

(No Model.)

D. E. BANGS.

VALVE FOR VAPOR BURNERS.

No. 277,661.

Patented May 15, 1883.

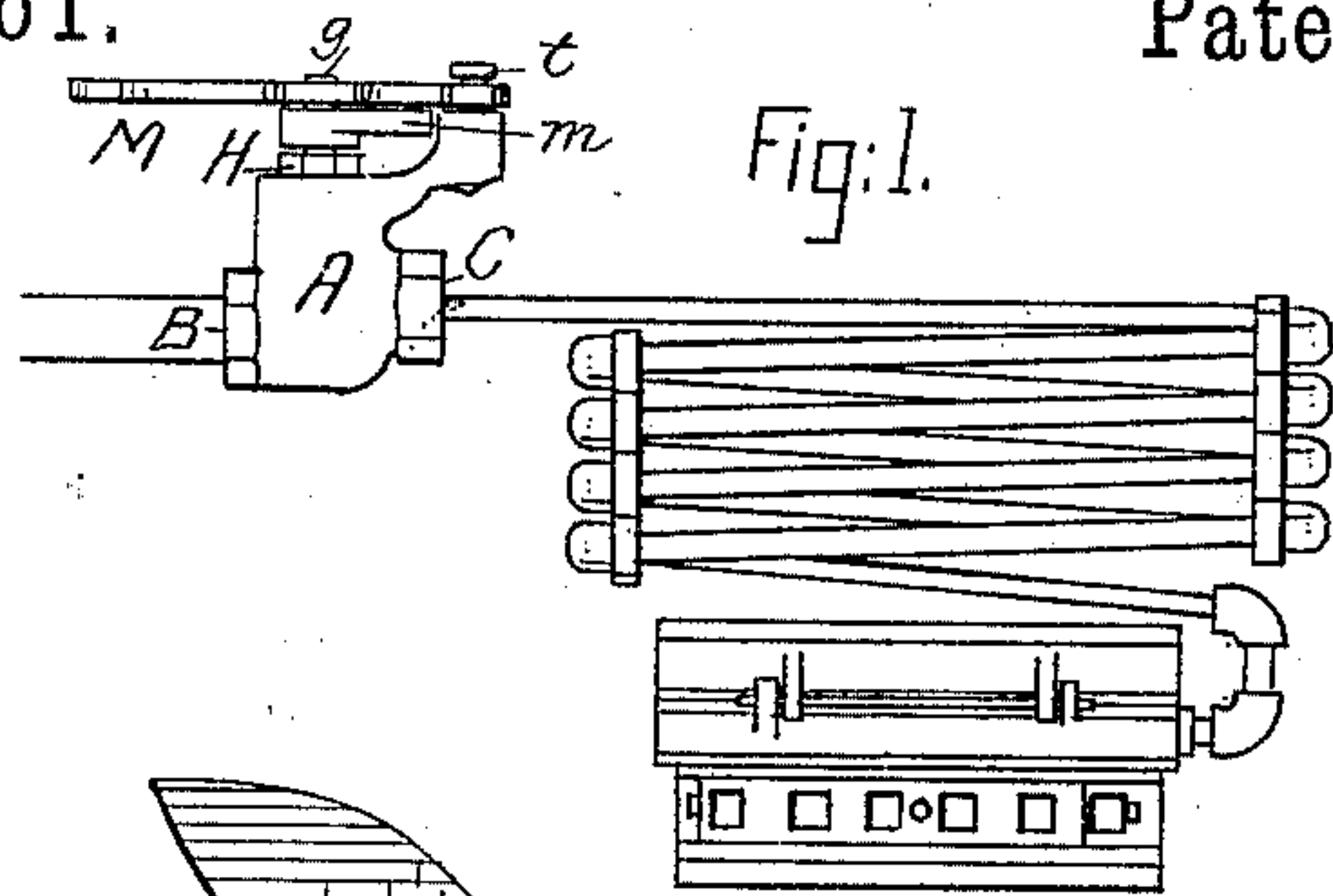


Fig. 1.

