

(No Model.)

E. H. ALLAIN.
BURNER FOR HEATING APPARATUS.

No. 452,352.

Patented May 19, 1891.

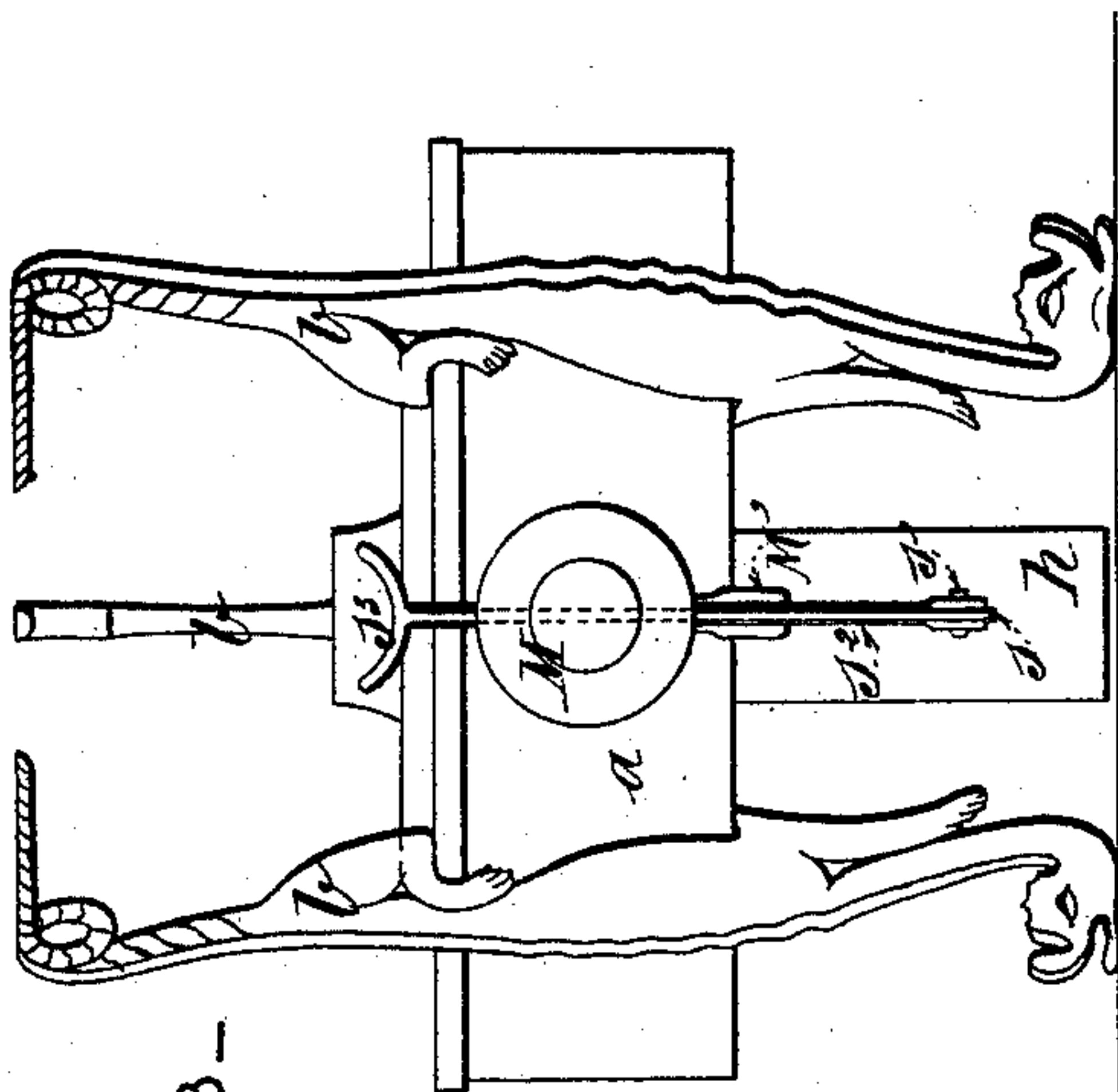


FIG. 3 -

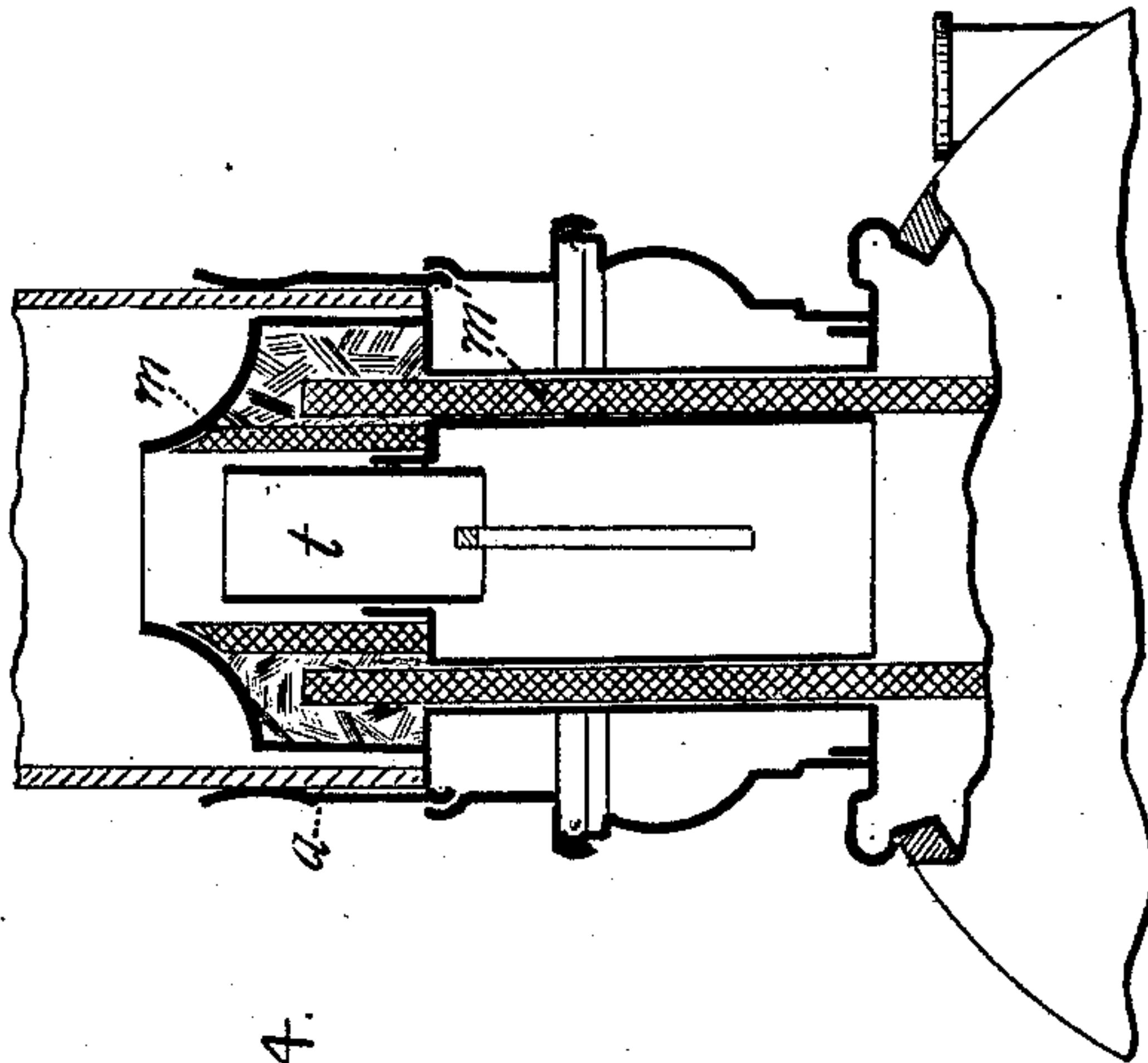


FIG. 4.

