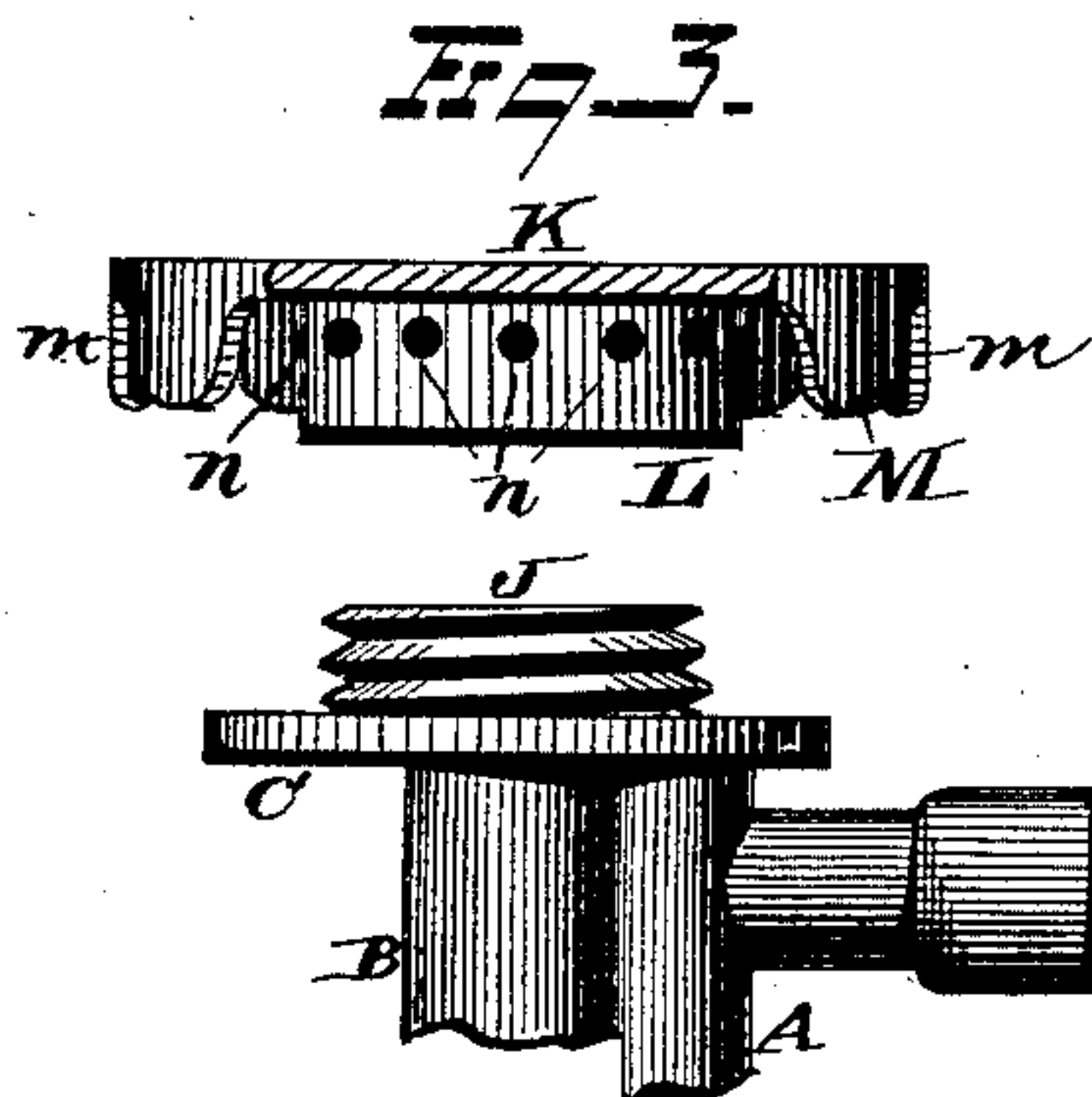
