

W. HAILES.  
Magazine Stoves.

No. 149,037.

Patented March 31, 1874.

Fig. 1.

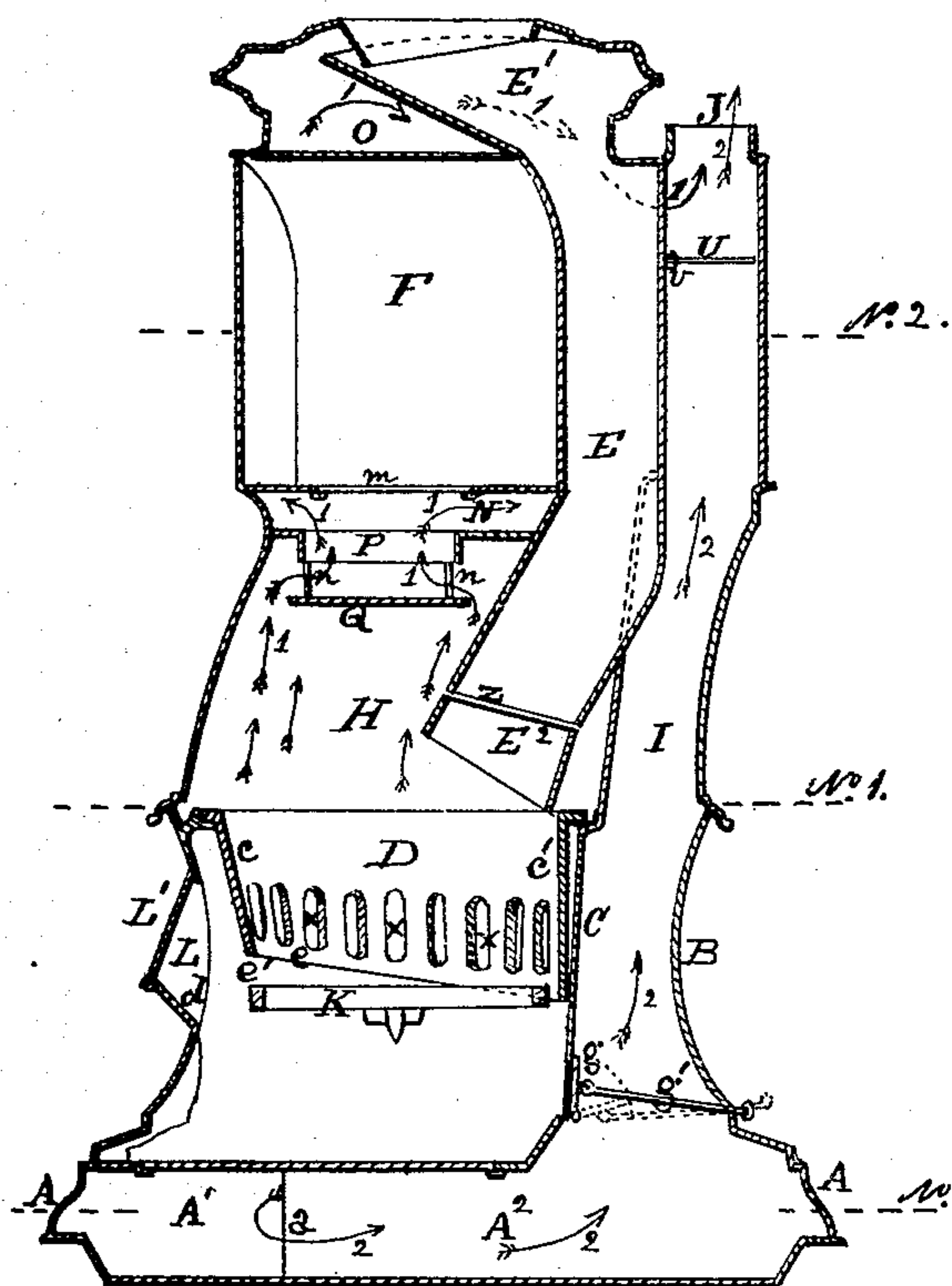


Fig. 2.

