

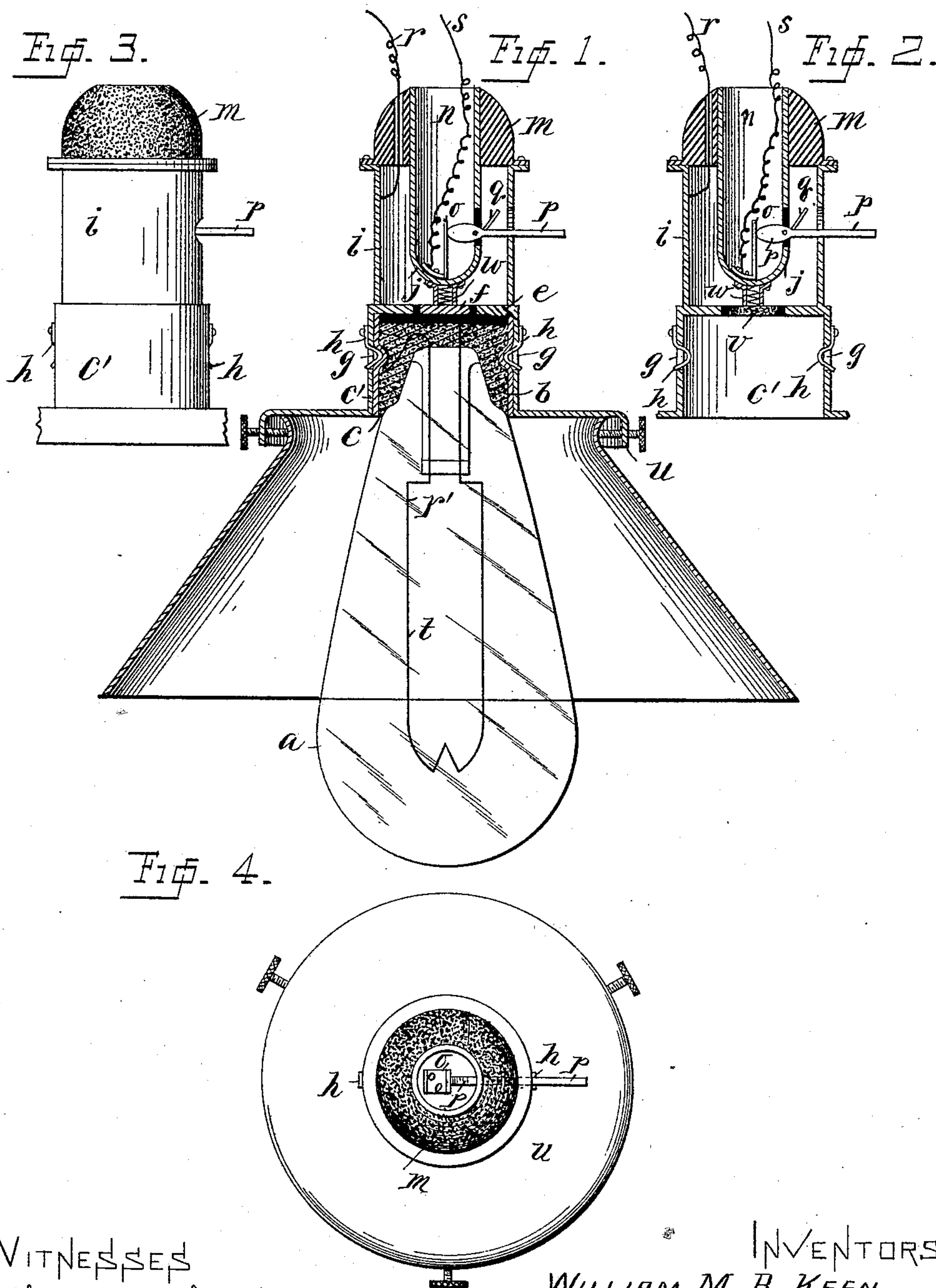
(No Model.)

2 Sheets—Sheet 1.

W. M. B. KEEN & W. F. HAARMANN.
INCANDESCENT ELECTRIC LAMP.

No. 452,305.

Patented May 12, 1891.



WITNESSES
Will. A. Courtland

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BY THEIR ATTORNEY

Edward P. Thompson

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Fig. 5.

