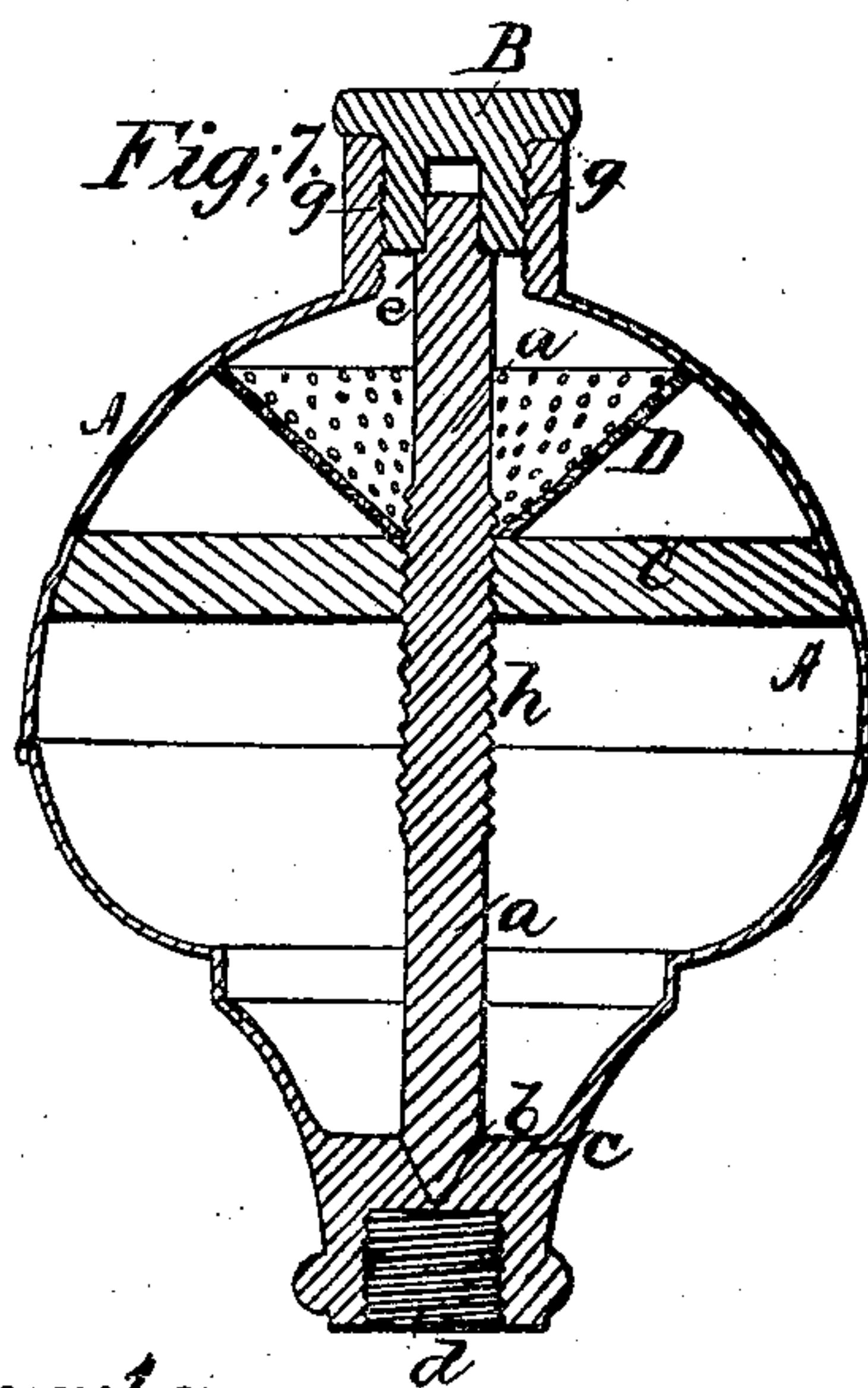
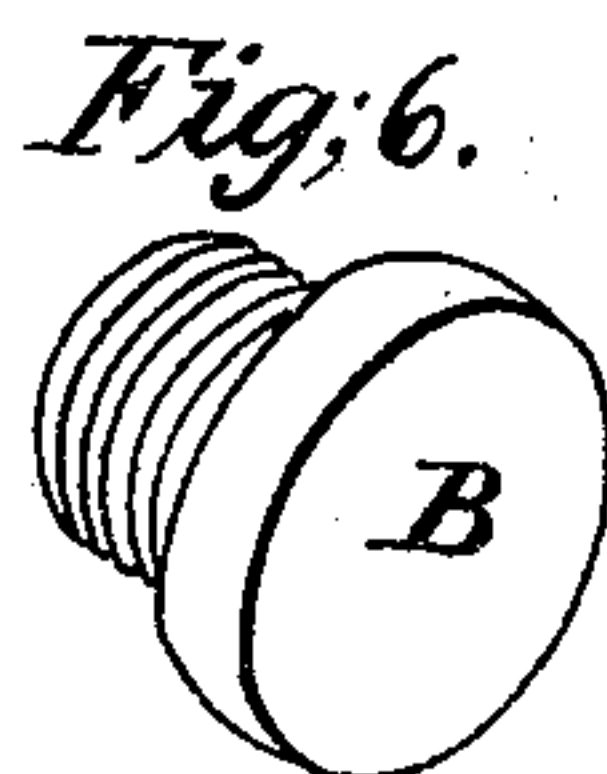
