

J. MARTINO.

Base Burning Fire Place Heater.

No. 100,539.

Patented March 8, 1870.

Fig. 1.

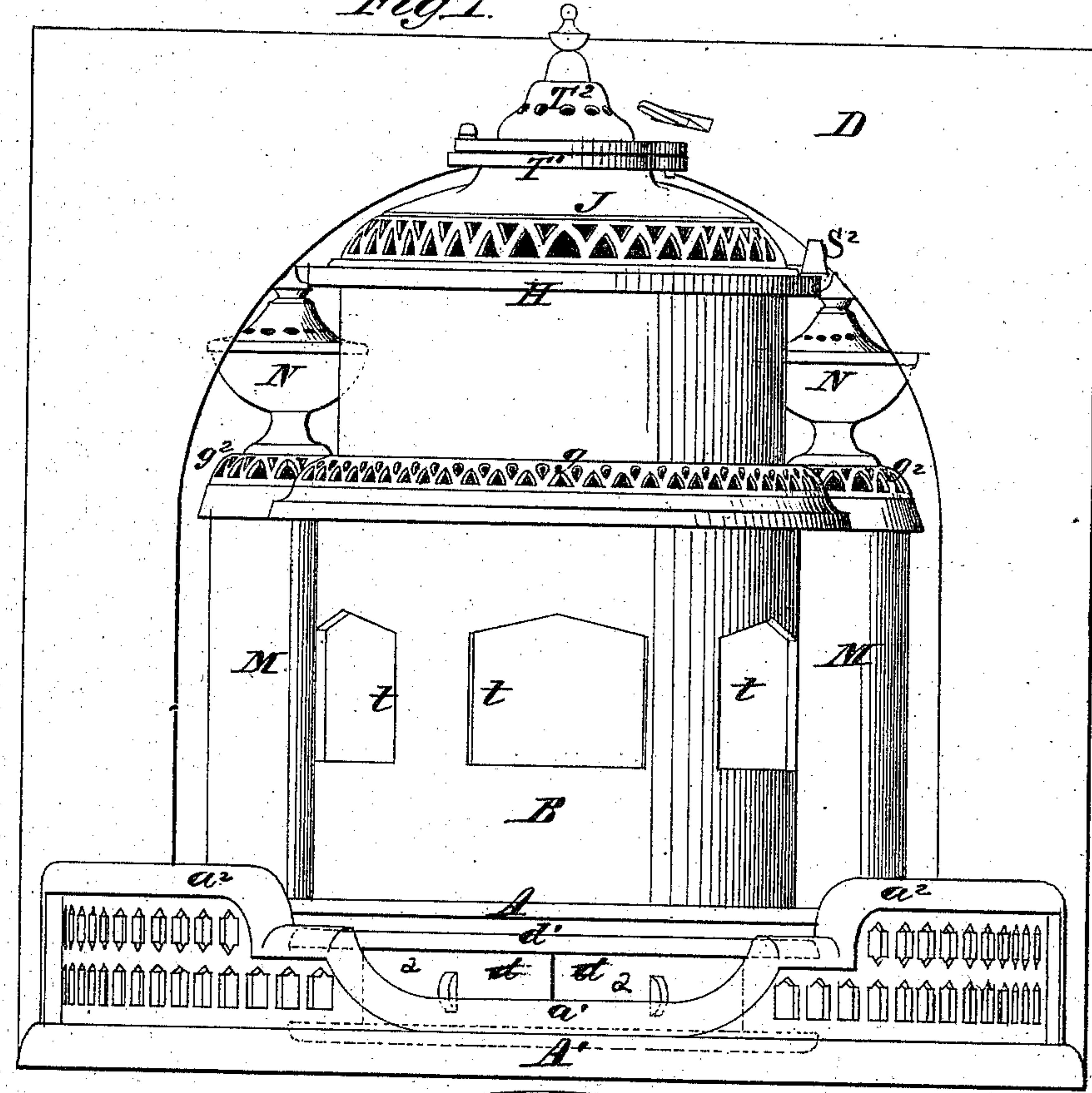
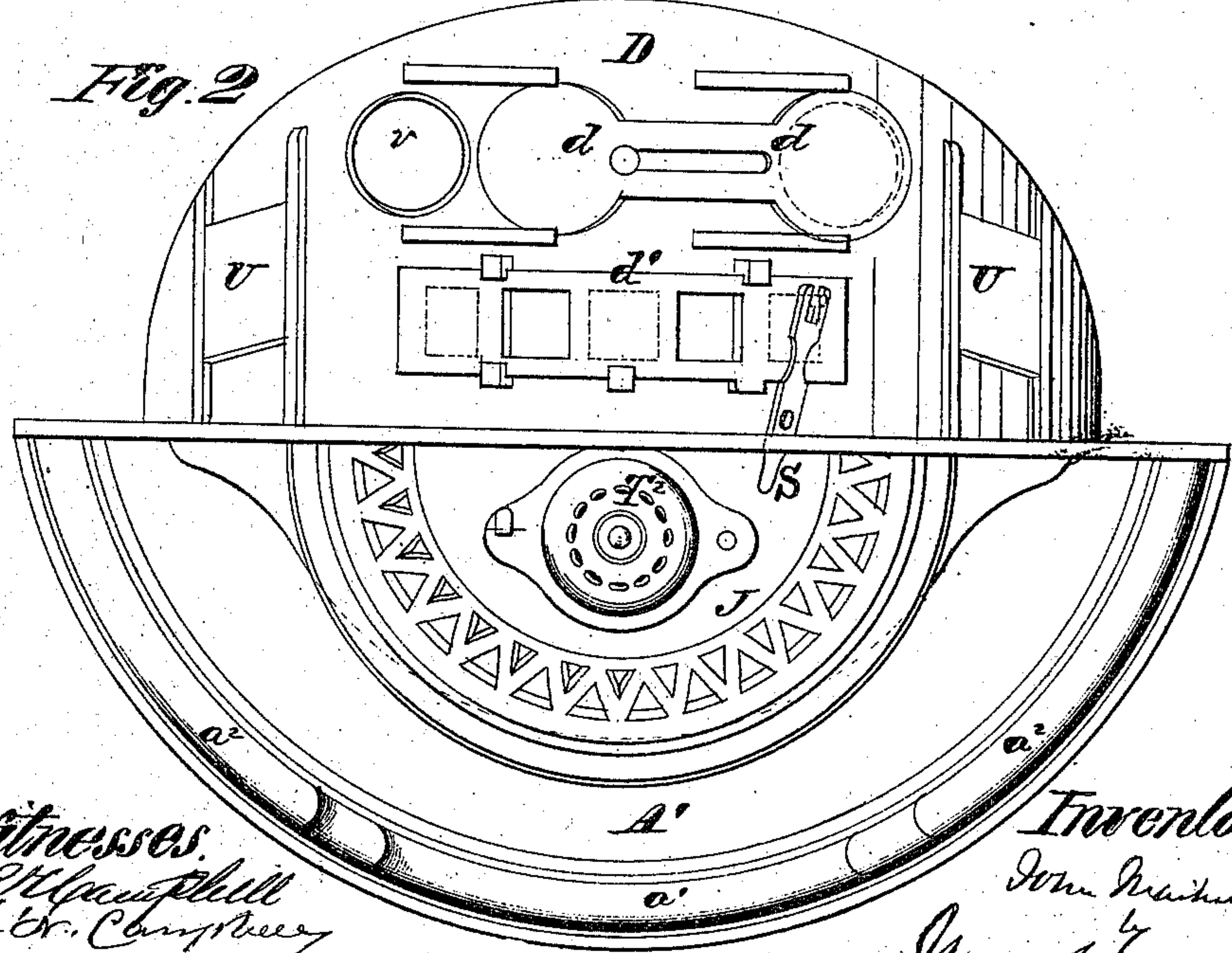