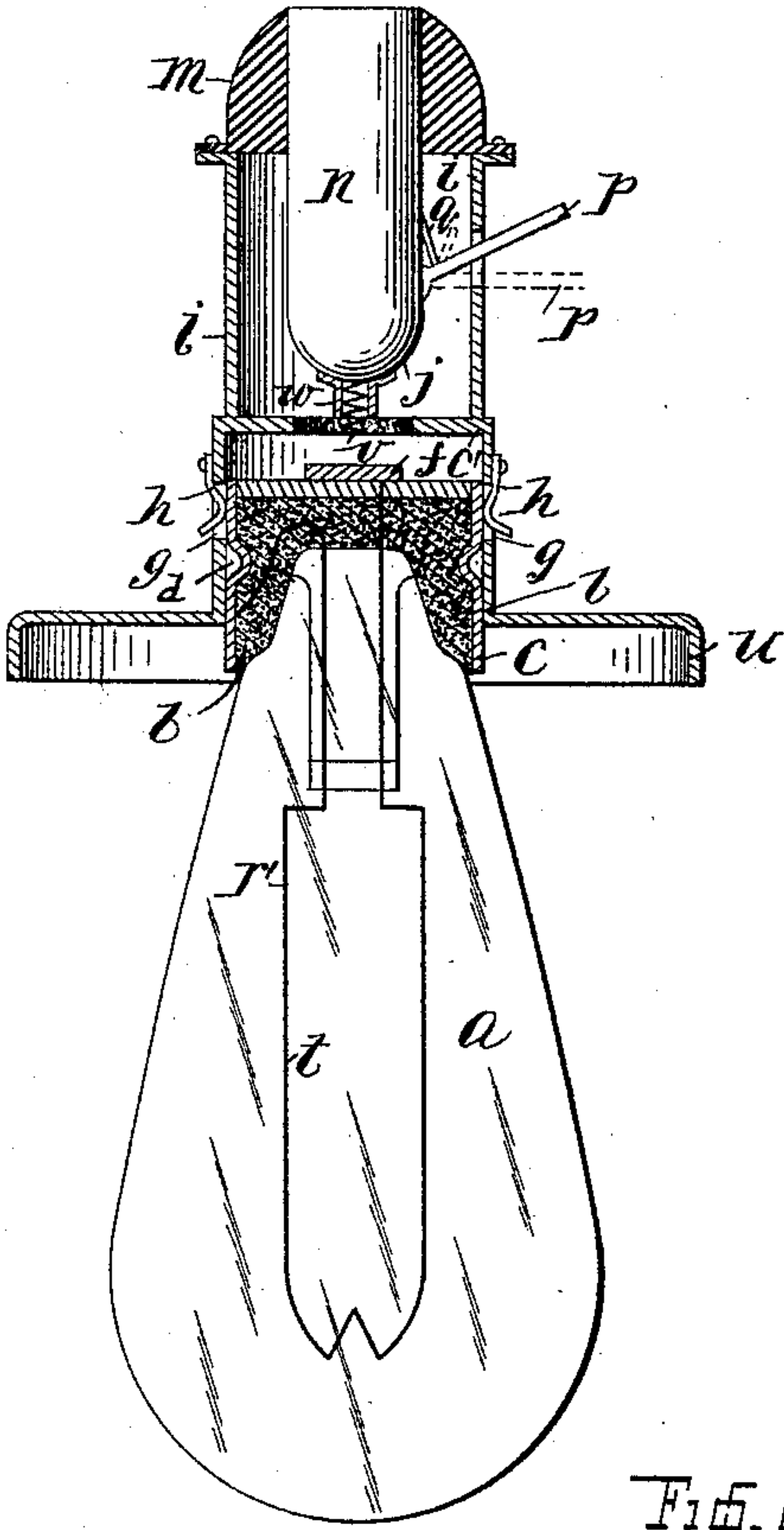


Fig. 6.

