

(No Model.)

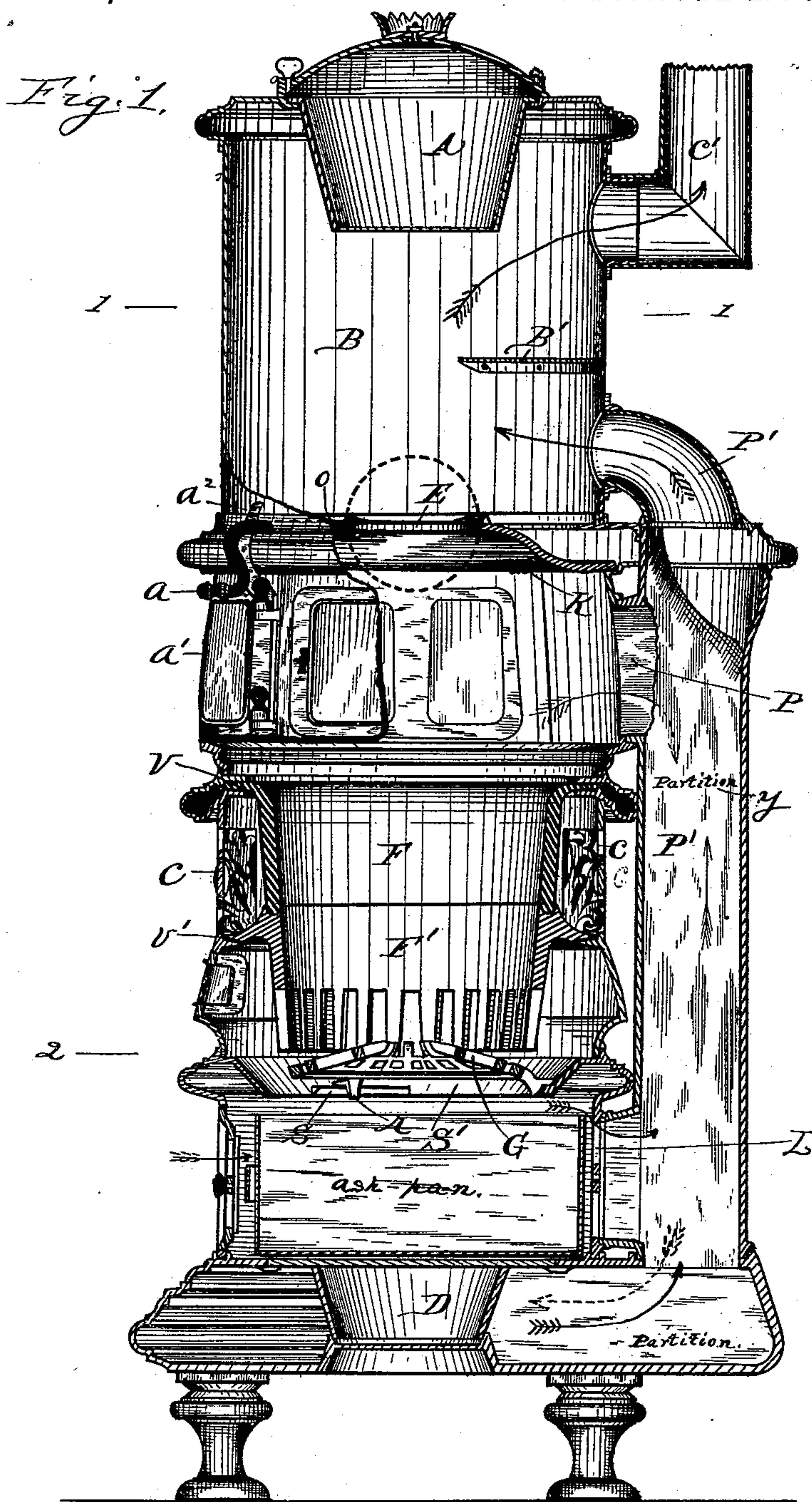
2 Sheets—Sheet 1.

W. N. MOORE.

STOVE.

No. 352,558.

Patented Nov. 16, 1886.



Witnesses.

