

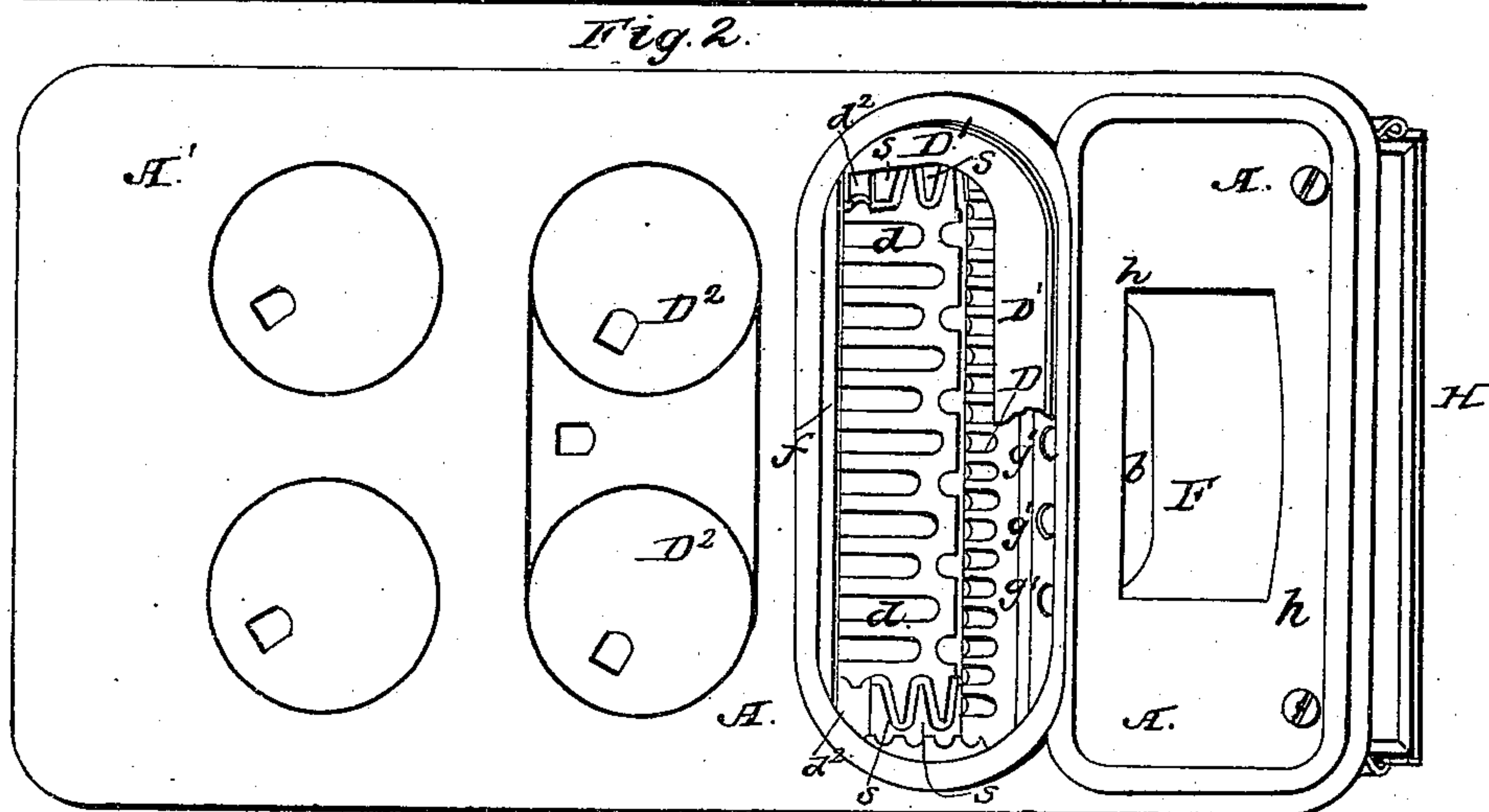