Fig. 2.



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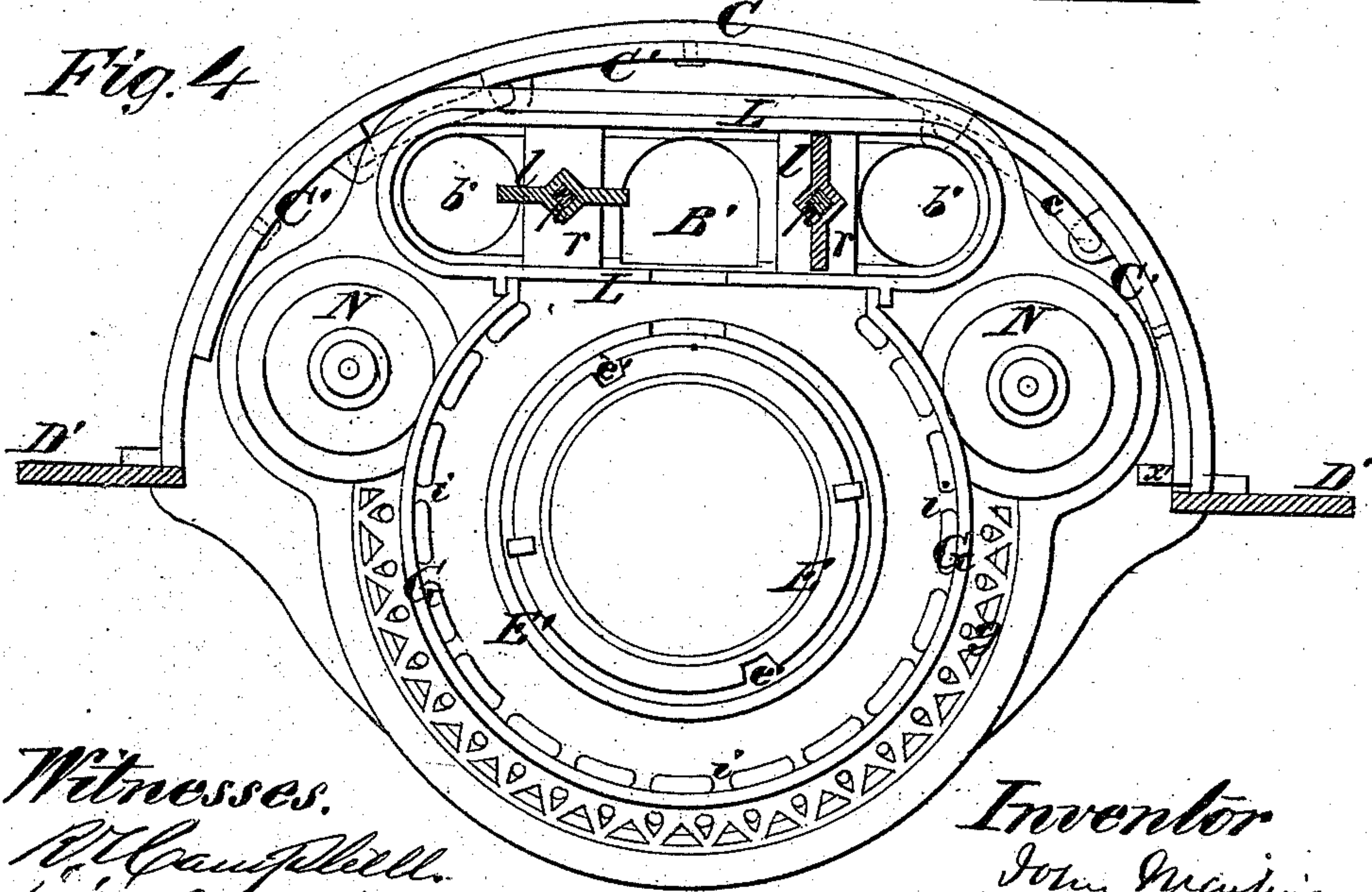
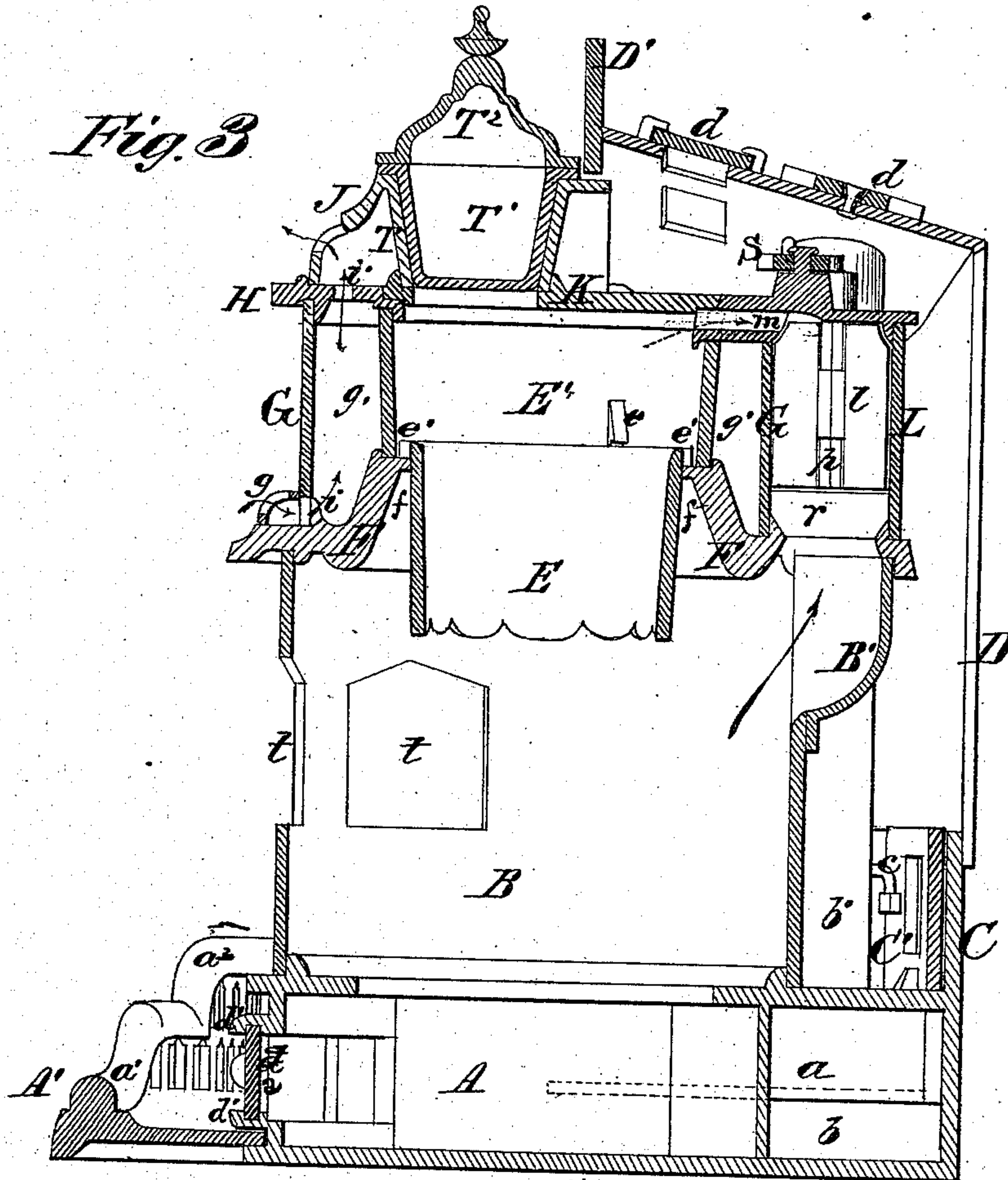
