J. W. GRAHAM.

Gas-Burners.

No. 152,225. Patented June 23, 1874.

Fig. 1.

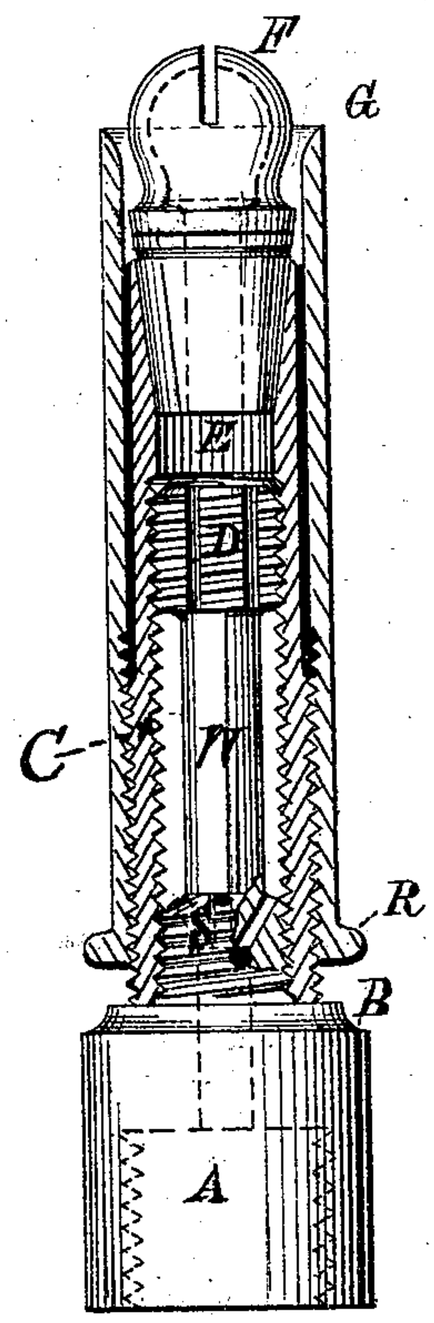


Fig. 2.

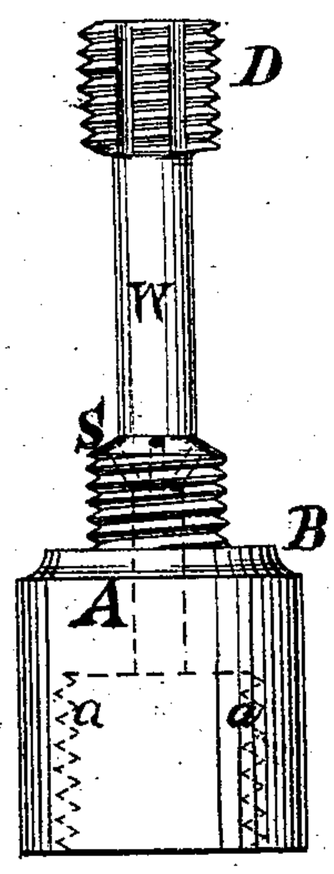
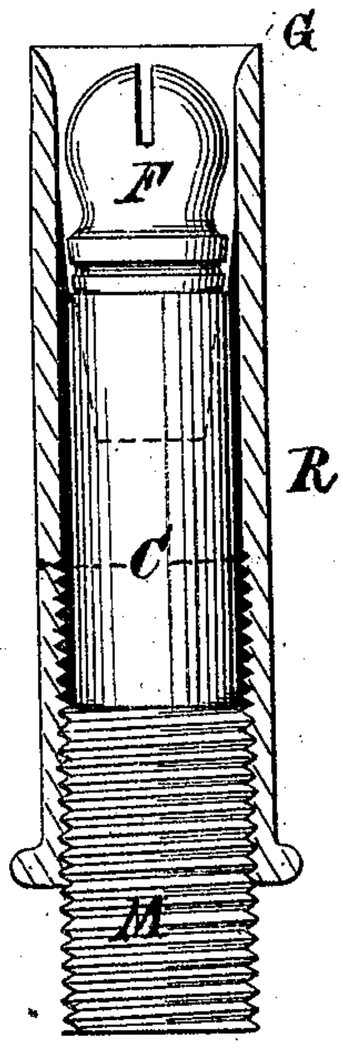


Fig. 3.



Attest.

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UNITED STATES PATENT OFFICE.

JOHN W. GRAHAM, OF CHILLICOTHE, OHIO.

IMPROVEMENT IN GAS-BURNERS.

Specification forming part of Letters Patent No. **152,225**, dated June 23, 1874; application filed April 10, 1874.

To all whom it may concern:

Be it known that I, JOHN W. GRAHAM, of Chillicothe, in the county of Ross and State of Ohio, have invented an Improvement in Gas-Burners, of which the following is a specification:

My invention relates to burners for vapors and illuminating-gases; and consists, first, in forming a chamber within the burner for the purpose of equalizing the flow of gas through the same, said chamber being so situated and arranged that the gas becomes heated in passing through it, which causes it to expand, and thus effects a saving; and, second, in the use of an adjustable shell sliding up over the tip, by which the form of the flame may be changed at pleasure, and which also serves to heat the gas.

Figure 1 shows a longitudinal section of my burner. Fig. 2 shows an elevation of the innermost portion around which the chamber is formed. Fig. 3 is a longitudinal section through the adjustable shell, and showing the inner tube and lava jet in elevation.

My burner is ordinarily constructed of four parts, namely, the pillar A, the inner tube C, the adjustable shell R, and the tip F. The base of the pillar A is made in the usual manner with female screw to fit the ordinary gas-fixture, but the opening in the base only extends a short distance up, as indicated by the dotted lines *a a*, the upper part of the pillar being solid. A A S are perforations to allow the gas to pass through at the base of the stem W. The upper part, D, is perforated or grooved to allow the gas to pass into the space E. The tube C fits over the pillar A, and is screwed down tightly onto the shoulder B, the upper end being formed to receive an ordinary lava tip, (shown at F.) When this tube is in its place it forms a chamber around the stem W, into which the gas passes through the perforations at S. The adjustable shell R is made with a female screw in the lower part, which fits loosely on a corresponding male screw on the lower part of the tube C, so that it may be screwed up or down, and thus bring the top G in contact with the frame when desired.

The *modus operandi* is as follows, viz: The gas, entering at A in the usual manner, passes through the apertures at S into the chamber around W; thence, through the grooves or perforations at D, into the space E, and thence out at the tip F.

It will be observed that I thus secure two checks, at S and D, on the flow of gas through the burner, and thereby prevent waste by too great a pressure on the tip, caused by variations of pressure in the pipes.

The gas in passing through the chamber around W, and the grooves or perforations at D, into the space E, becomes heated and expands, and consequently burns more readily, and also effects a saving in the amount consumed.

The adjustable shell R may be elevated at pleasure until the upper end strikes the burning gas, whereby the flame may be thrown up and made to assume the form most pleasing to the eye, or which affords the most light. The shell also becomes very hot, which heat is communicated to the gas in the body of the burner.

From the construction of my burner it may be very easily taken apart and cleaned when it becomes foul or clogged from use.

I claim—

The combination of the adjustable shell R, tube C, perforations S and D, and tip F, constructed and arranged substantially as and for the purposes hereinbefore set forth.

JOHN W. GRAHAM.

Witnesses:

SAM. S. VEAIL,

E. K. MECK.