(No Model.) 4 Sheets—Sheet 1.

E. W. ANTHONY.

HEATING STOVE.

No. 265,363. Patented Oct. 3, 1882.

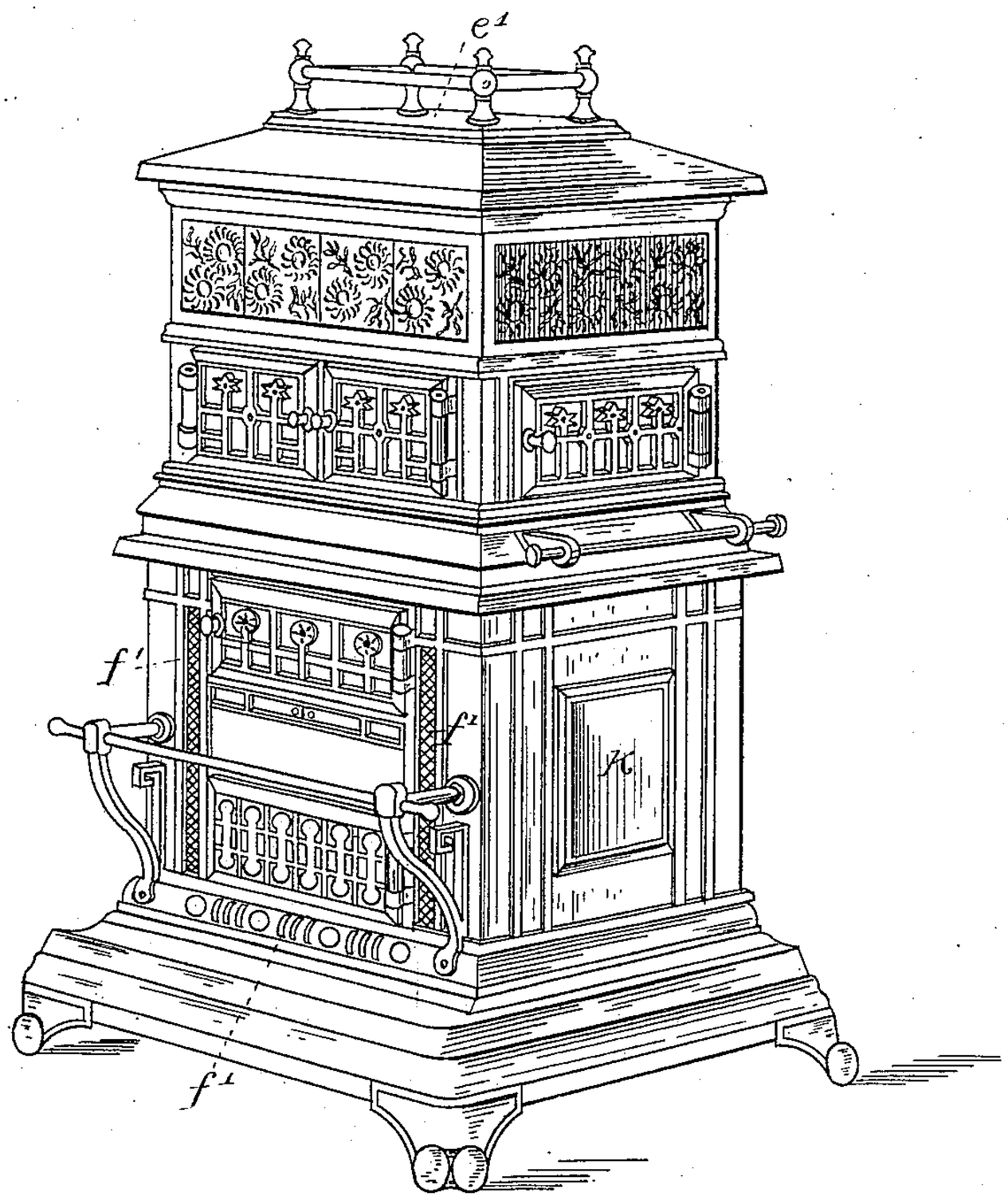

Fig. 1.

