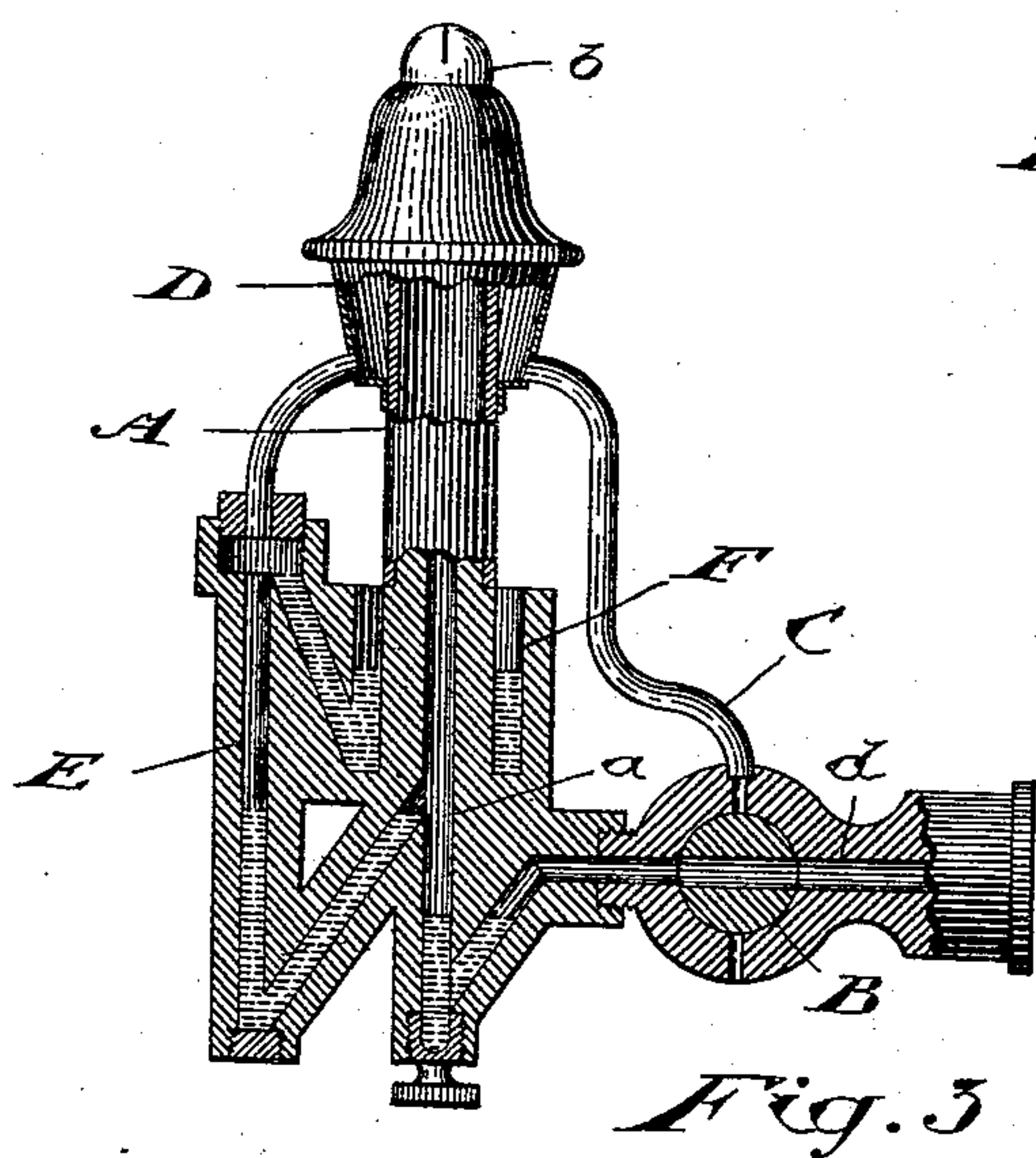