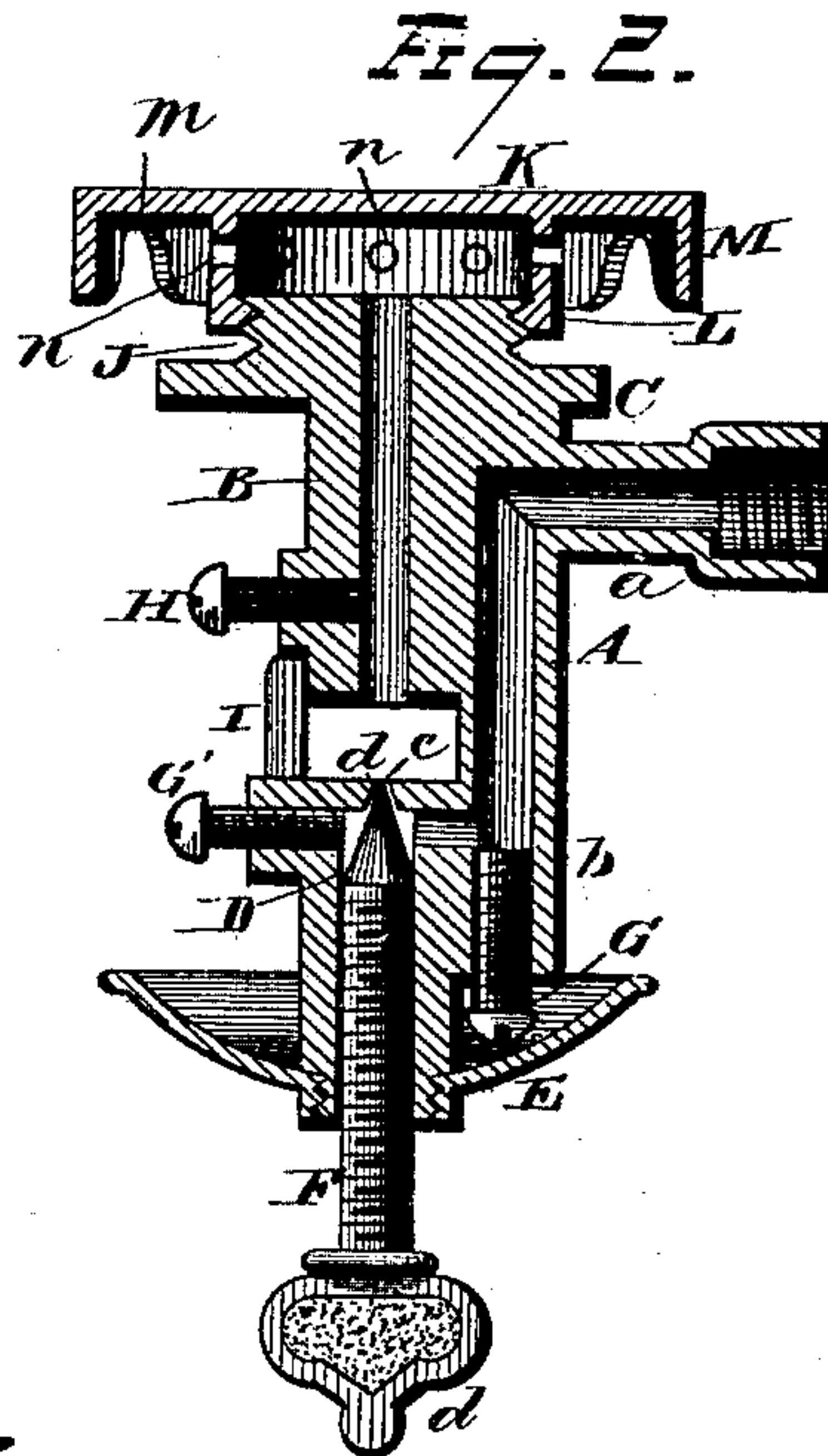