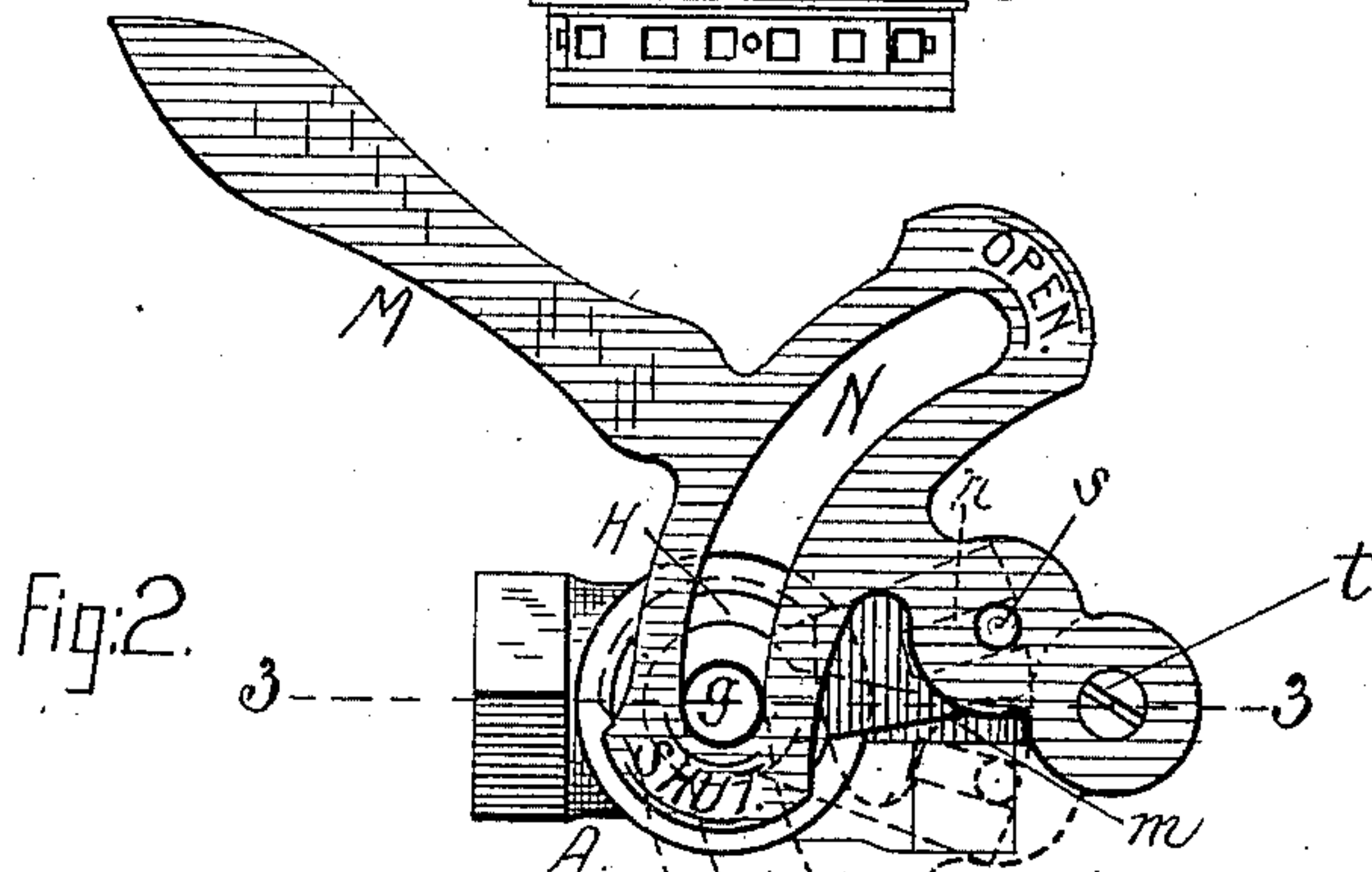


Fig. 2.

