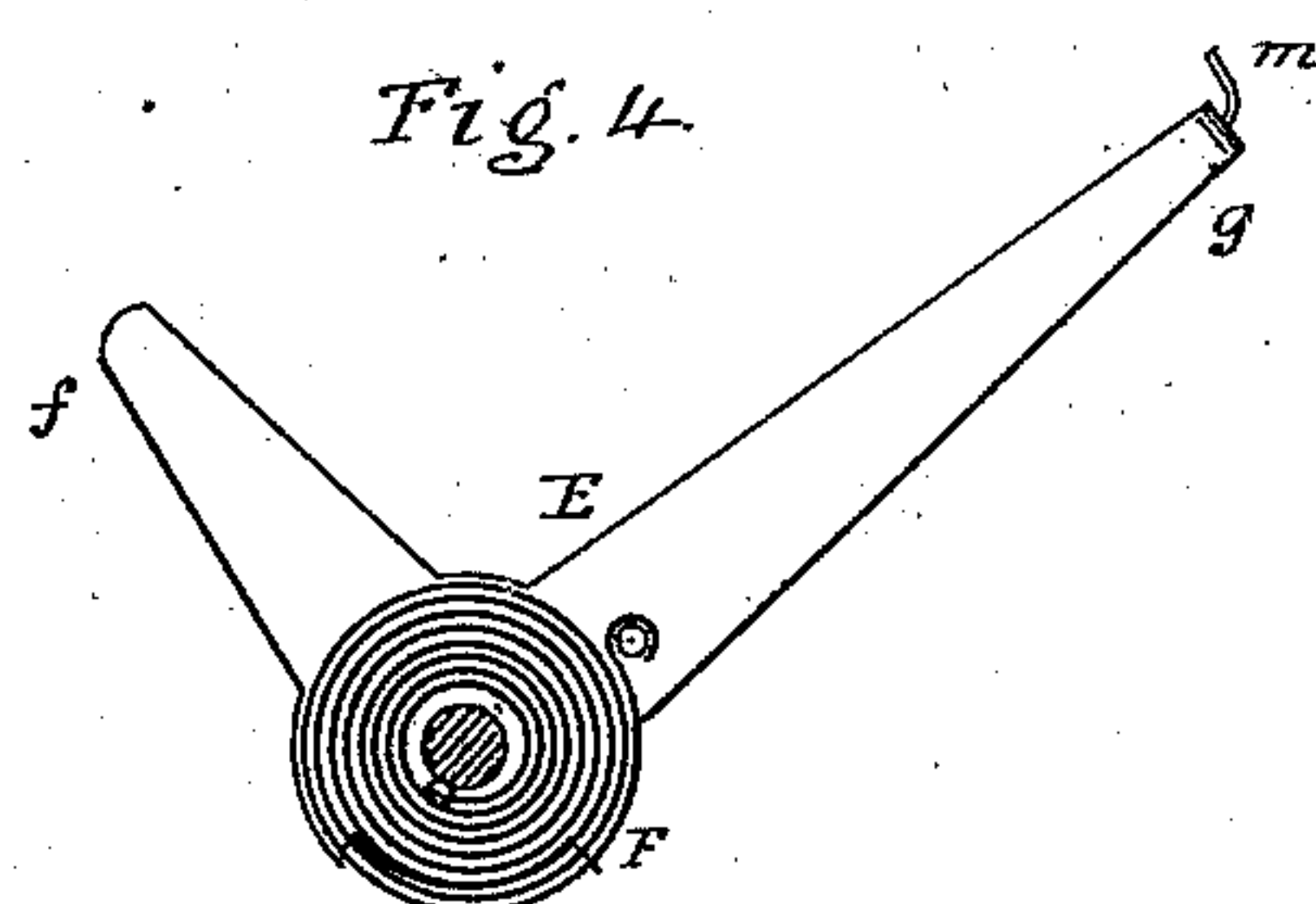
