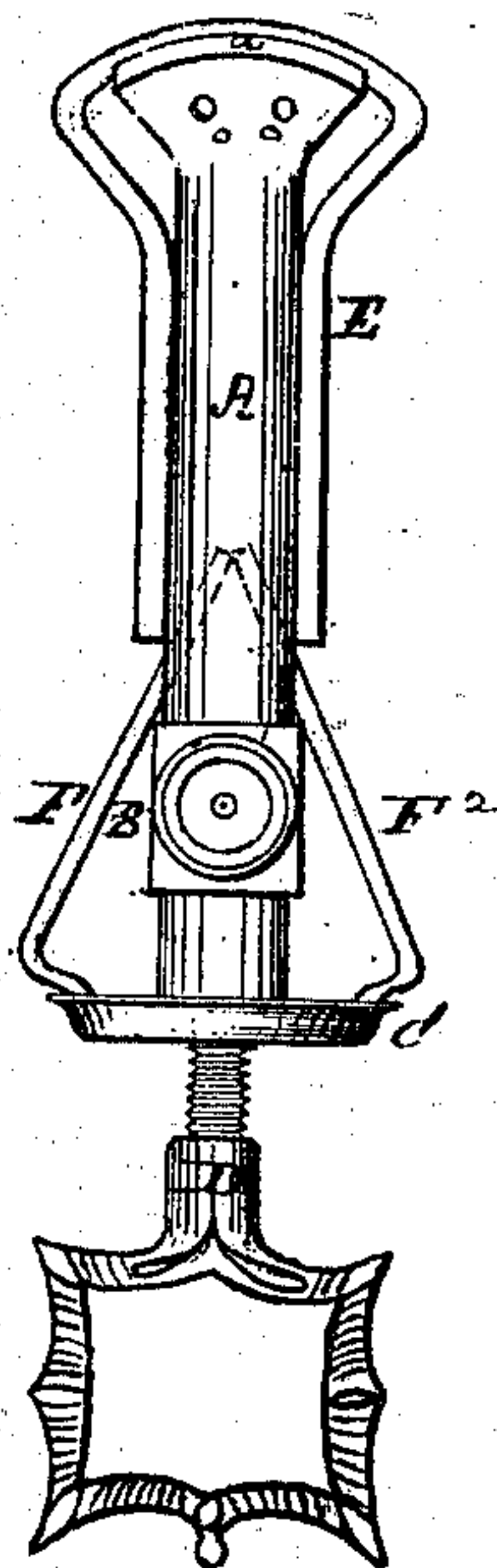


L. A. GOUCH.  
VAPOR BURNER.

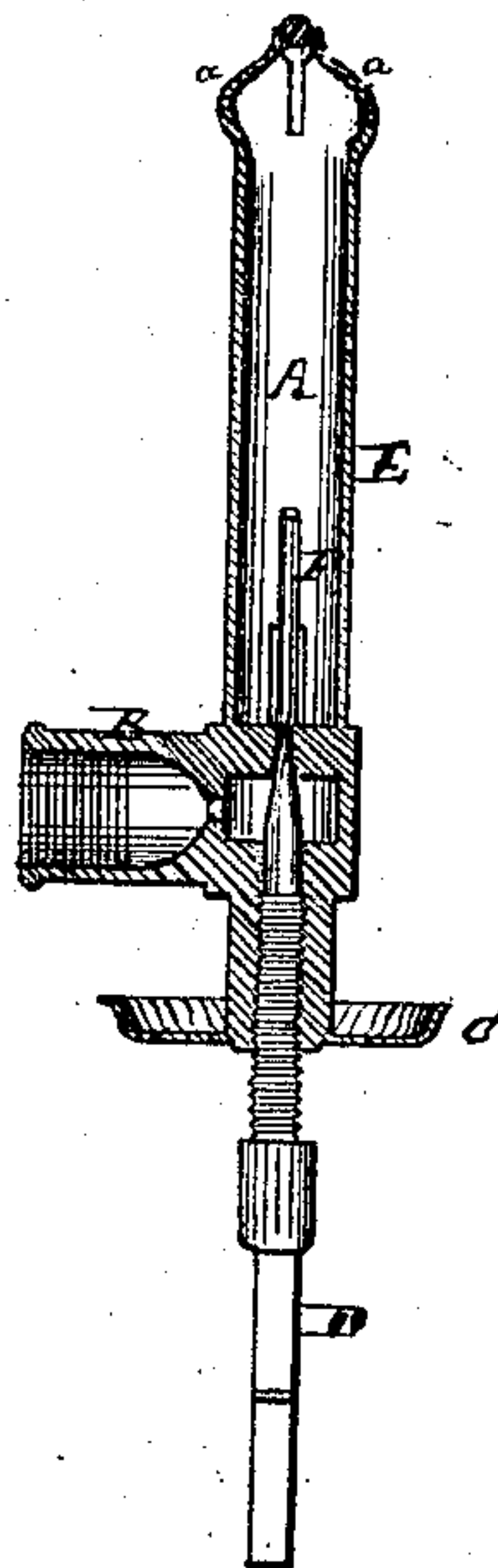
No. 105,669.

