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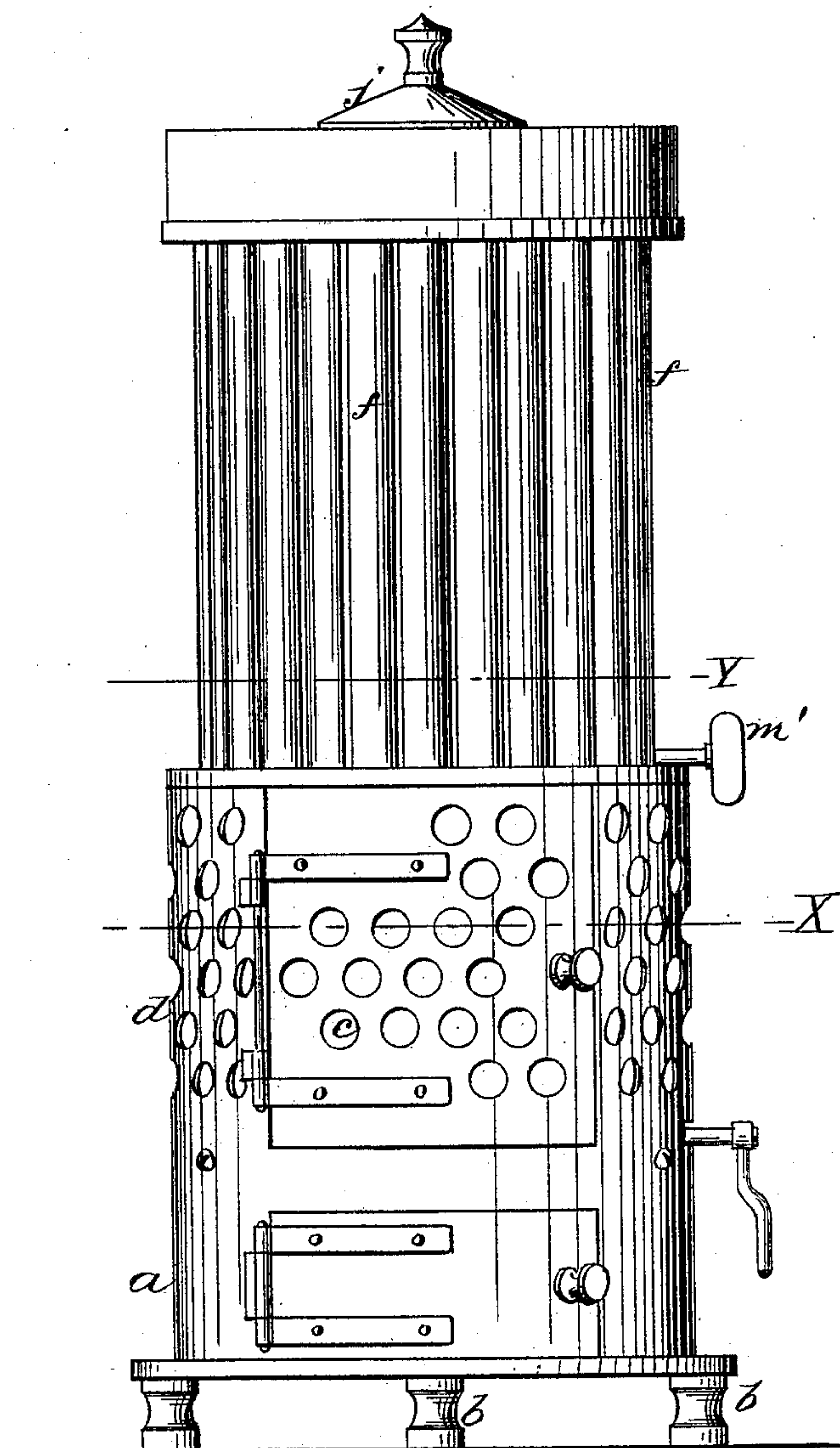
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T. THATCHER.
STOVE RADIATOR.

No. 424,037.

Patented Mar. 25, 1890.

Fig. 1.



Witnesses:

D. W. Gardner
Kellie L. Lope

Inventor:
Thomas Thatcher
By his Attorney,
Edward P. Thompson

(No Model.)