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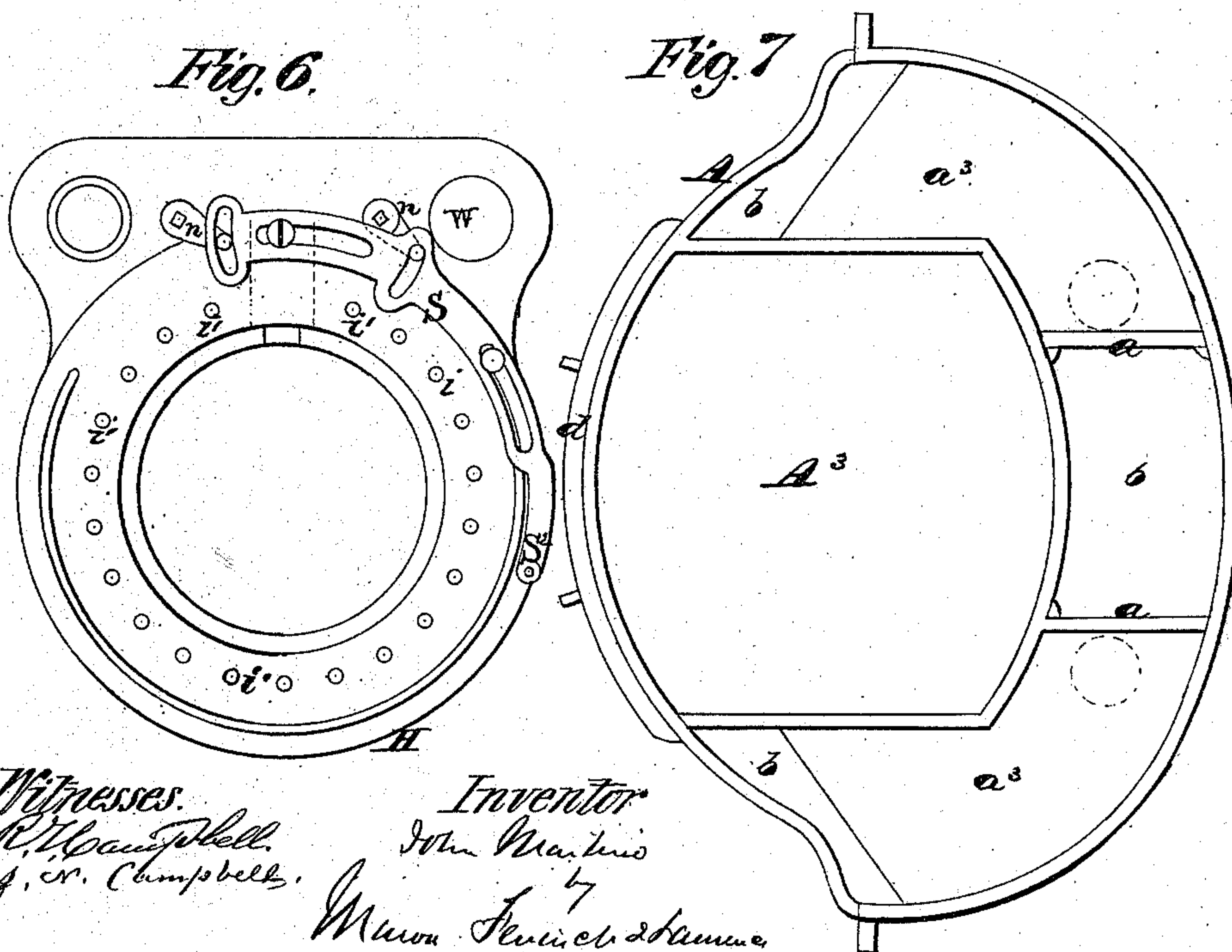
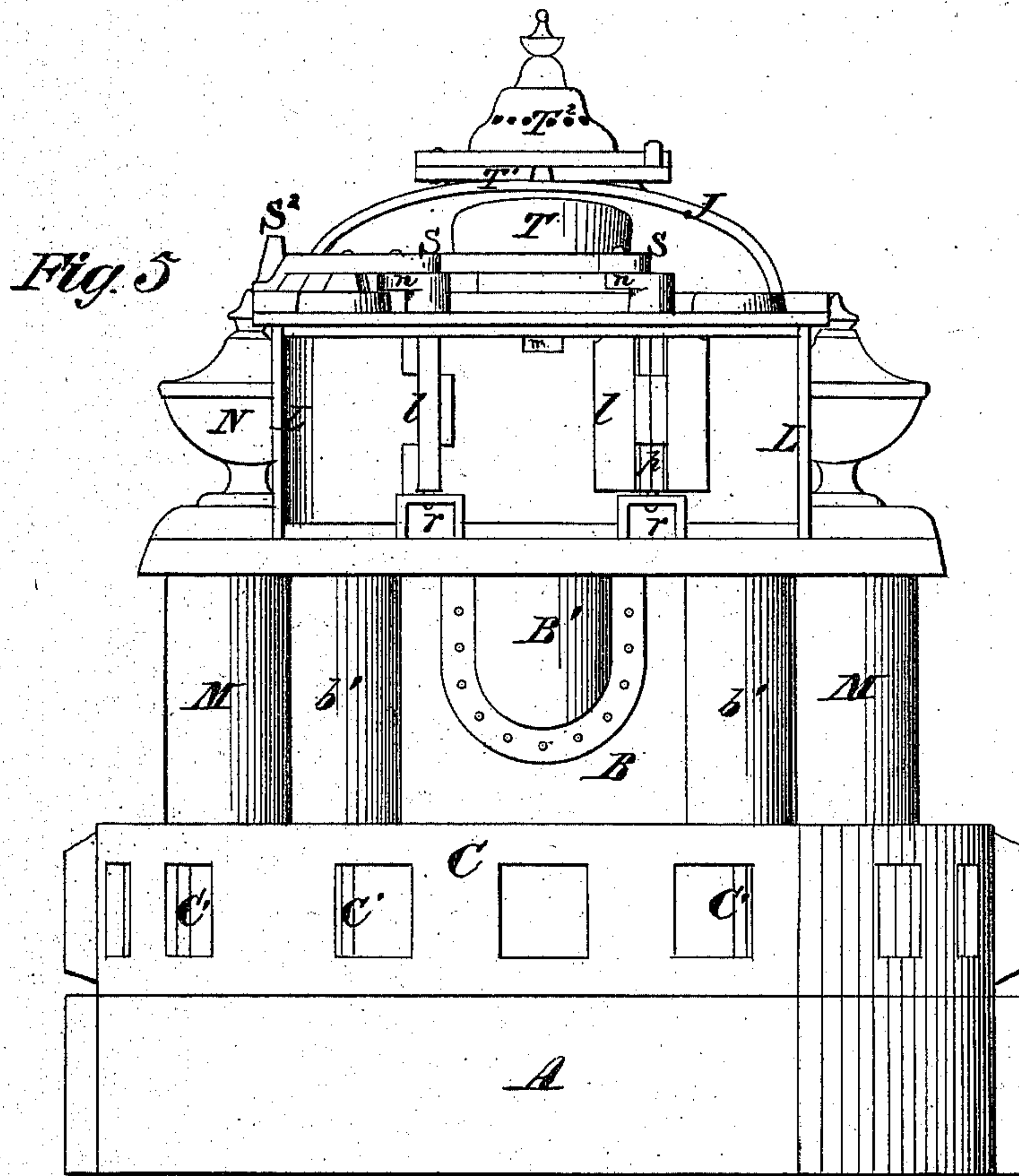
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JOHN MARTINO, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 100,539, dated March 8, 1870.