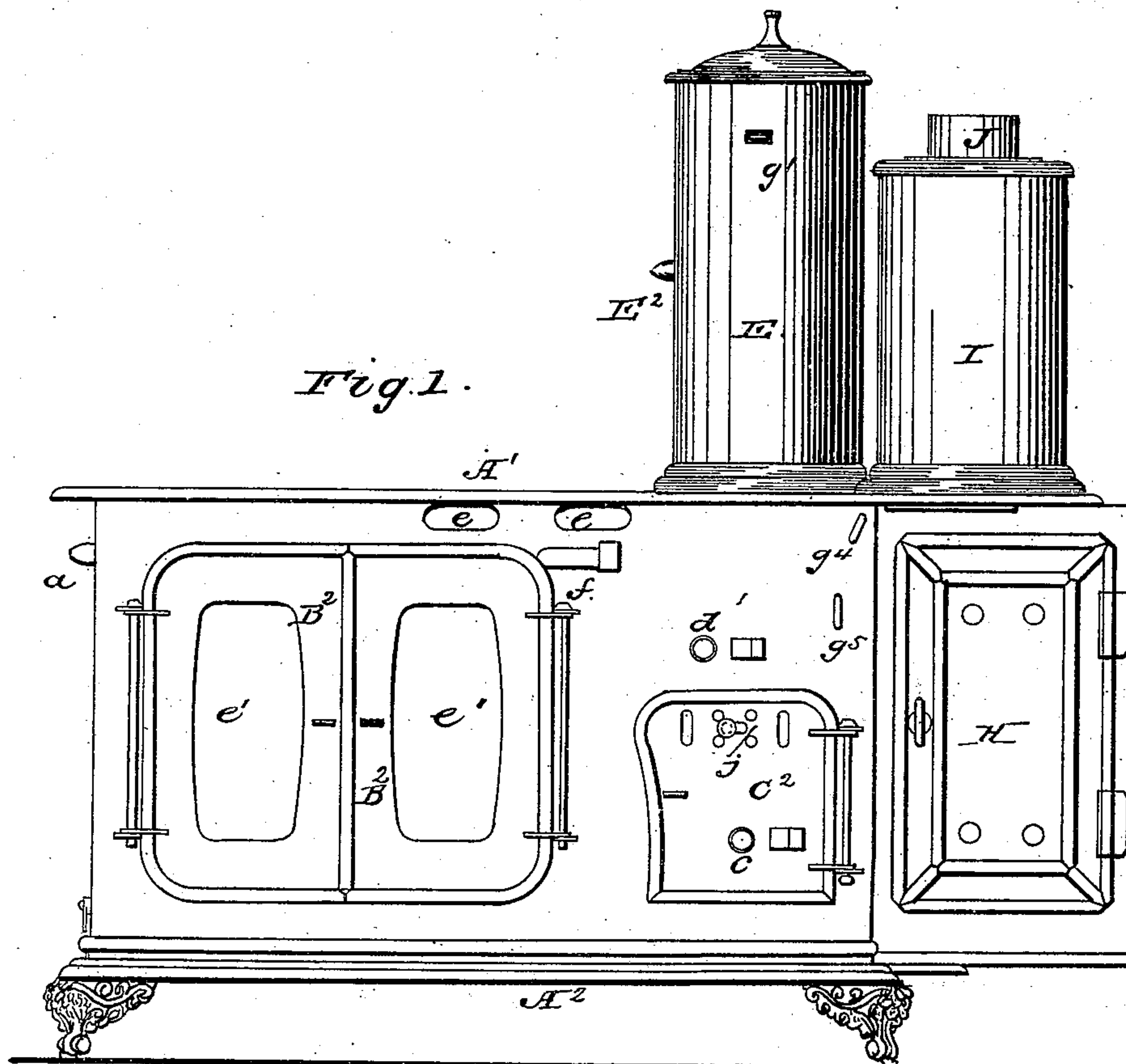
PERRY & EASTERLY.