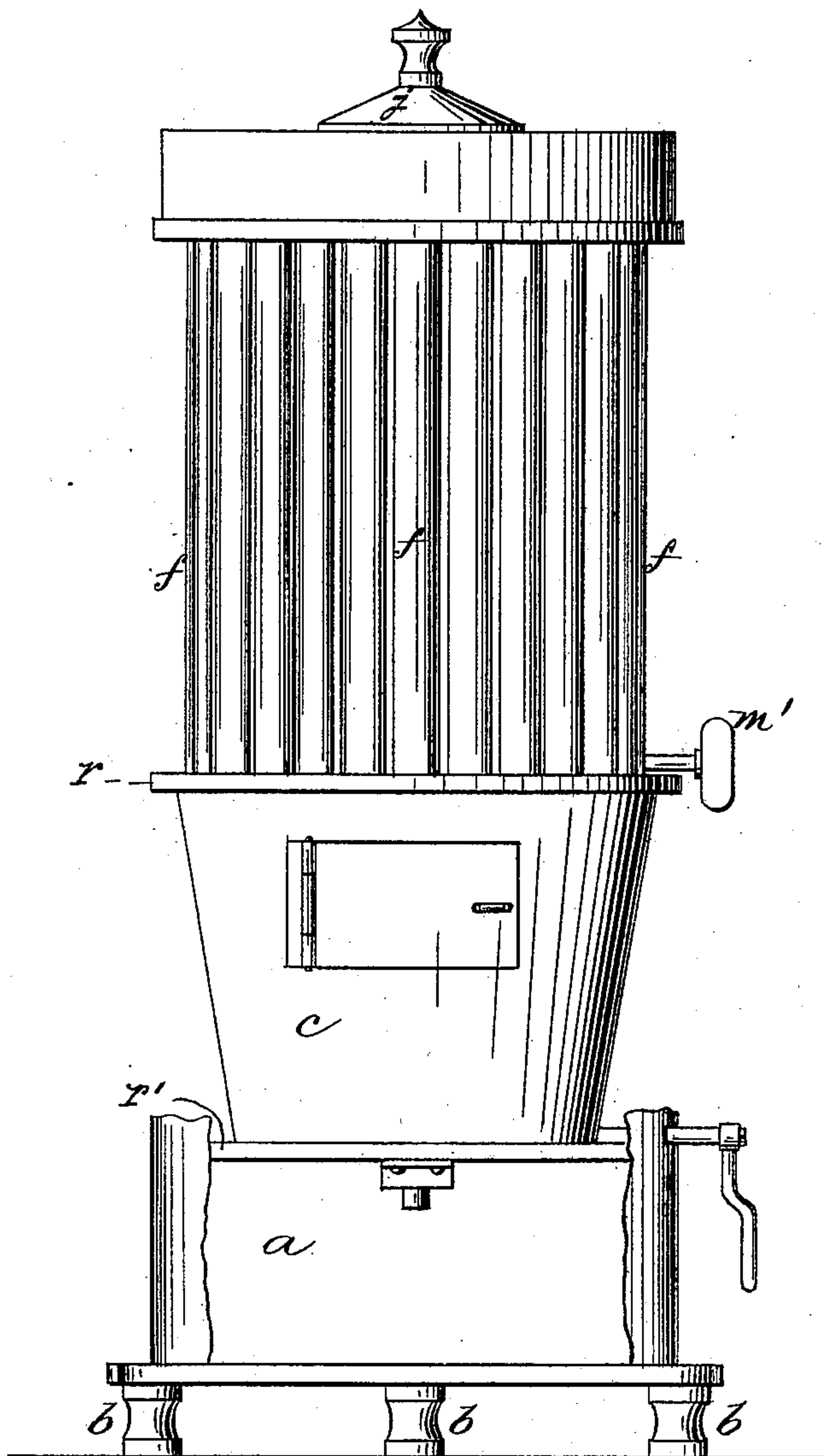
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Patented Mar. 25, 1890.

Fig. 2.



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(No Model.)

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Fig. 3.