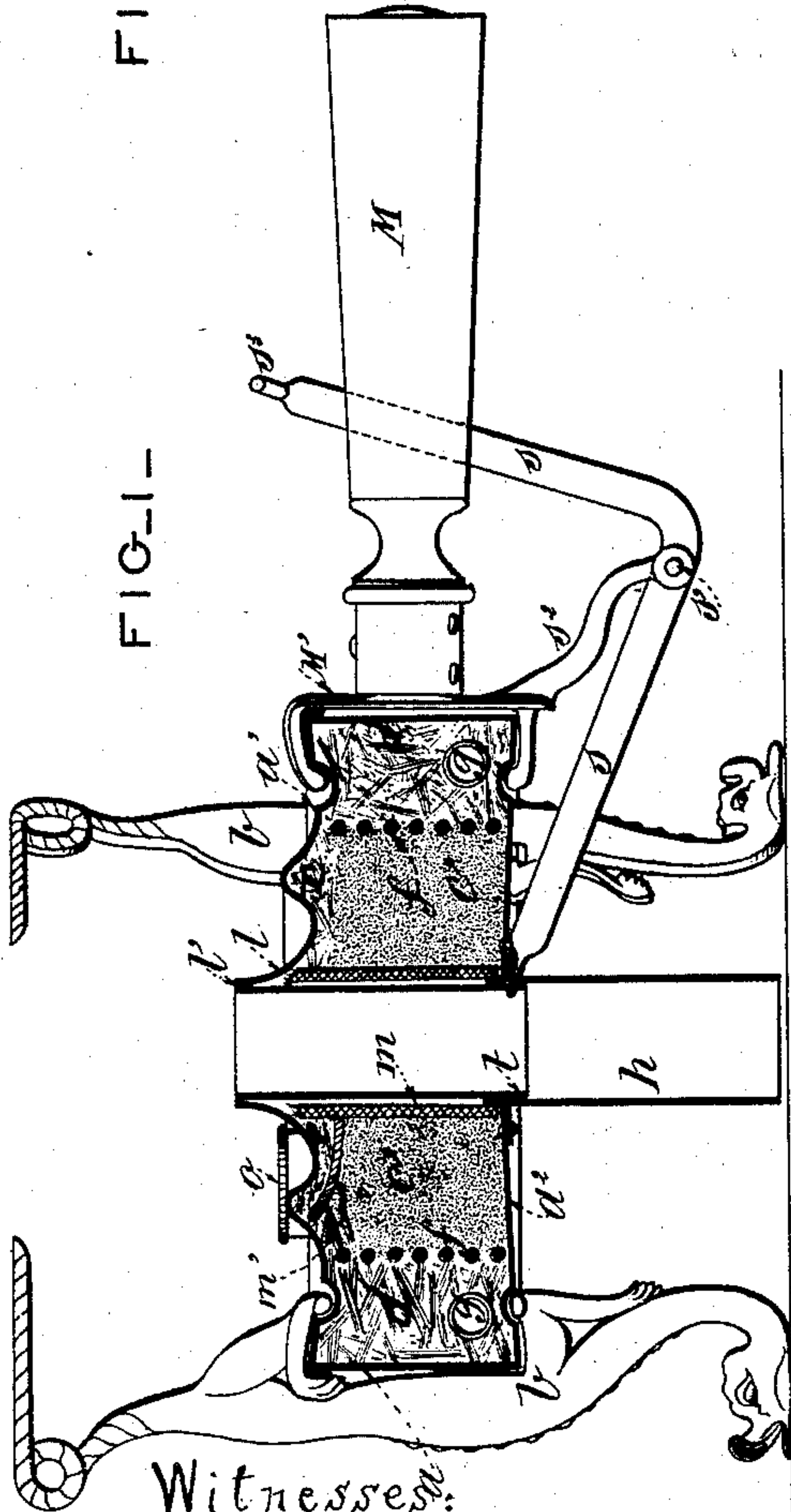


FIG. 1 -

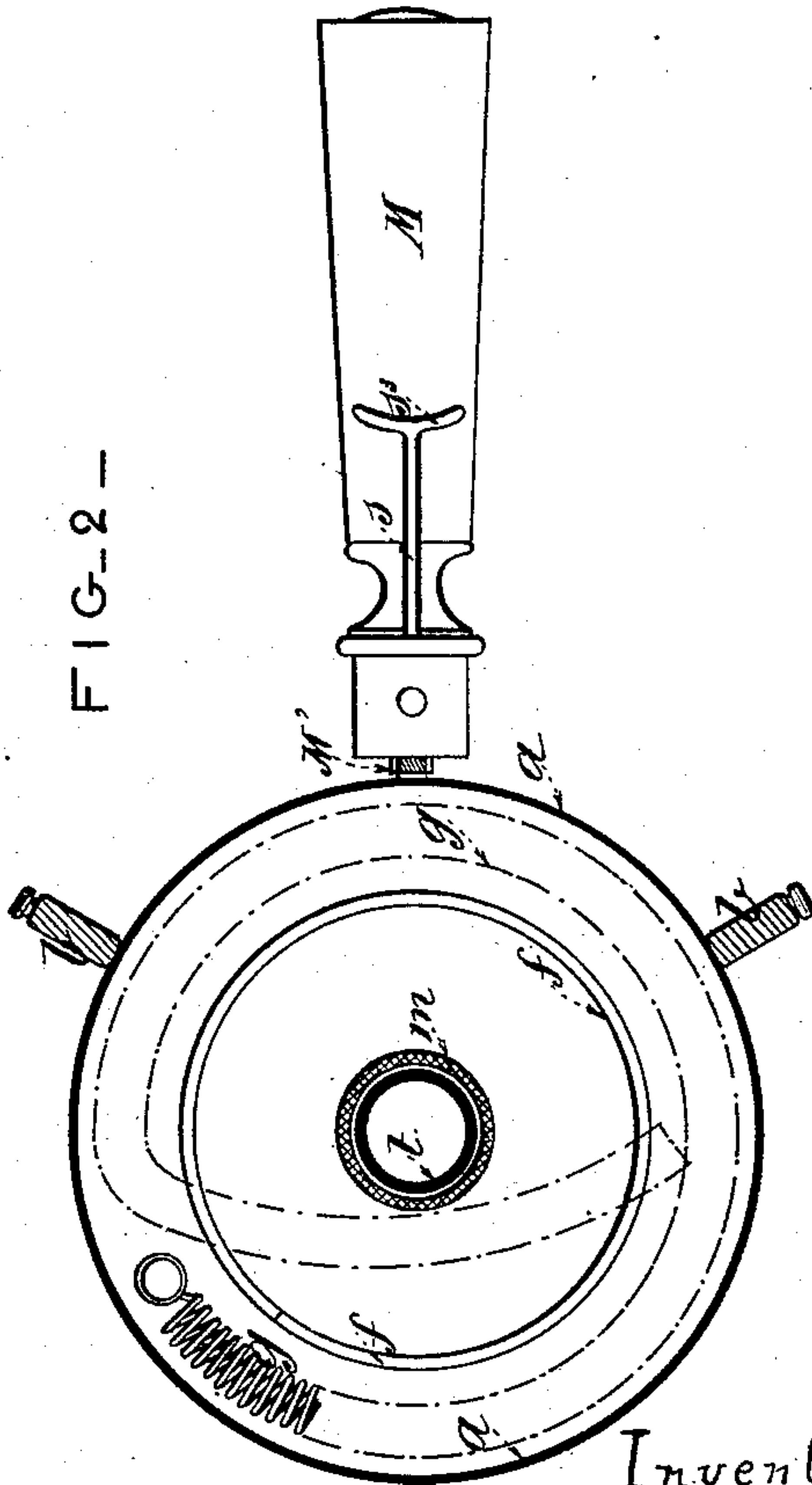


FIG. 2 -

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UNITED STATES PATENT OFFICE.

EDOUARD HENRI ALLAIN, OF CRÉTEIL, FRANCE.

BURNER FOR HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 452,352, dated May 19, 1891.

Application filed August 14, 1889. Serial No. 320,687. (No model.) Patented in France March 27, 1888, No. 189,626; in Belgium February 6, 1889, No. 84,911; in England May 18, 1889, No. 8,304, and in Germany August 6, 1889, No. 50,928.

To all whom it may concern:

Be it known that I, EDOUARD HENRI ALLAIN, engineer, of Créteil, France, and a citizen of the French Republic, do hereby declare the nature of my invention for Improvements in Burners for Heating Apparatus Using Alcohol, Petroleum, or other Combustible Liquids, and in what manner the same is to be performed, (patented in France March 27, 1888, No. 189,626; in Belgium February 6, 1889, No. 84,911; in England May 18, 1889, No. 8,304, and in Germany August 6, 1889, No. 50,928,) to be particularly described and ascertained in and by the following statement.

The accompanying drawings show several examples of my system of burner.

Figure 1 is a vertical section, Fig. 2 is a horizontal section, and Fig. 3 is an end elevation, of a heating apparatus of which the burner is established according to my invention. Fig. 4 shows the application of my system of burner to a lamp.

Heating apparatus shown in Figs. 1, 2, and 3.—The apparatus is composed of an inclosed vessel *a* in the form of a cylinder or of any other convenient shape, supported by three or four legs *b*, more or less ornamented and representing any subject whatever. The legs are strongly fixed to the top and bottom *a'* *a''*, which are conveniently set off with moldings or other embellishments. Above the vessel *a* these legs or figures are bent inward, in order to form a seat for the utensil to be heated.

