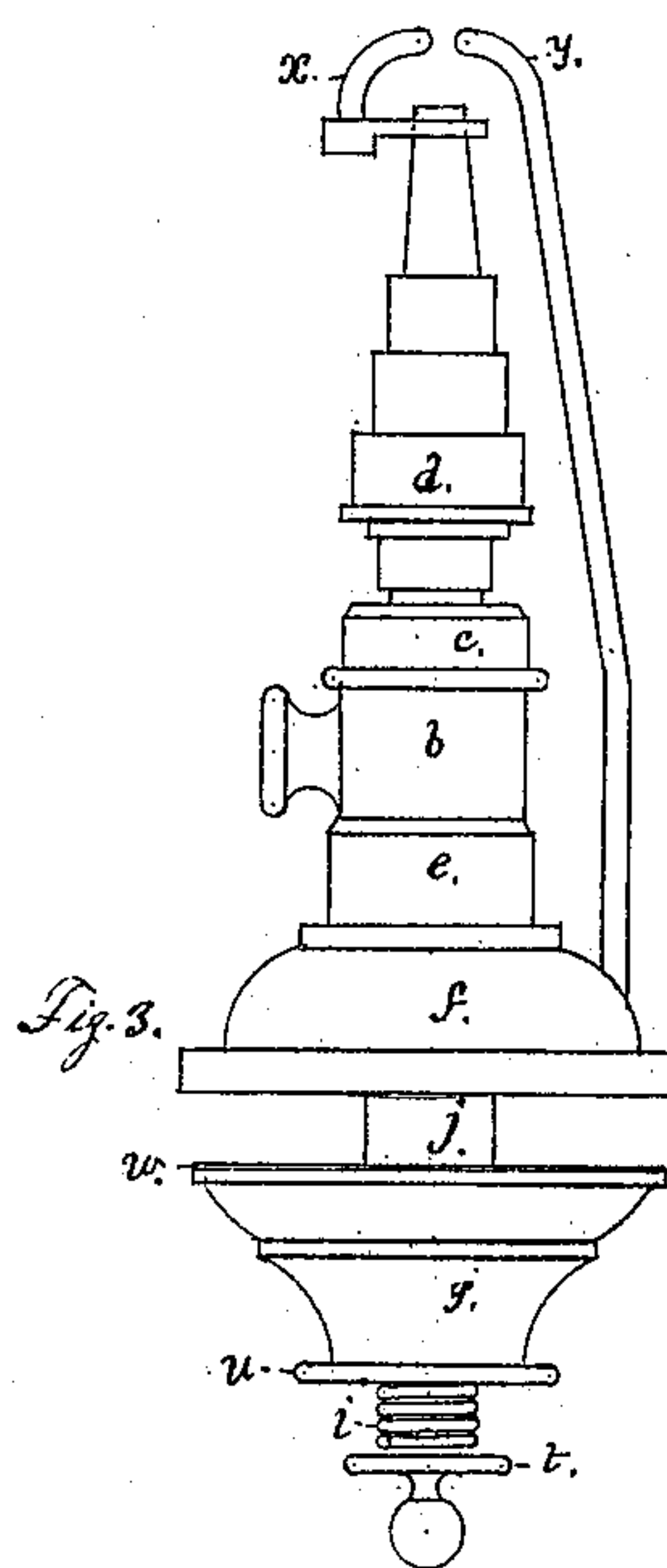