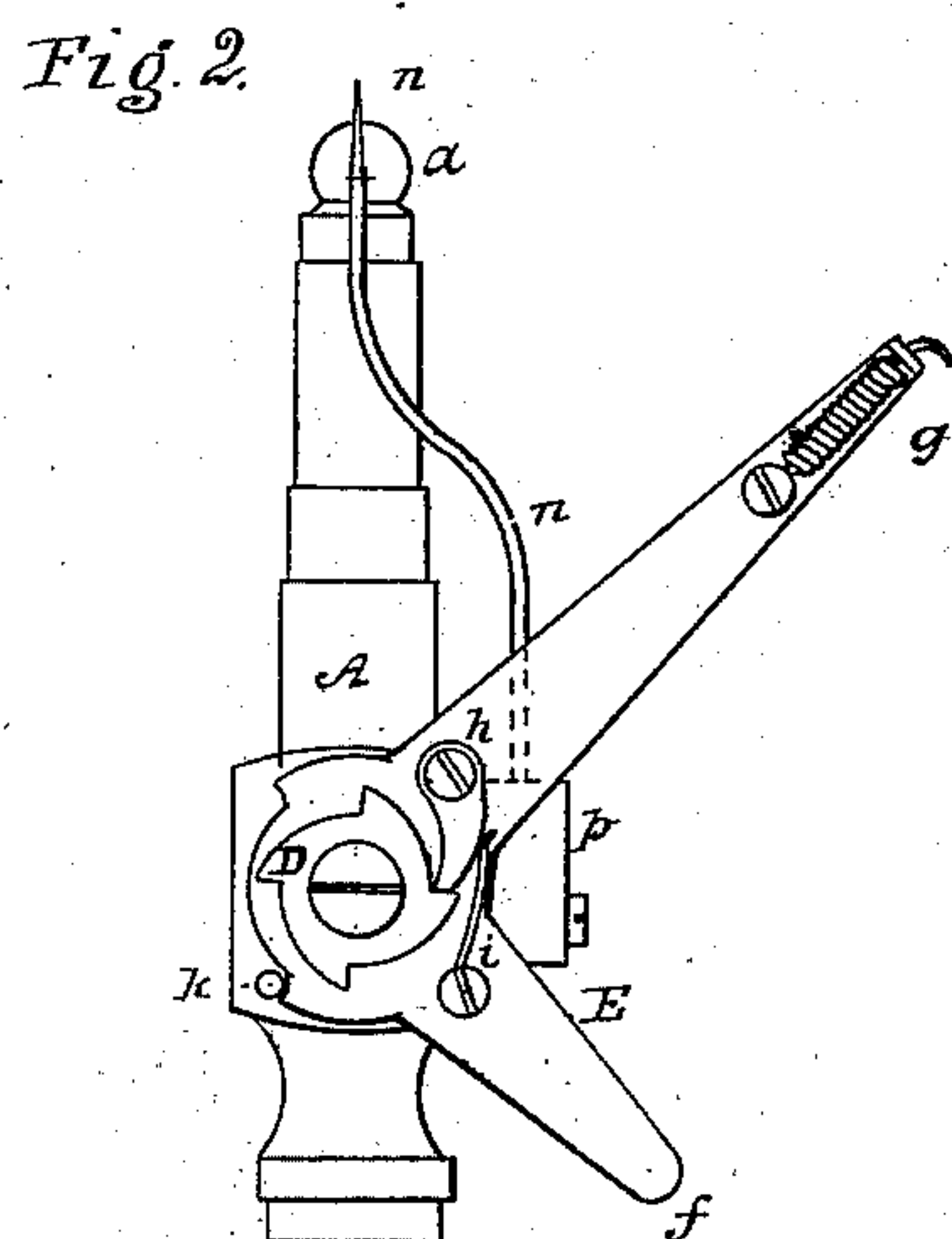
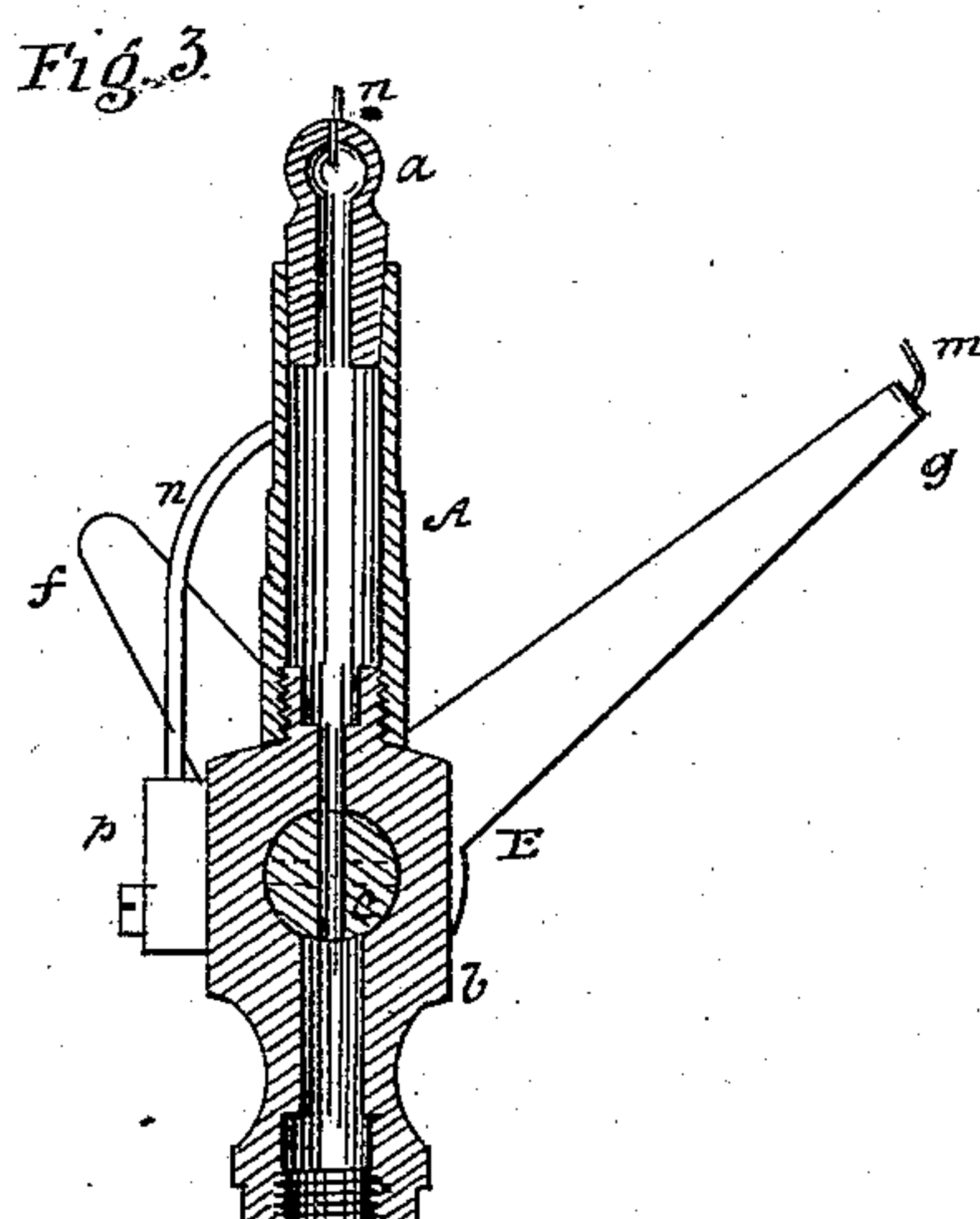