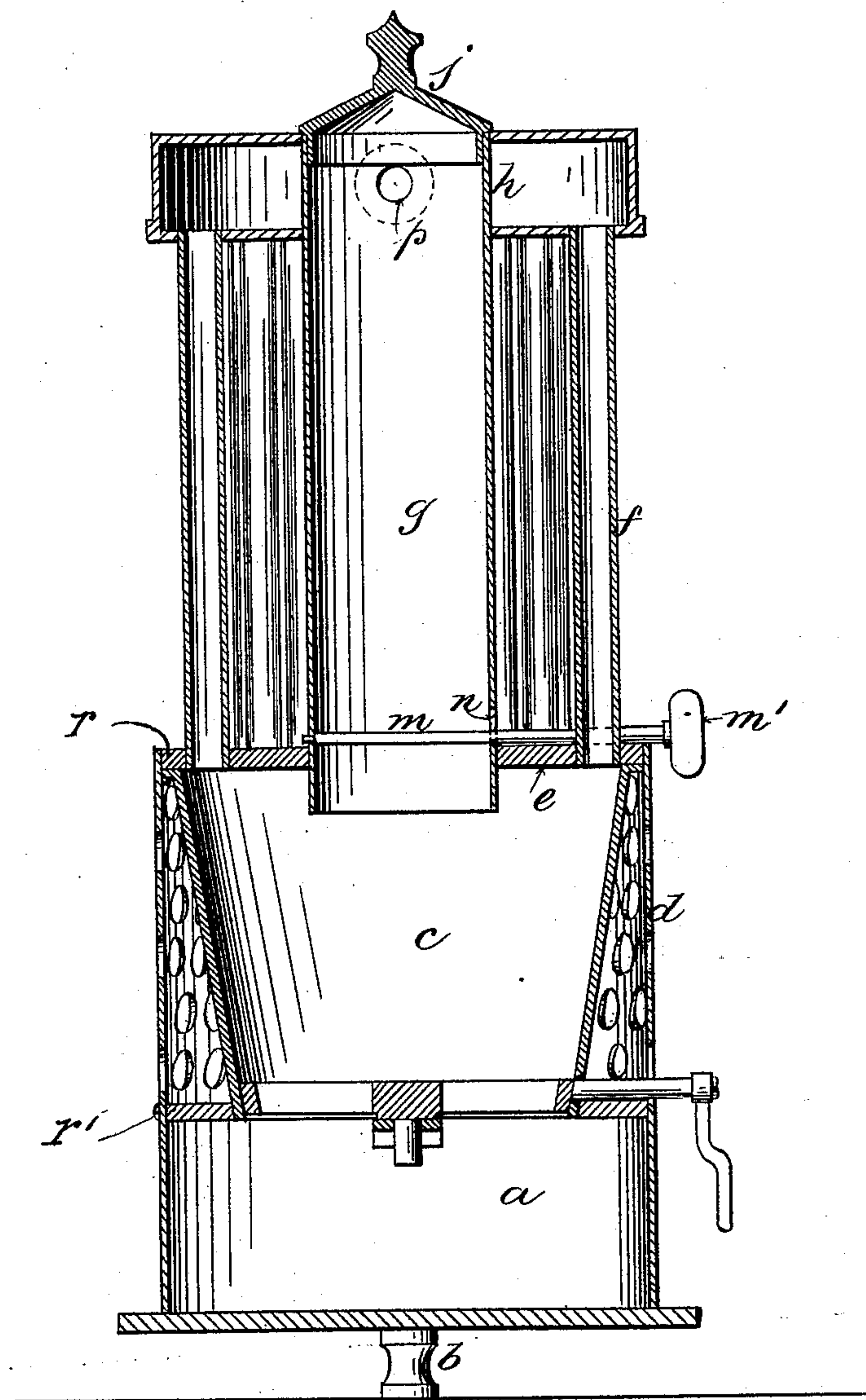
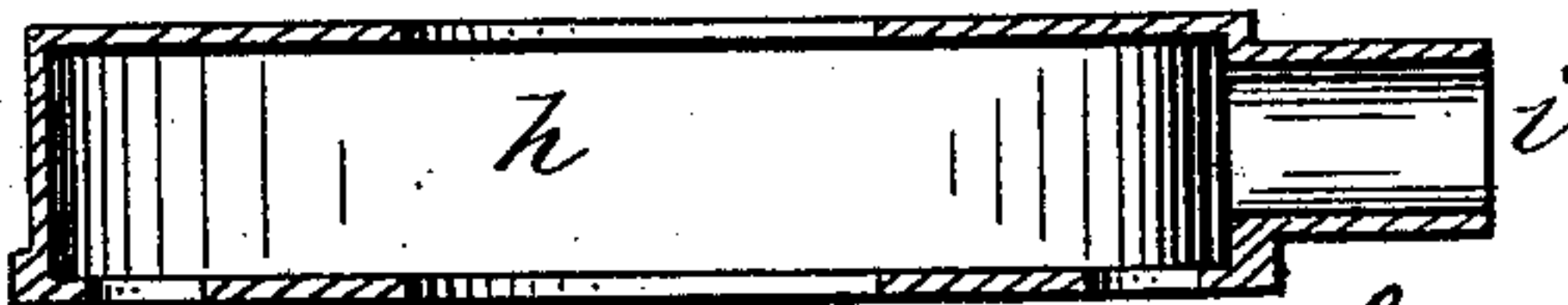


Fig. 4.