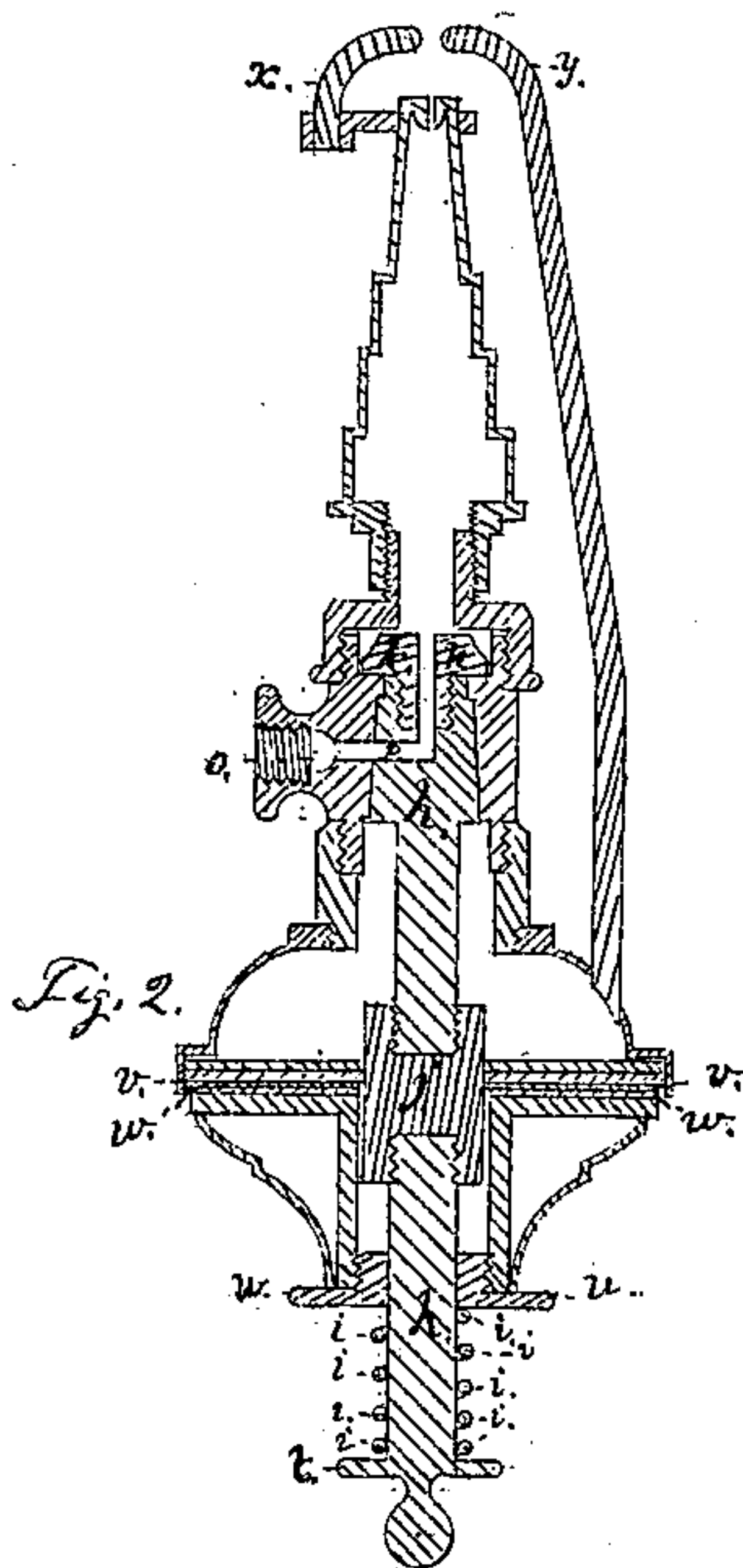