*John H. Hutchins*

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Inventor.

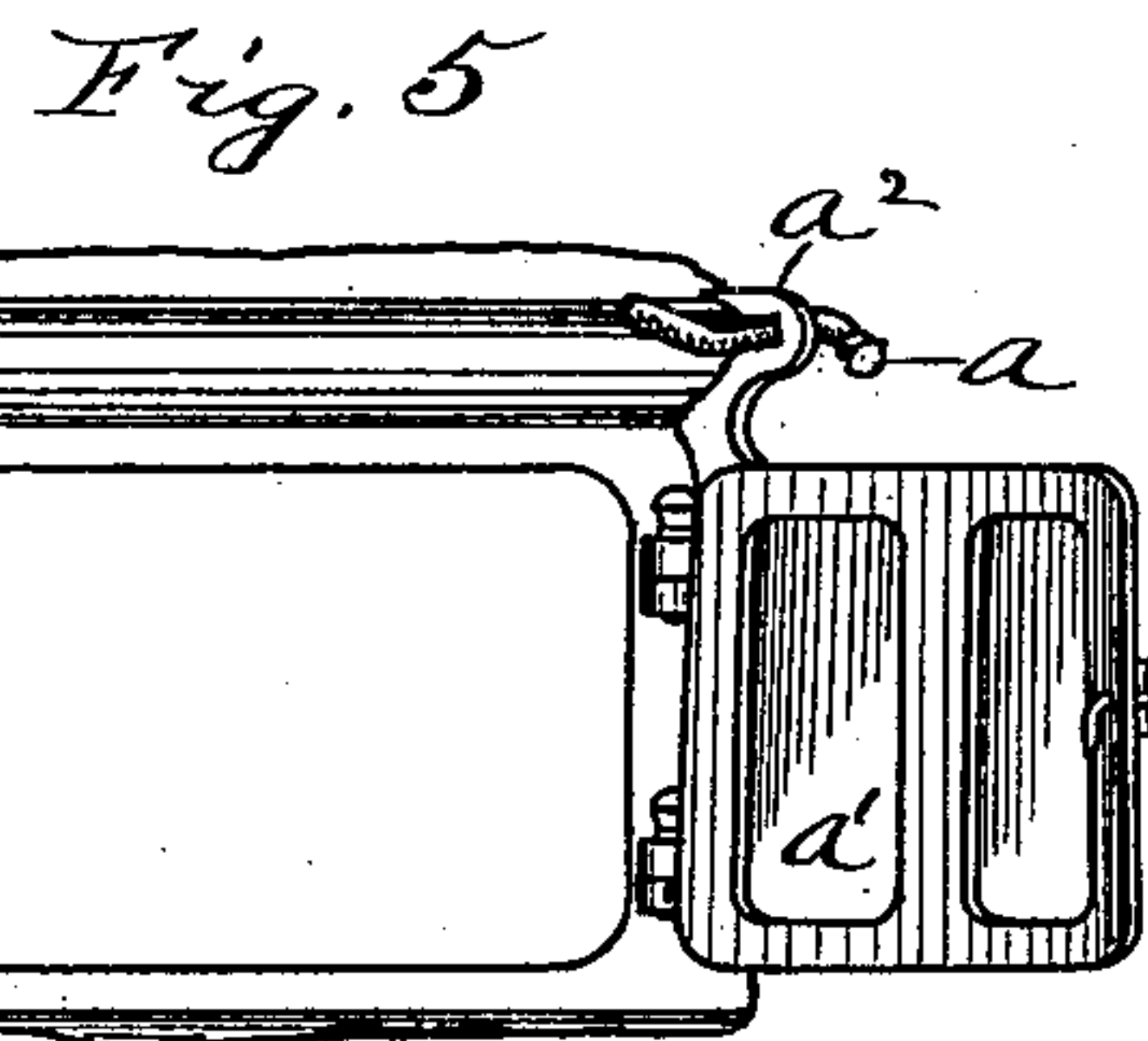
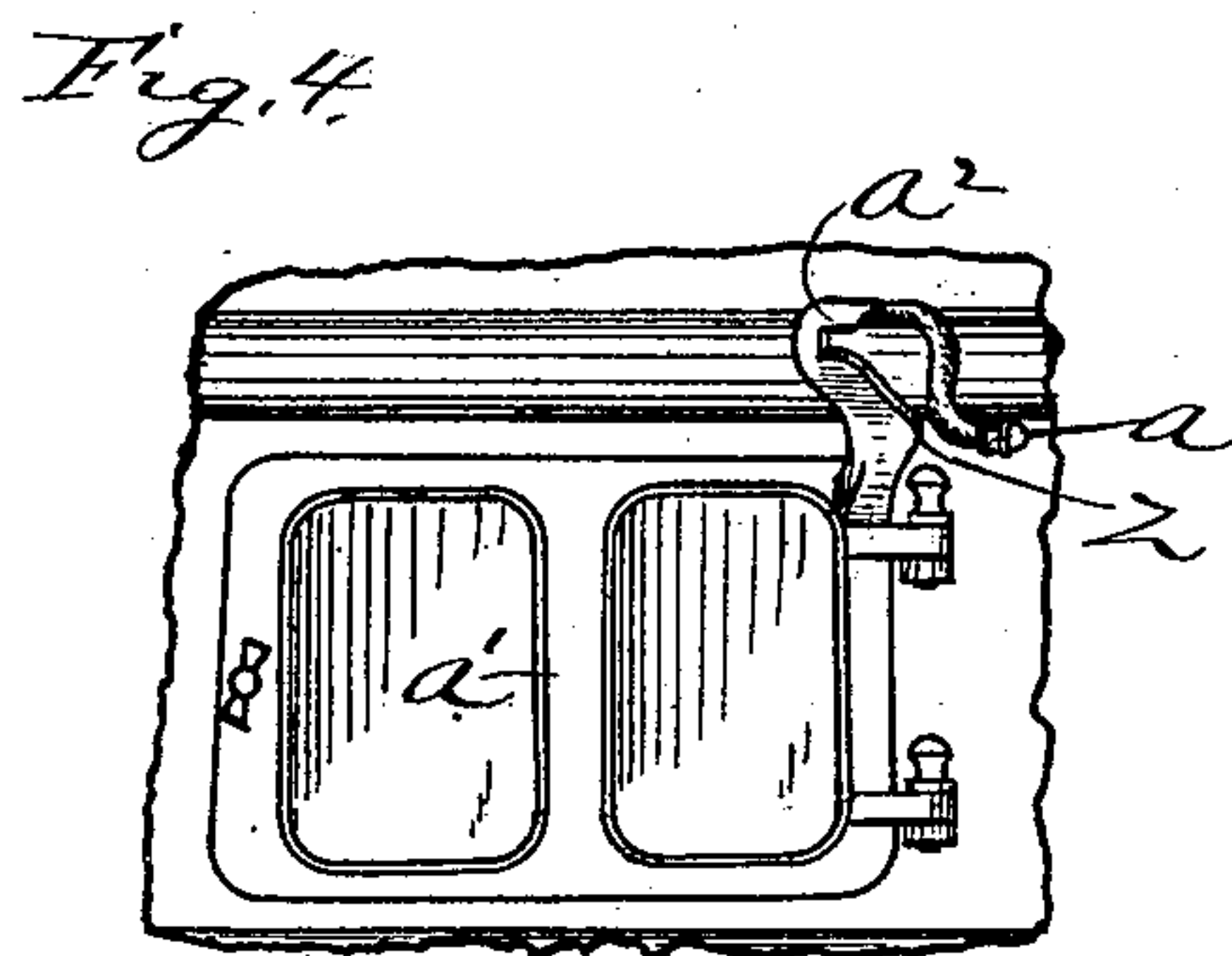