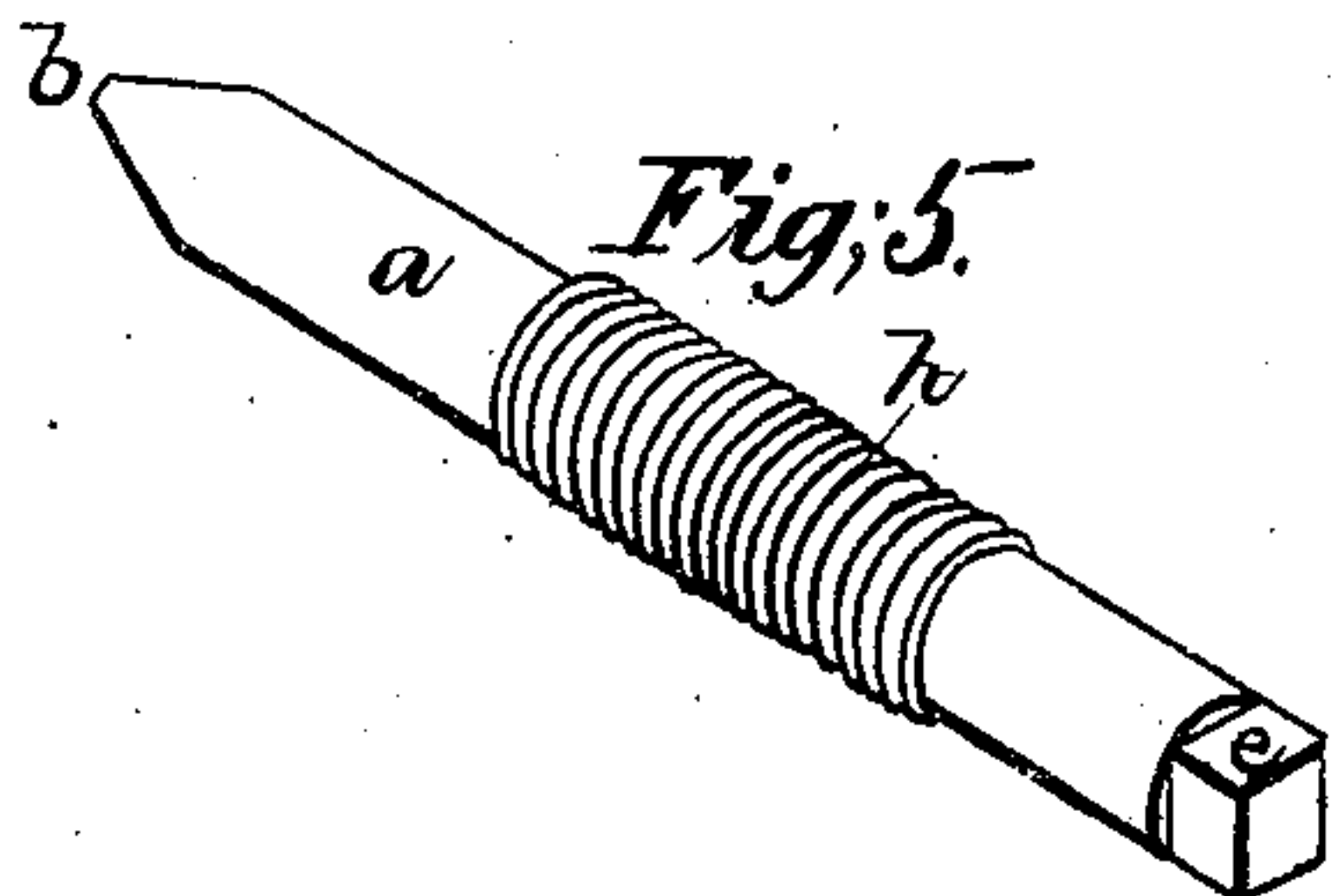
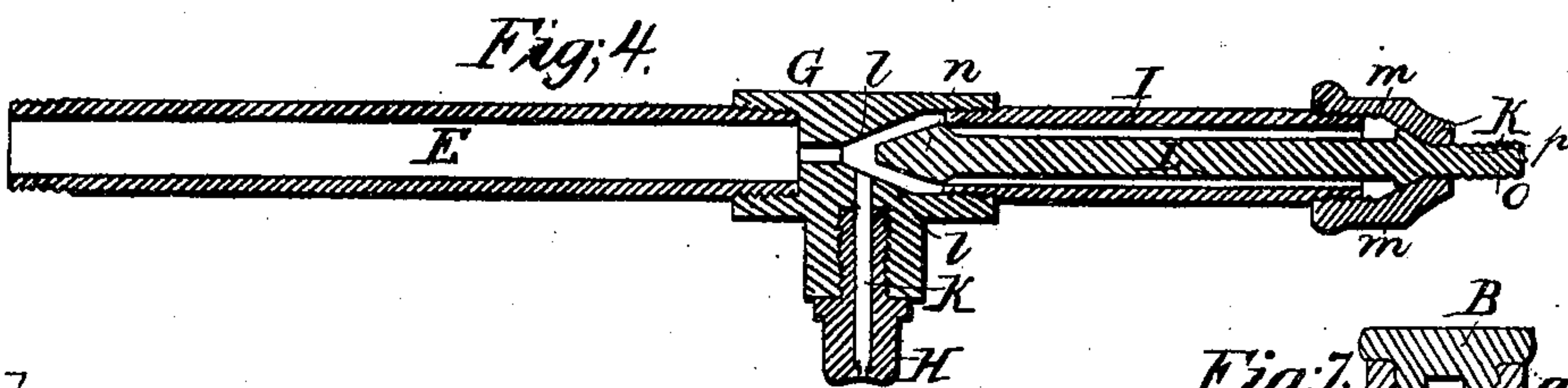