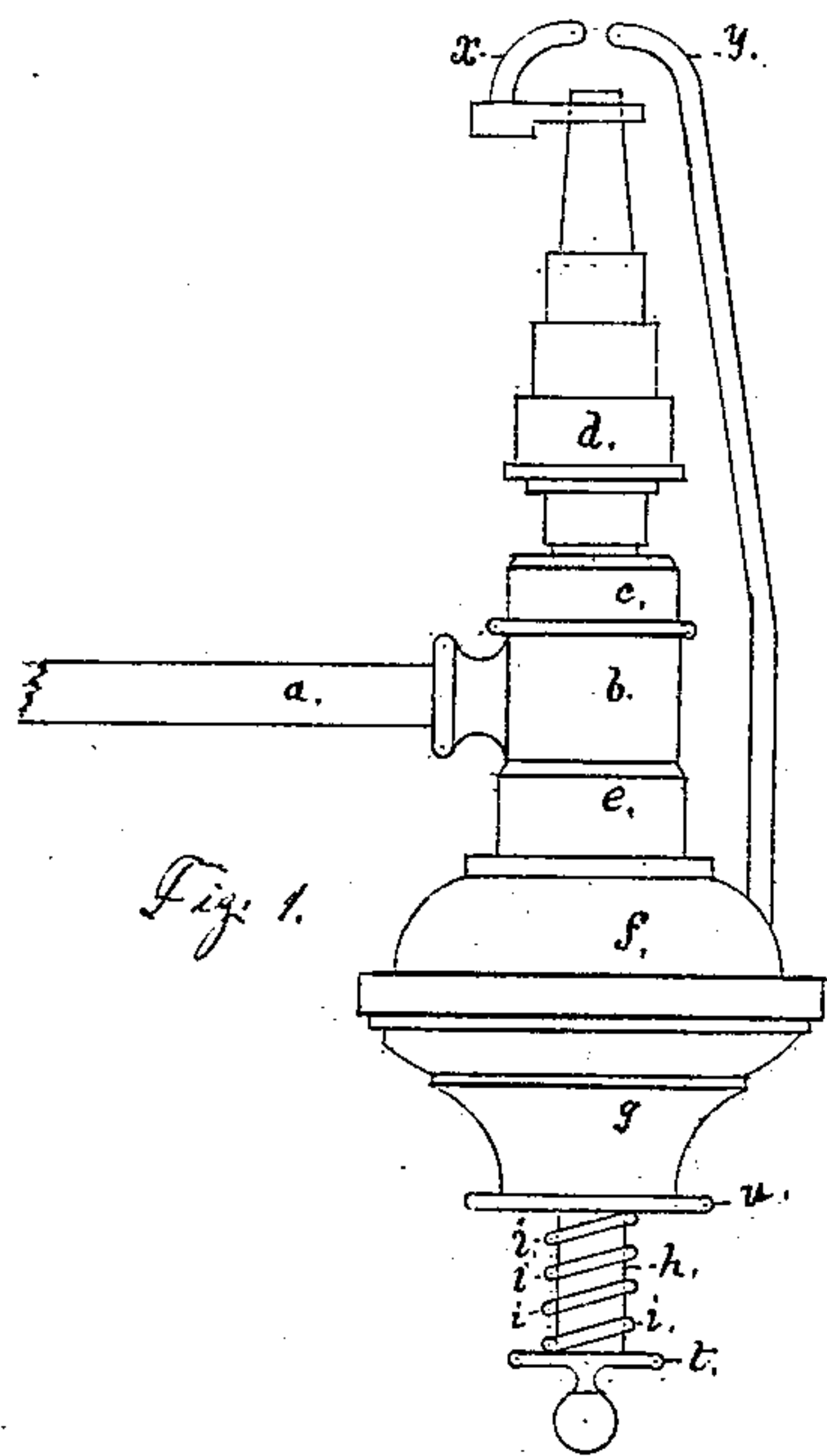