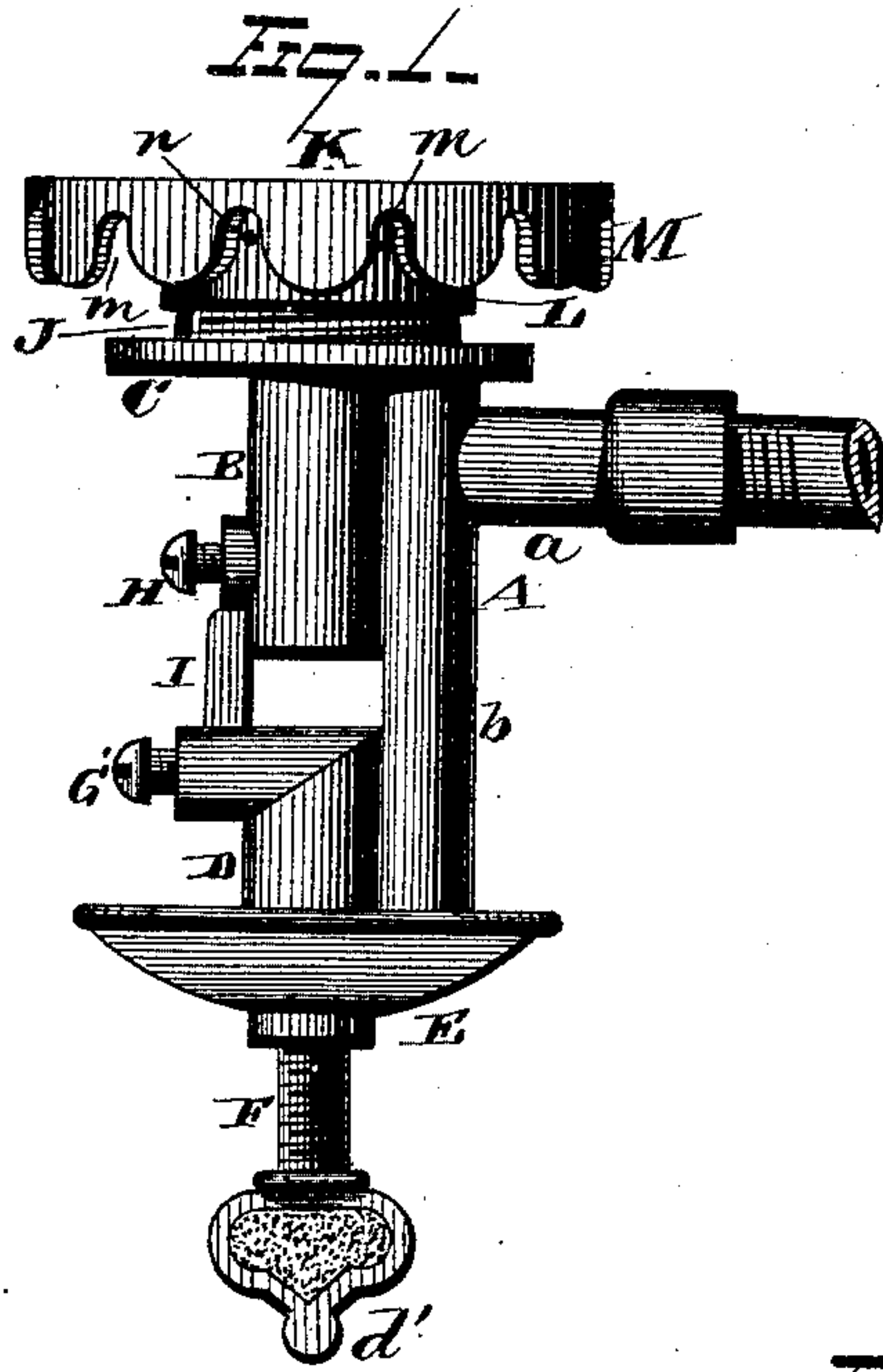


