

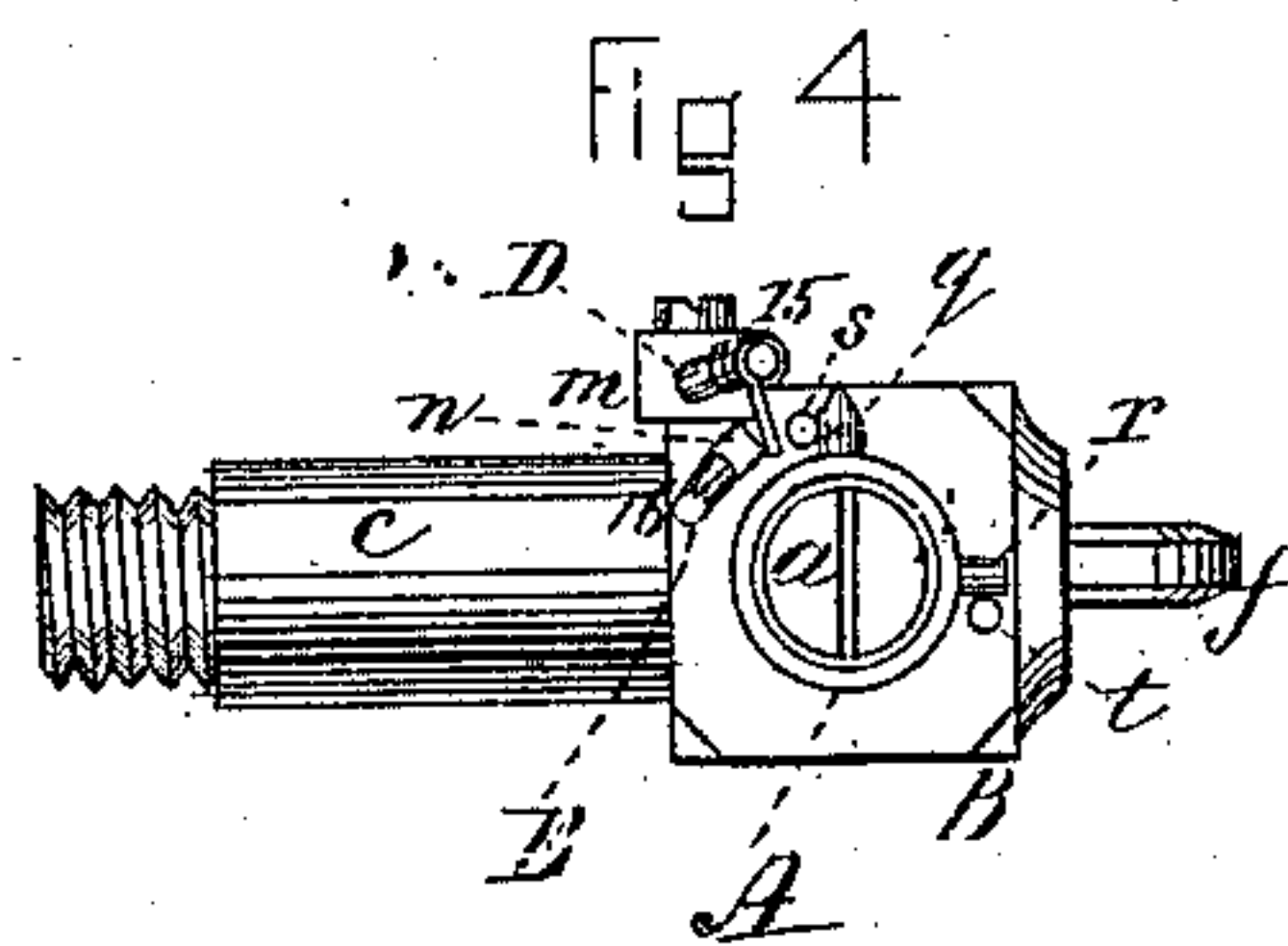