BASE-BURNING FIRE-PLACE HEATER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN MARTINO, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Fire-Place Stoves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1, plate 1, is an elevation of the front of the improved stove and its fender, as these parts appear when arranged for use.

Figure 2, plate 1, is a top view of the several parts shown in fig. 1.

Figure 3, plate 2, is a vertical section through the same parts as shown in figs. 1 and 2, taken centrally from front to rear.

Figure 4, plate 2, is a top view of the upper portion of the stove, as seen by removing the top plate and the cover of the fuel-magazine.

Figure 5, plate 3, is a rear view of the stove, with the back wall of the smoke-chamber removed, for the purpose of exposing the valves therein.

Figure 6, plate 3, is a top view of the top plate of the stove, showing the means for operating the two valves in the smoke-chamber.

Figure 7, plate 3, is a top view of the base of the stove with its top plate removed.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain novel improvements which are applicable to fire-place magazine-stoves.

It consists—

First, in the employment of sliding doors, to allow the removal of the ash-pan from the ash-chamber at the base of the stove, when such doors are made to slide laterally in a horizontal plane, and when a fender is employed whose guard-rail would not admit the use of hinged or swinging doors, as will be hereinafter explained.

Second, in the arrangement of horizontal division-plates within the flue-chamber which is around the ash-pit, in the base section of the stove, whereby the products of combustion, after descending into a chamber at the back part of the base section, are conducted above said division-plates to the front of the base section, and returned to the ascending flues below said division-plates, as will be hereinafter explained.

Third, in the application at the back of the stove of a register which will admit cold air within the casing when desired, and which, when closed, will effectually prevent the escape of heated air into the chimney when it is desired to throw all the heated air into the lower room, as will be hereinafter explained.

Fourth, in the arrangement on top of the combustion-chamber of a plate which is constructed with a central annular elevation, on which is sustained the upper flanged end of the lower section of the fuel-magazine, said elevation forming an annular contracted space for the circulation and combustion of the heated products of combustion at a point which is above the combustion-chamber proper, as will be hereinafter explained.

Fifth, in the employment of a fuel-magazine which is composed of two sections connected together by a flange and lugs, in such manner that while each section is sustained upon the top plate of the combustion-chamber, independently of the other section, the lower section can be readily removed from the stove when burned out, and a new section substituted in its stead, as will be hereinafter explained.

Sixth, in surrounding the upper section of the fuel-magazine and an upper annular extension of the combustion-chamber by an air-heating chamber, into the lower end of which chamber air is admitted, and at the upper end of which air is allowed to escape beneath an ornamental perforated cover, as will be hereinafter explained.

Seventh, in the arrangement of hollow columns on opposite sides of the combustion-chamber wall, and between the top plate of this chamber and the hollow flue-base of the stove, for the purpose of affording ornament to the stove, and also for the purpose of receiving through them and concealing the rods or bolts used for securing several sections of the stove together, said columns being surmounted by water-holding urns having hollow ornamental bases, as will be hereinafter explained.