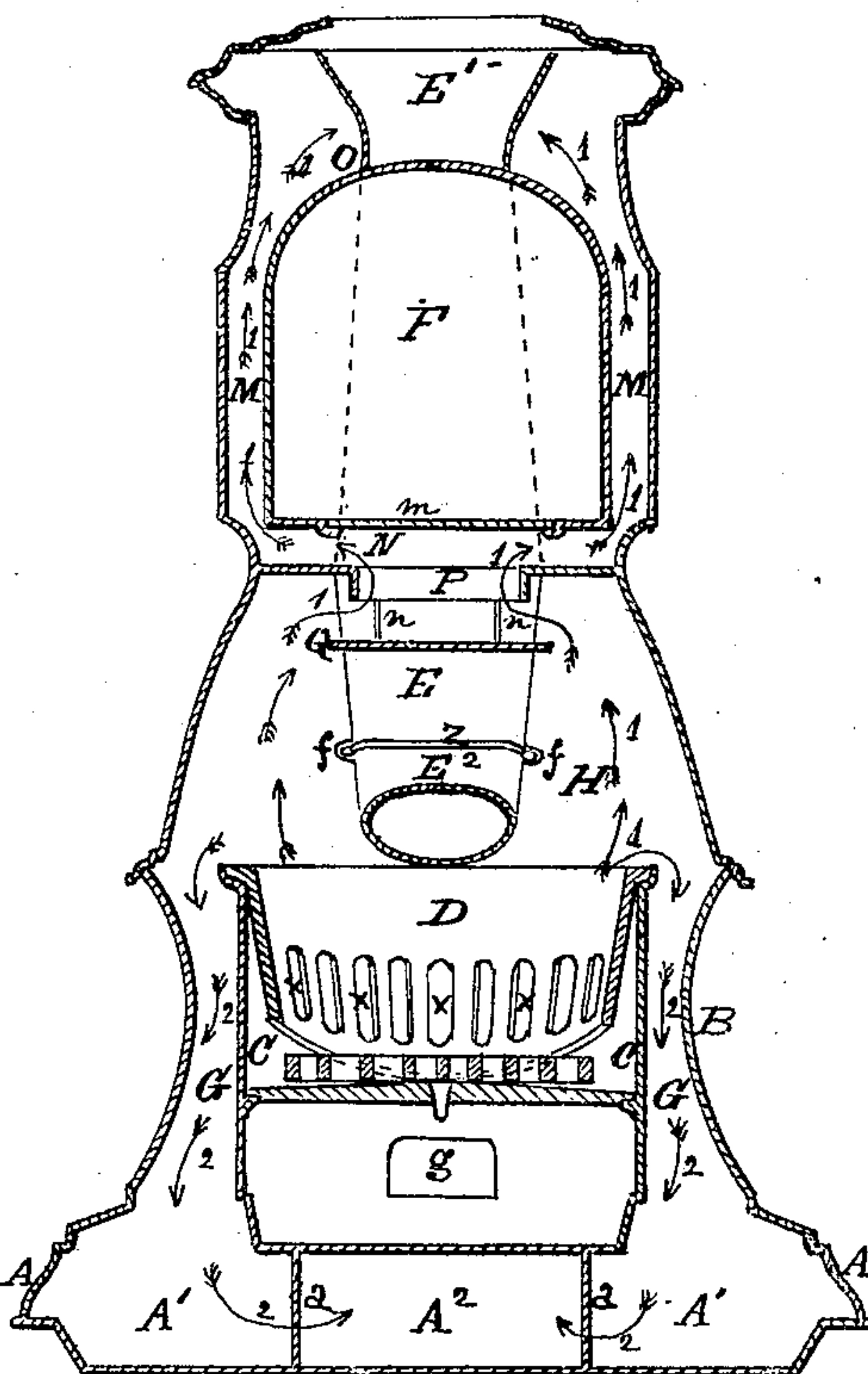


Fig. 3.