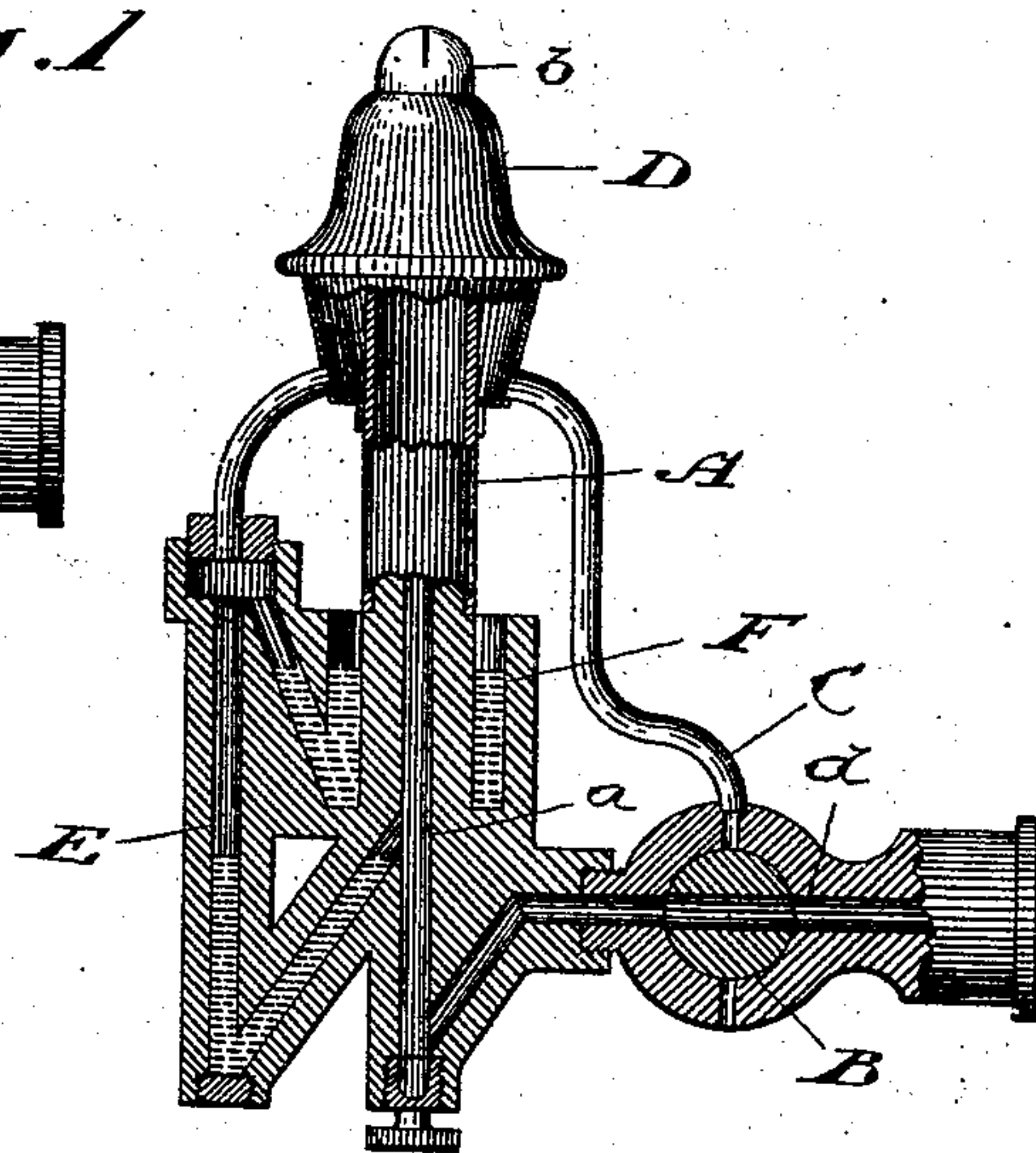