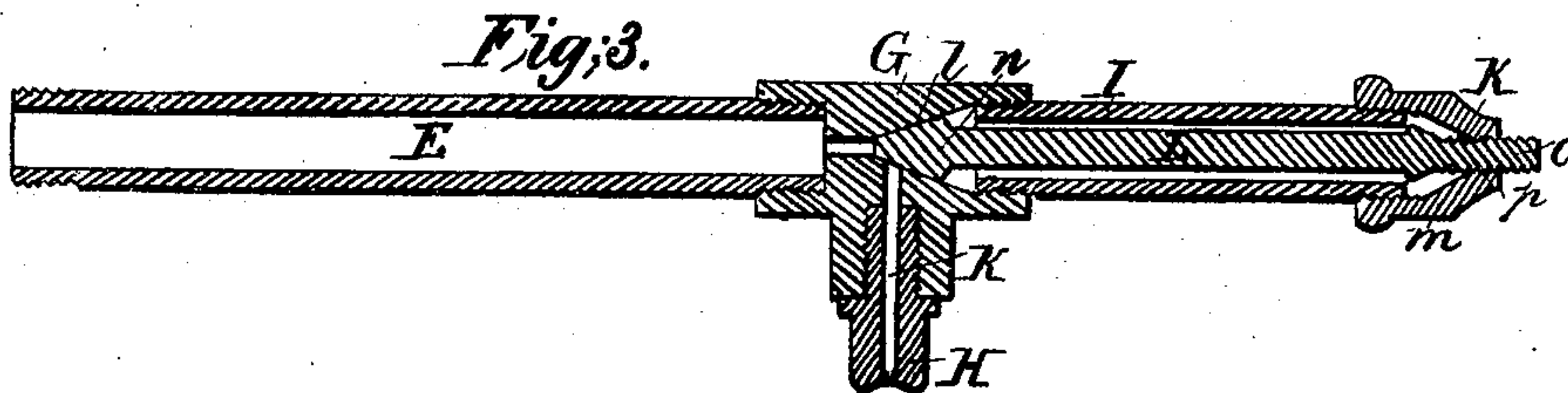