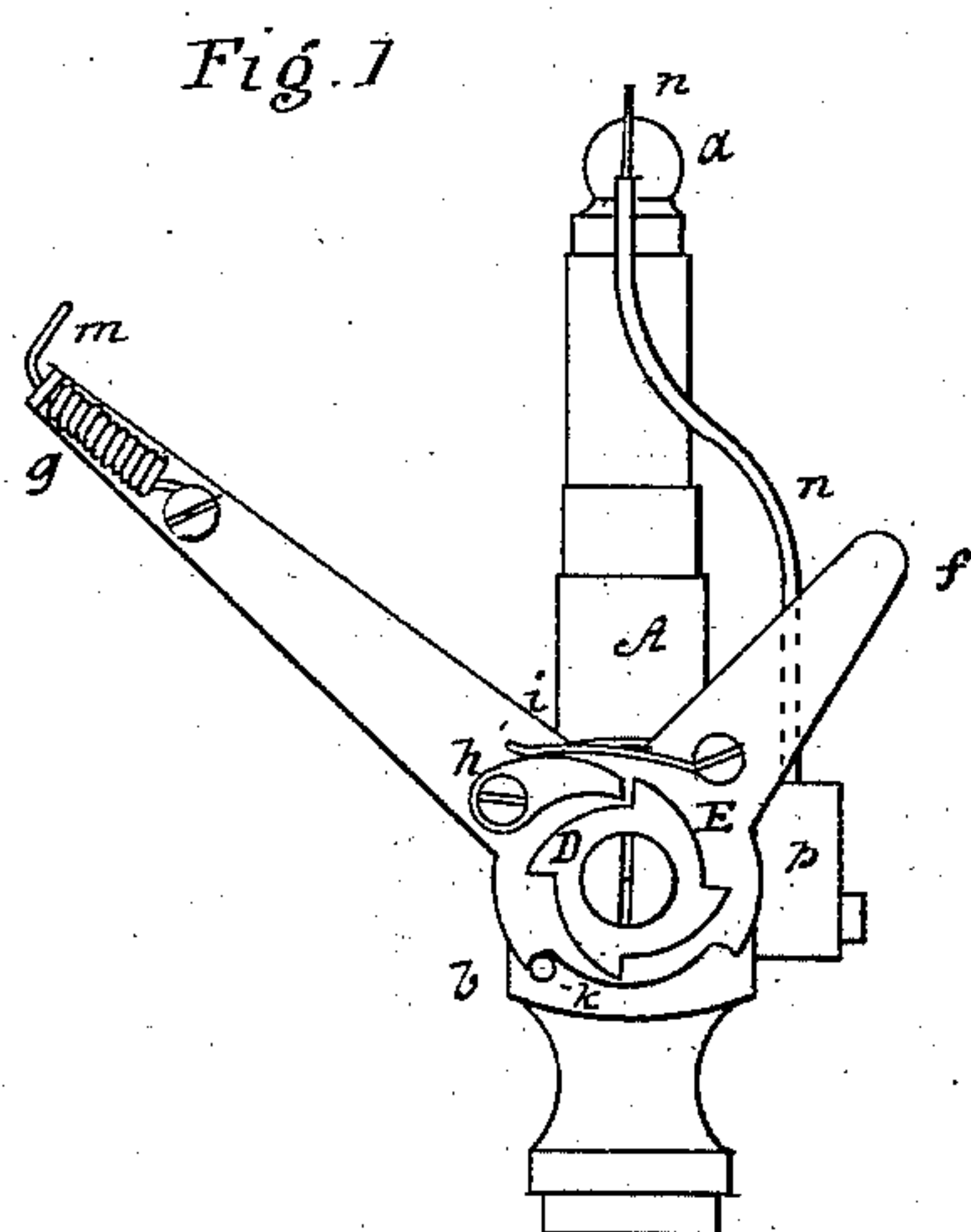