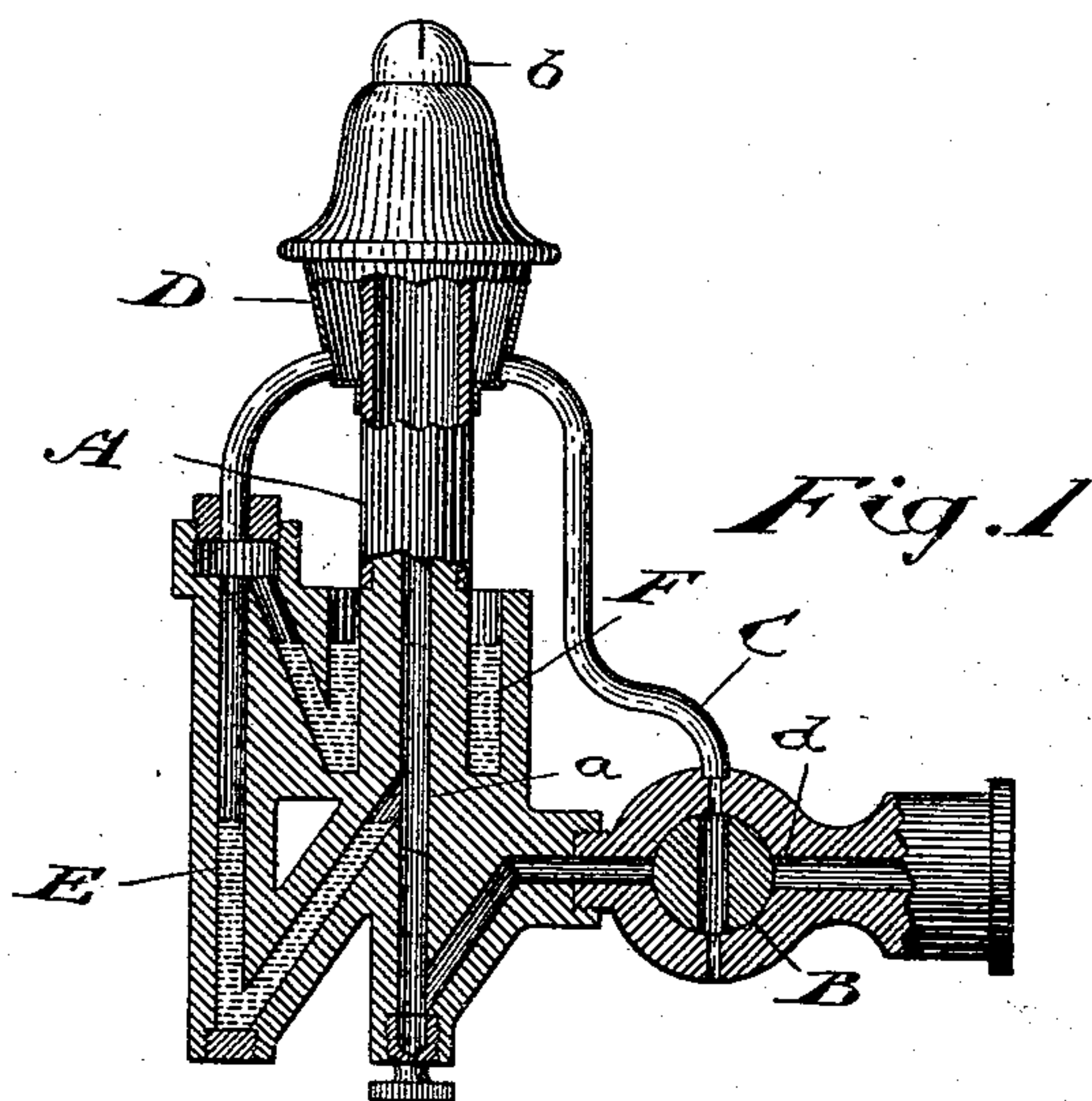