3 Sheets—Sheet 1.

Cooking Stove.

No. 85,124.

Patented Dec. 22, 1868.



witnesses

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PERRY & EASTERLY.

3 Sheets—Sheet 2.

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Fig. 3

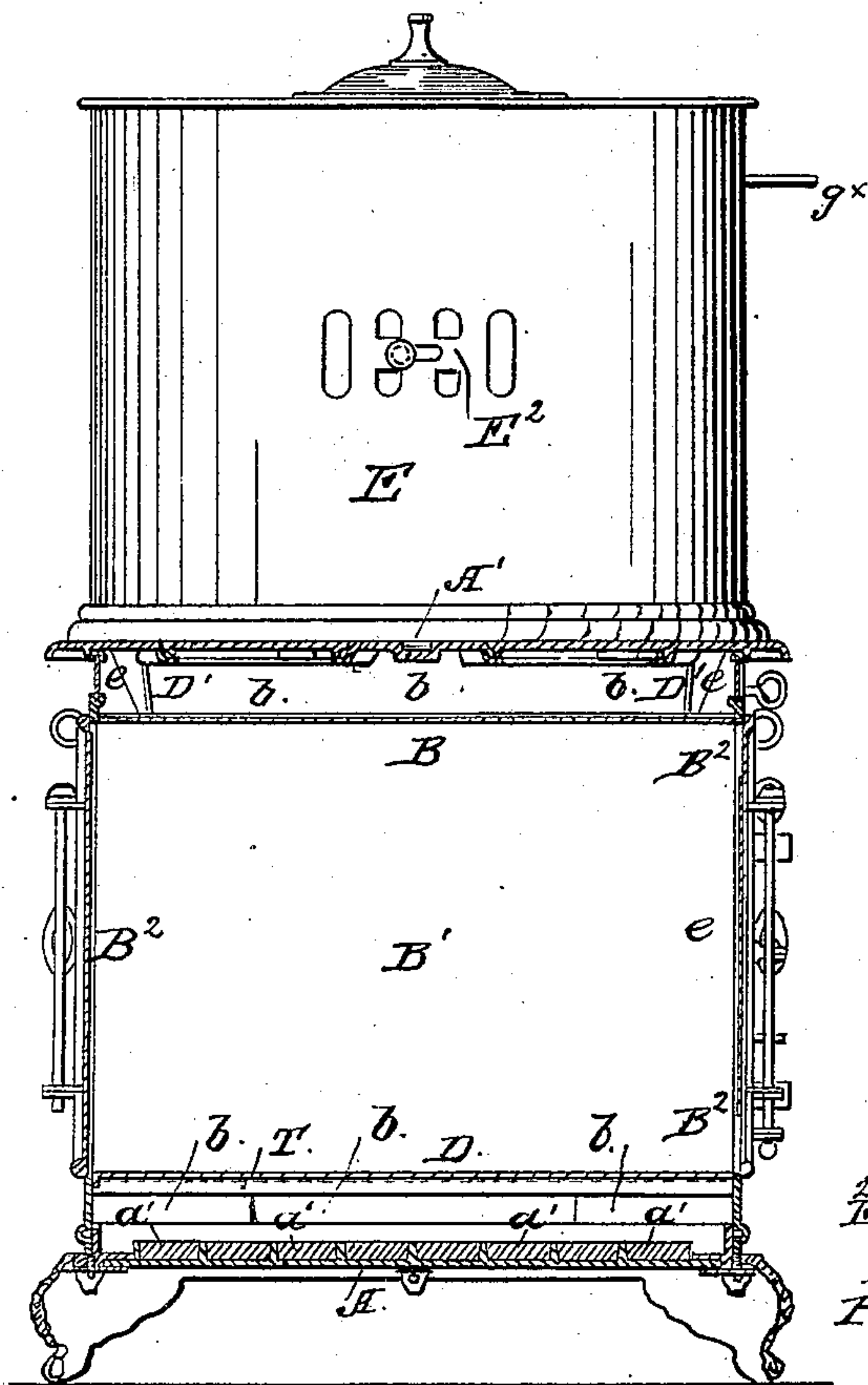
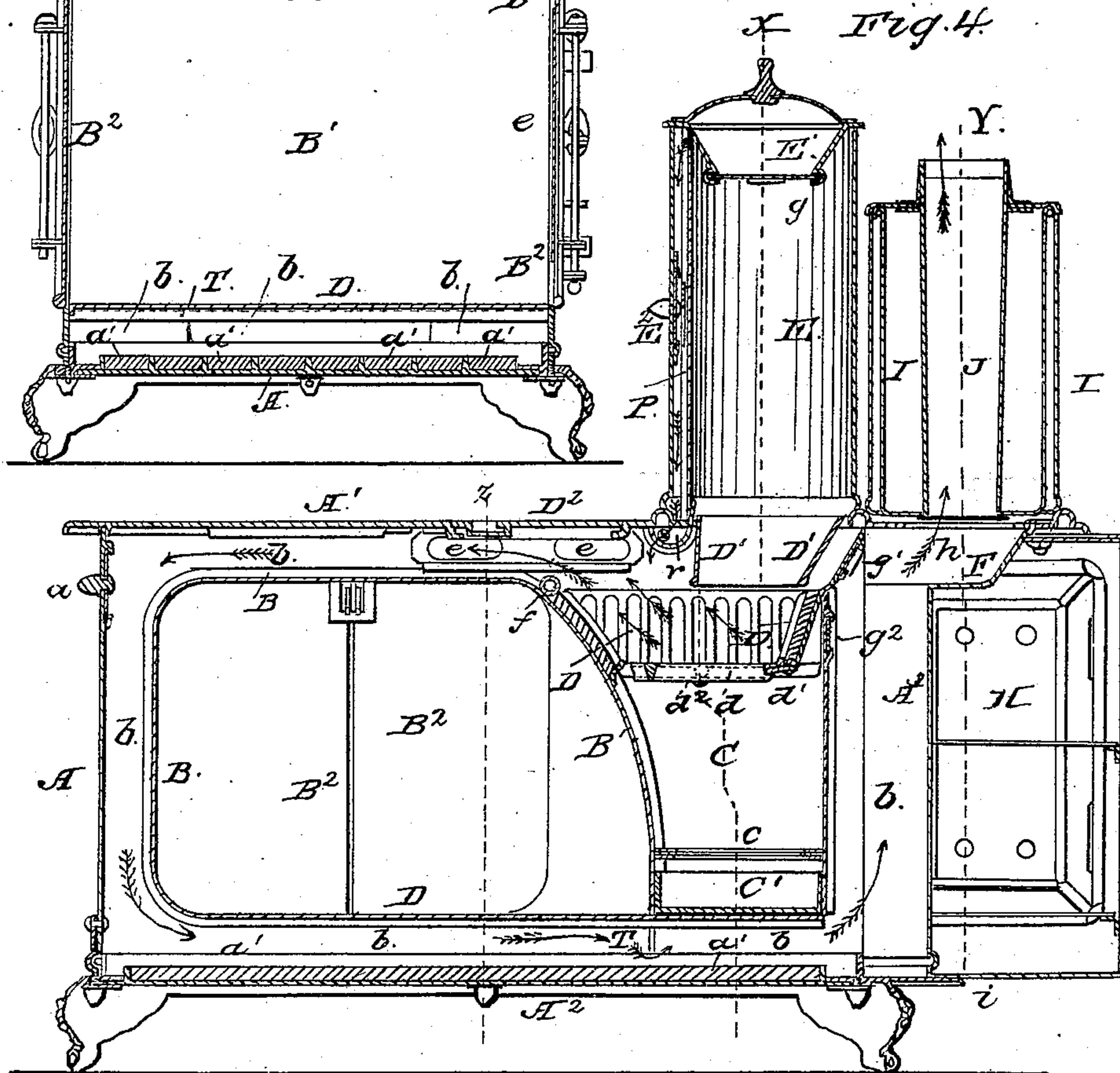