Eighth, in constructing at the back of the annular air-chamber, on top of the top plate of the combustion-chamber, a smoke-chamber, into which the products of combustion enter directly from the combustion-chamber, and from which the products are conducted down into the hollow flue-base of the stove, said smoke-chamber being provided with two valves or dampers, operating in conjunction with descending and ascending and direct flues, as will be hereinafter explained.

Ninth, in providing air-inlet flues at the base of the smoke-chamber, which flues conduct cold air into the air-chamber surrounding the upper section of the fuel-magazine from points at the back of the stove, which air will become heated, and escape through perforations made through the top plate of the stove, as will be hereinafter explained.

Tenth, in constructing in the top plate of the stove a passage which leads from the top of the fuel-magazine into the smoke-chamber at the back of the air-

chamber, whereby gas will be prevented from accumulating above the coal in said magazine, as will be hereinafter explained.

Eleventh, in arranging two valves or dampers in the smoke-chamber, and connecting these dampers to a sliding rod in such manner that both dampers will be operated together—one operating as a cut-off with the direct flue, and the other allowing the products to descend into the base of the stove before entering the direct flue; or these dampers may be so adjusted as to allow all the products to escape directly from the smoke-chamber into the main escape-flue, as will be hereinafter explained.

Twelfth, in constructing the top plate of the stove with a removable magazine cover, having a feed-opening through it adapted to receive a chute, as will be hereinafter explained.

Thirteenth, in an ornamental, removable, perforated cover for the top plate of the stove, constructed with a fixed or removable chute, through which fuel is supplied to the magazine at the upper end thereof, and in combining with such a chute a pot-cover which is adapted for containing water, as will be hereinafter explained.

Fourteenth, in adapting the flues, dampers, and pipe-holes of a fire-place stove, and the case thereof, for application to a fire-place having either a right-hand or left-hand chimney-flue, as will be hereinafter explained.

Fifteenth, in constructing a fender for a fire-place stove, having a removable ash-pan or drawer, with a continuous guard-rail, depressed in front in such manner that without removing the fender or part of the fender, the said pan or drawer can be readily taken out of or introduced into the base of the stove, as will be hereinafter explained.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings—

A represents the hollow base section of the stove, which is constructed with a central ash-chamber for receiving an ash-pan or drawer.

This ash-chamber has formed at its back and sides a flue-chamber, *b*, which is subdivided on each side of a central back chamber by a horizontal partition, *a*³, as shown in figs. 3 and 7.

Each division *a*³ extends from a short vertical division, *a*, forward nearly to the front wall of the base section A, so that the products of combustion, on entering the base section, are carried forward over one division, *a*³, to the front of the stove, and backward beneath this division; they thence pass beneath the opposite division *a*³, to the front of the stove, and finally escape over this division into the ascending flue.

It will thus be seen that the products of combustion are carried first on one side of the flue-base and thence on the opposite side thereof before they enter the ascending flue, thereby giving off a large amount of heat to the base of the stove, which is radiated into the room or casing D D'.

The front opening through the wall of the ash pit is provided with two doors *d d*, which are held and guided by lips *d' d'* in such manner that these doors are to be moved laterally in opening or shutting the opening. Hinged doors have been used for this purpose, but they would not operate under the present improved mode of using fenders. The sliding doors will allow a fender to be used whose guard-rail is very close to the ash-pit wall.

The base section A is surmounted by the combustion-chamber wall B, by two columns M M, and by two flue-pipes *b' b'*. The combustion-chamber wall may be cylindrical, elliptical, or prismatic. It is provided in front with illuminating windows or doors, and it is capped by a horizontal plate, F. The vertical

columns M M are interposed between the offsets on plate F and the top plate of the base section A, and, besides serving as ornaments to the stove, these columns have passed through them the rods used to secure the plate F and the parts beneath it together.

Behind the wall B are two vertical flue-pipes *b' b'*, which are arranged over the division-plates *a*³ *a*³, as indicated in dotted lines, fig. 7. These pipes *b' b'* form communications between the flue *b* in base A and a smoke-chamber, into which the products enter through an ascending spout, B', leading out of the upper part of the combustion-chamber, shown in figs. 4 and 5. The combustion-chamber is surmounted by the plate F, as above referred to, by a wall, G, a rear smoke-chamber wall, L, and by the upper section E' of the fuel-magazine; also, by a perforated ring-segment, *g*.

The cap plate F is constructed with a central annular elevation, which has an annular depression in its upper end, into which is seated the lower end of the upper section E' of the fuel-magazine, and also the flange on the upper end of the bottom section E of the fuel-magazine, as shown in fig. 3. This annular elevation of plate F forms, in conjunction with the lower section E of the fuel-magazine, an annular extension *f*, of the combustion-chamber, into which the heated gases will rise, and, by a reverberating action, form eddies over the incandescent fuel, which will greatly aid in the combustion of the gases in said chamber. Said annular elevation also affords a heating wall for an air-chamber, *g*¹, that surrounds this elevation, and also surrounds the upper section of the fuel-magazine.