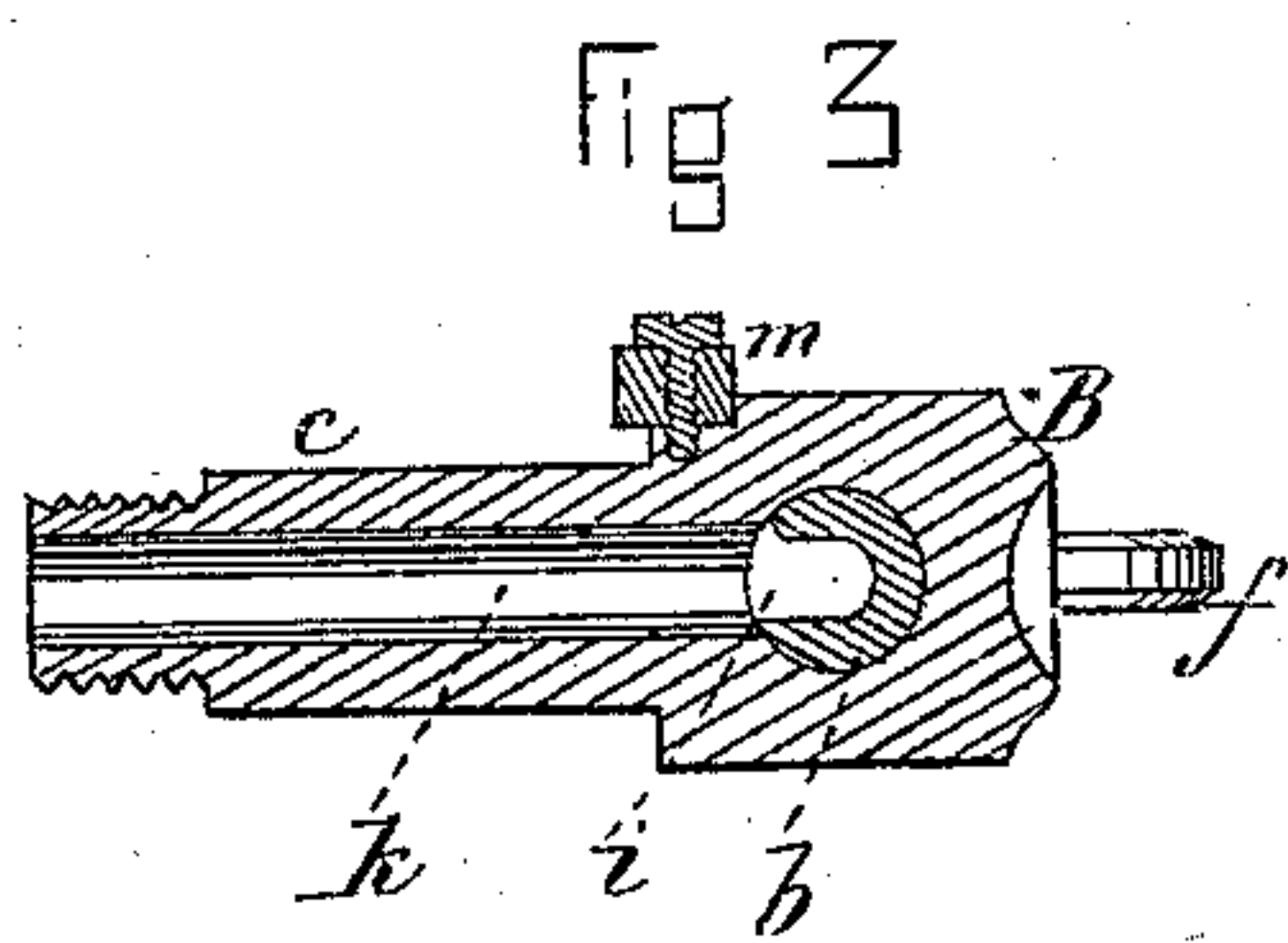
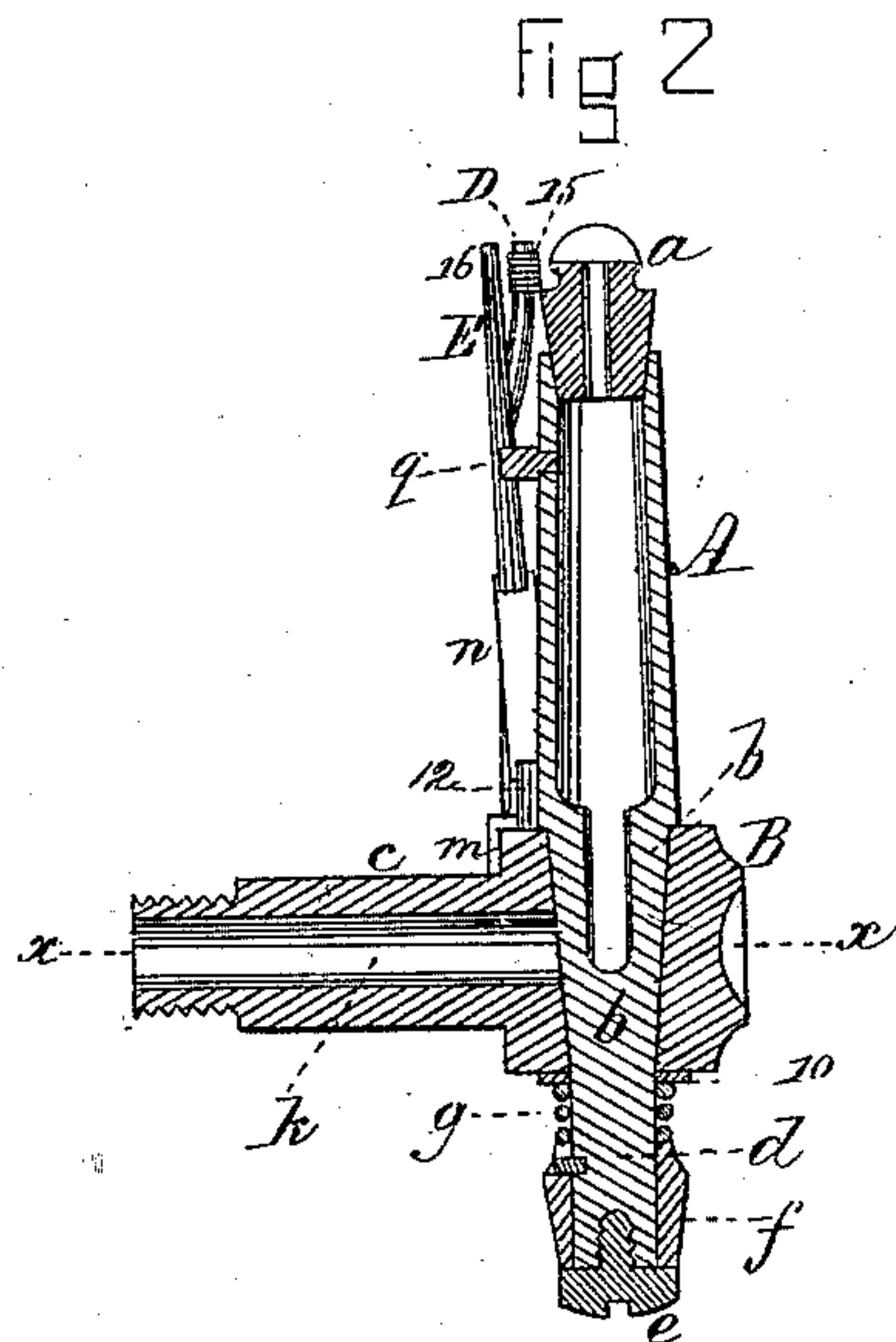