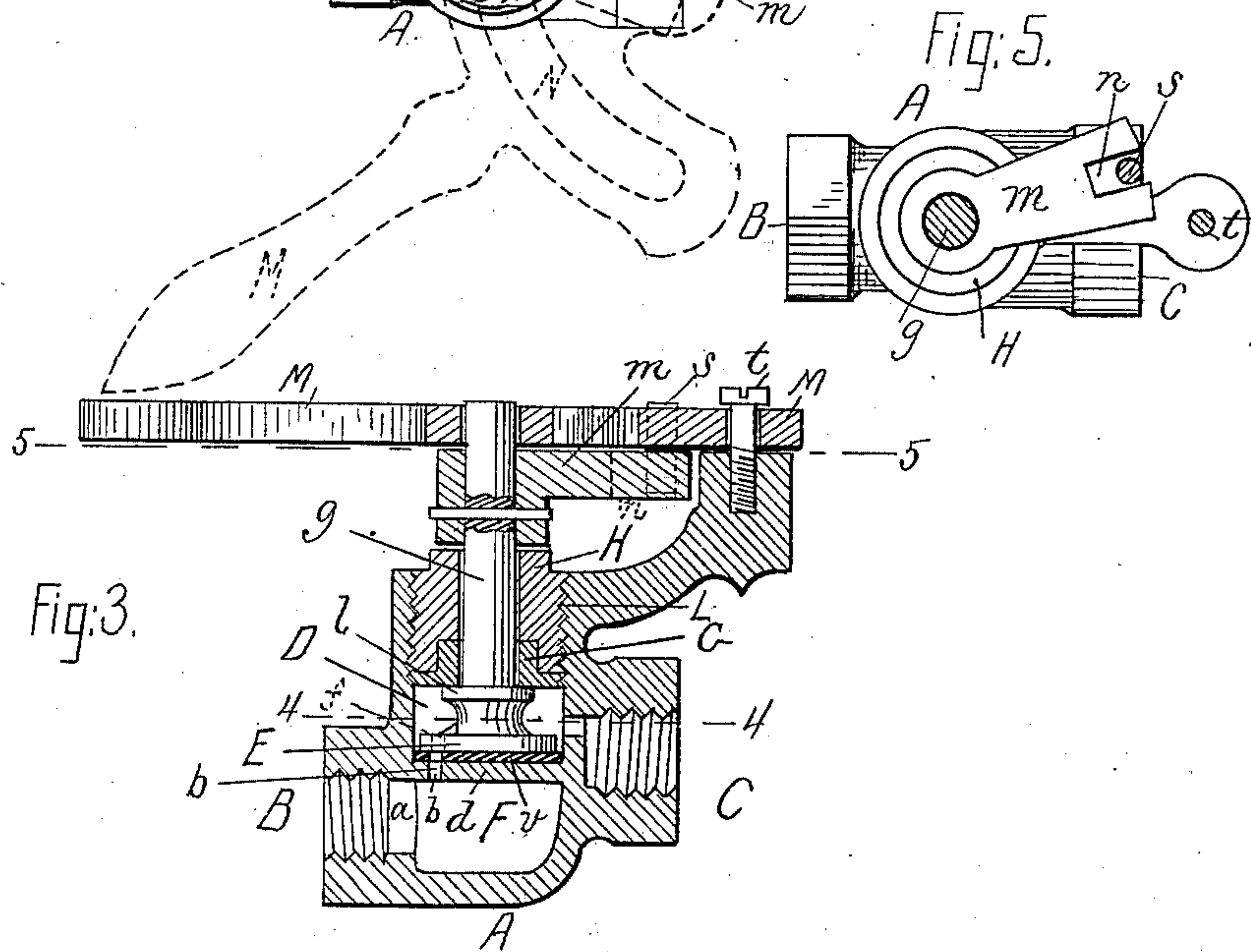


Fig. 3.

Fig. 5.