Fig. 4



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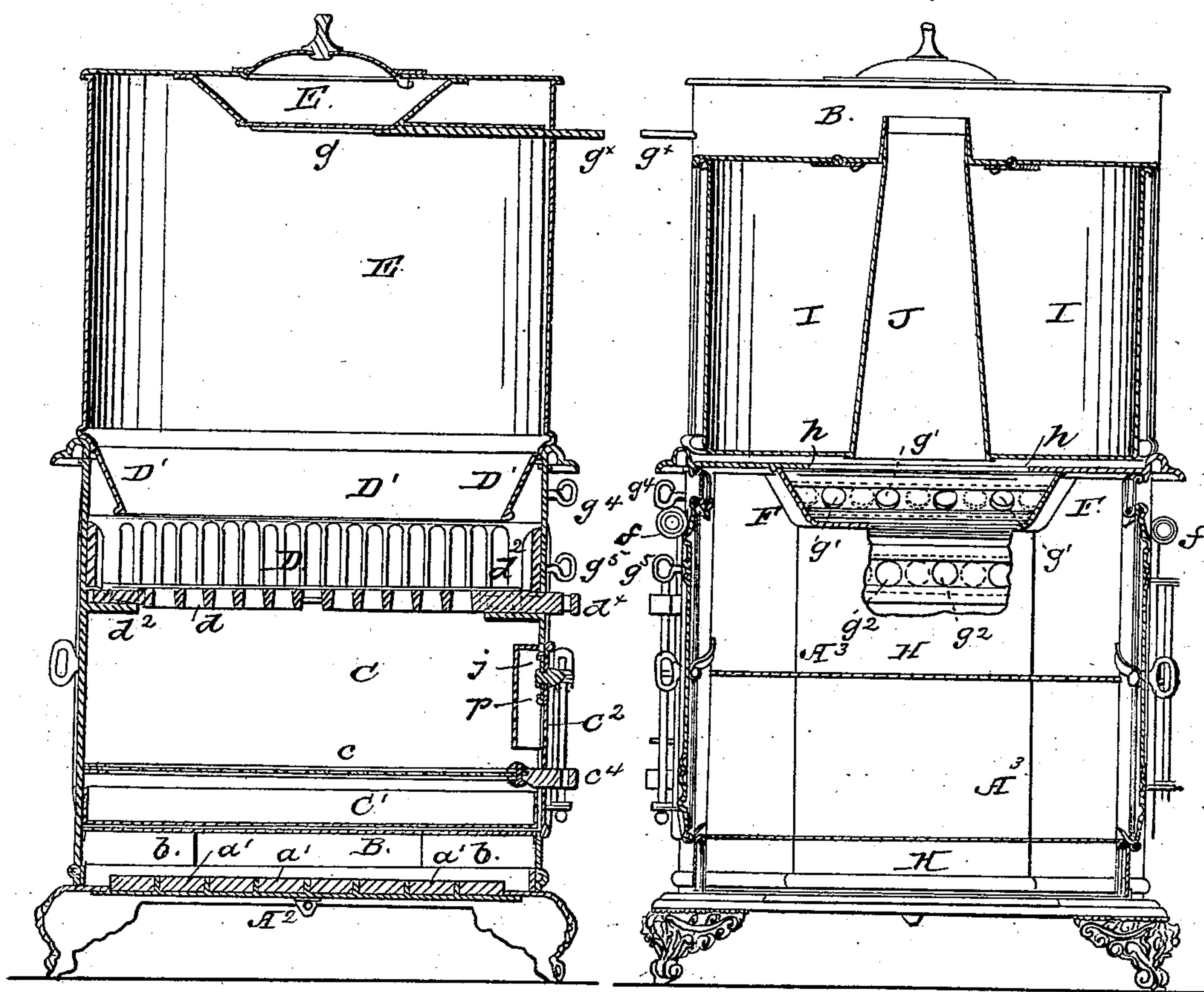
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Fig. 5.

Fig. 6.



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JOHN S. PERRY AND JAMES EASTERLY, OF ALBANY, NEW YORK.

Letters Patent No. 85,124, dated December 22, 1868.

## MAGAZINE COOK-STOVE.

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

*To all whom it may concern:*

Be it known that we, JOHN S. PERRY and JAMES EASTERLY, of Albany, in the county of Albany, and State of New York, have invented certain new and useful Improvements in Magazine Cook-Stoves; and we 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 our improved stove complete.

Figure 2, plate 1, is a top view of the stove, with the coal-magazine and the boiler removed, showing also a portion of the inclined coal-deflector broken away, to expose certain draught-passages.

Figure 3, plate 2, is a transverse section, taken through the stove in a vertical plane, indicated by dotted line Z in fig. 4.

Figure 4, plate 2, is a longitudinal section, taken in a vertical plane through the centre of the stove, complete.

Figure 5, sheet 3, is a transverse section, taken vertically through the stove, as indicated by the course of dotted line X in fig. 4.

Figure 6 is a transverse section, taken through the stove in the vertical plane indicated by dotted lines Y in fig. 4.

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

This invention relates to certain novel improvements on that class of cooking-stoves or ranges wherein fuel is supplied to the fire-chambers from reservoirs or magazines, upon the principle of the well-known base-burning parlor-stoves.