The outer wall G of air-chamber *g*¹ is perforated at its lower edge at a number of points for the admission of cold air, which impinges on the highly-heated annular elevation of plate F, and, becoming warmed, rises through chamber *g*¹, and escapes into the room through the perforations *i* made through the top plate H and through an arched ornamental cover, J, on this top plate. The perforated ring-segment *g* is designed to serve as an ornament for hiding from view the air-inlet holes *i* through the case G. This ring-section may be removable, or it may be fixed on its supporting-plate F.

The circular continuations *g*² *g*² of this ring-section *g*, which are on the offsets covering columns M M, afford ornamental bases for two water-holding urns N N, and, if perforated, these continuations *a*² *g*² will allow air to circulate through them.

The upper section E' of the fuel-magazine forms the upper part of the inner wall of the annular air-chamber *g*¹, and on the inner side of this section lugs *e e* are formed, which, when the lower section E of the fuel-magazine is in place, extend over the flange thereof, and during transportation of the stove keep this section in place. The notches *e'* in the flange of the section E, when brought to register with the lugs *e*, will allow this section to be lifted out of its place.

At the back of the air-heating chamber *g*¹, and infringing somewhat upon this chamber, is what I denominate the smoke-chamber, which is of an elongated or elliptical form, extending across the back part of the plate F, and inclosed by the wall L.

This smoke-chamber L receives the products of combustion directly from the combustion-chamber, and distributes the products to the base A of the stove through one or the other of the pipes *b' b'*. Within this smoke-chamber are two valves or dampers *ll*, applied to vertical stems *p p*. These dampers are arranged one on each side of the central inlet B', and they are both connected by their stems *p p* and crank-arms *n n* to a curved slotted operating-rod, S, arranged above the top plate H, so that both dampers are moved at the same time. When one damper is across the smoke-chamber the other is in a direction with the length of this chamber, consequently one damper will allow the products to descend through one pipe *b'*,

while the other damper will cut off the direct communication between the combustion-chamber and the other pipe b' . In figs. 4 and 5 I have shown the relative arrangement, above described, of the two dampers. In this arrangement (see fig. 5) the products descend through the right-hand pipe b' , circulate through the right-hand and left-hand flues in base A, and rise through the left-hand pipe b' , and finally escape through the exit-flue.

The stems $p p$ of dampers $l l$ are supported upon two conduits $r r$, which form communications between the outer air at the back of the stove and the air-heating chamber g^1 . These conduits allow air to enter the chamber g^1 at its base, which air, like that which enters this chamber through the perforations i , is heated and conducted into the room through the perforations i^1 through the plate H.

At the upper end of the smoke-chamber L is another conduit, m , which is just large enough to create sufficient draught from the fuel-magazine to carry off from this magazine all the gas which rises above the coal therein. This gas will be drawn into the smoke-chamber L, and carried off with the smoke. The conduit m is constructed in the plate H, as shown in fig. 3.

The plate H which caps the air-chamber g^1 , and the smoke-chamber L, is perforated at i , as shown in figs. 3 and 6, for allowing the escape of air from chamber g^1 and it has within the circle of perforations i a large opening through it, which is provided with a cover, K. The said opening should be large enough to admit the removal through it of the lower section E of the magazine, when it is found necessary to replace one section of magazine by another. The cover K has a hole through it, adapted for receiving the lower end of a chute, T, through which the magazine is supplied with fuel. This chute may be detachable from or permanently applied to or cast with a perforated arched cover, J, which affords ornament to and covers the exposed portion of the top of the plate H, as shown in figs. 1, 2, and 3.

For closing the chute T, I employ a vessel, T¹, which serves to contain water for evaporating purposes, and which also forms a tightly-fitting stopple. This vessel or pot-cover T¹ is provided with a hinged cover, T², which, when it is in place, as shown in figs. 1 and 2, will serve as a handle by which to remove the pot-cover. This cover T² gives a terminal finish to the top of the stove.

The convex or arched cover J is handsomely ornamented and perforated, and allows a free escape of air through it into the room. It is bodily removable from the stove, and must be removed in order to take out the lower fuel-magazine section.

Directly over the two flue-pipes $b' b'$ are holes surrounded by pipe-collars, which latter are constructed upon the plate H, and either of which is adapted for receiving the exit-pipe that leads into the chimney-flue. One of the said holes should be closed by a plug, W, shown in fig. 6.

There is also on top of plate H the curved damper-rod S, which is suitably connected to said plate, and allowed to receive endwise motion.

The wrist-pins on crank-arms $n n$, of damper-stems $p p$, play in curved slots made through the rod S, so that both dampers can be conveniently and positively operated by grasping the front end S² of said rod, and moving it.

The back of the stove, or all that portion of the stove which is within the fire-place, is inclosed by a case, D, applied to the frame or fire-board D', and constructed entirely of sheet metal, or partly of the latter and cast-iron.

This case is arched on top, and provided with openings, closed when desired, by a register-slide, d' , for allowing heated air to be conducted from the said case into an upper apartment.

The slide d' is moved from without by a lever, S, forked as shown in fig. 2.

Directly over, and coinciding with the vertical centers of the pipes $b' b'$, holes v are made, through the arched top of case D, either of which holes, but not both at the same time, can be closed by the double-headed slide d , fig. 2.

In the drawings it will be seen that the hole v , corresponding to the ascending flue-pipe b' , is left open, and the hole corresponding with the descending flue-pipe b' and the plug W, is closed.