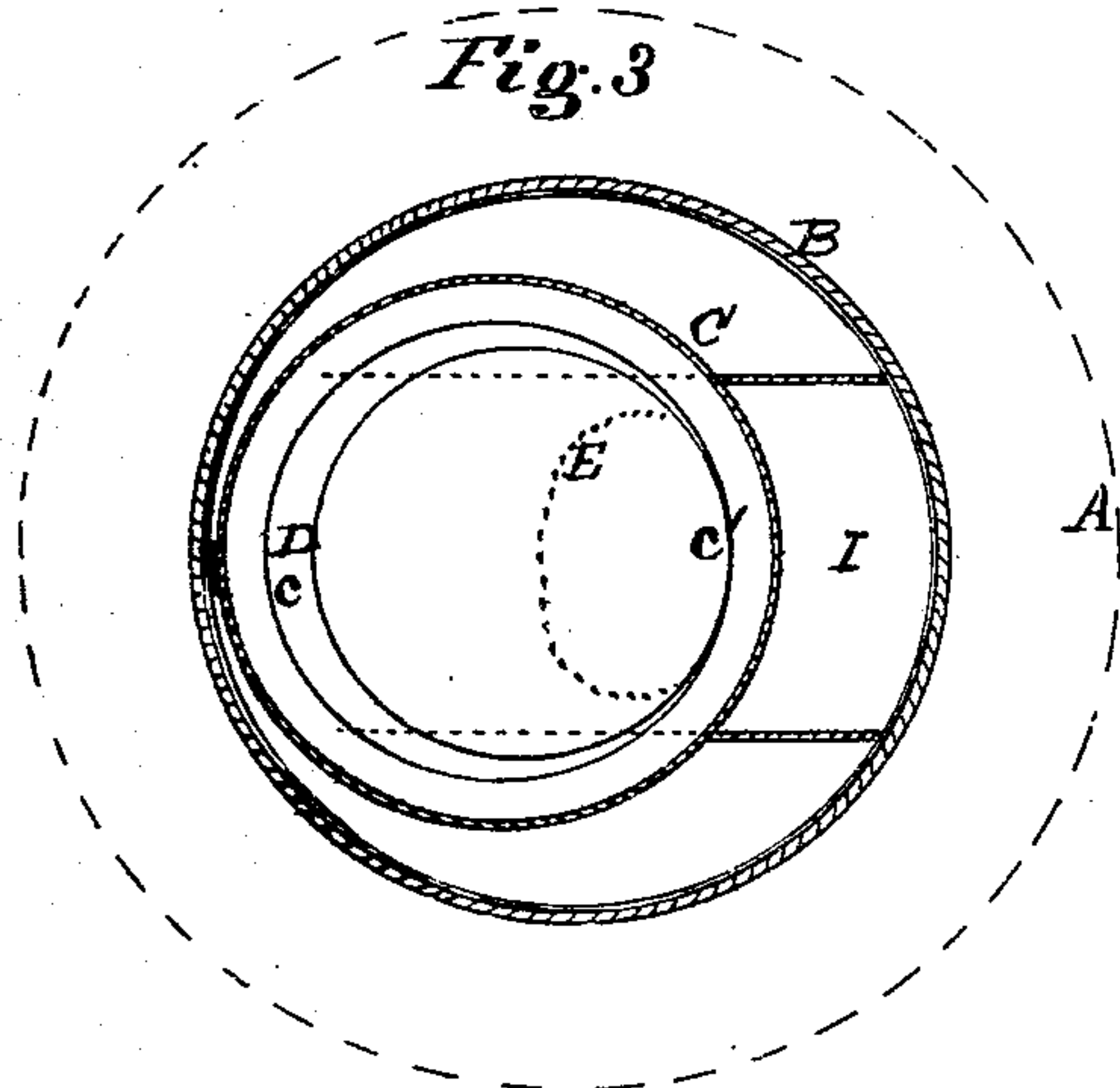
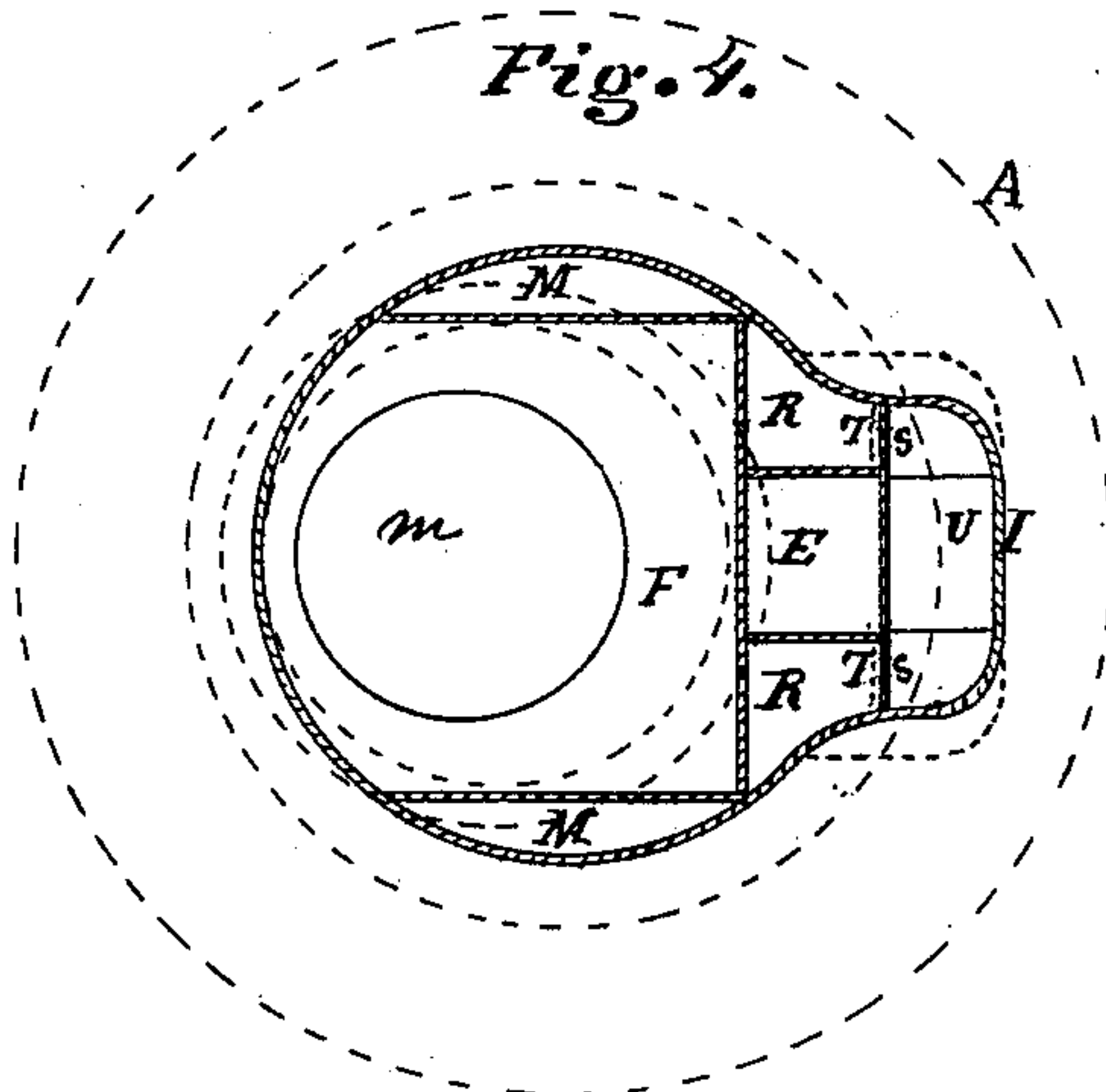


Fig. 4.