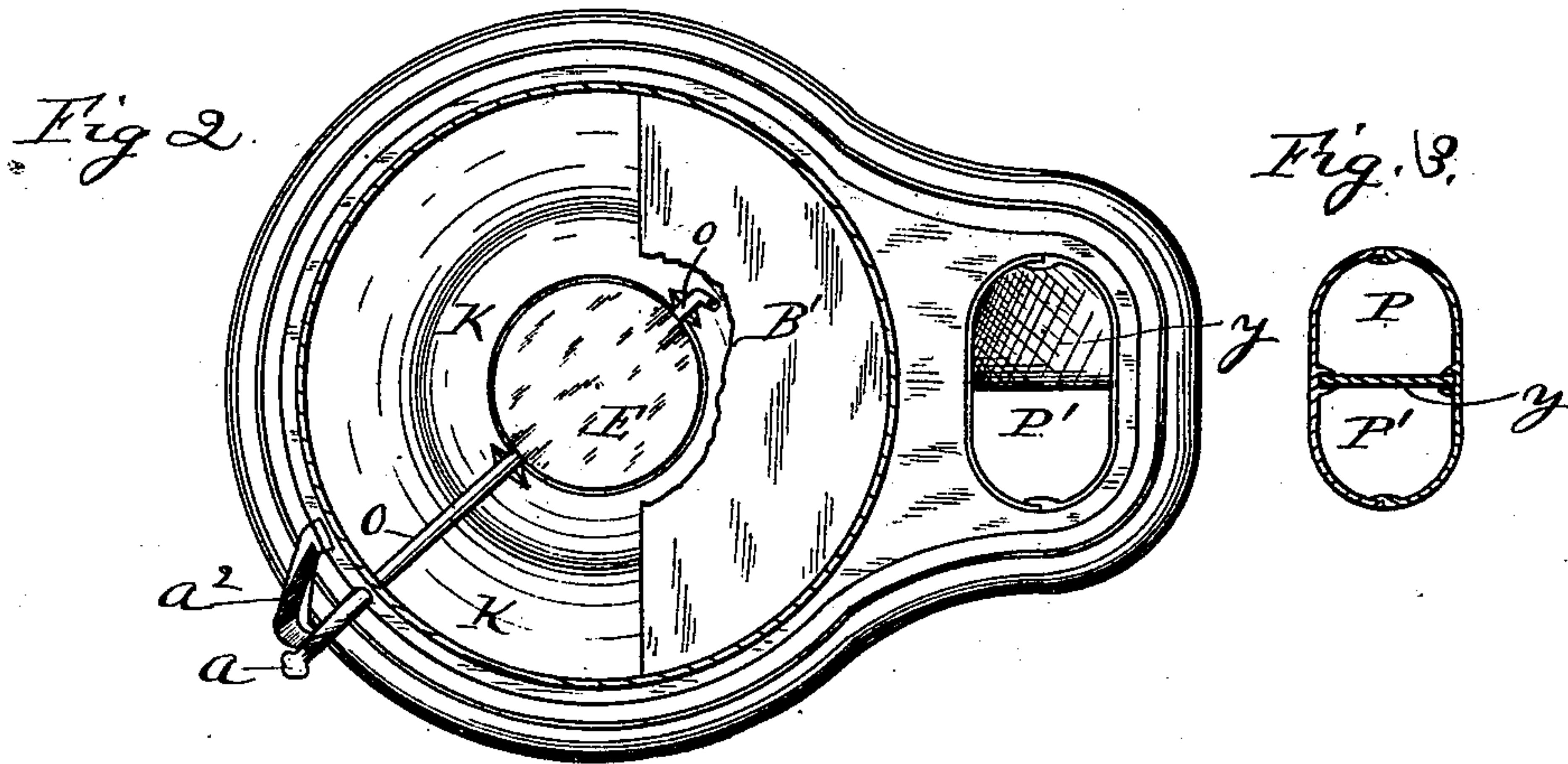
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