Previous to the invention which we shall hereinafter describe, cooking-stoves have been constructed with fuel-magazines arranged in various ways, some of the magazines being wholly outside of the outer walls of the stoves, and some being arranged partly within the outer walls of the stoves. In some instances the draughts of air are conducted upwardly through the fire-boxes, and in others, parlor-heaters and cooking-stoves have had their fuel-magazines so arranged that draughts of air were conducted downwardly through the incandescent coal in the fire-boxes, so as to effect a thorough combination of the gaseous products.

The improvements which we have made on base-burning or magazine cooking-stoves are designed to render such stoves more convenient and more perfect in their operation than stoves of this class which have hitherto been used.

The invention provides for so arranging the fuel-magazine, on top of and exterior to the top plate of the stove, that two of the boiler-holes through said plate can be brought wholly or partly over the fire-box, so that the bottoms of vessels applied in or over said holes will be subjected to the direct action of the

fire, without interfering with the feeding of the fuel to the fire-box.

It also provides for obtaining a direct outward draught into the smoke-flue from the fire-box, when desired; and when such draught is closed, provision is made for conducting the products of combustion over and beneath the oven of the stove, the air being admitted beneath the grate of the fire-box, and, when desired, it can be also admitted into the fire-chamber from above the same, as will be hereinafter explained.

The invention further provides for preventing the accumulation of gases and air above the fuel in the magazine, by having a conduit leading from the upper portion of this magazine down into the fire-chamber; and in conjunction with this feature, provision is made for allowing air or vapors, rising from the top of the stove while cooking, to enter said conduit, and be conducted into the fire-chamber in jets, as will be hereinafter explained.

The invention further provides for the use of a water-back for warming water, in conjunction with a magazine or base-burning cooking-stove; also, for the use of a sliding and tilting grate and an ash-sifter, whereby the grate can be kept free from obstructions, and the coal-ashes sifted within the ash-pit of the stove.

Provision is also made for the use of a hot-water reservoir and a warming-closet with a base-burning cooking-stove; also, for exposing to view, through a transparent substance, the light of the fire in the fire-box and the interior of the oven, so that the doors of said chambers need not be opened to inspect the condition of things in the same; also, for warming air, on its way through the door of the ash-pit, to supply combustion in the fire-chamber, as will be hereinafter explained.

Having thus referred to some of the most important improvements which we have made in base-burning cooking-stoves, we will proceed to describe such improvements, in connection with the accompanying drawings.

The drawings represent a stove of rectangular form, with a single oven, around which the products of combustion can be conducted, on their way from the fire-box to the main escape-flue J.

The oven is enclosed on four sides by walls, B B B B<sup>1</sup>, and on two vertical sides by doors, B<sup>2</sup>, to which glass or mica windows, e e, may be applied, for the purpose of allowing the inspection of articles in said oven without opening its doors.

Between the top, front, and bottom walls, B, of the oven, and the top, front, and bottom outer plates, A A<sup>1</sup> A<sup>2</sup>, of the stove, is a flue-space, b, which leads from the fire-box D, and fire-chamber above the same, around the oven, beneath the ash-pit, thence up through a vertical space, which is between the ash-pit wall and the back plate A<sup>3</sup> of the stove, and into and through an escape-flue, J.



Thus it will be seen that the four oven-walls are exposed to the action of the heated products of combustion on their way from the fire-box to the escape-flue.

Between the oven-plate  $B^1$ , which is curved, as shown in fig. 4, to afford as much oven-space as possible, and the back outer wall,  $A^3$ , of the stove, we arrange the fire-box  $D$  and the ash-pit chamber  $C$ ; and above the fire-box  $D$ , outside of the outer wall or top plate,  $A^1$ , we arrange the fuel-magazine  $E$ , for supplying fuel to the said box. This magazine is arranged a little back of the centre of the fire-box, as shown in figs. 2 and 4, so as to allow the boiler-holes, lettered  $D^2$ , to be brought partly over this fire-box, for the purpose of subjecting the bottoms of vessels placed over said holes to the direct action of the fire at the hottest part of the stove.