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Fig. 5.

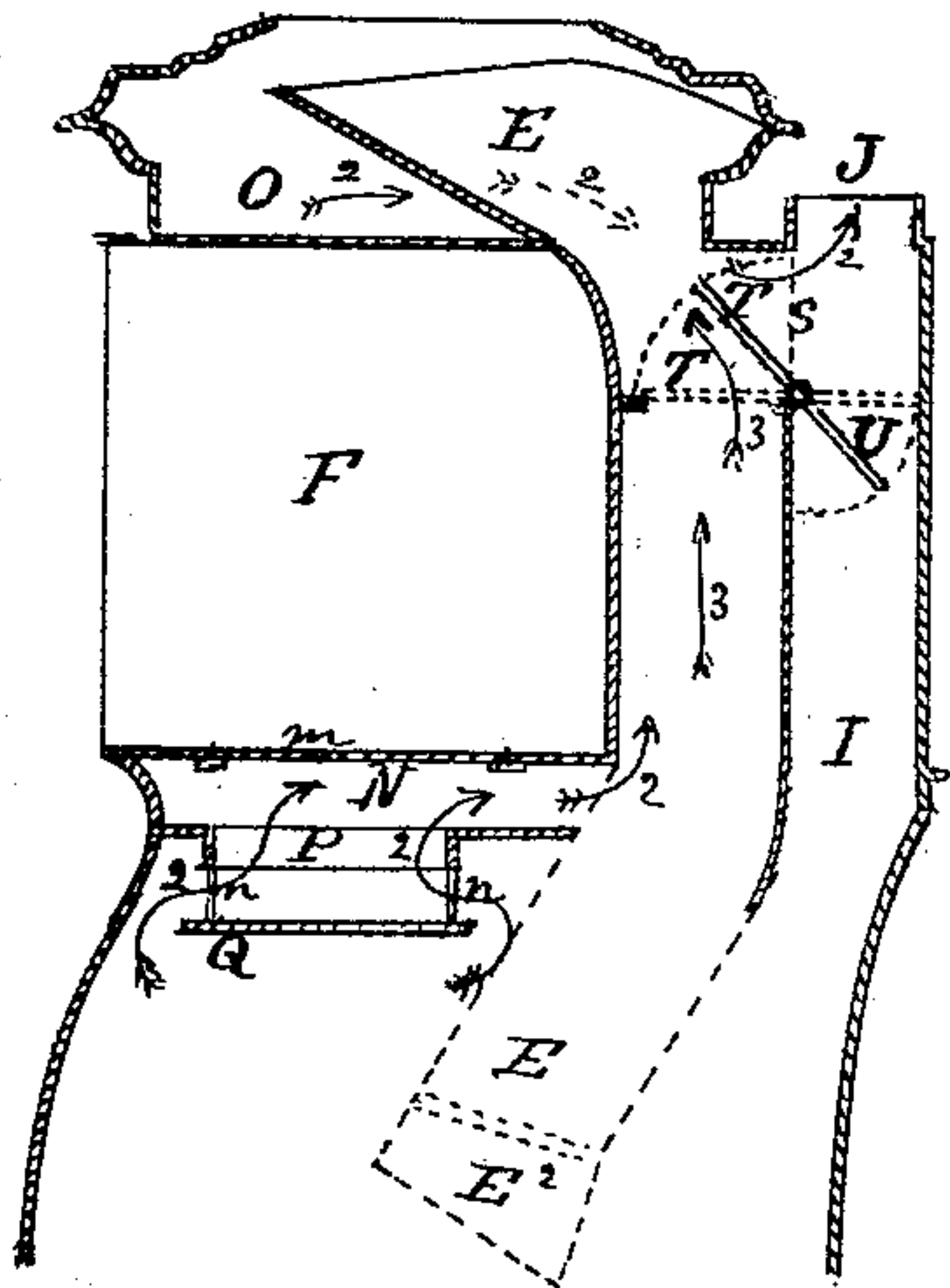


Fig. 6.

