

(No Model.)

H. F. SMITH.
SELF GENERATING GAS BURNER.

No. 500,969.

Patented July 4, 1893.

FIG. 1.

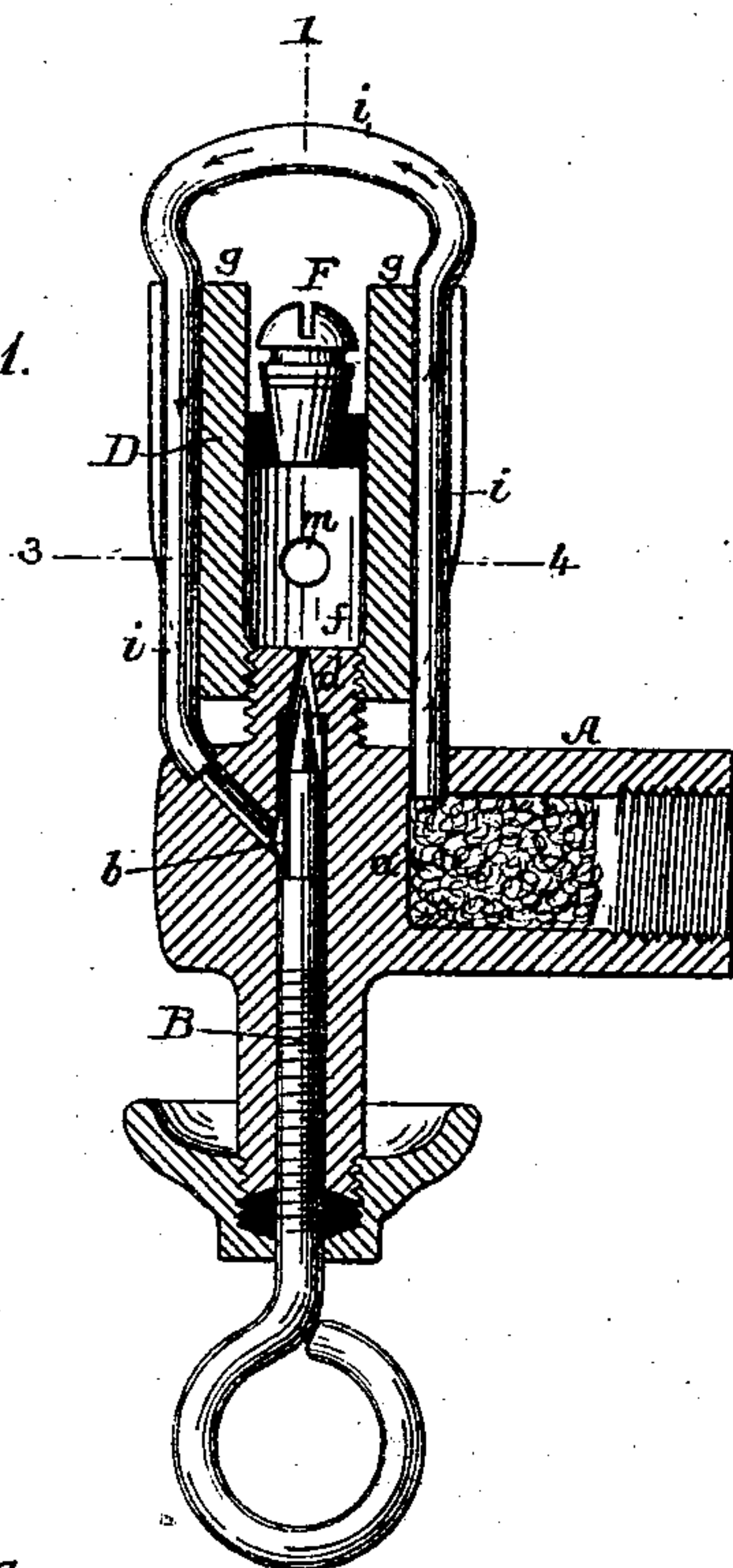


FIG. 3.