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Thomas Thatcher
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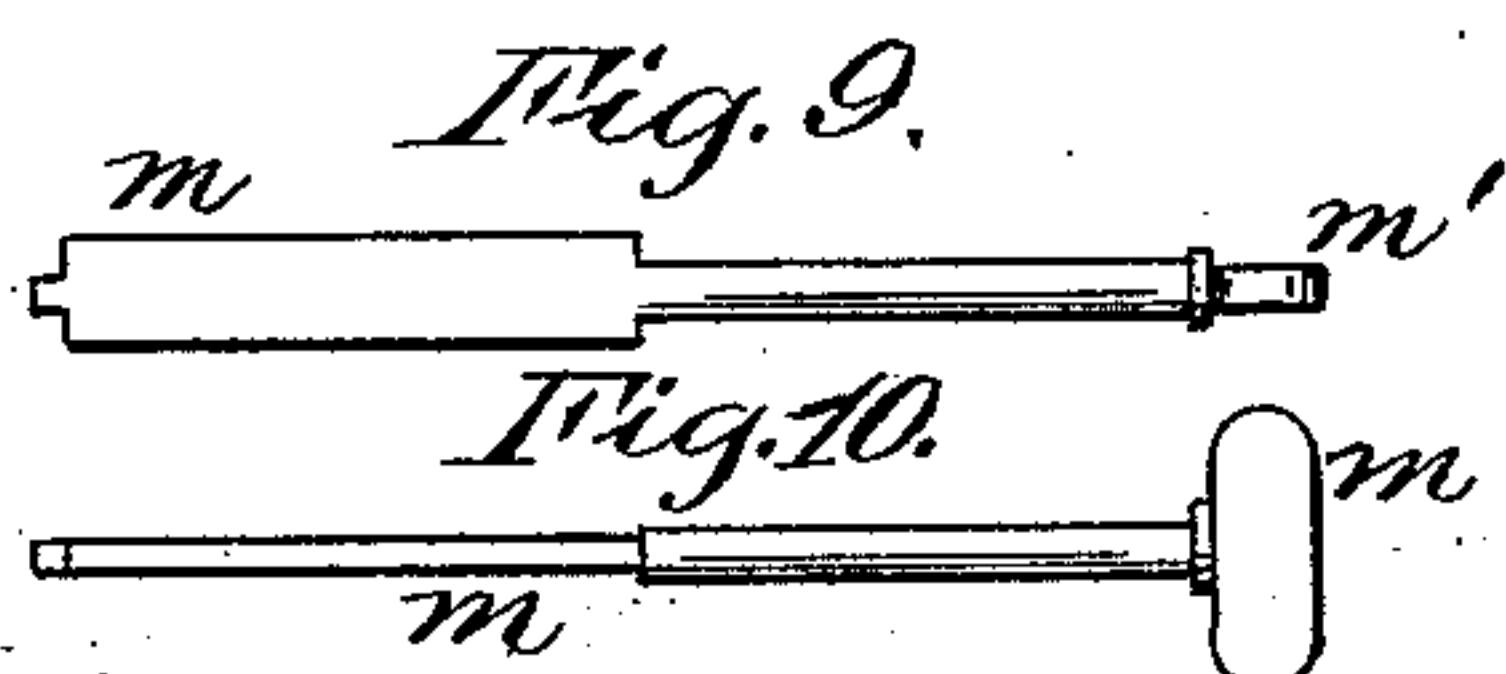
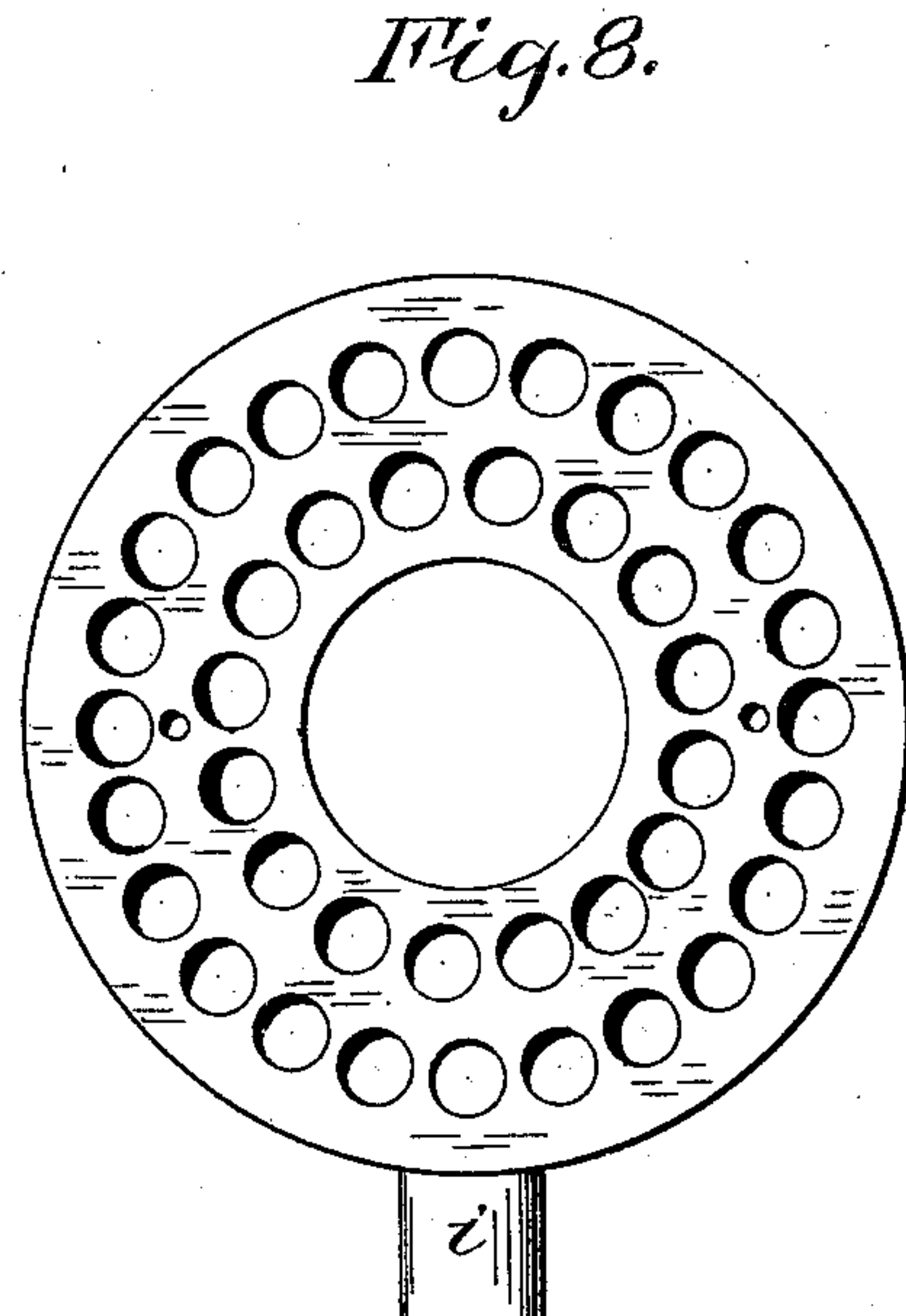
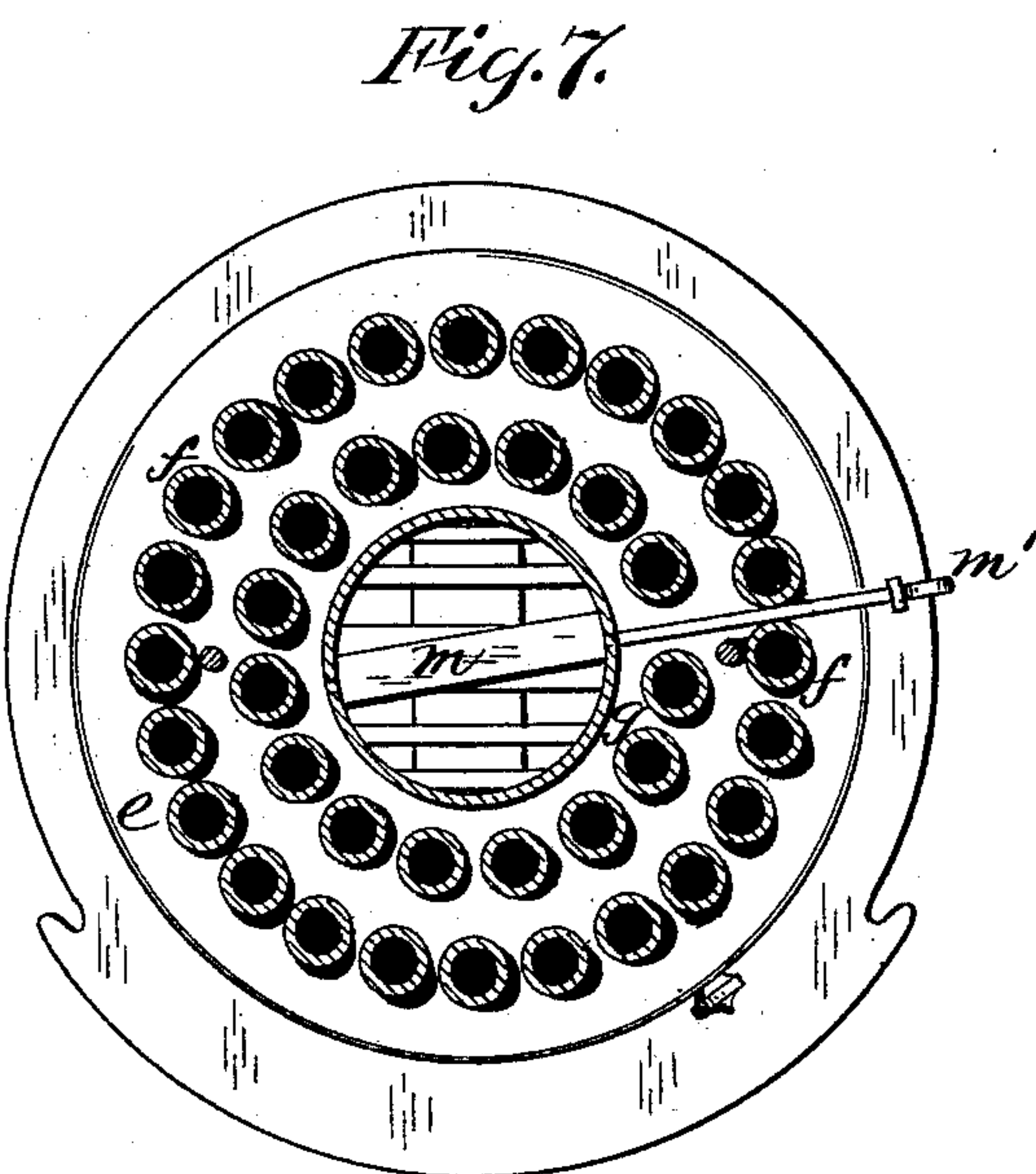