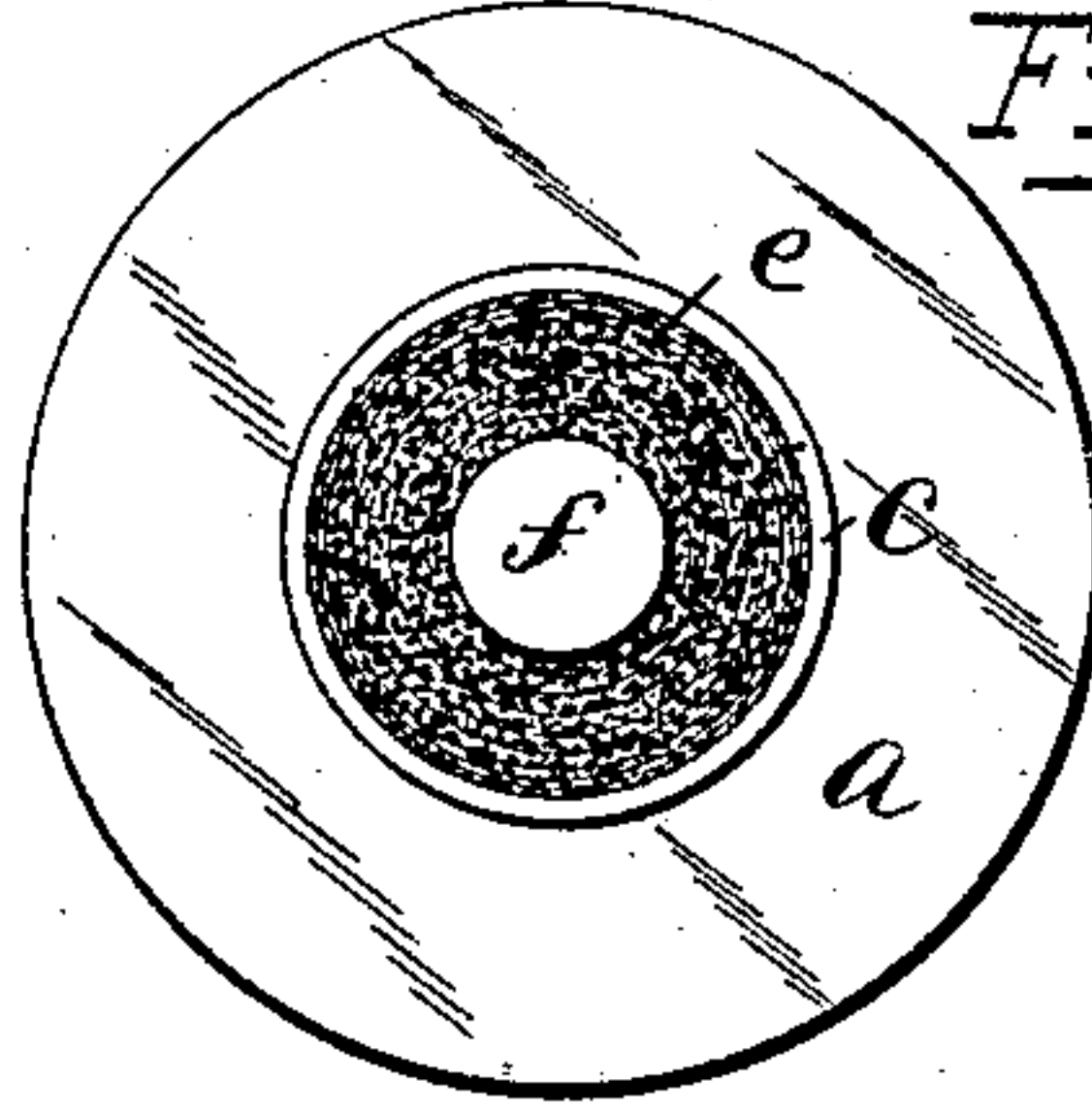


Fig. 7.