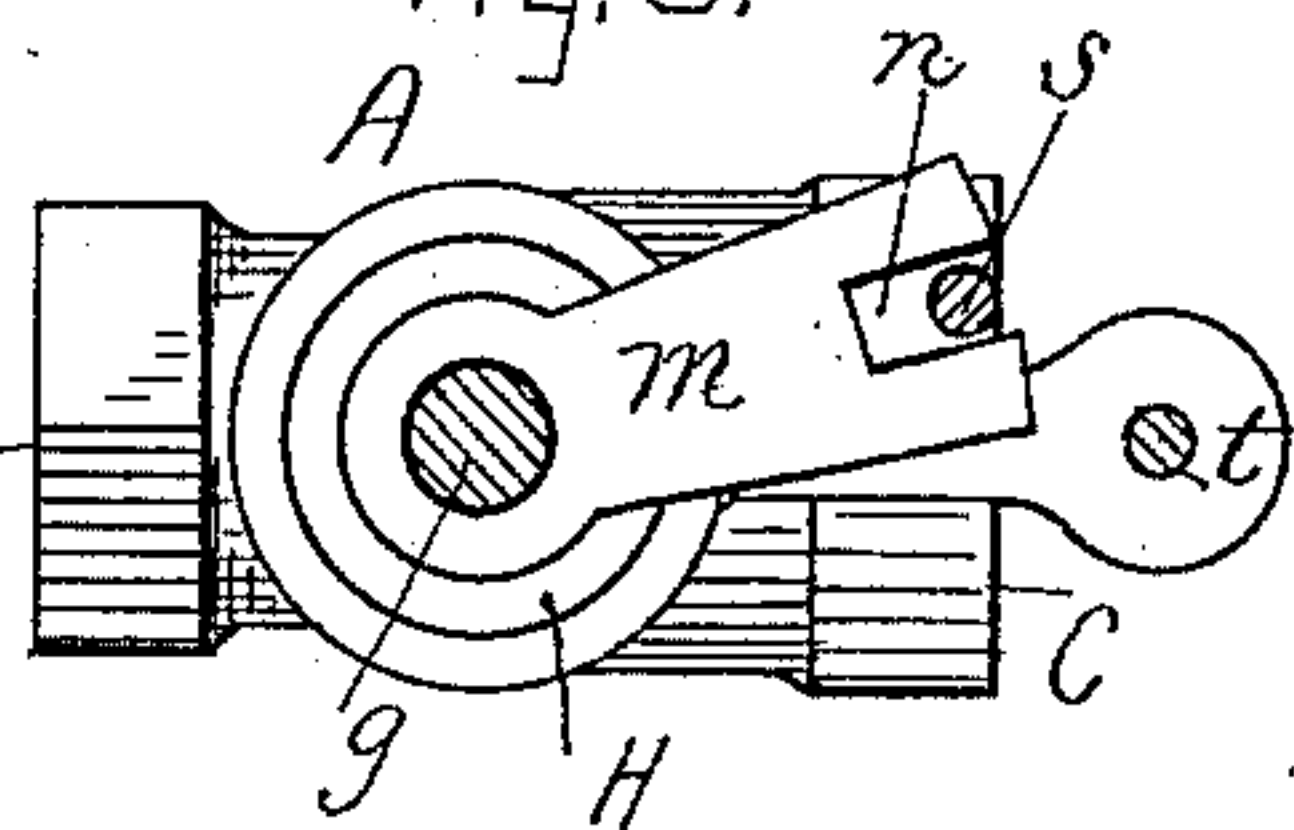