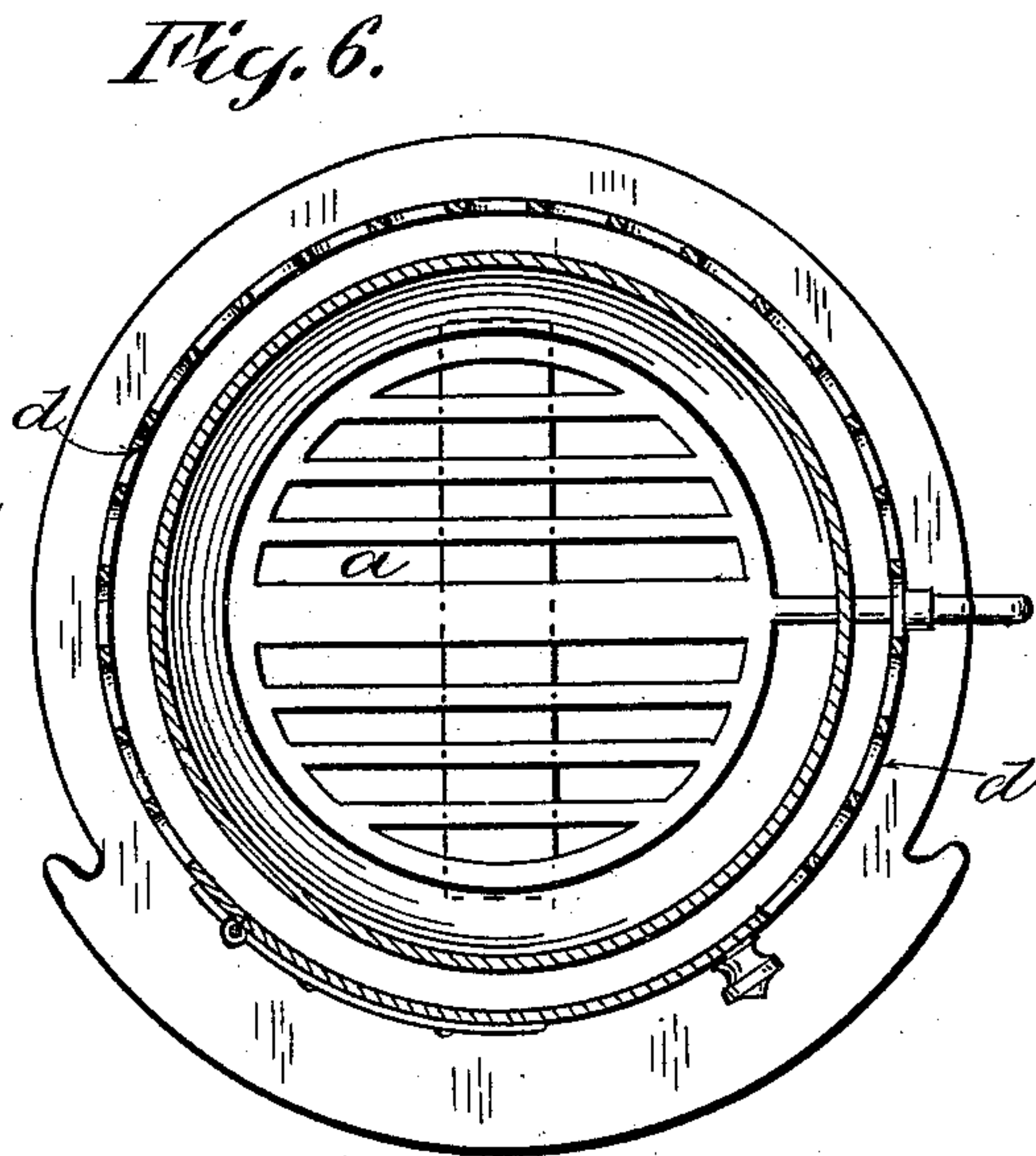
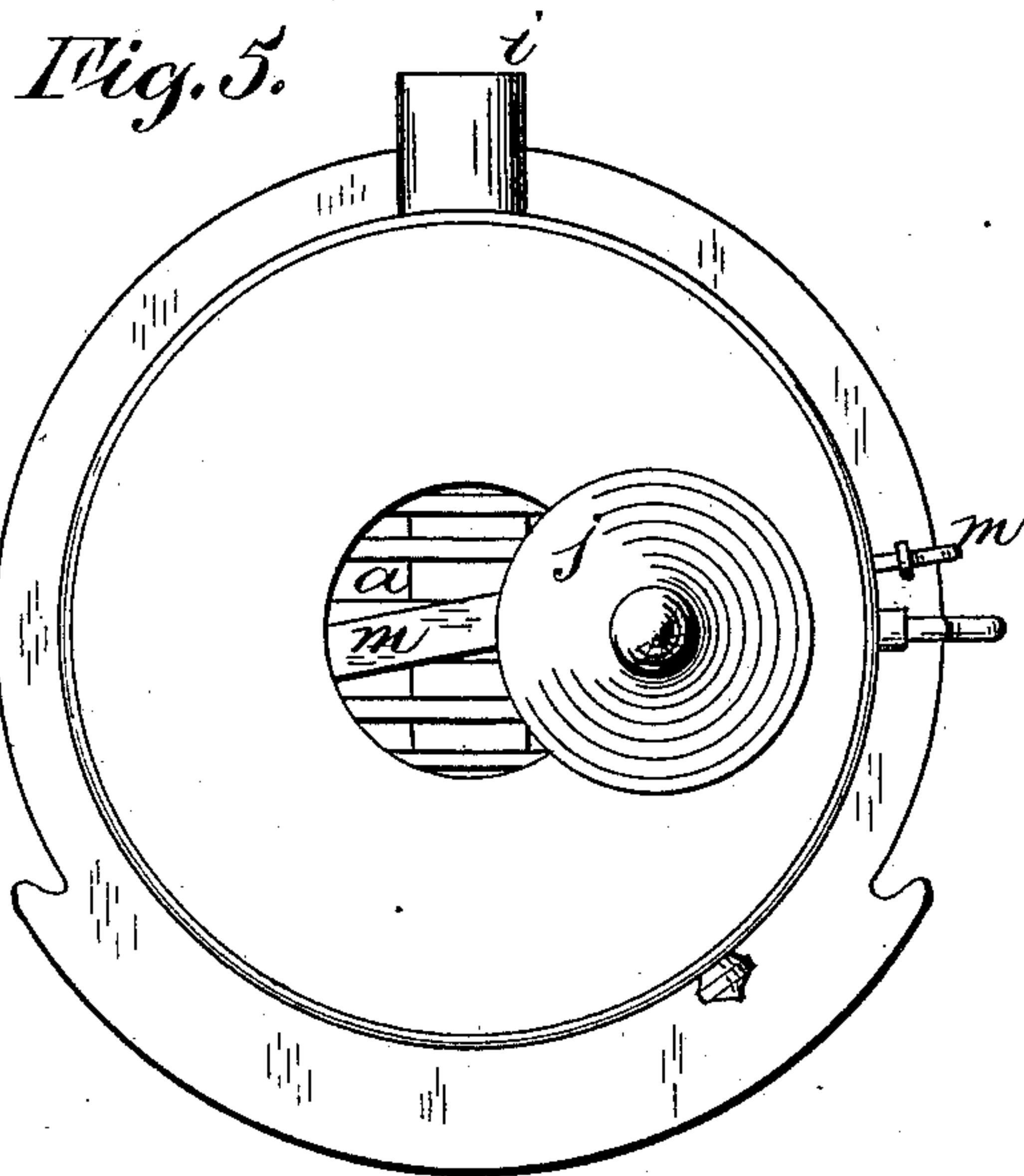
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STOVE RADIATOR.