Patented July 26, 1870.

*Fig. 1.*



*Fig. 2.*



*George W. Allen  
B. M. Spears*

*Lyman A. Gouch, by his atty  
Apdner, Doane.*



# United States Patent Office.

LYMAN A. GOUCH, OF YONKERS, NEW YORK.

Letters Patent No. 105,669, dated July 26, 1870.

## IMPROVEMENT IN VAPOR-BURNERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, LYMAN A. GOUCH, of Yonkers, Westchester county, New York, have invented, made, and applied to use certain Improvements in the Construction of Naphtha-Burners; and that the following is a full, clear, and correct description of my invention, reference being had to the accompanying drawings making part of this specification and to the letters of reference marked thereon, in which—

Figure 1. is a front view of my improved naphtha-burner.

Figure 2 is a sectional view of the same.

In the drawings like parts of the invention are pointed out by the same letters of reference.

The nature of the present invention consists in certain improvements in the construction of naphtha-burners, for which Letters Patent were granted me December 17, 1867; the object of the invention being to overcome certain difficulties which have heretofore attended the use of the burner then patented and greatly improve the same.

To enable those skilled in the art to make and use my improvements, I will describe the same.

A shows a tube, formed of copper, or any suitable metal, provided with lips *a*, formed by flattening out the metal in process of manufacture.

This tube A is also provided with an opening upon its lower end, communicating with the retort B, and into which opening the end of the conical-pointed screw enters.

The tube A is also slotted upon its sides, to receive the ends of the conductor E, as hereinafter described.

B is the retort, to receive the liquid, from which the gas is generated by heating, which retort may be brased onto the bottom of the tube A.

The retort is provided at its back with an opening, communicating with the opening in the tube A, through which opening the gas generated in the retort enters the tube A.

C is a cup placed upon the under side of the retort, to receive alcohol, or any suitable inflammable material, to heat the retort B before the burner is lighted, and cause gas to be generated from naphtha, or other like fluid introduced into the retort.

D is a thumb-screw, provided with a conical end, and inserted in the bottom of the retort, which screw serves to regulate the communication between the retort and the tube, as when screw D is fully inserted its conical end enters the opening in the bottom of the tube A, cutting off all communication between the same and the retort B.

E is a conductor, formed of round copper wire, in the shape of a yoke, and so constructed that, when placed over the tube A, and its ends have entered

the side openings in the same, it shall fit snugly into the space between the lips *a*, closing the same.

The conductor thus extends from the throat down upon each side of the tube A, and is detachable therefrom when desired.

The conductor is made sufficiently long and heavy to conduct the amount of heat required to heat the retort, so that gas may be generated from the liquid introduced into the same.

*o o* show a series of perforations in the lips *a*, through which the gas, when the burner is in use, issues.

F and F<sup>2</sup> are mixers, employed by me for the purpose of breaking up the gas as it passes from the retort to the mouth of the tube, and also to break up or separate the air that may enter the tube A through the side openings in the same.

These mixers are formed from wire, and are made sufficiently large to very nearly fill the openings in the side of the tube A, in which they are placed.

Such being the construction, the operation is as follows:

The burner may be attached to a tube provided with a reservoir to receive the naphtha to be supplied to the retort B.

The retort being supplied with naphtha, the screw D being inserted so that communication between the retort and tube is interrupted, the cup C is filled with alcohol.

The alcohol being ignited, the retort is heated until gas is generated from the naphtha or similar fluid contained in the retort B.

When this is done, the screw D is unscrewed, opening communication between the retort and the tube, and allowing the gas generated in the retort to pass through the tube to the throat, where it may be ignited, and passes out through the perforations in the same.

The conductor takes up from the flame, and conducts sufficient heat to the retort to heat the same, so that as fresh naphtha or similar fluid is introduced into or supplied to the same, the generation of gas shall go on.

The improvement in the present instance consists in adding the mixers F and F<sup>2</sup> to the burners.

These mixers, as already stated, tend to divide the gas as it passes from the retort to the mouth of the tube into a series of currents, and, at the same time, to break up the air entering the tube through the side openings into a series of currents, also, which subsequently unite with the currents of gas and are thus supplied to the flame.

By this separation or division of the gas and air, and the supplying the same to the flame more regularly, a steady flame is obtained, and the brilliancy of

the same is much increased, while the combustion is rendered more perfect.

The value of my previous invention is materially increased by the use of these mixers F F<sup>2</sup>.

Having thus set forth my invention,

What I claim as new is—

Combining with a burner, constructed and operat-

ing substantially as described, the detachable conductor E and mixers F F<sup>2</sup>, as and for the purposes specified.

LYMAN A. GOUGH.

Witnesses:

A. SIDNEY DOANE,

H. W. HENLEY.