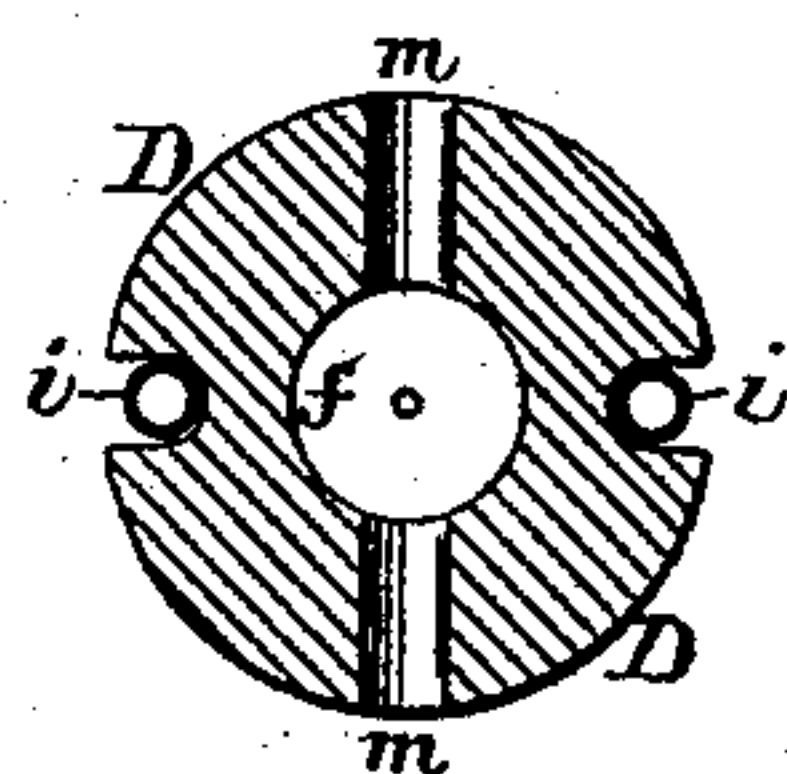


FIG. 2.