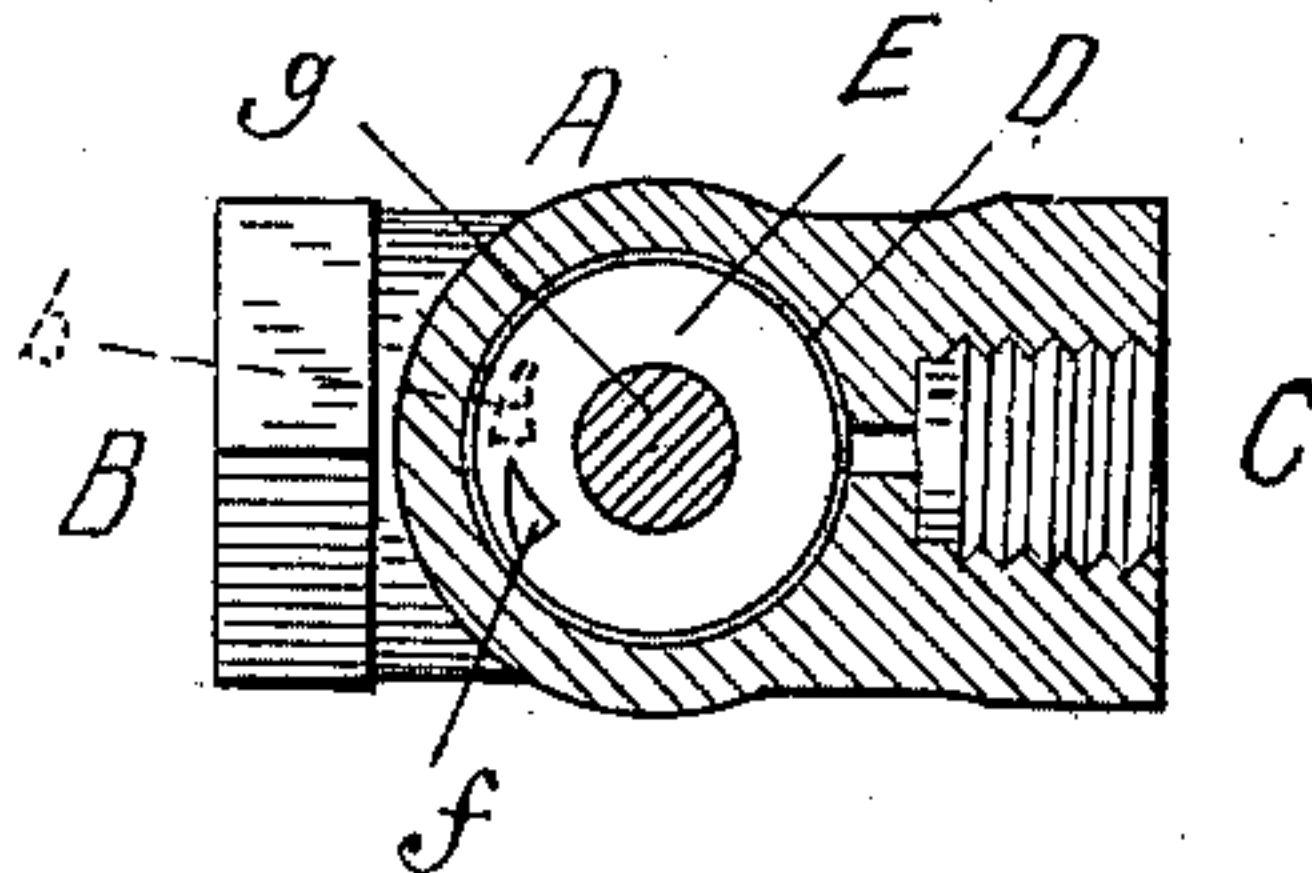