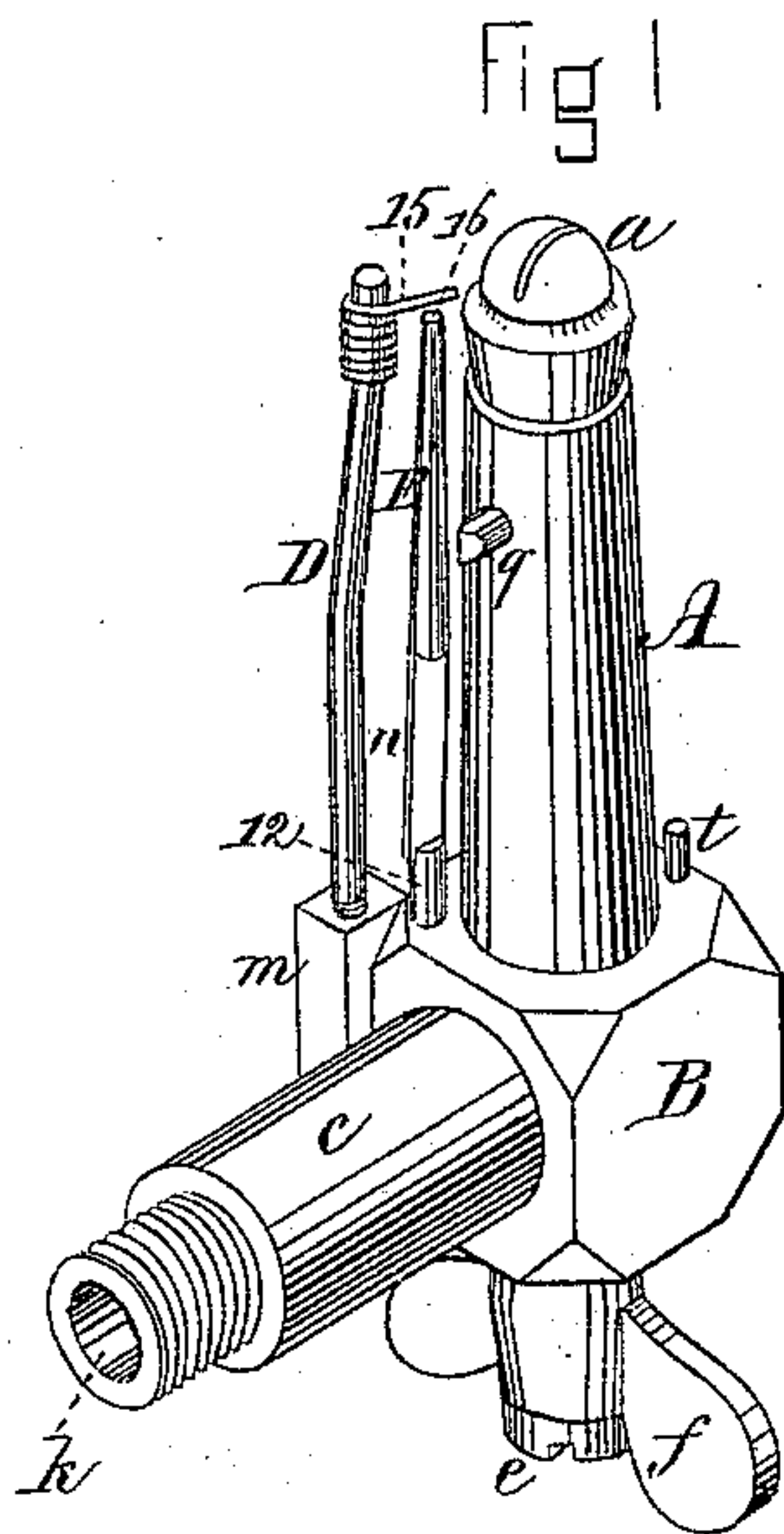
(No Model.)