No. 424,037.

Patented Mar. 25, 1890.



Witnesses:

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UNITED STATES PATENT OFFICE.

THOMAS THATCHER, OF ELIZABETH, NEW JERSEY.

STOVE-RADIATOR.

SPECIFICATION forming part of Letters Patent No. 424,037, dated March 25, 1890.

Application filed November 12, 1889. Serial No. 330,060. (No model.)

To all whom it may concern:

Be it known that I, THOMAS THATCHER, a citizen of the United States, and a resident of Elizabeth, county of Union, and State of New Jersey, have invented certain new and useful Improvements in Stove-Radiators, of which the following is a specification.

My present invention relates to the mechanical construction of a stove for heating rooms and similar purposes where it is desired to maintain a constant temperature approximately.

The object of the invention is to obtain the maximum amount of heat from any given quantity of coal or wood or whatever fuel is employed in the stove.

The stove in all its details is described by reference to the accompanying drawings, in which—

Figure 1 is a front elevation of the complete device. The cross-lines formed of alternate long and short dashes indicate the location of cross-sections hereinafter named. Fig. 2 is a front elevation of the device with a portion of the lower part broken away. The perforated casing around the lower part of Fig. 1 is removed entirely in Fig. 2. Fig. 3 is a vertical section of the device, the section being taken through the central axis of the stove and substantially parallel to the sheet of paper upon which the figure is drawn in Figs. 1 and 2. Fig. 4 is a sectional view of the upper part of the device shown in Figs. 1, 2, and 3. The section is vertical and shows a part of the flue adapted to connect to the stove-pipe. Fig. 5 is a plan of the stove, the top cover being partially removed from the feed-pipe. Fig. 6 shows the horizontal section at the line X in Fig. 1. Fig. 7 shows the horizontal section at the line Y in Fig. 1. Fig. 8 is a plan of the flue-chamber at the top of the stove removed. This flue-chamber is that part seen in section in Fig. 4. Figs. 9 and 10 show to different views of the coal-feed regulator, seen also in Figs. 1, 2, 3, 5, 6, and 7 in part or in full. The black circular areas seen in Fig. 7 indicate that one is looking downward into the radiator-pipes hereinafter mentioned and described.

The complete device embodying my invention consists of the combination of an ash-pit *a* at the lower part of the device and sup-

ported upon suitable legs *b* and supporting the fire-pot *c*, which is surrounded by the perforated plate *d* at such a distance as to allow the circulation of air from the outside room or space to the surface of the fire-pot and out again into the room. The fire-pot in turn supports or carries a perforated roof or cover *e*, which forms the top of the fire-pot. Into these perforations are inserted pipes, which are lettered *f*, and which project vertically upward and open in a flue-chamber *h*, connecting by the pipe *i* with a suitable stove-pipe or chimney. The central pipe or magazine *g* is much larger than the other tubes or pipes and is of sufficient size to admit of coal and serve as a magazine for containing a reserve supply of fuel. There is also an opening *p* in the upper portion of the magazine *g*, thereby forming the passage-way from said magazine to the flue *i*. The magazine is provided with a cover *j*, which is removable, so that coal may be stored in the magazine. This feed-pipe opens into the fire-pot and into the flue-pipe *i* and is provided with a cover *j* at its upper end, the said cover being removable.