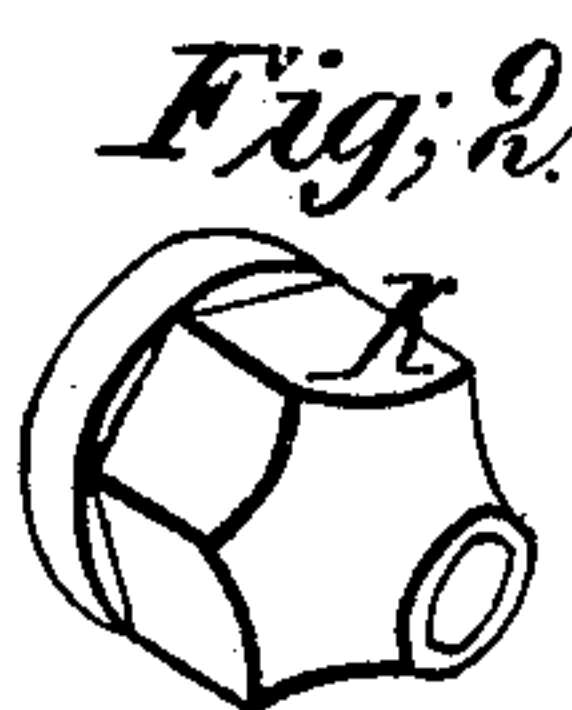
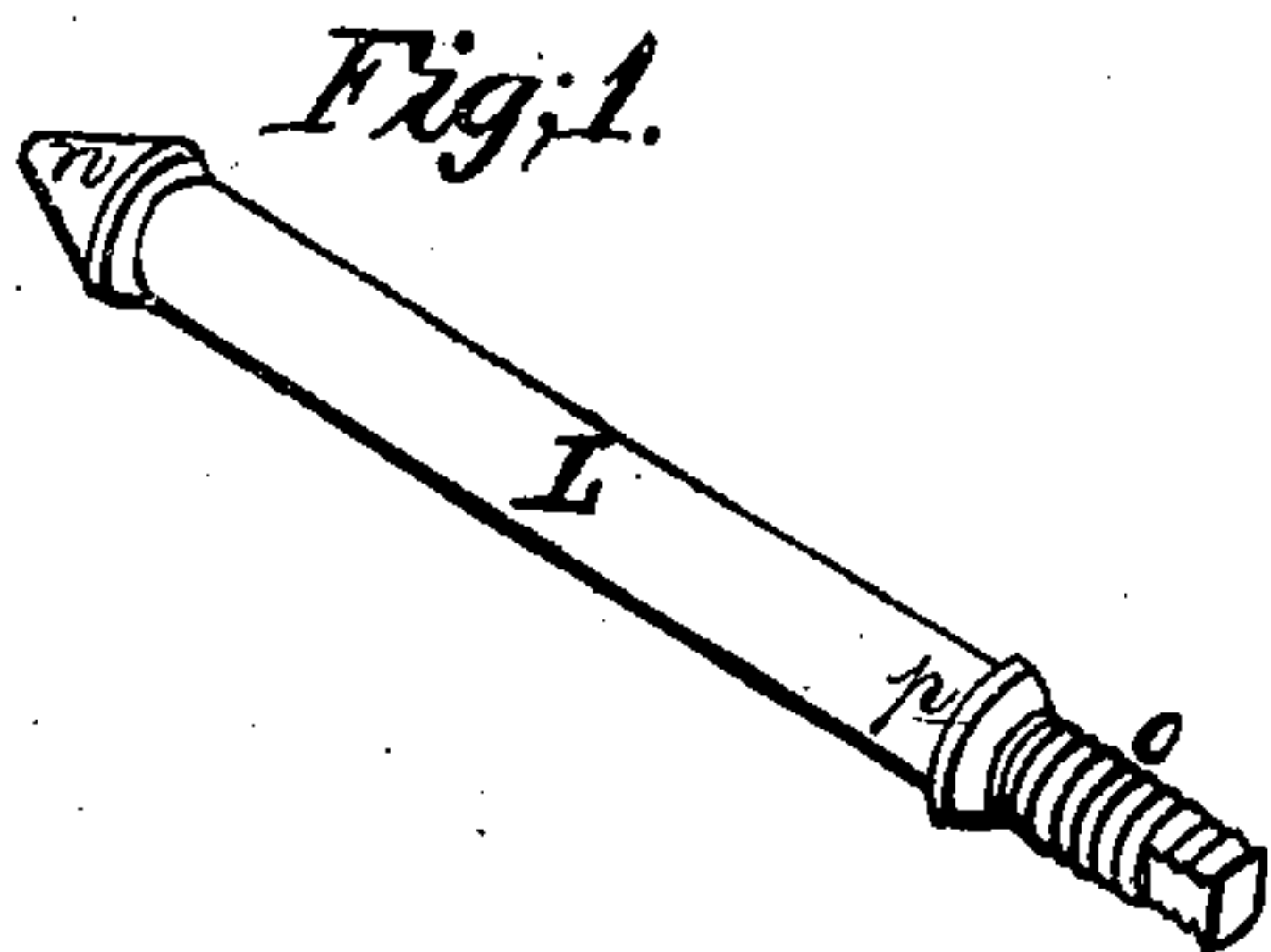


