

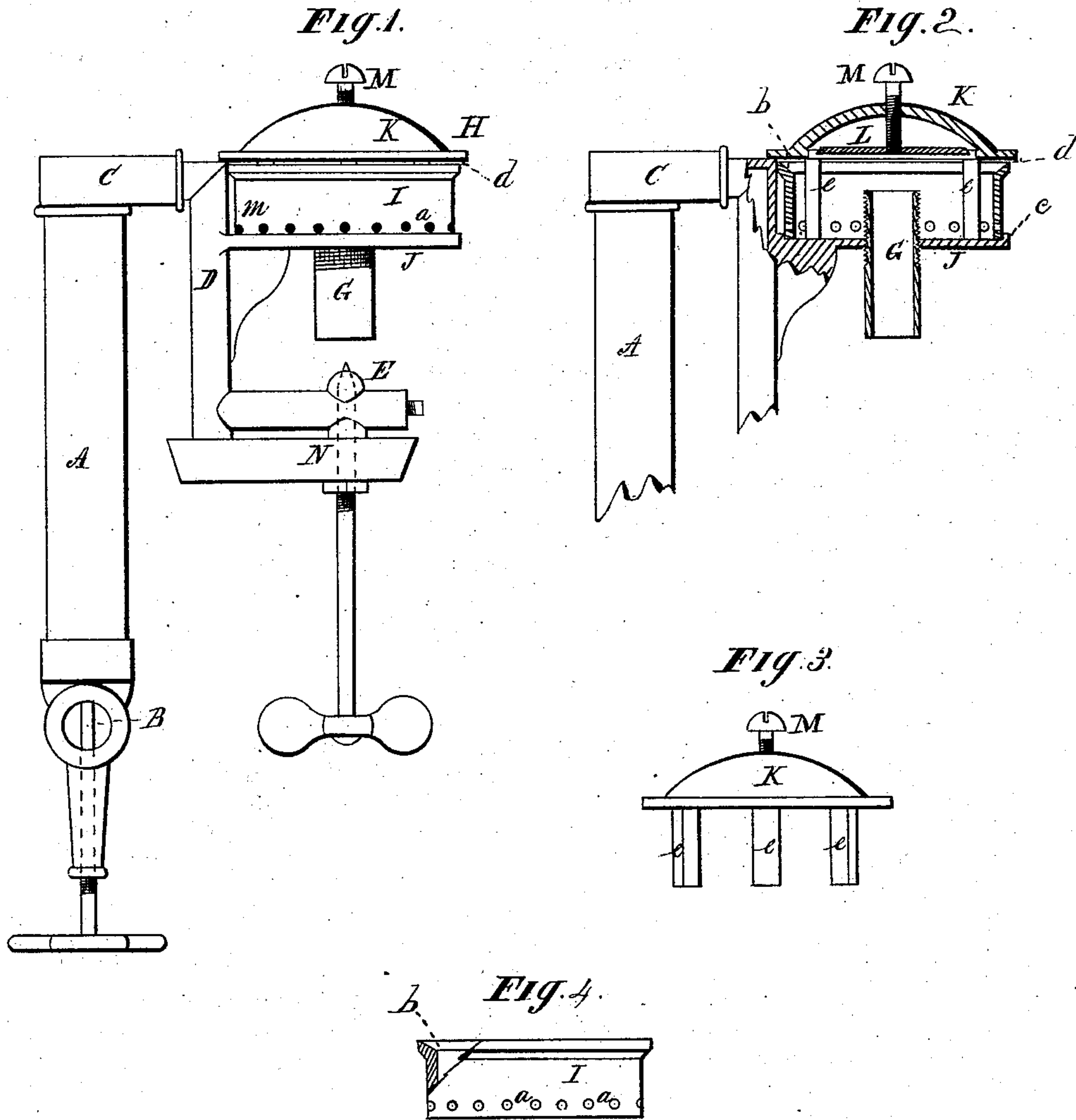
(No Model.)

W. H. WOODARD.

VAPOR BURNER.

No. 281,423.

Patented July 17, 1883.



Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM H. WOODARD, OF CLEVELAND, OHIO.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 281,423, dated July 17, 1883.

Application filed December 24, 1881. Renewed October 12, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. WOODARD, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Vapor-Burner; and I do hereby declare that the following is a full, clear, and complete description thereof.