For each one of the pipe-holes v an arm-hole is made through the case-crown D, which holes allow workmen to get their arms through the case to adjust the flue-pipe or other part, after the stove and case are arranged within the fire-place. The arm-holes are closed by slides U U, shown in fig. 2.

At the bottom of the case D openings are made through a gallery, C, on top of the base section A, for the admission of cold air from without into the case to be warmed.

These openings are closed, when desired, by slides C' C' C', which are connected together by links c , so that all the slides will move together.

By these means, it will be seen that all communication between the outside air and the air in the room and case D can be cut off, or when desired the fresh air from without can be conducted into the case to be warmed.

It is a well-known fact that a case, D, which is fitted into the fire-place, does not of itself prevent the escape of heated air into the chimney-flue, and that a large amount of heat is in this way lost.

By providing the air-inlets, which conduct cold air from without into the case, with a register, by means of which said air-inlets can be shut, it is obvious that all the air heated around the stove will escape into the room, or if the register d' is open, will escape in part into an upper room.

In figs. 1, 2 and 3, I have shown an improved fender for a fire-place stove, which fender is constructed with a base, A', and also with a continuous guard-rail, $a^1 a^2$, the front portion a^1 of which is depressed below the two side portions $a^2 a^2$, to such a degree as will allow the removal of the ash-drawer or ash-pan from the ash-pit without removing any portion of the fender.

The guard-rail thus constructed serves all the purposes of a fender-guard, and presents a very neat, ornamental appearance.

It will be seen from the above description that the stove and its case D are adapted for fire-places, the flues of which may be either upon the right or left-hand side.

The plug W, shown in fig. 6, is used to stop up one or the other of the escape-passages for smoke, and the sliding cover d , shown in fig. 2, is used to close one or the other of the pipe-holes through the crown of the case D.

The two arm-holes and slides V V are arranged in such relation to the respective holes v , as will allow a pipe to be conveniently adjusted to either one of these holes v .

The dampers $l l$ are of course adapted for operation beneath a right or left-hand chimney-flue.

The register-slides C' may be actuated by taking hold of the lug x' , on the right-hand side of the stove, or if desirable a hole may be made through the section on which this lug is formed, for receiving a hook on the end of a rod adapted to serve as a handle, or a rod may be connected permanently to the lug x' , and extend outwardly far enough to serve as a handle by which to move the said slides.

The letters $t t$ are window or door-openings made through the section B.

Having described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. Laterally-sliding doors *d d*, applied to the front wall of the ash-drawer chamber of a fire-place stove, substantially as and for the purposes described.
2. The arrangement of horizontal division-plates *a³ a³*, in the flue-space *b*, of the base-section of a fire-place stove, having a back flue extension or smoke-chamber, *L*, and the ascending and descending flues *b'*, arranged substantially as described.
3. The application of valves or register-slides *O'* to the cold-air openings of the case or back inclosing wall of a fire-place stove, substantially as described.
4. The construction of the plate *F*, which caps the combustion-chamber, with an annular elevation, which will afford a raised support for the magazine section *E*, and form in conjunction with this section an annular combustion-space, *f*, substantially as described.
5. A fuel-magazine, composed of two sections *E E'*, connected together by a flange, and the latter held in place by lugs, and sustained substantially as described.
6. The air-heating chamber *g'*, formed above the combustion-chamber *B*, by means of the parts *G*, *F*, and *F'*, substantially as described.
7. The water evaporators *N N*, mounted upon hollow perforated bases *g²*, and arranged on opposite sides of the upper section of the stove, substantially as described.
8. The smoke-chamber *L*, constructed at the back of the air-chamber *g'*, and between the two plates *F* *H*, and in communication with the combustion-chamber *B* and the flue *b*, in base *A*, substantially as described.
9. The air-inlet flues *r r*, in combination with smoke-chamber *L* and air-heating chamber *g'*, substantially as described.
10. The gas-passage *m*, constructed in the top plate *H*, and forming a communication between the top of

the fuel-magazine and the smoke-chamber *L*, substantially as described.

11. The arrangement of two valves or dampers *l l* in the smoke-chamber *L*, so as to operate substantially as described.
12. Providing for the removal of the magazine section *E*, through an opening made through the top plate *H* of the stove, in combination with a cover, *K*, having a feed-opening through it, substantially as described.
13. A removable perforated cover *J*, having a feed-chute applied to it, in combination with a feed-opening through the top plate of the magazine, substantially as described.
14. Adapting the flues, dampers, and pipe-holes of a fire-place stove, for application to either a right or left-hand chimney-flue, substantially as described.
15. A continuous guard-rail fender, having the front portion *a'* of its rail depressed, substantially as and for the purposes described.
16. The pot-cover *T'*, and its movable cap *T²*, adapted to close the feed-chute *T*, substantially as described.
17. The perforated guard-ring section *g*, in combination with the perforations at the base of the air-chamber case *G*, substantially as described.
18. The elevated annular combustion-space *f*, in combination with the exit-passage *B'*, leading directly from the combustion-chamber *B* into the smoke-chamber *L*, and arranged below the base of said combustion-space, substantially as described.
19. Flue-pipes *b' b'*, flue-base *A*, smoke-chamber *L*, and dampers *l l*, combined and operating substantially as described.
20. The double cover slide *d*, in combination with the pipe-holes *r* and case *D*, substantially as described.

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