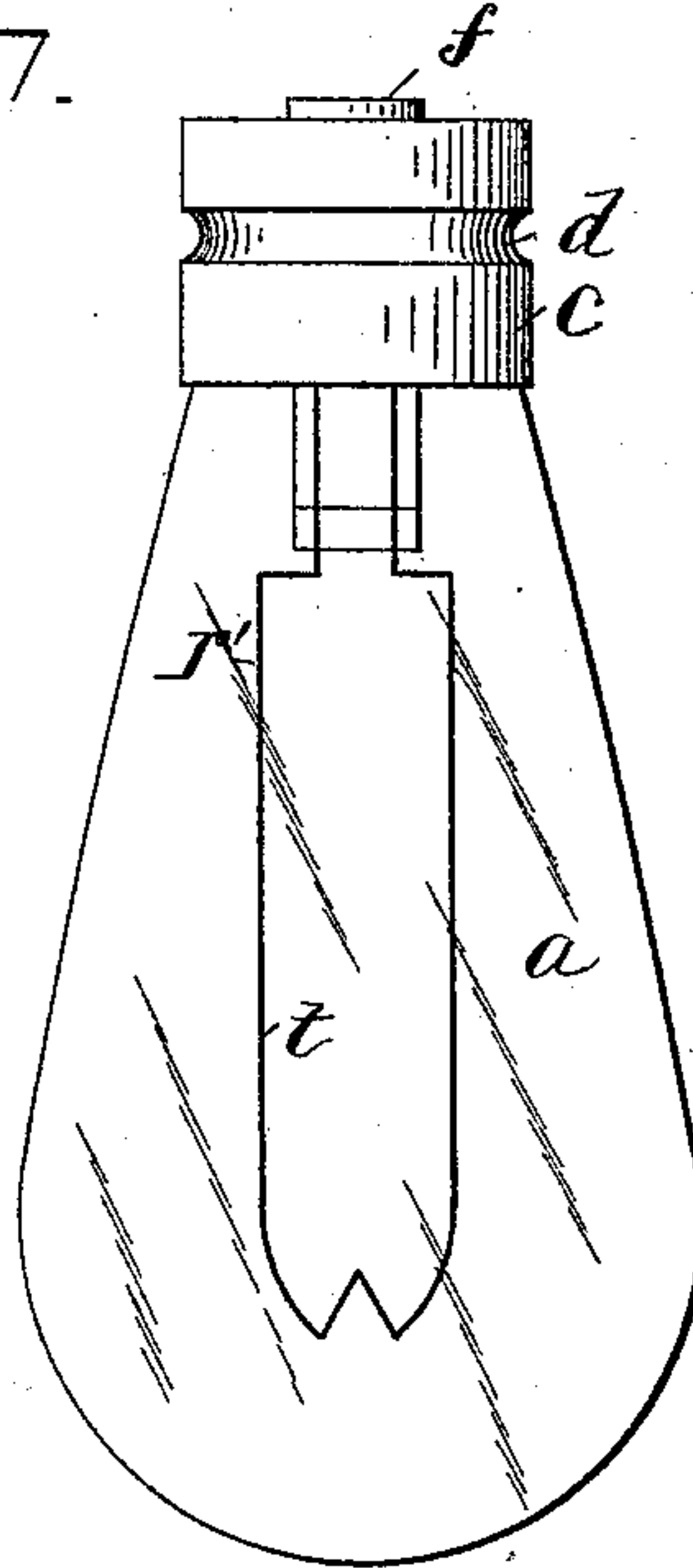
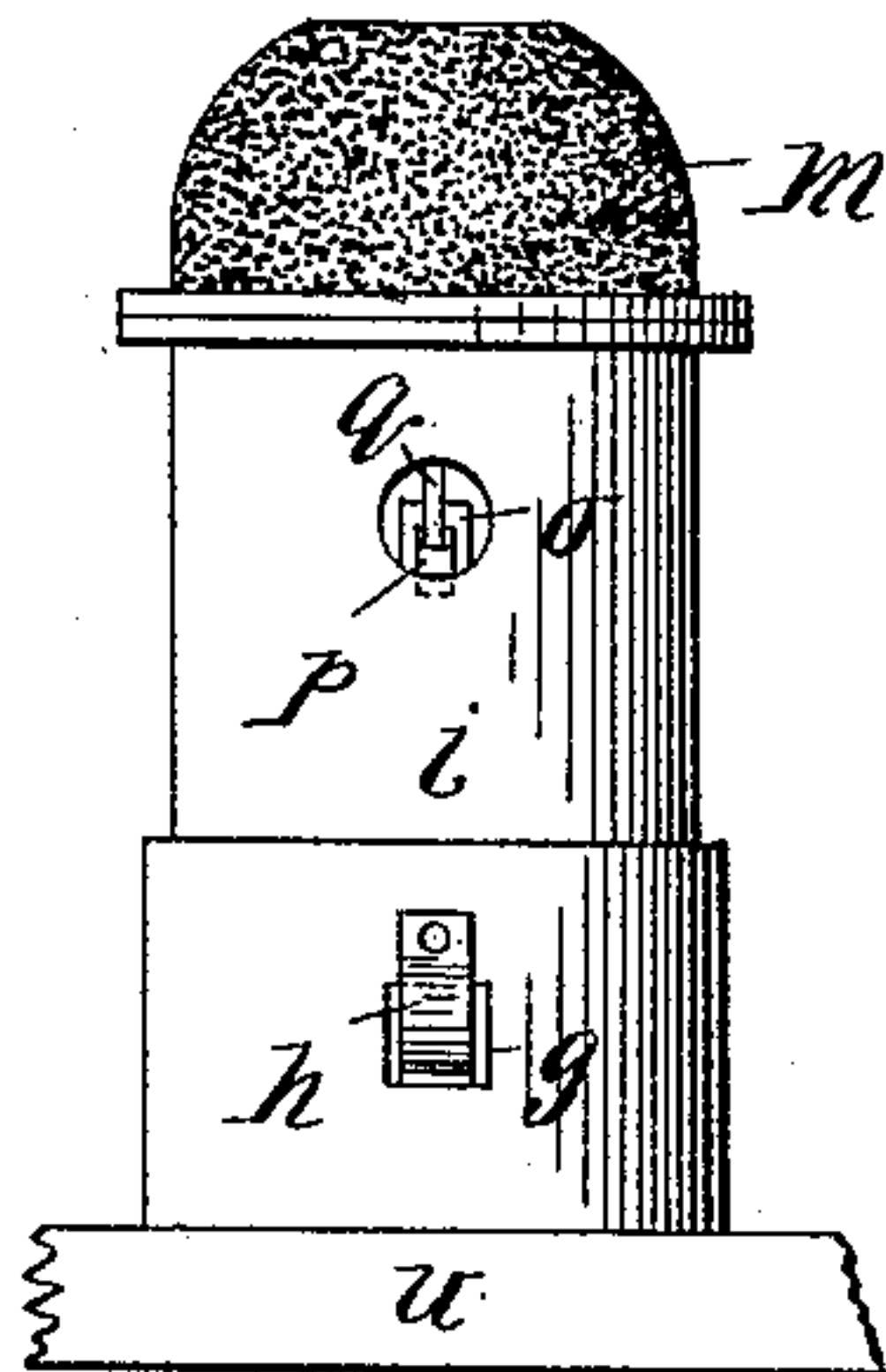


Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM M. B. KEEN AND WILLIAM F. HAARMANN, OF NEW YORK, N. Y.,
ASSIGNORS OF ONE-FOURTH TO EGBERT LE FEVRE, OF SAME PLACE,
AND SAID HAARMANN ASSIGNOR OF ALL HIS REMAINING INTEREST TO
SAID KEEN.

INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 452,305, dated May 12, 1891.

Application filed June 19, 1890. Serial No. 356,921. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM M. B. KEEN and WILLIAM F. HAARMANN, respectively a citizen of the United States and a subject of the German Emperor, and residents of New York, county and State of New York, have invented certain new and useful Improvements in Incandescent Electric Lamps, (Case 1,) of which the following is a specification.

Our invention relates to the mechanical construction of an incandescent electric lamp, and particularly to those parts known as the "switch" and "socket."

The details of construction are all set forth in the accompanying drawings, in which—

Figure 1 is an elevation in section of the complete device embodying the invention. Fig. 2 is a view similar to Fig. 1, with the omission of the lamp itself, and in which a part of the shade-holder is broken away. This Fig. 2 shows the extension of the central helical spring when the lamp and its cap are removed. Fig. 3 is an exterior view in elevation of Fig. 2. Fig. 4 is a plan view of the complete device shown in Fig. 1, the device not being in section. Fig. 5 is a view similar to Fig. 1, but certain parts have different relative positions. The switch is here open, while in Fig. 1 it is closed. The lamp is in a position occupied at the time when it is being inserted in the socket. The dotted lines in Fig. 5 represent the position of the handle of the switch when closed. Fig. 6 is a plan view of Fig. 7, which represents the lamp and its cap. Fig. 8 is a view similar to Fig. 3, except that it is at right angles to that in Fig. 3.