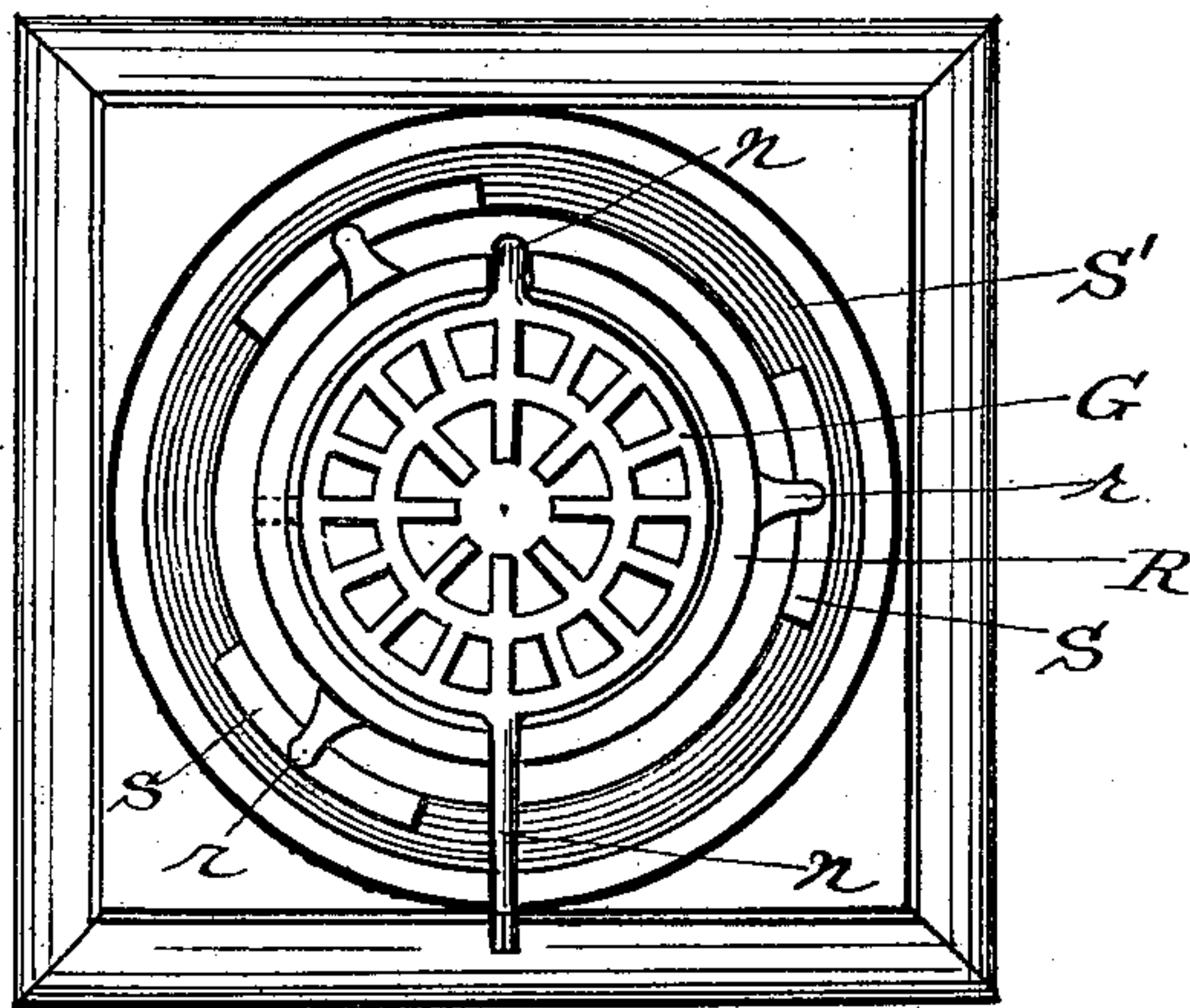
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*Fig. 6.*