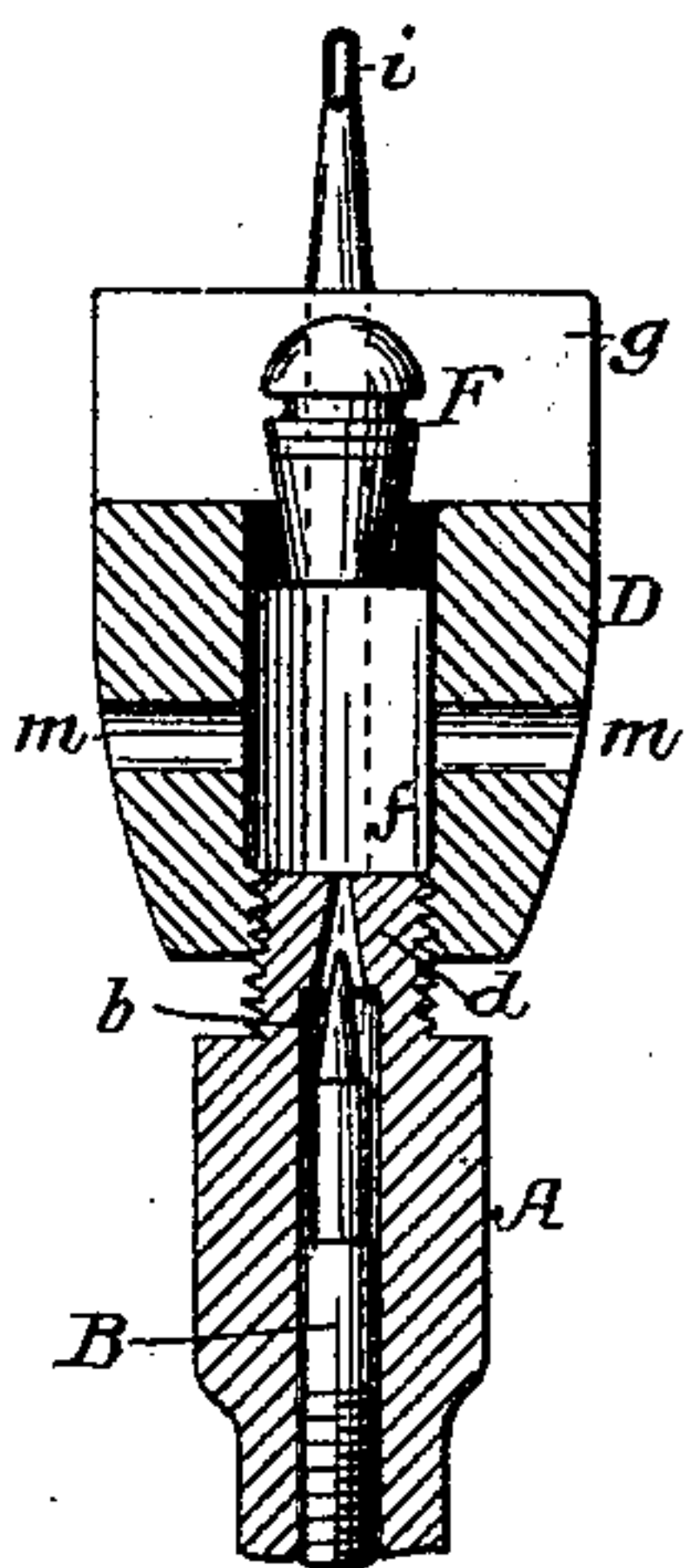


FIG. 4.