The tubes *f* form a communication from the fire-pot to the flue-chamber *h*, so that the heated gases may pass through said pipes into the chimney, imparting most of their heat to said pipes. The outside atmosphere becomes heated by convection and radiation while in contact with and in the neighborhood of said pipes, as well as when circulating around the feed-pipe *g*, whose outer surface is exposed to the atmosphere of the room containing the stove. The outside surface of the fire-pot also heats the air which comes in contact with it. The perforated plate *d* becomes heated by radiation and conduction from the fire-pot, and also heats the atmosphere in the manner indicated with reference to the tube or pipes *f*.

The valve *m* serves to regulate the fall of the coal. It consists of a removable rotary plate having a handle *m'* on the outside of the stove, the plate being located across the pipe *g*. When the plate *m* is horizontal, the coal will feed slowly, while if it is vertical the coal will feed faster. If the plate is entirely removed by withdrawing it through the slot *n* in the side of the pipe *g* the coal

will feed with its maximum speed. The tubes *f* are arranged in concentric circles around the pipe *g*, thereby obtaining a great number in a comparatively small space.

5 They are vertical, so that the draft of air and combustible and consumed gases are not in any way hindered in their passage from the fire-pot to the chimney. The chamber *h*, into which the pipes *f* communicate, is in the
10 shape of a cylindrical ring, the inclosed space of the ring being occupied by the pipe *g*.

This stove is useful especially for domestic purposes. It occupies comparatively little floor-space and is economical, as with but a
15 low fire practically all of the heat is communicated to the room from the hot gases before they enter the pipe *i*.

The fire-pot *c* is larger at the top, measured horizontally, than at the bottom, in the na-
20 ture of an inverted truncated cone, so that while the coal is located in the lower portion more than in the upper portion the heated gases passing from the burning coal may be allowed free access through the pipes *f*, and
25 so that the horizontal plate *e* may have greater outside heating-surface to air coming in contact with the same. The magazine *g* projects a sufficient distance—a few inches—into the fire-pot to prevent coal from choking
30 up the pipes *f*. The plate or cover *e* is naturally very hot and serves a useful purpose in heating the outside air which circulates over the same. The perforated plate *d* and pipes *f* contribute to the function of the
35 plate *e* and sides of fire-pot *c* by preventing cold air during opening of doors on very cold days from chilling and cracking the fire-pot *c*. The air must first become considerably heated by coming into contact with the said pipes
40 and plate *d*, which are at a much lower temperature. The plate *d* serves as a protector and radiator. The plate projects beyond the top of the fire-pot, and this projection *r* connects with the plate *d*, thereby leaving suffi-
45 cient air-space between the fire-pot and plate *d*. A similar horizontal projection *r'* around the lower part of the fire-pot is provided and joins the lower edge of the plate *d*.

I claim as my invention—

50 1. In a stove, the combination of a fire-pot *c* of larger horizontal diameter at the top than at the bottom and provided with a lower projection *r'*, a horizontal perforated cover or top *e* to said fire-pot and projecting beyond

the top of said fire-pot, a cylindrical perfo- 55 rated fire-pot protector and radiator *d*, surrounding the sides of the fire-pot in such a manner as to leave an air-space between said fire-pot and said protector and joined to the projecting part of said plate *e*, a magazine *g* 60 for containing a reserve supply of fuel, projecting downward beyond the plate *e*, for the purpose set forth, rectilinear or vertical radiating-tubes *f*, passing into the perforations of the plate *e* and communicating with the
65 said fire-pot, a cylindrical ring *h*, with which the opposite ends of the tubes *f* and magazine *g* communicate, and through which said magazine passes, and a flue-pipe *i*, communi-
70 cating with said ring, the said magazine being provided with a cover at its upper end, and with a coal-feed regulator at or near its opposite end.

2. In a stove, the combination of a fire-pot *c* of larger horizontal diameter at the top than 75 at the bottom and provided with a lower projection *r'*, a horizontal perforated cover or top *e* to said fire-pot and projecting beyond the top of said fire-pot, a cylindrical perfo-
80 rated fire-pot protector and radiator *d*, surrounding the sides of the fire-pot in such a manner as to leave an air-space between said fire-pot and said protector and joined to the projecting part of said plate *e*, a magazine *g* 85 for containing a reserve supply of fuel, projecting downward beyond the plate *e*, for the purpose set forth, rectilinear or vertical radiating-tubes *f*, passing into the perforations of the plate *e*, and communicating with the
90 said fire-pot, and a cylindrical ring *h*, with which the opposite ends of the tubes *f* and magazine *g* communicate, and through which said magazine passes.

3. In a stove, the combination, with the fire-pot thereof, of perforated plates *e* and *d*, 95 surrounding jointly the sides and top of the fire-pot, some of the perforations communicating with the exterior air only, and some communicating both with the said fire-pot and with the flue or chimney. 100

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 4th day of November, 1889.

THOMAS THATCHER.

Witnesses:

EDWARD P. THOMPSON,
E. G. DUVALL, Jr.