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## STOVE.

SPECIFICATION forming part of Letters Patent No. 352,558, dated November 16, 1886.

Application filed June 8, 1885. Serial No. 167,995. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM N. MOORE, a citizen of the United States of America, residing at Joliet, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Stoves, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a vertical section of the stove, having a portion where the front feed-door is located shown in perspective, to show the exterior at that place. Fig. 2 is a horizontal section of the stove, on line 1 1 of Fig. 1, looking down. Fig. 3 is a horizontal cross-section of the rear flues of the stove at about their center. Fig. 4 is a perspective view of a broken-away portion of the stove, having attached thereto the front feed-door, shown as closed, and showing the mechanism for operating an interior direct-draft damper. Fig. 5 is a similar view showing said door open and in position for holding said damper open; and Fig. 6 is a horizontal cross-section of the stove, on line 2 2 of Fig. 1, showing a plan of the grate.

This invention relates to certain improvements in heating-stoves designed more particularly for burning bituminous coal, wherein the heat and accumulating gas are conducted from the combustion-chamber through a rear flue down into the base, around a central annular partition therein, to heat the base, thence up through another flue and discharging into a drum located on the top of the stove above a horizontal diaphragm separating it from the combustion-chamber, and from thence through said drum to an exit-flue near the top of the drum around a semicircular partition located between said flues to distribute the heat evenly in all parts of the drum, and wherein the fire-pot is constructed in two annular parts, each having an external annular flange at or near its upper part, said flanges resting on corresponding projecting flanges integral with the walls of the stove, forming a chamber between said flanges entirely distinct and disconnected from the other chambers of the stove, the side walls of the stove being perforated opposite said chamber to facilitate radiation of heat from said chamber into the room; also, wherein the grate is circular in form, raised and open at its center and having radial

grate-bars, and having opposite trunnions resting on an annular grate-rest provided with flange-legs, which rest on projecting flanges of the stove immediately below the grate, so the grate-rest, with the grate mounted thereon, may be partially rotated horizontally in either direction in the ordinary manner, the grate being adapted to rotate on its trunnions to dump its contents into the ash-pan below it; also, wherein a direct-draft damper located above the fire-pot and in the walls of the combustion-chamber is opened and closed by means of the feed-door, so that when the feed-door opens it will open said damper for the purpose of permitting accumulated gas to escape directly to the exit-flue through the drum, and thus prevent explosions of gas or its escape into the room through the open feed-door.

Referring to the drawings, and looking at Fig. 1, and beginning at the lower end of the stove, D represents the annular partition in the base around which the heat and gas pass to heat the base. Immediately above it, and separated therefrom by a partition, is the ash-pan chamber, at the back of which in the wall of the stove is a check-draft, L, of the ordinary pattern.

G is a grate, resting by means of its trunnions *nn*, Fig. 6, on the annular grate-rest R, the flange-legs of which rest on the flanges S, integral with the annular plate S', attached to the walls of the stove.

F F' are the two parts of the fire-pot, located one immediately above the other, the lower section, F', having the projecting flanges V', resting on a corresponding flange integral with the inner walls of the stove for its support, and the upper part, F, having the projecting flange V, also resting on a corresponding flange integral with the walls of the stove to support it, thus forming a chamber between said flanges, inclosed by the open-work or perforated sides *c* of the stove, to facilitate radiation of heat from said chamber out into the room.

P is the flue leading from the combustion-chamber above the fire-pot down to the base, and P' is the flue leading from the base up to the drum above the combustion-chamber, a cross-sectional view of which flues is shown in Fig. 3. These two flues are separated by



a partition, *y*, the upper end of which turns to one side to close the upper end of flue *P*, so it would not have an upward draft.

*B* is the drum, located immediately above the combustion-chamber and separated therefrom by means of the diaphragm *K*, which is elevated at the center, so as to be dome-shaped, so as to be better adapted to resist the effects of the heat, and for the purpose of directing and concentrating the flame and gases to its center. The said diaphragm is provided at its center with an opening for the reception of the direct-draft damper *E*, resting therein on a pair of opposite trunnions, *o o*, integral therewith, (see Figs. 1 and 2,) one of which extends out through the side of the stove and terminates in the crank *a*. The feed-door *a'* is provided with an upwardly-projecting hooked lug, *a''*, which, when the door opens or closes, engages with said crank *a*, for the purpose of opening said damper when the door opens, and permitting said damper to close when the door closes, the said damper being weighted, so it will close when the door closes. When the door and said damper are open, the accumulated gas and smoke may escape directly upward and out at the exit-flue *c'*, so it will not explode and puff out through the open door into the room. The lug *a''* is formed to have the nose and inclined portion *z*, which is always in contact with the crank *a*, and terminates at its upper end in a hook, as shown in Figs. 4 and 5, between which hook and the body of said lug the opening is horizontal for some little distance, so the door can swing farther open after the crank has raised as far as necessary, and not rotate it farther, so as to close the damper again. It is not important that this direct-draft damper *E* be always located in the diaphragm *K*, although in this form of stove it is preferable so to locate it, but it may be located anywhere in the walls of the combustion-chamber that may be desirable, only so it may be operated by means of opening and closing the feed-door.