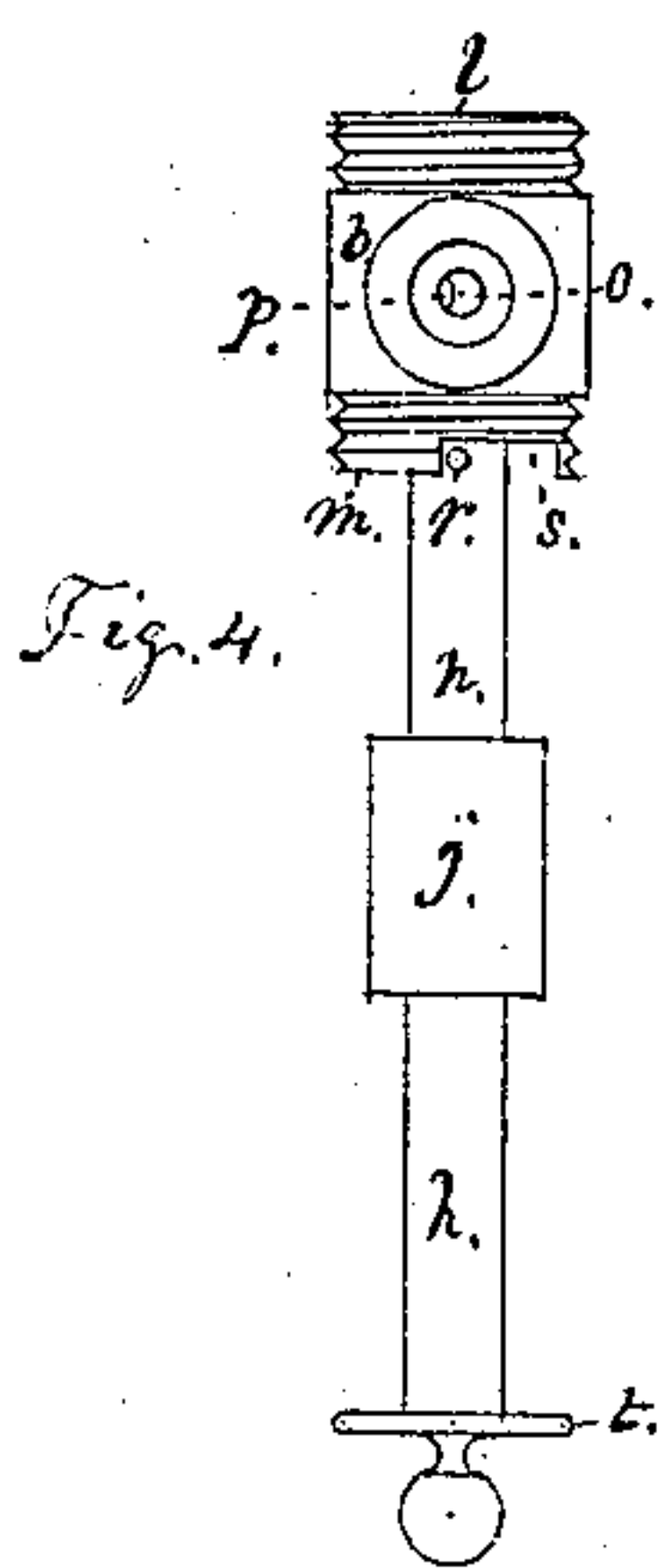