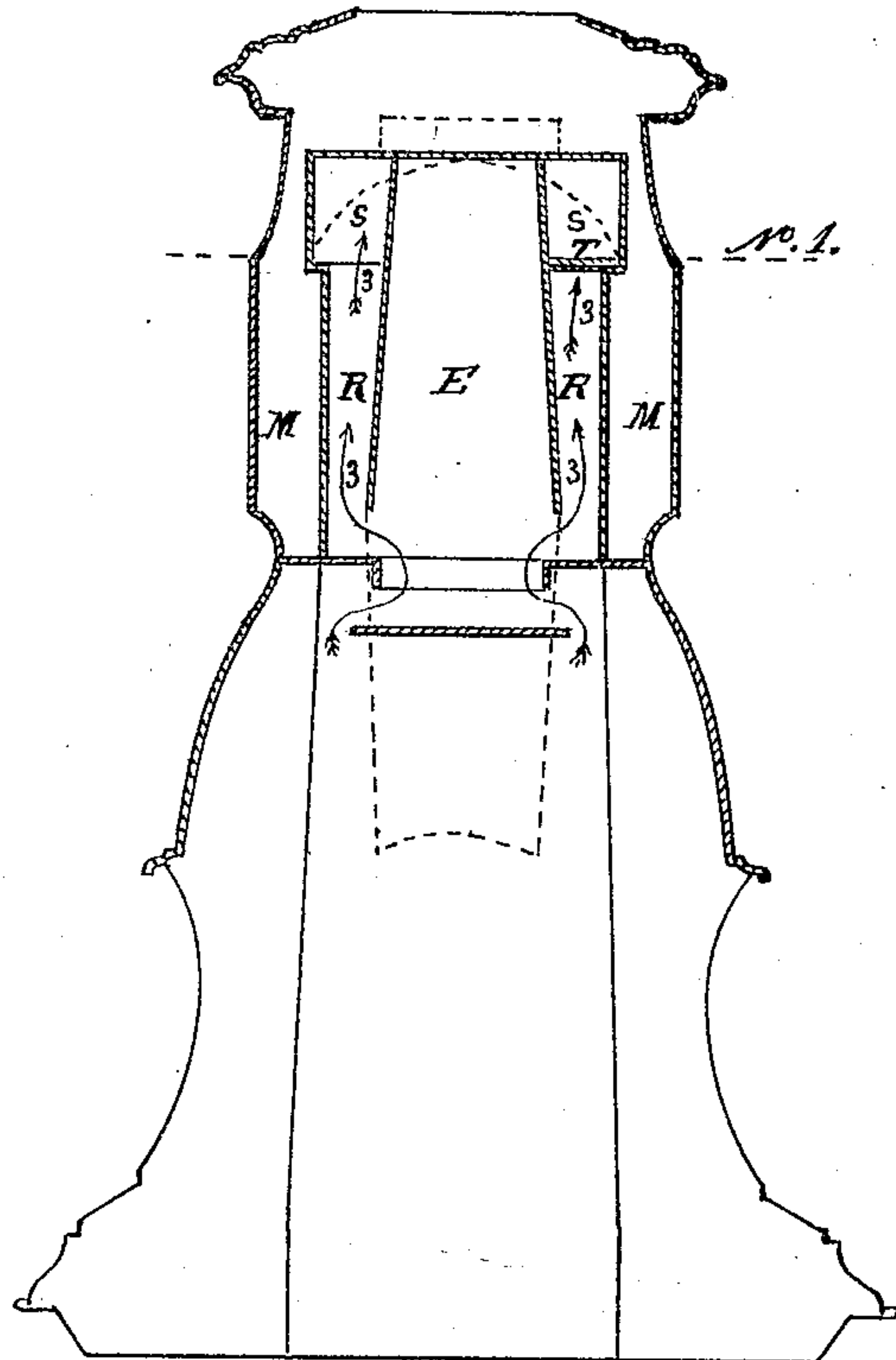


Fig. 7.