In order to carry out this arrangement of the fuel-magazine and the boiler-holes, and to obtain a proper horizontal capacity of magazine, we employ at the base of this magazine,  $E$ , an inclined plate,  $D^1$ , which extends a little more than half way around said base, and directs the fuel forward into the fire-box, as it descends to supply the same. This inclined plate or skirting  $D^1$  does not extend down to the top edge of the back fire-brick, but allows a free space for the escape of the products of combustion through openings  $g^1$ , into the main flue  $b$ , when the sliding damper or valve which is applied to said openings  $g^1$  is drawn back, so as to open the communication. These openings  $g^1$  afford a direct draught, but when they are closed the products of combustion take the course around the oven, as indicated by the black arrows in fig. 4, and above described.

The grate  $d$  to the fire-pot  $D$  is supported by trunnions,  $d^2$ , upon toothed ledges  $S$ , so that it can be tilted or turned about these trunnions, and also so that it can receive an endwise motion.

The openings through the grate may be constructed in any desirable manner, but its ends are toothed, so as to receive between their teeth the teeth  $s$ , thereby allowing of said endwise motion to the grate, without leaving such spaces at the ends thereof as would cause too free an escape of the fuel.

One of the trunnions of the grate extends through and beyond the outer wall of the stove, as shown at  $d^x$ , fig. 5, so that it can be taken hold of to shake or tilt the grate.

Below the grate is a perforated shaker or screen,  $c$ , for sifting the fine ashes from the cinders; and below this ash-sifter is a removable pan,  $C^1$ , for receiving the ashes. The handle of the screen is shown at  $c^x$ .

The door  $C^2$ , leading to the ash-pit  $C$ , is provided with a register,  $J$ , for the admission of air to supply combustion; and on the inner side of this door a chamber,  $p$ , is formed, which receives all the air that enters said register, and conducts it downward, thereby allowing the air to become warmed before it passes through the grate  $d$ .

Between the fire-box  $D$  and the back wall of the ash-pit  $C$ , there is a space, which leads to openings  $g^2$ , communicating with the escape-flue, through which openings the dust and light ashes will be carried off during the operation of screening the cinders. When desired, the openings  $g^2$  can be closed by a valve provided for the purpose.

By means of the stem  $g^4$  and the stem  $g^5$ , projecting through the outer side wall of the stove, as shown in figs. 1, 5, and 6, the valves applied to openings  $g^1$   $g^2$  can be conveniently opened or closed.

At the upper terminus of the front transverse fire-brick of the fire-box  $D$  is a pipe,  $f$ , which lies transversely across the flue-passage  $b$ , and extends through the side walls of the stove. This pipe is designed to serve as a means for heating water to be used for various purposes, for which it should be connected with

suitable reservoirs, containing water, in a manner common to water-heaters or fire-backs for other kinds of stoves.

The magazine  $E$  is constructed with a flue,  $P$ , down its front side, which flue communicates, at its lower end, with a horizontal transverse trough,  $r$ , which is arranged over the fire-box, and thickly perforated, for the purpose of allowing air and gas to issue from it in jets, and thus mix with the highly-heated products of combustion as they rise from the fire-box  $D$ .

The upper end of the flue  $P$  communicates with a chamber,  $E^1$ , which is above the sliding cover  $g$  of the magazine, operated by handle  $g^x$ , and conducts downward and into the trough  $r$  all air and gas which accumulate above the coal in said magazine.

The register  $E^2$ , which is applied to the front side and outer wall of the magazine  $E$ , serves two purposes, viz, it will admit any desired quantity of air to be introduced into the flue-space above the fire-pot through the flue  $P$  and perforated trough  $r$ ; it will also serve to conduct into the flue  $b$  a large quantity of smoke, gas, or vapor which may arise during the process of cooking.

For the purpose of inspecting the condition of the fire in the fire-box  $D$ , we make openings through the side walls of the stove, and cover them with mica or other transparent substance, as shown at  $e e$  in figs. 3 and 4.

The back plate  $A^3$  of the stove is constructed so as to form an enlarged ascending flue, leading to an overhanging chamber,  $F$ , over which the top plate  $A^1$  of the stove extends, as shown in figs. 2 and 4.

Through that portion of the top plate  $A^1$  which covers the extended chamber  $F$  is an opening,  $h$ , through which the products of combustion escape before entering the pipe  $J$ .