*D. H. Lowe.*

*Gas Apparatus.*

*N<sup>o</sup> 87,272.*

*Patented Feb. 23, 1869.*



*Witnesses;*  
*W. H. Cambridge*  
*L. C. Batcheller*

*Inventor;*  
*David H. Lowe*  
*Per his Attorneys*  
*Teschmacher & Stearns.*



# UNITED STATES PATENT OFFICE.

DAVID H. LOWE, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN APPARATUS FOR GENERATING AND BURNING GAS FROM NAPHTHA, &c.

Specification forming part of Letters Patent No. 87,272, dated February 23, 1869.

*To all whom it may concern:*

Be it known that I, DAVID H. LOWE, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Apparatus for Generating and Burning Gas from Naphtha, 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—

Figures 1 and 2 are perspective views of my improvement detached. Figs. 3 and 4 are central longitudinal sections, showing the application of my improvement to the inverted burner of an apparatus for generating and burning gas from naphtha. Figs. 5 and 6 are perspective views of my improvement slightly modified, and the screw-cap by which it is operated. Fig. 7 is a central vertical section, representing my modification as applied to the reservoir of an apparatus for generating and burning gas from naphtha.

The ordinary valve stop-cock employed in the construction of apparatus for generating and burning gas from naphtha is objectionable for the following reasons: The stop requires a packing to prevent leakage of the fluid naphtha, and a careless operator will frequently turn back and unscrew the stem or spindle so far as to cut and injure the packing; and, furthermore, the position of the stop-cock relative to the burner is such that it cannot instantly control and cut off the flow of the gas thereto when the flame is to be extinguished, and a disagreeable smoke is thereby produced, which continues until the supply of heated gas in the pipe between the stop-cock and burner is exhausted.

To remedy the above-mentioned difficulties is the object of my invention, which consists in a spindle provided with a conical or other suitably-formed end passing through the short portion of the generating-pipe beyond or outside the burner, the spindle being screwed into the pipe by hand or otherwise in a convenient and expeditious manner, so as to cause its inner end to be snugly brought over and tightly close the passage in the burner, by which construction I am enabled instantly to cut off the supply of gas thereto and extinguish the flame without the possibility of any smoke arising therefrom, the aforesaid spin-

dle, with slight modification, also being employed, in connection with the reservoir, for instantly cutting off the supply of liquid naphtha to the pipes in which the gas is to be generated.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A represents the reservoir for containing the liquid naphtha to be supplied to the pipes proceeding from its bottom and to be converted into gas.

Passing vertically down through the center of the reservoir is a stem or spindle, *a*, the lower end, *b*, of which is of a tapering or conical form, which is made to snugly fit a valve-seat, *c*, formed in the interior of the bottom of the reservoir, and tightly close the passage *d*, through which the liquid naphtha flows to the pipe screwed into its under side. The extreme upper end, *e*, of this stem or spindle is of a square or rectangular shape in cross-section, in order that a screw-nut, B, the interior of which is of corresponding form, may be applied thereto to turn the spindle *a* up or down to open or close the passage *d* in the bottom of the reservoir, the upper end of the latter being provided with a screw-thread, *g*, for the reception of the thread on the screw-nut B.