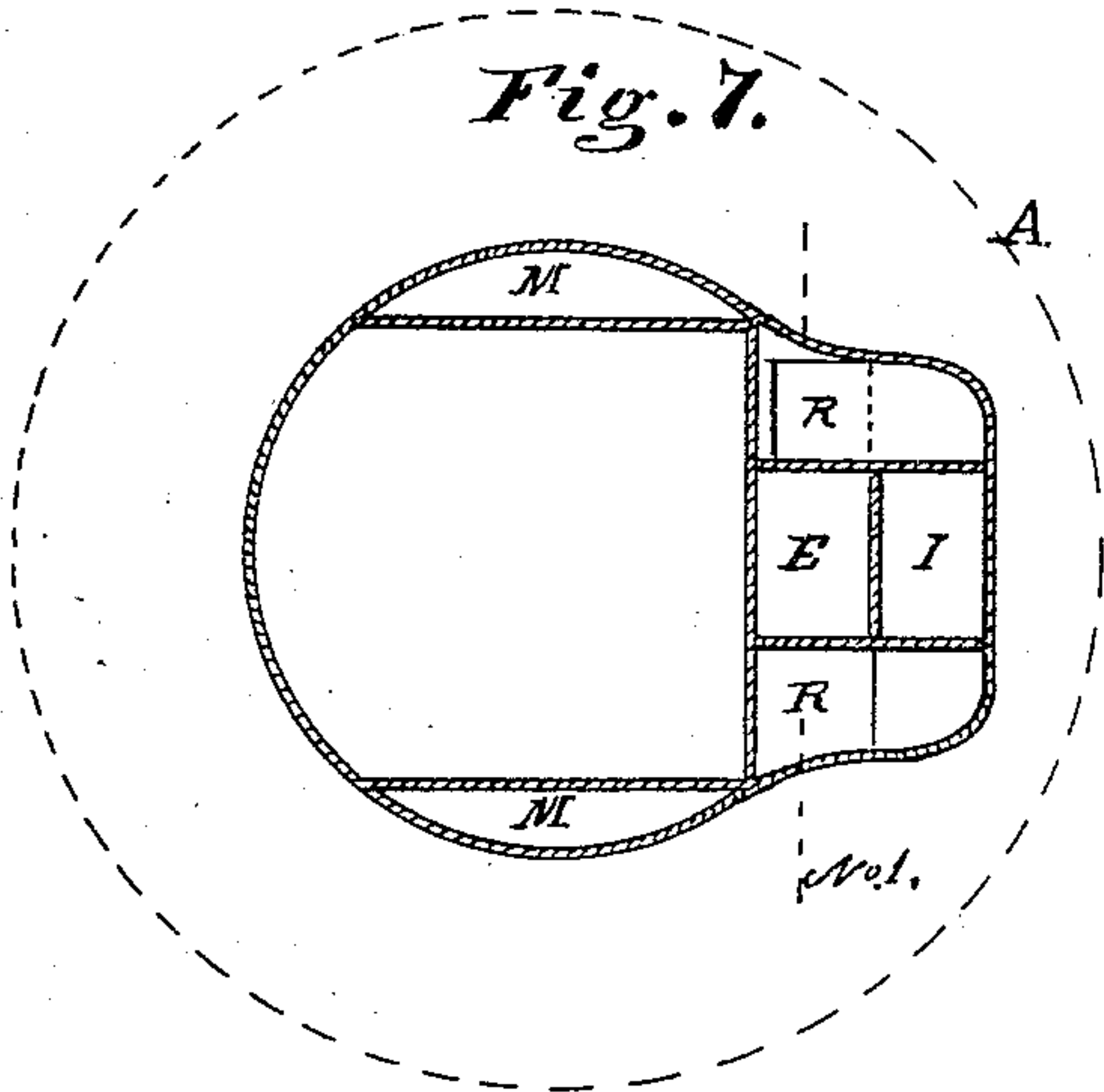
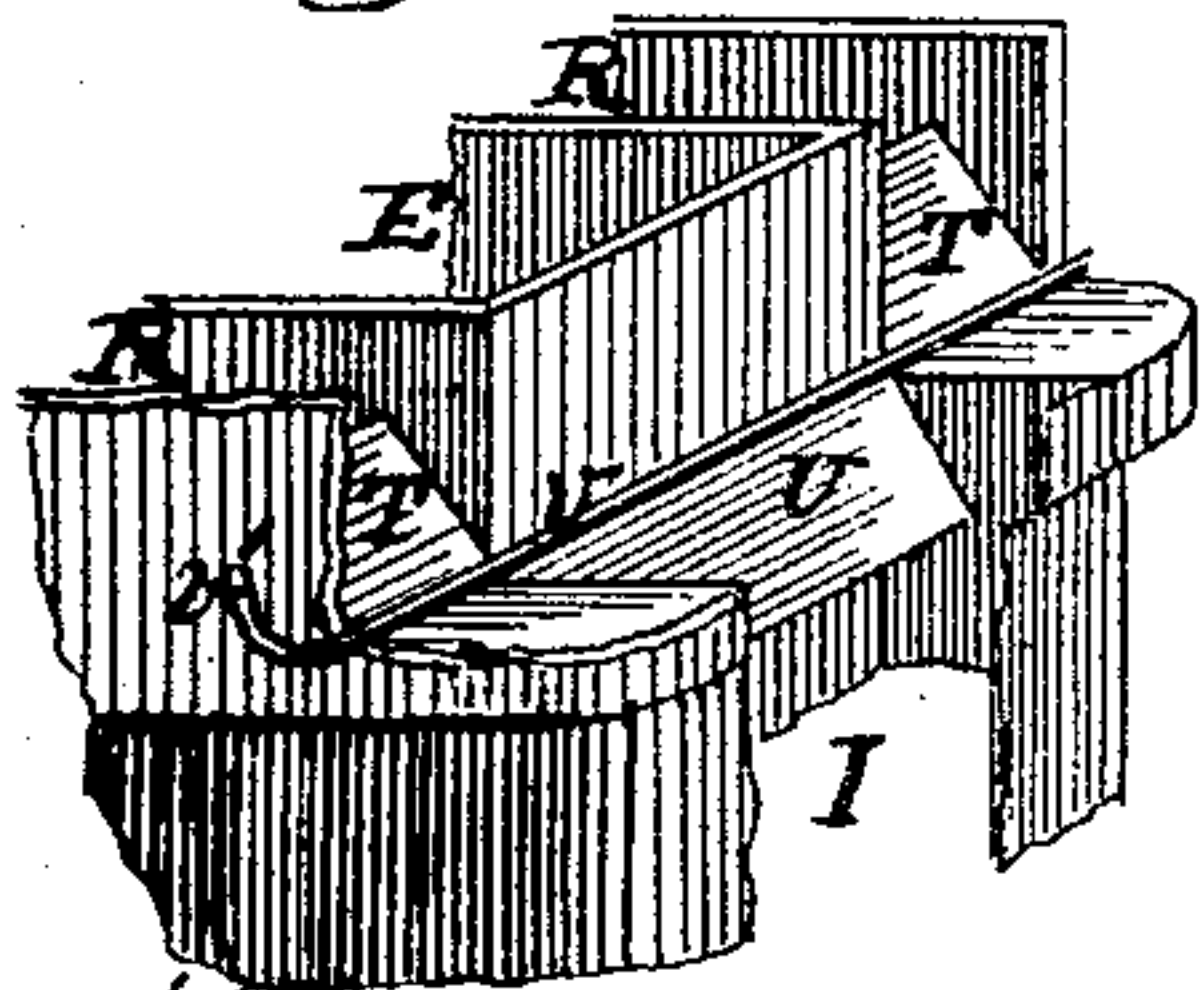


Fig. 9.