H. J. WARREN.

ELECTRIC GAS LIGHTING BURNER.

No. 272,004.

Patented Feb. 6, 1883.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

HENRY J. WARREN, OF WEST BRIDGEWATER, ASSIGNOR TO FRANCIS BRYANT, OF CAMBRIDGE, MASSACHUSETTS.

## ELECTRIC GAS-LIGHTING BURNER.

SPECIFICATION forming part of Letters Patent No. 272,004, dated February 6, 1883

Application filed August 9, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY J. WARREN, a citizen of the United States, residing at West Bridgewater, in the county of Plymouth and State of Massachusetts, have invented certain Improvements in Electric Gas-Lighting Burners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of an electric gas-lighting burner constructed in accordance with my invention, the stop-cock being closed. Fig. 2 is a vertical section through the center of the same. Fig. 3 is a horizontal section through the same on the line *xx* of Fig. 2. Fig. 4 is a plan with the stop-cock open.

My invention relates to an improvement in the construction of gas-burners, more particularly those known as "electric gas-lighting burners;" and it consists in a gas-burner in which the pillar or main upright portion is formed by a prolongation of the plug of the stop-cock, which is arranged vertically within the shell, below which it is provided with a thumb-piece or handle, by which it may be turned with the upright portion of the burner by hand to let on and shut off the gas; and my invention also consists in the combination, with a gas-burner so constructed, of an independent movable electrode, which is wiped or swept into and out of contact with a fixed electrode, to produce the electric spark to ignite the gas, by means of a pin or projection secured to or connected with the rotating vertical portion of the burner, which latter, as it is turned with the stop-cock to let on the gas, is thus caused to actuate the independent movable electrode to produce the igniting-spark as required.

In the said drawings, A represents the hollow pillar or main vertical portion of a gas-burner, which is provided, as usual, with a tip, *a*, and is formed by a prolongation or upward extension of the plug *b* of the stop-cock, and in the same piece therewith, the plug *b* being arranged vertically within the shell B, on one side of which is the supply-pipe *c*. The plug *b* is made slightly tapering, and its stem *d* extends down below the shell B, and has secured to its lower end by a screw, *e*, a thumb-piece

or handle, *f*, by which it can be turned by the hand to let on or shut off the gas, a spiral spring, *g*, bearing on a washer, 10, being interposed between the thumb-piece *f* and the under side of the shell B, which serves to keep the plug *b* snugly down upon its seat. The plug *b* is made hollow, and communicates with the straight longitudinal passage through the vertical portion A of the burner, and in the side of the plug *b* is formed an aperture, *i*, which communicates with its interior, and is so placed that by turning the plug it can be brought into line with the gas-inlet passage *k* or out of line therewith to let on or shut off the gas from the portion A, as required.