A portion of the spindle near the center of its length is provided with a screw-thread, *h*, which turns in a corresponding screw-thread cut within the interior of a cross-bar, C, which allows of the spindle being turned up or down, and also serves as a guide to keep the spindle in its vertical position while being operated.

The screw-thread *h* on the spindle and that on the nut B are carefully cut at the same pitch, in order that the same degree of motion may be imparted to both.

I intend to make the cross-bar C, which extends across the reservoir, and the seat *c* in its bottom, in one and the same piece, or in two pieces, united together by braces, instead of securing the ends of the cross-bar to the inside of the reservoir; for should the cross-bar be secured to the inside of the reservoir, as shown, it would be liable to be sprung out of shape and leak at the line of the union of its two portions.

D is a perforated partition, of the form



shown in Fig. 7, the purpose of which is to preclude the possibility of fire communicating to the interior and causing explosion, the hole at its center being of a diameter sufficiently large to allow the spindle to be freely moved therein, it being intended not to remove the spindle from the reservoir after being placed in position.

When the gas is burning it is necessary to turn the screw-nut loosely up from its seat in the top of the reservoir, to raise the conical end of the spindle and open the passage *d*, and also to allow of a current of air to enter the top of the reservoir, to cause the liquid naphtha to flow therefrom.

I will now describe the manner in which I am instantly enabled to extinguish the flame of the burner, and thereby prevent any smoke arising therefrom.

E is a branch of the horizontal generating-pipe, screwed into one side of the joint or connection G, into the bottom of which is screwed an inverted burner, H, (which forms the subject of one of my previous patents,) a passage, *k*, with a conical seat, *l*, being formed at its top. This branch E is intended to contain a roll of wire-gauze, for a purpose set forth in the patent above referred to.

Screwed into the opposite side of the connection G is a short pipe, I, upon the outer end of which is screwed a nut, K, Figs. 3 and 4, provided in its interior with a conical seat, *m*.

L is a circular stem or spindle, of the form shown in Fig. 1, being provided at one end with a conical projection, *n*, carefully turned to fit snugly upon the seat *l*, at the top of the passage proceeding from the burner, the opposite end of this spindle being provided with a screw-thread, *o*, of corresponding size as that in the interior of the nut K, through which it projects; and a small portion of this extremity of the spindle is flattened, for convenience in applying the fingers or a wrench thereto to turn the same.

Just beyond the inner end of the screw-thread on the spindle is formed a conical projection, *p*, carefully made to snugly fit the seat *m* in the interior of the nut K.

When the gas is burning the parts are in the position seen in Fig. 3.

When it is desired to extinguish the flame, the flattened end of the spindle (projecting outside the nut K) is turned by hand or other-

wise until the conical projection *n* is brought snugly in contact with the sides of the seat *l*, thus instantly closing the passage *k* to the burner, and cutting off the supply of heated gas thereto, and preventing the production of smoke, which ordinarily arises where the stop-cock is placed in the generating-pipe at some distance from the burner, as in the latter construction the heated gas in the pipe between the stop-cock and burner is allowed to escape and form smoke while the flame of the burner is dying out.

When the gas is burning, the conical projection *p*, on the spindle adjacent to the screw-thread *o*, is tightly closed upon its seat *m* in the nut K, thus preventing leakage of the gas; but when the flame is extinguished this projection *p* is removed from contact with the sides of the seat *m*, as seen in Fig. 2, in which position, however, the gas within the short pipe I cannot escape to the outside, as there is no pressure from within to counteract the pressure of the atmosphere from without.

Immediately on closing the passage *k* by the conical end of the spindle L, the screw-nut B is turned down to close the top of the reservoir, and thus prevent evaporation.

The screw-nut B being on the top of the reservoir, there is less liability of the supply being let on accidentally or through the carelessness of children than where a stop-cock is placed near the bottom of the pipe leading from the reservoir.

#### Claims.

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

1. A spindle, *a*, with its conical end *b*, and screw-thread *h*, operated by a nut, B, in combination with a reservoir, A, having a valve-seat, *c*, substantially as and for the purpose set forth.

2. Also, a spindle, L, with its conical projections *n* and *p*, and screw-thread *o*, operated by a nut, K, provided with a valve-seat, *m*, in combination with a connection, G, having a valve-seat, *l*, substantially as and for the purpose set forth.

DAVID H. LOWE.

Witnesses:

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W. J. CAMBRIDGE.