In the water-tight vessel *a* there are three parts, first, an incombustible wick *m* of a thickness greater or less in the shape of a tube and inflammable in its interior parts; second, an agglomeration of filling materials surrounding the wick and having the same power of capillarity for liquids as the said wick, and also the same incombustibility, but capable of being heated to a high degree, (for instance, this agglomeration may be asbestos at *c* and sand or asbestos or common earth at *c'*;) third, a surrounding material *d*, consisting of insulating matter both in the way of heat and of capillarity, destined to serve as a reservoir for the liquid poured into the vessel—liquid which the said matter will

first drink in and then transmit to the adjacent parts by means of contact and capillarity. This surrounding material *d* is separated from the part *c c'* by a thick metal wire *f* with windings or in the form of a spiral. Another metal wire *g*, rolled in the form of a spiral, winds all around and through the parts *d c'* in order to form a sort of irrigating-canal, by which the liquid is dispersed into all the capillary parts of the apparatus when this liquid is poured in through an opening *o*, provided to that effect in the top *a'* of the water-tight vessel *a*. In the bottom *a''* opens out a cylindrical sheath *h*, destined to serve as a guide to an interior tube *t*, meant to regulate the combustion of the burner. The regulating-tube *t* can slide up to the top of the sheath *h* and joint with the edges *l'* on the top part *l* of the top *a'* of the vessel. In sliding from top to bottom the tube *t* more or less demasks the tubular wick *m*. The governor *t* is easily made to slide by the hand, which holds the handle *M* of the apparatus and that with the help of a square lever *s*. This lever is pivoted at *s'* on a brace *s''* integral with the part *M'* and cast with it. To this part *M'* is fixed the handle *M*, which passes through to the wall of the vessel *a*, around which the part *M'* is turned in the same manner as the legs *b*. The upper or exterior arm of the square lever *s* passes through the handle *M* and has at its end a crescent or fork *s''*, upon which is easily placed the fingers of the hand when the governor has to be worked. The interior arm of the lever passes through a vertical groove or slot in the sheath *h*, and its extremity plays in a mortise of the tube *t*. In pressing down the fork *s''* the square lever *s* tilts up the governor *t*. In pushing forward fork *s''* this square lever *s* turns on its pivot in the opposite direction and brings down the governor. A locking device may be adapted to the handle *M*, or near it, in order to hold the arm *s* fixed in its position when the tube *t* closes the burner. The wick *m*, made of asbestos of a certain thickness, receives at the point where its edges are joined together another tissue of the same kind *m'*, and which descends from the orifice *o* in order to transmit the combustible liquid *d* rect to the wick. The springs *f* and *g*, above mentioned, may be dispensed

with. However, I show that they may be used with and at the same time as the wick m' . The burner being thus formed and made up, one has only to light the interior part of the
 5 incombustible but capillary wick m after having drawn down the tube t , when a frame will cover the whole of the interior surface of the wick, and it is only in drawing up the governor t that the heat produced is moder-
 10 ated at will, and as may be desired. A cork may be put in at l' if it is found or thought that the tube t does not form a complete stopper.

Apparatus of Fig. 4.—The construction of the burner can, when reduced to convenient
 15 proportions, be suitable for a lamp or other lighting device. In this case the reservoir a , with its asbestos wick m , is notably reduced in size and the wick is inclosed within a glass. To feed the wick m , one or several branch ca-
 20 pillary wicks m' will be sufficient in establishing communications with the foot or bottom of the lamp which contains the spirit or petroleum. The governor t is worked by the means already described or by any other con-
 25 venient devices. The reservoir a may be filled through the orifice o , Fig. 1, or by any well-known means.

I claim—

1. In a heating apparatus, the central in-
 30 combustible wick m , having its interior sur-

face exposed, and an oil-supply chamber surrounding the exterior of said wick, substantially as set forth.

2. In a heating apparatus, the central incombustible wick m , having its interior sur- 35 face exposed, an oil-supply chamber surrounding the exterior of said wick, and an inner longitudinal movable governor for shutting off a part or all of said interior surface, substantially as set forth. 40

3. The combination, with the reservoir having the plate l , of the governor-tube t , lever s , pivot s' , handle M , and finger piece or fork s^3 on said lever and situated in proximity to the handle, substantially as set forth. 45

4. The combination, with the reservoir, of the filling material and the spiral wire g , forming a canal, substantially as set forth.

5. The combination of the top plate l , the reservoir a , adapted to receive a central wick, 50 the interior governor-tube t , and the lever s for operating the latter, substantially as set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

EDOUARD HENRI ALLAIN.

Witnesses:

R. J. PRESTON,
 ALPHONSE BLÉTRY.