E. M. LOWDEN.  
Vapor-Burner.

No. 223,051.

Patented Dec. 30, 1879.



WITNESSES

*E. J. Nottingham*  
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# UNITED STATES PATENT OFFICE.

EDWARD M. LOWDEN, OF NEW YORK, N. Y.

## IMPROVEMENT IN VAPOR-BURNERS.

Specification forming part of Letters Patent No. **223,051**, dated December 30, 1879; application filed May 27, 1879.

*To all whom it may concern:*

Be it known that I, EDWARD M. LOWDEN, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Vapor-Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in vapor-burners, the object being to provide simple and efficient means for vaporizing the burning fluid, and commingling with the vapor a sufficient amount of oxygen to form a most perfect and complete combustion of the vapor; and to this end my invention consists in a vapor-burner embodying certain details of construction and combination of parts as will hereinafter be described, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a side elevation of my improved device. Fig. 2 is a vertical section of the same; and Fig. 3 shows detached views of the burner and the cap.

A is the vapor-generating chamber, provided with a screw-threaded socket for the attachment of a suitable vapor-supply pipe. (Not shown.) B is a draft chamber or conduit, which is surmounted by a disk, C. The generating-chamber A consists of the horizontal portion *a* and the vertical portion *b*, and the latter extends below the draft-chamber B, and connects with a supply regulating-chamber, D, the upper end of which is located below and in vertical line with the draft-chamber B. The lower end of chamber D is screw-threaded, and provided with a drip and lighting cup, E. Within the chamber D is located a needle-valve, F, the point *c* of which enters a conical valve opening or seat, *d*, formed in the upper portion of the chamber D, said opening *d* being located so as to discharge the vapor into the center of the conduit in the draft-chamber B. The lower portion of the needle-valve is screw-threaded, and fits within corresponding screw-threads formed in the chamber D, and to its lower end is secured a thumb-piece, *d'*,

whereby the flow of vapor may be readily governed by turning the valve.

G G' are vapor-stop screws, located respectively in the lower end of the generating-chamber A and outer end of the supply-regulating chamber D.

H is a draft-regulating screw-valve, located in the draft-chamber, for regulating the supply of air to be commingled with the vapor before the latter reaches the burner. I is a brace connecting the upper end of the chamber D with the lower end of the draft-chamber.

Disk C is provided on its upper side with a tapering screw-threaded boss, J, to which is secured the removable cap K, the latter being provided with an internally screw-threaded collar, L, which fits upon the boss J. The outer edge of the removable cap K is provided with a depending fringed flange, M, the openings *m* therein being in line with holes *n* formed in the upper portion of the collar L.

One important and essential feature of an efficient vapor-burner is to provide a device which shall be of compact form, and still the parts be so arranged and connected that the heat of the flame may be utilized in vaporizing the burning fluid.

In my improved burner the draft-chamber B and the upper part of the vertical portion *b* of the vapor-generating chamber are cast solid with each other, and provided with independent conduits. The disk C overlaps the horizontal portion *a* of the generating-chamber, and is formed solid therewith and also with the upper end of the draft-chamber. Thus the disk C, being heated by the vapor-jets issuing laterally over in close contact with the same, serves to conduct the heat to the horizontal and vertical portions of the vapor-generating chamber A, and also to the draft-chamber B. The heat is conducted to the supply-regulating chamber D by means of the chamber A, which is also cast solid therewith, and also by the brace I, which is formed integral with the lower end of the draft-chamber, and also with the upper end of the chamber D. By forming these parts in a single piece the heat is more readily conducted to the various parts of the device, and also the expense and objec-



tions incident to screw or other joints are obviated.

As the vapor issues through the holes in the collar of the removable head it spreads out beneath the highly-heated removable cap, becomes highly heated and expanded, and is broken up and commingled with the atmosphere as it impinges against the depending projections constituting the fringed flange, and escapes through the openings *m*, and forms any desired number of jets, which, being lighted, produce a light of great intensity and brilliancy, owing to the complete and perfect combustion of the vapor. Instead of constructing the removable fringed cap separate from the disk C, it may be made integral therewith, and secured to the upper end of the draft-chamber.

The distance between the disk C and the upper wall of the vapor-generating chamber A, and also the shoulder of the cap, is less than the thickness of the disk, whereby it (the disk) is subjected to a high degree of heat from the flame of the burner, and a great proportion of the heat transmitted to the disk is conveyed to the walls of the generating-chamber.

I am aware that vapor-burners have been

provided with an enlarged head located at considerable distance from the generating-chamber, and also that vapor-burners have been cast in a solid piece and surmounted with a hollow perforated shell, and hence I make no claim to such constructions.

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

In a vapor-burner, the draft-chamber B, vapor-supply-regulating chamber D, generating-chamber A, the latter arranged parallel with chambers B and D, and extending from the upper portion of chamber B below the upper portion of chamber D, and a disk, C, provided with a screw-threaded boss, said disk being located over both chambers A and B, all of said parts being cast in one solid piece, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 16th day of May, 1879.

EDWARD M. LOWDEN.

Witnesses:

SAMUEL BUCKELS,

CHRISTOPHER STANGE.