Fig. 4.



Witnesses:

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VALVE FOR VAPOR-BURNERS.

SPECIFICATION forming part of Letters Patent No. 277,661, dated May 15, 1883.

Application filed August 21, 1882. (No model.)

To all whom it may concern:

Be it known that I, DAVID E. BANGS, of Medford, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Valves for Vapor-Burners, of which the following is a full, clear, and exact description.

This invention has for its objects to provide a novel and efficient valve for vapor-burners, by which the delivery of hydrocarbon can be regulated infinitesimally, to provide novel means for holding the rotary disk-valve in close contact with its seat, and to provide novel devices for rotating the valve-stem and its attached valve. These objects I accomplish by the construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a view showing the valves in elevation and in connection with a coil of pipes which lead to a vapor burner or burners, and as adapted to regulate the supply of hydrocarbon to said burners. Fig. 2 is a plan view, on an enlarged scale, of the valve and its mechanical connections. Fig. 3 is a vertical section on line 3 3, Fig. 2; and Fig. 4 is a horizontal section on line 4 4, Fig. 3. Fig. 5 is a plan view below line 5 5, Fig. 3.

In the drawings, A represents a coupling adapted at its ends B C to be connected to a pipe for the passage of liquid hydrocarbon to a burner for burning its vapors. The coupling A, between its two ends B C, has a chamber, D, which receives the valve-disk E, and a chamber, F, which has a passage, *a*, making communication with one end, B, of the coupling A, and a passage, *b*, through the thickness of the wall *d*, which wall makes the seat for the valve-disk E and separates two chambers, D and F. The valve-disk turns within the chamber D, in close contact with the valve-seat formed by the wall *d*, and it has an opening, *f*, through its thickness, and in position, by the turning of the valve, to be opened and closed for the passage of liquid hydrocarbon through it and the passage *b* in the valve-seat. The valve-opening *f* tapers from end to end in the direction of its turning, and can be set in relation to the opening through the valve-seat for the

delivery of infinitely small quantities of hydrocarbon from the chamber F to the pipe connected at end C of coupling, or by bringing the whole opening *f* of the valve-disk in line with the opening of the valve-seat for the delivery of the largest amount of hydrocarbon at the end C of the coupling. The valve-disk E is attached to a stem, *g*, arranged to turn within a screw-nut made in two parts, G H, and secured within a screw-threaded socket, L, of the coupling A. One part, G, of the screw-nut screws and has a bearing against a shoulder, *i*, of the valve-stem *g*, and the other part, H, screws and has a bearing against said part G, and by the two the valve-disk is made to have close contact with its seat. The valve-stem *g* outside of the coupling has an arm, *m*, which, by a slot, *n*, and pivot *s*, is connected to a lever-handle, M, turning upon a fulcrum, *t*. This handle M is for operating the valve E, and it is provided with an arc-shaped slot, N, which receives the projecting end of the valve-stem *g*, and is of a length to act at one end as a stop to the opening and at the other end to the closing of the valve. This connection of the lever-handle secures the smallest amount of movement to the valve with an extended movement of the lever-handle, enabling the valve to be easily and readily adjusted as to the quantity of the liquid hydrocarbon desired to pass through the pipe to the burner. The valve-seat *d* has a piece of leather, *v*, upon it for a yielding bearing for the valve-disk, which can be of any other suitable material, or dispensed with; but it is preferable to have it, for the reason stated.

A faucet has heretofore been provided with a horizontal diaphragm having a semicircular opening through it on which diaphragm the valve-plug turns, said plug having a passage through it of the same shape as the opening through the diaphragm; and in another instance a valve has been provided with a valve-seat having two circular perforations through it, a disk-valve being arranged to turn on the valve-seat, and provided with two perforations of the same circular form as those in the seat; but such constructions are not claimed by me, and do not constitute my invention.

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

1. In a valve composed of a coupling divided internally into two chambers, D and F, by a partition, *d*, forming a valve-seat, and having the passage *b*, the valve-disk E, arranged to turn in contact with the valve-seat, and having the opening *f* constructed to taper, as shown, in the same direction as the valve-disk turns in opening the valve, said tapering opening being capable of adjustment over the opening in the valve-seat to provide for the passage of the least amount of hydrocarbon fluid, substantially as described.

2. The combination of a coupling, A, having a screw-threaded socket, L, and a wall, *d*, forming a valve-seat, the valve-stem *g*, carrying a valve-disk, E, and the screw-nut composed of two parts, G and H, fitting the socket in the coupling, and serving to retain the valve-disk in contact with its seat, substantially as described.

3. The combination of the valve-stem *g*, arranged to rotate in its bearings, and having at

its inner end an attached valve, E, provided with an opening, and arranged to turn in contact with a valve-seat, with a lateral arm, *m*, connected with the outer end of the valve-stem, and a lever, M, fulcrumed at one end, and loosely connected with the arm of the rotary valve-stem, substantially as described.

4. The combination of the valve-stem *g*, arranged to rotate in its bearings, and having at its inner end an attached valve, E, provided with an opening, and arranged to turn in contact with a valve-seat, with a lateral arm, *m*, connected with the outer end of the valve-stem, and having a pin, *s*, and a lever, M, fulcrumed at one end, and having a circular slot, N, into which projects the pin on the lateral arm, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

DAVID E. BANGS.

Witnesses:

EDWIN W. BROWN,
WM. S. BELLOWS.