H. T. ROBBINS.  
 APPARATUS FOR LIGHTING GAS BY ELECTRICITY.  
 No. 107,105.                      Patented Sept. 6, 1870.



Witnesses,  
*E. Alden Alger*  
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# UNITED STATES PATENT OFFICE.

HORACE T. ROBBINS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN APPARATUS FOR LIGHTING GAS BY ELECTRICITY.

Specification forming part of Letters Patent No. 107,105, dated September 6, 1870.

*To all whom it may concern:*

Be it known that I, HORACE T. ROBBINS, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Electro-Motors for Lighting Gas; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side elevation. Fig. 2 is a vertical section of an electro-motor having my improvement applied to it, and Fig. 3 a view of the same with the lower part depressed.

Similar letters refer to like parts in the different drawings.

*a* is a gas-pipe; *b*, a gas-cock; *c*, a reducing-cap on the top of the gas-cock; *d*, a gas-burner; *e*, an insulator on the bottom of the gas-cock; *f*, the upper, and *g* the lower part, of the electro-motor; *h*, the key to the gas-cock; *i*, a helical spring; *j*, an insulator on the key; *k*, a screw on the top of the key to hold it in place.

The nature of my invention consists in applying frictional electro-motors to chandeliers, pendants, brackets, stands, and gas-fixtures generally, in such a manner that the surfaces which generate the electric current may be separated by depressing the lower part of the generator, thereby dispensing with a handle, and obviating the inconvenience and danger of breaking the shades by raising the upper part; also, in constructing the gas-cock in such a manner that, when the key is turned to admit the gas into the burner, it shall stop at a point where the aperture through which the gas passes into the burner shall be partially closed, thereby allowing but a gentle flow of gas through the burner, and thus insuring the lighting of the gas when the electrical current passes through it; whereas, if there is a strong pressure of gas flowing through the burner, the spark of electricity is very liable to be blown away without igniting the gas.

I construct my gas-cock as shown in the drawings, which is composed of the tube *b*, on the upper end of which is the screw *l*, to receive the reducing-cap *c*, and on the lower end is the screw *m*, to receive the insulator *e*.

*o* is the aperture in the tube *b*, through which the gas passes from the gas-pipe *a* to the key

*h*, and through the aperture *p* in the key to the burner.

*r* is a pin in the side of the key, which works in a slot, *s*, cut in the side of the tube *b*, which acts as a stop device to stop the key in the proper place both for lighting and extinguishing the gas.

When it is desired to light the gas the key is turned, as shown in Fig. 4, in which operation the aperture in the key passes partially by the aperture in the tube, and after the gas is lighted the key may be turned back to regulate the amount of light required.

The upper part of the electro-motor *f* is attached to the bottom of the stop-cock by means of the screw *m* and the insulator *e*.

The lower part *g* is kept in place by the key *h* and helical spring *i*, the lower end of which rests on the collar *t*, and the upper end presses against the collar *u*.

When it is desired to light the gas it may be done, provided there is a supply in the gas-pipe *a*, by first turning the key in the position shown in Fig. 4, then exciting the electric generators *v w* by grasping the collar *u* on the lower part of the electro-motor and partially revolving it, and then depressing it, as shown in Fig. 3, when the current of electricity will pass off between the upper ends of the conducting-wires *x y* through the gas, and ignite it as it leaves the burner.

I do not intend to confine my invention to the precise location as herein shown, as the electro-motor may be connected to the ordinary nozzle on the end of the gas-fixture to which the burner is attached by simply extending a projection from the lower part of the nozzle, by which to connect the electro-motor, similar to the one above, to which the burner is attached, and extending the projection down sufficiently to support the spring *i*, substantially as described, and the gas-cock may be applied in the usual way to any convenient part of the gas-pipe *a*, provided the stop device *rs* be arranged substantially as described, and, for stand-lights, the electro-motor may be arranged on the top of the stand, the spring being arranged on and supported by the stand as it is here supported by the key *h* and collar *t*.

I herein make no claim to the frictional elec-



tro-motor as such; nor do I claim the combination of a frictional electro-motor with a gas-cock.

What I do claim is as follows:

1. The spring *i*, in combination with a frictional electro-motor, arranged substantially in the manner and for the purpose set forth.

2. The stop device *r s*, in combination with a gas-cock and frictional electro-motor, substantially in the manner and for the purpose above specified.

3. The combination of the insulator *e*, generators *v w*, insulator *j*, rod or key *h*, spring *i*,

current-conductors *x y*, and burner *d* with a gas-fixture, substantially as and for the purpose specified.

4. The combination of the gas-cock *b*, stop device *r s*, insulators *j e*, cups *f g*, electric generators *v w*, spring *i*, current-conductors *x y*, and burner *d* with a gas-fixture, substantially as and for the purpose specified.

HORACE T. ROBBINS.

Witnesses:

E. ALDEN ALGER,

E. AUGUSTUS ALGER.