The pipe  $J$  passes up through the centre of a reservoir,  $I$ , for containing water, which reservoir may be made with double or single walls. By passing the pipe  $J$  through the boiler  $I$ , a large amount of heat will be utilized, which would otherwise be wasted.

At the back of the stove, and beneath the extended or overhanging chamber  $F$ , is a sheet-metal box,  $H$ , which serves as a closet for receiving and keeping articles warm, heat being communicated to it through the back wall of the stove.

The vertical as well as bottom plates or walls of the stove may be lined with plaster of Paris,  $a'$ , or some other suitable non-conducting substance. In figs. 3, 4, and 5, we have represented such substance applied upon the inside surface of the bottom plate  $A^2$ , which extends beneath the oven and ash-pit. This lining,  $a'$ , will prevent, to a considerable extent, the conduction of heat from the bottom of the stove. If desirable, the doors of the stove may also be lined with some good non-conductor of heat, or they may be made of double walls, enclosing an air-space, as described, for the warm-water reservoir  $I$ , back of the fuel-magazine.

For the purpose of regulating the draught around the oven, so as to diminish and regulate the heat of the same independently of the register  $j$ , which is applied to the ash-pit door  $C^2$ , we provide the front vertical wall  $B$  of the stove with a register,  $a$ , which will allow any desired quantity of air to be introduced into the flue  $b$ , to mix with the products of combustion after they leave the fire-box. This register we show in fig. 4.

By reference to fig. 4, plate 2, it will be seen that we have a plate,  $T$ , secured to the bottom plate of the oven, just at the base of the curved division-wall  $B^1$ , which plate extends transversely across the flue-space  $b$ , and forms a construction of this space, for the purpose of retaining the heated products of combustion beneath the oven as long as possible without materially obstructing the draught; thereby utilizing the heat, and confining it where it is most needed.



Having described our invention,

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

1. A cooking-stove, having a fuel-magazine arranged and supported wholly upon the top plate thereof, in combination with a deflecting-plate,  $D^1$ , which will guide the coal into the fire-pot, substantially as described.
2. The deflecting-plate  $D^1$ , arranged over a fire-pot so that it is removable, in combination with a fuel-magazine, which is located on one side of the centre of the fire-pot, substantially as described.
3. In combination with a cooking-stove which has its fuel-magazine exterior to the body thereof, and which has a draught over and beneath the oven, a direct-draught passage,  $g^1$ , leading from one side of the fire-box into the main-flue extension  $F$ , beneath the boiler, substantially as described.
4. An exposed fuel-magazine, arranged over a fire-pot, and provided with a conduit,  $P$ , which leads into a perforated pipe,  $r$ , above the combustion-chamber, said conduit and pipe being adapted for conducting the gases rising above the coal in said magazine, together with air admitted through a register,  $E$ , into the combustion-chamber, substantially as described.
5. The inlet-register  $E^2$ , applied to the conduit  $P$ , on that side of the fuel-magazine  $E$  next the pot-holes through the top of the stove, for the purpose of carrying off, through the flues of the stove, the vapors rising from the top of the stove while cooking, substantially as described.

6. A fuel-magazine, which is located on top of the top plate of a cooking-stove, between an extended flue-space,  $F$ , and the boiler-holes  $D^2$ , substantially as described.

7. A base-burning cooking-stove, which is so constructed that the products of combustion rising from the fire-pot  $D$  shall circulate over and beneath the oven, beneath and up one side of the ash-pit, and escape through a passage,  $h$ , which is made through the top plate in rear of the fuel-magazine, substantially as described.

8. The relative arrangement of the fire-pot  $D$ , flue-extension  $F$ , water vessel  $I$ , and direct-draught passage  $g^1$ , in a cooking-stove, constructed substantially as described.

9. In a base-burning cooking-stove having its flues  $b$  arranged around the oven and ash-pit, as described, the dust-escape passage  $g^2$ , substantially as described.

10. The relative arrangement of windows  $e$ , fire-pot  $D$ , magazine  $E$ , and oven, substantially as and for the purpose described.

11. The fuel-magazine, fire-pot, and flues of a cooking-stove, arranged substantially as described, in combination with a warming-closet,  $H$ , arranged substantially as set forth.

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