(No Model.)

F. W. MERCHANT.  
AUTOMATIC CUT-OFF FOR GAS BURNERS.

No. 488,082.

Patented Dec. 13, 1892.



Witnesses

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attys



# UNITED STATES PATENT OFFICE.

FRANCIS WALTER MERCHANT, OF LONDON, CANADA.

## AUTOMATIC CUT-OFF FOR GAS-BURNERS.

SPECIFICATION forming part of Letters Patent No. 488,082, dated December 13, 1892.

Application filed March 31, 1892. Serial No. 427,231. (No model.) Patented in Canada May 17, 1892, No. 38,959.

*To all whom it may concern:*

Be it known that I, FRANCIS WALTER MERCHANT, of the city of London, in the county of Middlesex, in the Province of Ontario, Canada, have invented a certain new and Improved Automatic Cut-Off for Gas-Burners, of which the following is a specification, and for which I have obtained Letters Patent of the Dominion of Canada, dated May 17, 1892, and numbered 38,959.

The object of the invention is to design a simple device without any working parts to get out of order by which the gas-supply may be instantly cut off from the burner in the event of the gas being accidentally put out; and it consists, essentially, of an automatic cut-off consisting of a column of mercury contained in a siphon communicating with the gas-channel of the burner with a reservoir containing mercury and with a hollow chamber in proximity to the lighting end of the burner in such a manner that the cooling of the hollow chamber shall cause the mercury to flow from the chamber into the siphon, so as to force a sufficient quantity of mercury into the gas-channel to cut off the supply from the burner, substantially as hereinafter more particularly explained.

Figure 1 is a sectional elevation showing the position of the mercury when the cock is turned off. Fig. 2 is a sectional elevation showing the position of the mercury when the cock is open and the gas burning. Fig. 3 is a sectional elevation showing the position of the mercury when the cock is open and the flame has been accidentally put out.

A is the gas-burner, and *a* the gas-channel leading from the bottom of the burner to the tip *b*.

B is the two-way cock, arranged so that when the gas-channel *d* leading from the source of supply to the channel *a* is open the mouth of the pipe C leading from the burner to the hollow chamber D is closed, and when the cock B is turned so as to cut off the gas-channel leading to the gas-channel *a* the mouth of the pipe C is open so as to admit air through the said pipe into the hollow chamber D.

E is what I term a "siphon," communicating with the gas-channel *a* with the reservoir F and with the hollow chamber D, as indicated. The mercury is placed in the reservoir F and in the siphon E.

When the cock B is turned so as to admit

gas into the channel *a*, the mercury remains in the position indicated in Fig. 2. Everything works in the same way as though no automatic cut-off was attached to the burner, except that the air in the hollow chamber D expands by the heat and escapes through the mercury in the reservoir F, so as to leave a practical vacuum in the said chamber. Should the gas be blown out, the vacuum in the chamber D causes the mercury in the reservoir F to be forced into the siphon E, thereby causing by its weight the column of mercury in the siphon E to overflow into the channel *a*, thereby filling the said channel sufficiently to prevent the gas passing up to the burner, forming an effectual cut-off, which will prevent the accidental escape of gas into the apartment. As the turning off of the gas by the cock B will of course cause the hollow chamber D to cool in exactly the same manner as though the gas were blown out, and as I do not wish my cut-off to operate when the gas has been legitimately cut off I provide the pipe C, which, as before described, when the cock B is turned off is opened so as to admit air into the chamber D, and in this way destroys the vacuum so that the cooling of the said chamber will have no effect whatever upon the operation of the mercury.

What I claim as my invention is—

1. An automatic cut-off for gas-burners, consisting of a column of mercury contained in a siphon communicating with the gas-channel of the burner, with a reservoir containing mercury and with a hollow chamber in proximity to the lighting end of the burner in such a manner that the cooling of the hollow chamber shall cause the mercury to flow from the chamber into the siphon so as to force a sufficient quantity of mercury into the gas-channel to cut off the supply from the burner, substantially as and for the purpose specified.

2. In an automatic cut-off for gas-burners, consisting of a column of mercury caused to flow into the gas-channel of the burner by the cooling off of a hollow chamber, the combination of a pipe leading from the hollow chamber to the two-way cut-off valve of the burner, substantially as and for the purpose specified.

Toronto, March 19, 1892.

FRANCIS WALTER MERCHANT.

In presence of—

J. EDW. MAYBEE,  
W. G. M. MILLAN.