To one side of the shell B is secured an insulating-block, *m*, from which rises the fixed electrode D, which is connected, as usual, with one pole of the battery, and extends up to a point in close proximity with the orifice at the tip of the burner, the terminal or contact point of this electrode being composed of a piece of spring-wire, 15, having its inner end coiled around the upper end of the main portion D, and secured thereto in any suitable manner, by which means it is rendered sufficiently elastic to enable the arm or movable electrode E to be readily wiped past it, as it is moved into and out of contact therewith, to produce the electric spark to ignite the gas in the following manner: The movable electrode E, which is connected through the burner and gas-pipe with the other pole of the battery, is united by a thin flat spring, *n*, to a short stud or pin, 12, rising from the shell B, the spring *n* serving to maintain the arm E in the vertical position seen in Fig. 1, and allow it to yield freely in opposite directions.

Instead of being constructed, as shown, with a spring, *n*, the movable electrode may, if desired, be composed of a single piece of spring metal of suitable thickness and elasticity, secured at its lower end to the shell B.

*q* is a pin or projection, which is secured to the side of the rotating pillar or vertical portion A of the burner, and extends outward horizontally to such a distance that its end will intercept the movable electrode E, and, the parts being in the position seen in Fig. 1, as the vertical portion A of the burner is rotated with the stop-cock in letting on the gas,



the pin *q* is brought into contact with the movable electrode *E*, and vibrates the same, so as to cause its terminal point 16 to be wiped past the elastic terminal of the fixed electrode *D*, thus producing the spark to ignite the gas, the cock being open when the parts are in this position. As the portion *A* of the burner continues to be rotated, the pin *q* is carried out of contact with the movable electrode, which is then automatically returned to its original vertical position by the spring *n*; and on the return movement of the pin *q*, when the stop-cock is rotated to shut off the gas, the pin *q* is again brought into contact with and slips by the movable arm *E*, which yields freely against the resistance of the spring *n*, to allow the pin *q* to be carried back to the position seen in Fig. 1, ready to again actuate the arm *E*, as before described. By this construction and arrangement of parts the electrodes are not liable to be left in contact, as they are removed a sufficient distance from each other when the stop-cock is turned to its full extent in either direction, or when the gas is turned down to its lowest point, there being no contact made between the two electrodes on the return movement of the cock to shut off the gas.

*r* is a pin which is alternately brought into contact with pins *s t*, which thus serve as stops to limit the movement of the stop cock in either direction.

I am aware of the United States Letters Patent granted to E. McClintock March 31, 1868, and to G. W. Tinsley May 11, 1875, and therefore make no broad claim to the prolongation of the plug of the stop-cock above the top of the shell of the burner, nor to any of the devices or construction shown in said patents; but—

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A gas-burner having its straight pillar or main outside upright portion, *A*, which carries the tip *a*, formed by the prolongation or upward extension of the plug *b* of the stop-cock, arranged vertically within the shell *B*, in combination with a thumb-piece or handle, secured to the stem of the cock below the shell *B*, by which the plug *b* and the pillar *A*, with its tip *a*, may be rotated together, substantially as described.

2. The combination, with a gas-burner having its pillar or vertical portion *A* formed by the prolongation or upward extension of the plug of the stop-cock, arranged vertically within the shell, and provided with a thumb-piece or handle below the same, of an independent movable electrode, *E*, adapted to be wiped or swept into and out of contact with a fixed electrode, to produce the spark to ignite the gas, by means of a pin or projection secured to or connected with the rotating vertical portion *A* of the burner as the latter is turned with the stop-cock to let on the gas, substantially as set forth.

3. The combination, with the rotating vertical pillar or portion *A* of the burner provided with a pin or projection, *q*, of the spring-arm *E*, forming the movable electrode, and adapted to yield in opposite directions when struck by the pin *q* to allow the latter to be carried past it and return automatically to its original position when the pin *q* has passed out of contact therewith, substantially as described.

Witness my hand this 5th day of November, A. D. 1880.

HENRY J. WARREN.

In presence of—

P. E. TESCHEMACHER,  
C. M. BALL.