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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN MAGAZINE-STOVES.

Specification forming part of Letters Patent No. **149,037**, dated March 31, 1874; application filed November 12, 1873.

*To all whom it may concern:*

Be it known that I, WILLIAM HAILES, of the city of Albany, State of New York, have invented certain new and useful Improvements in Stoves; and I do hereby declare that the following is a description thereof, reference being had to the accompanying drawings forming a part of this specification, in which—

Figure 1 represents a sectional elevation, taken from front to rear, illustrating the improvements in this invention. Fig. 2 is a sectional elevation of the same, taken from side to side. Fig. 3 is a sectional view, taken on horizontal line No. 1, in Fig. 1. Fig. 4 is a sectional view, taken at horizontal line No. 2, Fig. 1. Fig. 5 is a sectional elevation of the upper portion of the stove, taken at line No. 1, in Fig. 7. Fig. 6 is a lateral sectional elevation, showing the flues at the sides of the oven, and also the flues at the sides of the fuel-magazine. Fig. 7 is a view, taken at the horizontal line No. 1, Fig. 6. Fig. 8 is a sectional plan view, taken at horizontal line No. 3, in Fig. 1. Fig. 9 is a perspective view of a section of the direct flues and their dampers.

My invention relates to certain improvements in base-burning or self-feeding stoves, and consists in the combination of certain devices and elements for effecting several results in a new and better manner than heretofore in that class of stoves; all of which I will proceed to describe in reference to the drawings and the letters of reference marked thereon, the same letters indicating like parts.

In the drawings, A represents the base section, divided by the flue-strips *a a* into the side flues *A<sup>1</sup> A<sup>1</sup>* and the middle return-flue *A<sup>2</sup>*, as shown in Figs. 1 and 2, Plate 1, and Fig. 8, Plate 2. B is the fire-pot section. C is the interior casing of the fire-pot. D is the fire-pot. E is the fuel reservoir or magazine. *E<sup>1</sup>* is the hopper leading to the said fuel-magazine. F is the oven. G G are the side flues leading from the combustion-chamber H to the base-flues *A<sup>1</sup> A<sup>1</sup>*. I is the vertical return-flue leading from the base return-flue *A<sup>2</sup>* to the exit-flue J; all of which are in themselves old and well-known. The front wall *c* of the fire-pot flares outwardly at the top, the rear wall *c'* is about perpendicular, and the lower end *e* declines from front to rear. The open-

ings *x x* operate with the openings in the grate K to admit a greater supply of air to the fuel to support combustion. The opening or space *e'*, between the lower inclined end *e* of the fire-pot and the grate, also acts with the openings *x x* to cause a greater supply of air to the front portion of the coal in the fire-pot. In the fire-pot section B, and opposite the space *e'*, between the grate and the lower end of the fire-pot, I make the bay L, provided with a door, *L'*, which door is provided with a mica light, through which the fire on the grate may be viewed. The lower portion *d* of the said bay, below the door, is made to project a little above the plane of the grate. The lower end of the fuel-magazine is formed by a supplementary piece, *E<sup>2</sup>*, connected with the magazine proper by lugs or equivalents *f f*, Fig. 2. A space, *z* is left between the lower end of the magazine E and the said supplementary discharge end, which permits the escape of the gas distilled from the coal. In the upper portion of the stove, and above the combustion-chamber H, is placed the oven F, made with an arching or rounded top. On each side of the oven, and leading from the combustion-chamber to the top flue O, are the flues M M, which flues connect with the horizontal flue N, located beneath the oven and above the combustion-chamber. The side flues M, in their upper portions are partially formed by the arching or rounded top portion of the oven, as in Fig. 2, so that the heated gases passing up the side flues will be made to move in close contact with all the top of the oven as they enter the top flue O, which is also partially formed by the arching or rounded top of the oven. Placed beneath the oven, and between it and the fire-pot, is the horizontal flue N, which connects with the flues M M at each side. P is a short flue leading to the flue N from the combustion-chamber H. Placed below the mouth of the flue P, and extending past the same in every direction, is the deflecting-plate Q, suspended by means of the hangers or rods *n n*.