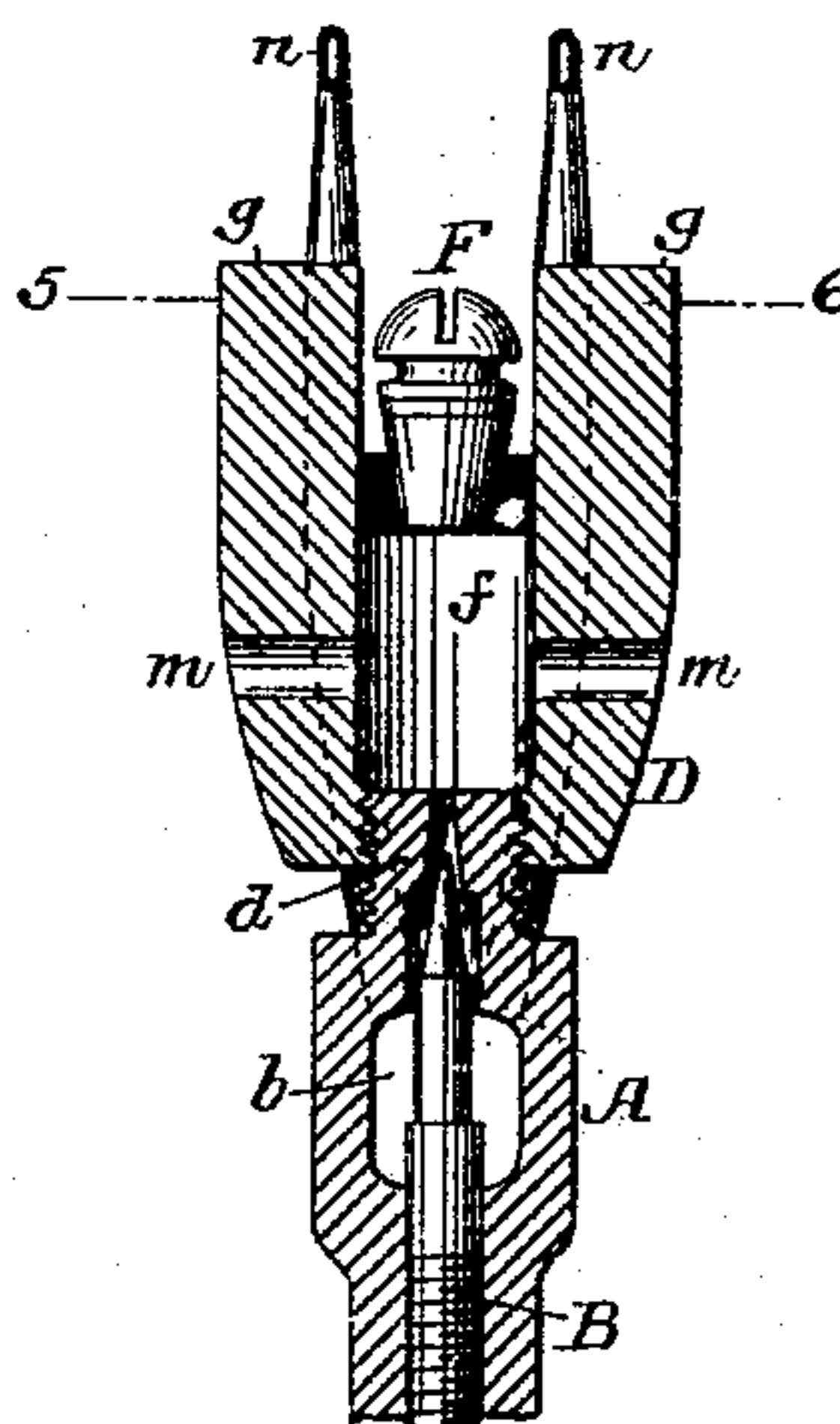
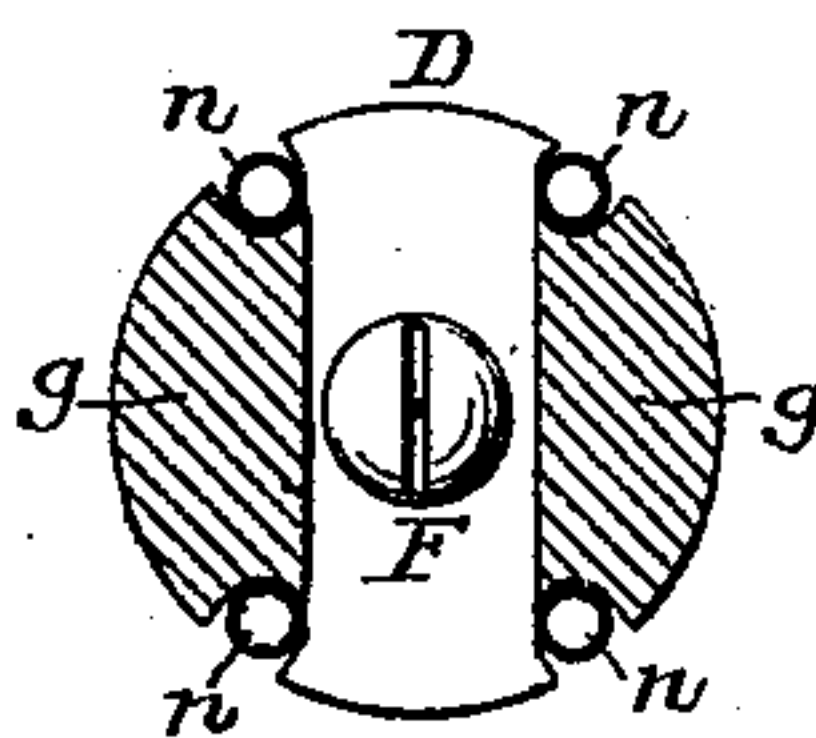


FIG. 5.



Witnesses:

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HARPER F. SMITH, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE
HALF TO WILLIAM F. McCULLY, OF SAME PLACE.

SELF-GENERATING GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 500,969, dated July 4, 1893.

Application filed February 16, 1893. Serial No. 462,536. (No model.)

To all whom it may concern:

Be it known that I, HARPER F. SMITH, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Self-Generating Gas-Burners, of which the following is a specification.

My invention relates to that class of burners in which the oil is vaporized in the burner and issues from the latter in the form of gas, the object of my invention being to so construct such a burner as to effect the thorough vaporization of the oil or conversion of the same into gas, and to protect the flame, to a certain extent, from the action of high winds so as to prevent the light from being blown out.