This invention relates to an improvement in the construction of the combustion-chamber of a vapor-burner for gasoline-stoves, and is substantially as follows, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of the vapor-burner having the improvement applied thereto. Fig. 2 shows a vertical transverse section of the combustion-chamber. Figs. 3 and 4 are detached sections.

Like letters of reference refer to like parts in the several views.

The general construction of the above-said vapor-burner is not unlike those in common use; hence a minute description thereof will not be necessary in this place. In brief, the burner consists of the oil-feed pipe A, provided with a regulating screw-valve, B. The upper end of said pipe terminates in a gas-generator, C, from which proceeds a gas-conducting pipe, D, to the needle-valve E, arranged in alignment with the induction-tube G, leading into the combustion-chamber H. Said chamber consists of a ring, I, a detached view of which is shown in Fig. 4. Near the lower edge of the ring is an annular series of perforations, *a*. The upper edge of the ring is beveled on the inner side, as shown at *b* in Fig. 4, thereby forming a thin edge around the ring. The bottom of the combustion-chamber alluded to consists of a circular plate, J, projecting from and forming a part of the gas-pipe D, as seen in the drawings. Said base or bottom of the combustion-chamber is provided with an annular upturned flange, *c*, Fig. 2, within which the ring I is placed; and thereby prevented from slipping off the base or bottom J, on which it stands.

K is the cap or dome of the combustion-chamber, a detached view of which is shown in Fig. 3.

It will be observed on examination of the drawings that the dome does not fit closely

down upon the edge of the ring I, there being a narrow space, *d*, Figs. 1 and 2, entirely around the ring, between the upper edge thereof and the base of the cap or dome K. Said space may be more or less in width, as the burning capacity of the chamber may require. The cap or dome is supported in its non-contact with the edge of the ring by standards *e*, attached to and projecting downward from the rim of the dome, and so arranged and adapted as to fit closely within the ring I and rest upon the base-plate or bottom J, which not only supports the dome above the ring, but also prevents the dome from lateral displacement therefrom.

L, Fig. 2, is a shut-off or damper consisting of a metal disk adapted to fit within the base of the dome, and retained therein by a screw, M, threaded in the crown of the dome, to which screw the damper is rigidly secured, and thereby moved upward or downward in the dome for regulating the flow of gas through the annular space *d*.

The practical operation of the above-described gas-burner is substantially as follows: The pipe A is attached to the oil reservoir or can by a suitable pipe-connection. The oil supplied to the generator C through the pipe A flows into the pipe D to the needle-valve. A small quantity of oil in the catch-pan N is fired, the heat of which vaporizes the oil in the pipe D near and about the valve. The gas thus generated is permitted to pass from the valve into the combustion-chamber through the induction-pipe G, and as it issues from the perforations *a* and the annular space *d* of the chamber it burns, thereby heating the generator C, which now supplies the combustion-chamber with gas, the oil in the pan having burned out. The gas issuing from the perforations burns in separate and distinct jets, whereas the gas issuing from the space *d* burns in an unbroken circle of flame. Said circle of unbroken flame burns more steadily than the circle of jets and with more heating capacity. It is also without the noise so often attending the burning jets, which are always more or less noisy when under full pressure. Furthermore, the circle of flame is thinner than a jet from an ordinary perforation, and in consequence of its thinness a more complete con-

sumption of the gas is the result, the flame being of a uniform color, indicating an entire consumption of the gas.

It is not essential that the perforation a be
5 used when the combustion-chamber is provided with the annular space d , above described. Two or three perforations, however, are made in the side of the chamber at m , that flame-jets may issue therefrom for heating the generator C for the continued generating of gas,
10 the jets being auxiliary to the circular flame on the generator side of the combustion-chamber.

By means of the damper L , above referred
15 to, more or less gas may be shut off from issuing from the annular space or opening d by

raising the damper upward or downward by the screw M . Thus the volume of flame may be graduated as may be required.

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

In combination with the combustion-chamber consisting of the base-plate J , ring, and dome, a damper, L , arranged within said chamber, and operated as described, and for the
25 purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. WOODARD.

Witnesses:

J. H. BURRIDGE,
W. H. BURRIDGE.