A horizontal partition, *B'*, in the drum *B*, located midway between the inlet-flue *P'* and the exit-flue *c'*, and extending about half-way across the drum, as shown in Figs. 1 and 2, is designed to cause the heat to be carried forward around it out into the drum and more thoroughly heat all parts of the drum, as shown by the arrows in Fig. 1.

The grate *G* is formed as shown in Figs. 1 and 6. It consists of a pair of concentric rings connected by radial grate-bars, which are short enough so as to leave an opening at the center of the grate to facilitate the escape of cinders and clinkers at that place. The center of the grate is higher than its other parts, so as to facilitate the removal of clinkers and ashes at its periphery when it is shaken. The grate is provided with a pair of oppositely-located trunnions, *n n*, one of which extends out of the stove to furnish means for shaking it. These trunnions rest in bearings

in the concentric grate-rest *R*, having flange-legs *r*, which stand on the projecting flanges *S*, integral with the annular plate *S'* of the stove, upon which flanges the said legs traverse as the grate and grate-rest on which it is mounted are shaken or horizontally partially rotated. The grate may be rotated on its trunnions in the ordinary manner to dump its contents when desired.

*A* is an oven designed to set in a corresponding opening in the top of the drum, and is designed for baking or other culinary purposes.

The stove is intended to burn coal in such manner that no smoke or gas may escape in the room. This is thoroughly prevented by means of the use of the automatic damper *E*. When bituminous coal is used, it is liable to lie and smolder, and when a draft of air is let in on it by opening the feed-door its accumulated gas will sometimes escape and explode and puff out into the room. This is all prevented by having the direct-draft damper *E* open at once every time the feed-door opens, so as to cause a direct strong draft upward to the exit-flue *c'*, and if gases explode the puff will go up the chimney and prevent the disagreeable effects of its escaping into the room. By having the return-flue *P'* enter the drum, instead of its forming the exit-flue, the heat that would pass into the chimney and be wasted is utilized in heating the drum, and further utilized for culinary purposes.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows, to wit:

1. The stove shown and described, having the flue *P*, for connecting the combustion-chamber above the fire-pot with the base, and the flue *P'*, for connecting the base with the drum *B* near its bottom part, drum *B*, having the exit-flue *c'* above the inlet-flue *P'*, and the semicircular horizontal partition *B'*, located between said flues, and diaphragm *K*, located between the combustion-chamber and the drum, and having the direct-draft damper between the combustion-chamber and drum, said parts being in combination with each other, and for the purpose set forth.

2. The combination, with a stove having a combustion-chamber and a drum above the same, a diaphragm between the combustion-chamber and drum having an opening, a damper, *E*, pivoted in said opening and having a crank, *a*, of a door, *a'*, having a hook, *a''*, substantially as and for the purpose set forth.

3. The stove shown and described, having a drum above the combustion-chamber and a hollow base below the ash-pit, divided at the rear by a partition, the rear flue, *P*, connecting the combustion-chamber and the base at one side of the partition, the flue *P'*, connecting the base at the opposite side of the partition and the drum, diaphragm *K*, provided with a central opening, and damper *E*, piv-



oted therein, substantially as shown, said parts being in combination with each other, as and for the purpose set forth.

4. The stove shown and described, having  
5 a drum above the combustion-chamber and a hollow base below the ash-pit, divided at the rear by a partition, the rear flue, P, connecting the combustion-chamber and the base at one side of the partition, the flue P', connecting the base at the opposite side of the partition and the drum, diaphragm K, provided

with a central opening, and damper E, pivoted therein, drum B, having the exit-flue c' above the inlet-flue P', and located immediately above said diaphragm, and the diaphragm r5 B', located in said drum between its said flues, said parts being in combination with each other, as and for the purpose set forth.

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Witnesses:

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WM. J. HUTCHINS.