H. F. PACKARD.  
Electric Gas-Lighting Device.

No. 225,071.

Patented Mar. 2, 1880.



Witnesses:  
J. N. Pate  
E. H. Friend

Inventor:  
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By his atty  
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# UNITED STATES PATENT OFFICE.

HENRY F. PACKARD, OF BROCKTON, MASSACHUSETTS, ASSIGNOR TO  
ABRAHAM L. BOGART, OF JAMAICA, NEW YORK.

## ELECTRIC GAS-LIGHTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 225,071, dated March 2, 1880.

Application filed January 11, 1878.

*To all whom it may concern:*

Be it known that I, HENRY F. PACKARD, of Brockton, in the county of Plymouth and Commonwealth of Massachusetts, have invented  
5 certain new and useful Improvements in Devices for Turning On and Off and Lighting Gas-Burners; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification.

This invention relates to improvements in the construction of gas-burners, in which the gas is lighted by an electric spark produced  
15 by the making and breaking contact of two electrodes, such spark being produced in near proximity to the orifice from which the gas issues; and its object is to construct the burner and its attachments in such a manner that the gas may be turned on and lighted simultaneously by one and the same movement; and also to obviate the necessity for using the ordinary pole and key for turning on the gas in  
20 burners lighted by electricity or otherwise when placed out of easy reach. My said improvements may also be employed for simultaneously turning on the gas and lighting it by means of a fuse.

My invention consists in certain novel devices, hereinafter fully described, by means of which the gas is turned on by pressing or pulling down and then releasing a lever fitted loosely to the stem of the cock, and thereby causing a vibrating arm to sweep past the tip of  
35 the burner; also, in the combination, with the said devices, of an electric contact-point fixed upon the end of the said vibrating arm, and of a fixed electrode located in close proximity to the orifice from which the gas issues, one of  
40 the said electrodes being insulated from the burner, and which, by the action of the said devices, are caused to make and break contact when the gas is turned on, thereby producing an electric spark and igniting the gas.

45 In the accompanying drawings, Figure 1 is an elevation of a burner with my improvements, showing the positions of the same when the gas is turned on. Fig. 2 is a similar view showing the position assumed by my said devices  
50 when operated for turning on the gas. Fig. 3

is a vertical section taken through the center of the burner, and Fig. 4 a detail view hereinafter referred to and explained.

Similar letters of reference indicate the same parts in all the several figures.