The complete device embodying our invention consists of the combination of an incandescent-electric-lamp globe *a*, whose upper end is inserted and retained by a suitable cement *b*, located in the cap *c*, which is, as usual, provided with the annular groove *d*, wooden cover *e*, and a small metallic disk *f*, mounted thereon; a socket *c'* for the cap, provided with lateral holes *g*; springs *h*, secured to the outside of said socket and pressing through said holes upon said cap in the said grooves, the said springs being bent into a semicircular form, so that both ends of the spring project

from the holes; a cylinder *i*, carried by said socket and provided at one end with an opening surrounded by an insulating-ring *j*, in which is located the said disk *f*, which forms one of the terminals of the lamp; a perforated insulating-cover *m*, attached to the remaining end of the cylinder *i* and supporting a downwardly-projecting tube *n*, opened at the upper end and closed at the lower end; a helical spring projecting from said lower end into the hole which is provided with the insulating-ring *j*, the said spring pressing upon and forming contact with the said disk *f*; a spring-terminal *o*, inside of the tube *m* and secured to the closed end thereof and projecting toward the opposite end, the said spring being only slightly flexible; a switch or lever *p*, pivoted to the said tube and passing through holes contained in both the cylinder *i* and the tube *n*, and pressing when horizontal upon the spring *o*; a projecting spring *q*, so attached to the lever *p* that when the latter is released the said spring *q* will press upon the tube *n* and thereby prevent the said lever *p* from striking the upper edge of the hole in the cylinder *i*; and wire terminals *r* and *s*, secured, respectively, to the cylinders *i*, and thus electrically connected to the pole *r'* of the filament *t* and to the spring *o*, and a suitable shade-holder *u*, forming a projection to the socket *c'*. When the lever *p* is horizontal, it presses with considerable force against the spring *o*. Therefore the current can pass through the wire *s* to the spring *o*, through the lever *p*, to its pivot or arbor, into the metal of the tube *n* through the helical spring *v*, which is attached to the lower part of the tube *n*, and thence into the disk *f* and successively through the filament *t*, the cap *c*, the spring *h*, the cylinder *i*, and the wire *r*. The shorter end of the lever *p*, which is the end pressing against the spring *o*, is oval-shaped horizontally, so that when the lever *p* is moved slightly upward by hand it moves upward very rapidly so that there is comparatively little sparking between said lever and said spring. The spring *q*, coming against the tube *n*, causes comparatively no noise to be made; but if the lever *p* should strike the upper part of the

hole in the cylinder *i* a loud click would be made.

Around the helical spring *v* is a small tube *w*, which serves as a guide for said spring, whose object is to form good contact with the disk *f*.

We claim as our invention—

1. In an incandescent electric lamp, the combination of a socket provided with opposite lateral openings *g*, a lamp-cap *c*, provided with a groove *d*, located in said socket, semicircular springs *h*, pressing in said groove and through said holes and secured to the outside of said socket, a cylinder *i*, carried upon said socket and provided with an opening in one end, in which is located one of the terminals of the filament of the lamp, a tube *n*, closed at one end and projecting into said cylinder and provided with a helical spring *v*, projecting from the closed end and pressing upon said terminal, which is a disk, a spring *o*, insulated from said tube and located inside thereof, a lever *p*, pivoted upon and electrically connected to said tube *n*, which is electrically connected to the spring *v*, the said lever passing through holes contained in said tube *n*

and said cylinder *i*, and a spring *q*, projecting from the lever *p* and located at an angle to the direction of length of the lever *p*, as and for the purpose described, and socket terminal-wires *r* and *s*, respectively electrically connected to the cylinder *i* and the spring *o*.

2. In an incandescent electric lamp, the combination of a tube *n*, located concentrically with and inside of a cylinder *i*, the said tube and cylinder being provided with holes, a lever *p*, pivoted to said tube and passing through said holes and permanently in electric contact with one terminal of the filament of the lamp, and a spring *o*, pressing upon said lever in a direction parallel to the length of the lever and located in said tube and forming one of the terminals *s* of the lamp-socket.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 7th day of June, 1890.

WILLIAM M. B. KEEN.

WILLIAM F. HAARMANN.

Witnesses:

EDWARD P. THOMPSON,

G. T. MIATT.