In the accompanying drawings:—Figure 1, is a longitudinal section of one form of burner embodying my invention. Fig. 2, is a transverse section of the same, on the line 1—2, Fig. 1. Fig. 3, is a sectional plan view on the line 3—4, Fig. 1. Fig. 4, is a longitudinal section of another form of burner embodying the invention; and Fig. 5, is a sectional plan view of the same on the line 5—6, Fig. 4.

A represents a tube which is in communication with a supply of oil contained in an elevated reservoir or otherwise subjected to pressure, this tube having a partition *a* which separates it from a valve chamber *b* containing a needle valve B, the lower end of the latter projecting from the bottom of the burner and having a loop or head so as to provide for its convenient manipulation.

Upon a threaded projection *d* on the tube A is screwed a hollow block D containing a chamber *f* which is in communication with the valve chamber *b* through an opening controlled by the valve B. Within the upper portion of this block is secured the base of a burner tip F of ordinary character, and on each side of said burner tip the block has upwardly projecting wings *g* which extend to or slightly above the top of the burner tip.

The inlet chamber of the pipe A is in communication with the valve chamber *b* through a retort which, in the case of the burner shown in Fig. 1, consists of a pipe *i* extending from the oil chamber up through a recess in one side of the block D, then over the top

of the burner, and then down through a recess in the opposite side of the block D to the valve chamber *b*.

When the burner is in use, that portion of the retort which passes through the flame becomes intensely hot and the block D is also highly heated, owing to the fact that its side wings project up close to or into contact with the flame, and this heat is also imparted to the vertical legs of the retort, which are contained within the recesses in the opposite sides of the block, so that cold air is prevented from gaining free access to these portions of the retort. The oil in passing through the retort is therefore decomposed or converted into a gas which escapes from the valve chamber *b* into the chamber *f* within the block D and is there mixed with air entering through openings *m* in the sides of said block, the mixture of gas and air then passing through the burner tip and being ignited on issuing from the latter.

The block D, with its upwardly projecting wings, presents a large mass of metal to the heating action of the flame and when this mass of metal once becomes thoroughly heated its temperature will not be materially affected by that of the surrounding air. Hence the heat of the burner is substantially uniform and the gas produced is constant in quality, thus overcoming an objection to burners in which the retort and its adjacent parts are so light as to be rapidly heated and cooled and hence constantly change in temperature owing to the change in atmospheric conditions, and therefore produce a constantly varying light. The upwardly projecting wings of the block D in my improved burner, moreover, serve to protect the flame in a great measure from the action of the wind and thus obviate the flickering or extinguishing of the light from this cause.

In the burner shown in Figs. 3 and 4 the retort is of a duplex character, being composed of two pipes *n n* one of which passes over the block on one side of the flame and the other on the opposite side of the same, the construction of the burner being, however, in other respects the same as that shown in Figs. 1 to 3.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A burner in which are combined an oil
5 supplying pipe, a valve chamber and its
valve, a retort connecting said oil supply pipe
and valve chamber, and heated by the flame,
and a hollow block communicating with the
valve chamber, and having a burner tip and
10 wings projecting upwardly alongside of said
burner tip, and above the point of issuance of
the flame, substantially as specified.

2. The combination in a burner, of the oil
supply pipe, the valve chamber and its valve,
15 a retort connecting said oil supply pipe and
valve chamber and heated by the flame, and
a hollow block communicating with the valve
chamber, and carrying a burner tip, said
block being also heated by the flame and hav-

ing recesses in which portions of the retort 20
are embedded, substantially as specified.

3. A burner in which are combined an oil
supply pipe, a valve chamber and its valve,
a retort connecting said oil pipe and valve
chamber and heated by the flame, and a hol- 25
low block communicating with the valve
chamber and carrying a burner tip, said block
having recesses in which portions of the re-
tort are embedded, and side wings extending
up alongside of the burner tip, substantially 30
as specified.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

HARPER F. SMITH.

Witnesses:

FRANK E. BECHTOLD,
JOSEPH H. KLEIN.