material, of
proper shape, constituting the main body of
the lamp-holding socket, the block being cut 90
away, as shown, to receive the lamp-con-
nections. This block is partly covered by a me-
tallic casing, B, provided at its upper part
with an annular plug of insulating material, T.
Fitted to this plug, and embedded in the block 95
A, and projecting downward, are two strips of
metal, which I shall, for convenience, term the
"socket-terminals." These strips are corru-
gated or screw-threaded at their upper ends, as
shown, and are preferably partly cylindrical in 100

shape, although they might be made flat without departing from the spirit of my invention.

m m are two small strips of metal secured to the socket-terminals and to the block A, and serve as resting-points for the lamp-terminals.

a a are two projections forming a portion of the block A, and serving as guides for the lamp during its insertion or removal, and to prevent any lateral movement of the same in a direction not provided for by the lamp-terminals.

To one of the strips or socket-terminals is secured in any suitable manner the conductor. The other strip extends slightly below the cut-away portion of the block and forms a contact-surface for the spring-terminal P of the conductor R, said spring-terminal being secured to the block A by a screw or other suitable means. This spring-terminal is held by its elastic force normally out of contact with the metallic strip or socket-terminal *o'*, as shown by the dotted lines. The lower portion of the block A is screw-threaded, and is provided with a cap, B', having a stem which can be fastened to a fitting, B'', containing the conductors, as shown. The spindle C is provided with a handle, F, and passes through the casing B and block A, and is free to turn therein. On the spindle C is a button or cam, E, fitting loosely, but limited in its movement thereon by a screw or pin, *d*, set in the spindle, and projecting through a slot, *f*, in a sleeve, F', which may be made integral with said cam-shaped button or be rigidly fastened thereto. The combined movement of the cam-shaped button and spindle is limited by a stop, *e'*, placed in the block A, in the path of the said cam-block. The operation and purpose of these several parts will hereinafter be fully explained.

As is usual, the globe of the lamp is made of two pieces—the globe H and the base-piece J. The strips M are flat pieces of brass or other resilient metal, bent and corrugated substantially as shown, and insulated at their outer extremities. These extremities are given a further outward turn at the point where they leave the socket, to adapt them to be more readily grasped and pressed inward. The spring-terminals are embedded in or otherwise securely fastened to the block or core L, of wood, plaster-of-paris, or other non-conducting substance, partially conforming to the interior of the base of the globe, but allowing sufficient space for a suitable packing between its surface and the interior of the base. The terminals are held securely in position upon the block L by a ring, U, and a projection, U', on the terminals serves to hold the block from slipping. The core M extends below the mouth of the globe, and, with the exterior ring, serves to prevent the yielding of the terminals where they are in contact with the globe, and thereby fracturing it. The filament I is then secured by its terminals to the metallic strips M in any suitable way, and the core, &c., thus prepared is inserted into the base-piece J of the globe H, and the intervening space is care-

fully filled with a suitable packing, K, preferably of plaster-of-paris, to a point above the top of the block. As a further precaution to secure the block firmly in place, the strips M may have their exposed surfaces roughened, in order to enable the packing K to take a more secure hold thereon. The platinum terminals of the filament are then sealed into the base-piece and the lamp completed in the usual way.

In Figs. 4, 5, 6, and 7 I have shown a modification of my socket-key in the form of a cut-out, not only to show its adaptability to this class of circuit-closers, but to demonstrate that such a device is merely a duplication of parts of the one already shown. Instead of one spring-terminal for the conductor and a contact-surface for closing a circuit, there are two each of said parts and a cam shaped button having two cam-surfaces, each acting upon its respective spring-terminal.

In the drawings, A' is a circular block of hard wood, forming the base of the cut-out.

B' is a casing of thin metal to protect the operative parts. This is held in place by screws E² F².

V V are the screws by which the device is held in position.

Four terminal-blocks, O O' O'' O''', of brass or copper, are disposed at regular intervals around the outer edge of the base-block A and firmly secured thereto, and each of these terminal-blocks is provided with appropriate binding-screws, *o o' o'' o'''*, to which the conductors are led after being passed through the apertures *r r*. Two oppositely-placed terminal-blocks have fastened upon them, by soldering, brazing, or otherwise, strips of spring metal, P P', extending inwardly toward the center of the base-piece, and bent as shown, to afford a good surface-contact with the terminal-blocks O and O''' and a bearing-surface for the action of the cam-button E. Bending the spring-terminals in this manner has a further advantage, as will hereinafter be made clear.