In parlor base-burning or self-feeding stoves having the oven over the fire with its bottom exposed to the action of the direct rays of the heat from the fire-pot, the bottoms of such



ovens become too highly heated when used with a direct draft. In my invention, by the use of a bottom-flue, similar to the flue N and the deflecting-plate Q, I heat the bottom of the oven the same as they are heated in stoves where the oven is not over the fire, by conducting the hot gases against the bottom of the oven, and not by direct radiation of heat from the fire, as in the case of an oven over the fire-pot, without any intervening flue and plate between the fire and the bottom of the oven. In a direct draft, the heated gases will pass up from the combustion-chamber H over the deflecting-plate Q into the short flue P; thence into the bottom flue N, to connect with the bottom of the oven, and, separating, will pass to each side to enter the flues M M at the sides of the oven, and draw over the arched or rounded top of the same, to fill the top flue O and pass thence to the exit J at the rear of the stove, as indicated by arrows No. 1 in Fig. 2.

It is evident that this form of construction and arrangement of flues will cause the oven to be more evenly heated at its bottom, sides, and top, than it can be when the bottom of the oven is exposed to the direct rays of heat from the incandescent coals, or when there intervenes between the bottom of the oven and the fire-pot a column of unburned fuel held in a magazine beneath the oven, and the oven is only heated by the hot gases acting on its sides and top.

In a revertible draft, the heated gases will be drawn down from the fire-pot immediately at the margin of the same, and away from the bottom of the oven and the deflecting-plate and the flue beneath the oven, so that the oven will be but slightly heated, in which case the draft will be substantially as indicated by arrows No. 2 in Fig. 2. This is of great advantage, as when it is desired to use the stove for warming purposes only, to heat a room, the oven will not be made to absorb any great amount of heat, and a greater amount of heat will be thrown into the base of the stove for warming purposes.

At the rear of the oven F, and at the sides of the fuel-magazine E, I form the supplementary direct flues R R, leading from the flue N beneath the oven to the openings s s leading to the exit J, as shown in Figs. 4, 5, 6, 7, and 9. The openings s are provided with dampers T, Figs. 5, 6, and 9, which may be operated to open or close the top open ends of the flues R. When the dampers T are opened, as shown by full lines in Figs. 5 and 9, the draft will be direct from the combustion-chamber into the bottom flue N; thence up at the sides of the magazine through the openings s to the exit J, as indicated by arrows No. 3 in Figs. 5 and 6.

The said flues are intended to be used when it is desired to do light baking, when the bottom of the oven only will be heated by the hot gases, excepting a small strip of the back of the oven at each side of the fuel-magazine.

When the dampers T are closed over the flues R, as shown by dotted lines in Fig. 5, the said flues will act as dumb-flues to retain heat, but not to permit the currents of heat to pass out.

The damper I use with this arrangement of flues is a duplex damper, consisting of the dampers T T and U, connected to the same shaft *v*, Figs. 1, 5, 7, and 9, having its bearing in the side walls of the stove, and provided with any suitable handle, *v'*, by which the dampers may be operated. The said dampers are arranged with the shaft and each other, so that when the damper T is turned down, as shown by dotted lines in Fig. 5, the damper U will close the rear vertical flue I, when the draft will be direct, as indicated by arrows 1, Figs. 1 and 2; but when the damper T is turned to close the openings S, the damper U will be also turned to open the flue I, when the draft will be reverted, and in the direction indicated by arrows No. 2 in Fig. 2, first into the base of the stove, thence into the return-flue A<sup>2</sup>, and from the same, by its passage through the flues I, to the exit J.

By the use of the fuel-magazine with the oven in this stove, the stove is rendered at all times ready for heating or baking purposes; and, by means of the several flues and dampers, in connection with the oven and magazine, the stove can be instantly changed in its operations with the hot gases from that condition necessary for baking to that for warming a room, or the reverse, as may be required; and in either case the operations will be perfect for the work required to be performed.

At the rear of the ash-pit is placed a dust-valve, *g*, which, when opened by the rod *g'*, as shown by dotted lines in Figs. 1 and 2, will permit the escape of the dust into the rear vertical flue I when the grate is shaken.

The oven F may be ventilated by any suitable openings made in the walls of the same, in its upper portion, communicating to either the side flues or the top flue.

In the bottom of the oven, and directly over the short flue P, leading to the flue N, is a pot-hole, *m*, provided with a cover, which pot-hole may be used for holding a vessel for cooking or boiling. Being located over the flue N, with its bottom in the said flue, the heated gases will quickly heat the vessel, as all the heated gases will contact with the bottom of such vessels in their passage from the short flue P to the side flues M M or R R.

A fire-pot constructed with its lower end declining from front to rear, used in combination with a horizontal grate, has already been patented by me. I do not, therefore, herein claim said devices; nor do I claim any of the devices shown and described in this application, except as hereinafter expressly claimed.

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

1. A self-feeding or base-burning stove with a descending draft into the base, an oven over



the fire-pot with a horizontal flue beneath, having communication below through the flue P, a deflecting-plate between the oven bottom and the incandescent coals, and dampers to direct the heated gases to or from a passage in contact with the bottom of the oven, substantially as set forth.

2. In combination with an oven, F, placed vertically over the fire-pot and in front of the

fuel-magazine E, horizontal flue N, and exit-flue J, the flues R R, provided with dampers T T, and located in rear of the oven and at the sides of the reservoir, substantially as and for the purposes hereinbefore set forth.

WILLIAM HAILES.

Witnesses:

ALEX. SELKIRK,  
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