A represents the burner, and *a* the gas-tip, both of which may be of ordinary form and construction. *b* is the stop-cock, having a one-way plug, *c*. A ratchet, *D*, having four teeth, is rigidly secured upon the stem of the cock  
60 and moves therewith. *E* is an angle-lever pivoted or fitted loosely upon the stem of the cock, one arm, *f*, of the said lever forming a thumb-piece for operating the burner, and its other arm, *g*, being extended so that its upper  
65 end will sweep closely past the tip of the burner when the lever *f* is pressed or pulled down. Pivoted to this lever *E* is a pawl, *h*, which engages with the ratchet *D*, and which is kept in contact therewith by a spring, *i*.

70 *F* is a spiral or other spring for retracting the lever *E* when it is released after being pressed or pulled down. This spring I usually attach in the manner shown in Fig. 4, (which is a plan of the rear side of the lever  
75 *E*), one end of said spring being secured to the said lever *E* and its other end to the body of the cock. *k* is a stop-pin secured upon the body of the cock.

The operation of the parts already described  
80 is as follows: Supposing the gas to be off and the plug closed, as shown by the dotted lines in Fig. 3, then, on pressing or pulling down the lever *E* until its arms *f* and *g* assume the relative positions shown in Fig. 2, the plug of the  
85 cock will be turned one-quarter way around by the action of the ratchet and pawl, and brought into the position shown in full lines in Fig. 3; and on releasing the lever the  
90 spring *F* will carry it back into the position shown in Fig. 1, and the plug will be left turned on, as the pawl slides over the ratchet without turning it. When in this position, and it is desired to turn off the gas, the same  
95 movements are repeated, thus turning the plug one-quarter way around and leaving it turned off.

In the application of my said invention to gas-burners lighted by electricity, I attach an elastic contact-point, *m*, on the upper end of  
100



the arm *g* and a fixed electrode, *n*, to the burner in such relative position that when the end of the arm *g* sweeps past the gas-tip in turning on the gas, as above described, the two electrodes will make and break contact in close proximity to the orifice of the gas-tip, and thereby produce a spark and ignite the gas as it issues therefrom.

In the case of burners which are not provided with attachments for lighting the same by electricity, a fuse of suitable kind may be fixed upon the arm *g* for the purpose of igniting the gas at the time it is turned on, and by the same movements of the levers as above described.

It will be understood that when an electric spark is employed for lighting the gas either one or other of the electrodes *m* or *n* must be insulated from the burner, and in the drawings the fixed electrode is shown thus insulated by means of a block, *p*, of some non-conducting substance, to which the electrode is secured; also, that when a fuse is employed some suitable means of producing friction to light the same must be employed, and that the fuse may be fixed on the burner near the orifice, and the device for producing friction may be attached to the arm *g* instead of fixing the fuse on the said arm.

I may also state that a plug having more than one "way" may be employed, the number of teeth on the ratchet being correspondingly increased.

I do not claim as my invention the yielding elastic contact-point *m* herein described, as that has already been used by others and is described in Letters Patent No. 149,561, granted to E. E. Bean April 14, 1874; neither do I claim as my invention the vibrating arm *g*, carrying an elastic contact-point, except as combined

with the devices herein described for operating the same.

What I claim as my invention is—

1. The ratchet *D*, rigidly secured upon the stem of the cock and moving therewith, in combination with the spring *F*, lever *f*, pivoted loosely upon the stem of the cock, and pawl *h*, all constructed and arranged substantially as described, to operate, as set forth, for turning on and off the gas.

2. In combination with the ratchet *D*, rigidly secured upon the stem of the cock and moving therewith, and the pawl *h*, the spring *F* and the lever *E*, pivoted loosely upon the stem of the cock, and having arms *f* and *g*, upon the latter of which is secured an electrode, *m*, or a lighting-fuse, substantially as described.

3. In combination with a gas-burner, *A*, and a fixed electrode, *n*, the ratchet *D*, pawl *h*, spring *F*, lever *E*, pivoted loosely upon the stem of the cock and having two arms, *f* and *g*, to the latter of which is attached an elastic contact-point, and stop-pin, *k*, as and for the purposes set forth.

4. In an electric gas-lighting apparatus, in combination with devices constructed and arranged to open and close the gas-passage to the tip at each alternate movement thereof, and conjointly with such opening to ignite the gas by an electric spark generated by such movement, devices which shall, without actuating the gas-cock, repeat the electrical spark by the return movement of the opening devices to their normal position for further use, substantially as described and shown.

HENRY F. PACKARD.

Witnesses:

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