Q is a bridge-piece spanning the base-block, and is firmly fastened thereto and has an aperture serving as a bearing for a spindle, C, which passes through it and rests in sockets in the base-piece A. The spindle is provided with an appropriate thumb-piece, F, as shown. Mounted upon this spindle is a sleeve, G, which is free to turn thereon, but is limited in its movement by a stop, *d*, on the spindle working in a slot, *g*, in said sleeve. Secured rigidly to this sleeve is a cam-shaped button, E, of insulating material; or the button and sleeve may be integral, provided it be properly insulated. The button has two cam-surfaces, *e e*, adapted to bear, respectively, against the spring-terminals P P.

E' is a stop, which limits the movement of the button, and prevents it being turned too far in either direction. It will be observed that the cam-surfaces are of such a shape that the point exerting the greatest pressure comes

opposite the angles in the spring-terminals. The object of this is twofold: First, when the point of greatest pressure is passed, the cam slips slightly beyond the angle in the spring-terminal, which then acts to hold the key securely against displacement by any accidental blow or shock; second, as the point of greatest pressure is being thus passed, the extremities $p'' p''$ of the spring-terminals are caused to slide slightly back and forth on the terminal-blocks $O O''$ while under extreme pressure, thus maintaining the contact-surfaces bright and reliable.

The operation is as follows: As the key is turned, the stop d , in movement, comes against the side of the slot G and moves the cam-button E around with it, pressing the terminal springs against the blocks $O O''$ and establishing the circuit. As the key is moved backward, the spindle turns within the sleeve until the stop reaches the opposite side of the slot, thus leaving the button free to be thrown out of the way by the spring-terminals after the point of greatest stress has been passed, thus allowing the terminals to snap quickly away from the contact-blocks.

It will be noted that by reason of the bend in the spring-terminals the cam-shaped button, after the contact is broken with the stationary terminals, is entirely out of contact with the said spring-terminals, so that all danger of short-circuiting is avoided. The bend also insures the longitudinal movement for the spring-terminals, which in closing serves to keep the contact-surfaces bright. In the symmetrical arrangement of the spring-terminals with respect to the cam-shaped button, moreover, I secure the important result of imparting to the said terminals the same motion in making and breaking the circuits, so that said makes and breaks shall take place for both circuits simultaneously.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a cut-out for electric circuits, the combination, with a key or spindle, of a cam-shaped button having a limited movement thereon, a stop for said button, stationary terminals, and spring-circuit terminals, symmetrically arranged with respect to the cam-button, and having a bend in the path of movement thereof, whereby the angles or bends of the spring-terminals

serve as partial stops to prevent the backward revolution of said button, and the points of contact between the springs and button are at all times symmetrical with respect to the stationary contacts, so that the button shall impart an equal movement to each spring-terminal in closing the circuits, substantially as described.

2. In a cut-out for electric circuits, the combination of spring-terminals bent twice in opposite directions, terminal contact-surfaces, a cam-shaped button, and a key, whereby when the circuit is closed the spring-terminals are given a slight reciprocating motion on the terminal-blocks, keeping the contacts bright and insuring reliable connections, substantially as described.

3. An incandescing electric lamp having leading-in wires whose extensions are of spring metal, as described, in combination with a block or core upon which they are secured preparatory to being placed in the base of the globe.

4. In an incandescing electric lamp, the combination of spring-terminals for the extensions of the leading-in wires, the block or core upon which they are placed, and a suitable packing around said core between it and the base of the globe.

5. An incandescing electric lamp having leading-in wires whose extensions are of spring metal, bent and corrugated as described, and the extremities of which are insulated, in combination with a suitable socket whereby the lamp can be readily removed or placed in position, substantially as shown and described.

6. An incandescing electric lamp, as above described, in which the corrugations in the spring-terminals are made in the form of screw-threads, substantially as described, and for the purposes set forth.

7. In an incandescing electric lamp of the kind described, the combination of the bent and corrugated spring-terminals M , the blocks L , extending below the base of the lamp, the ring U , and the projection U' , substantially as shown, and for the purposes described.

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

GILBERT WILKES.

Witnesses:

A. D. JOHNSON,
JASPER M. BERRY, Jr.