WITNESSES

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INVENTOR

Edgar W. Anthony

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Clarke & Raymond

(No Model.)

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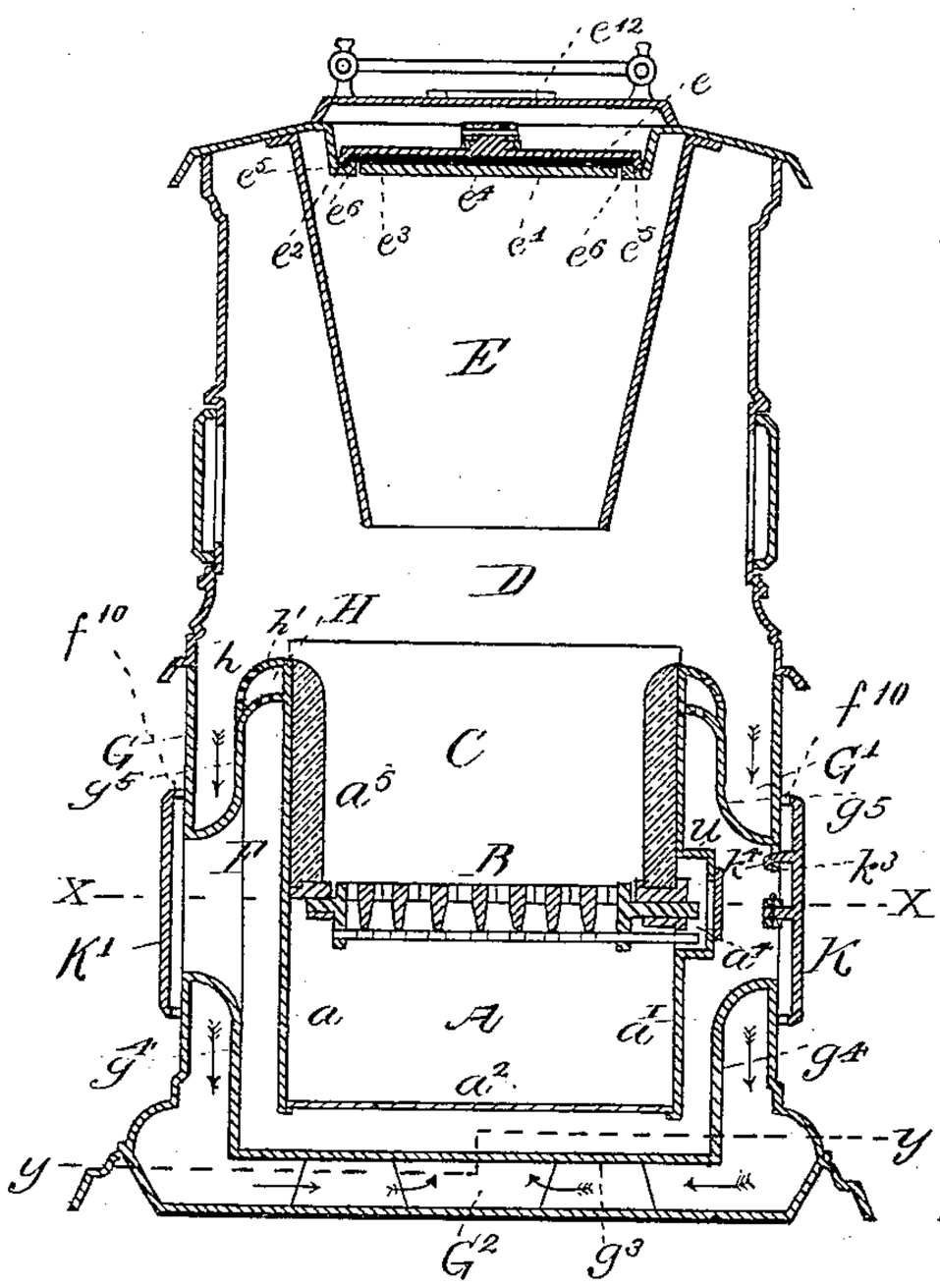

Fig. 2.

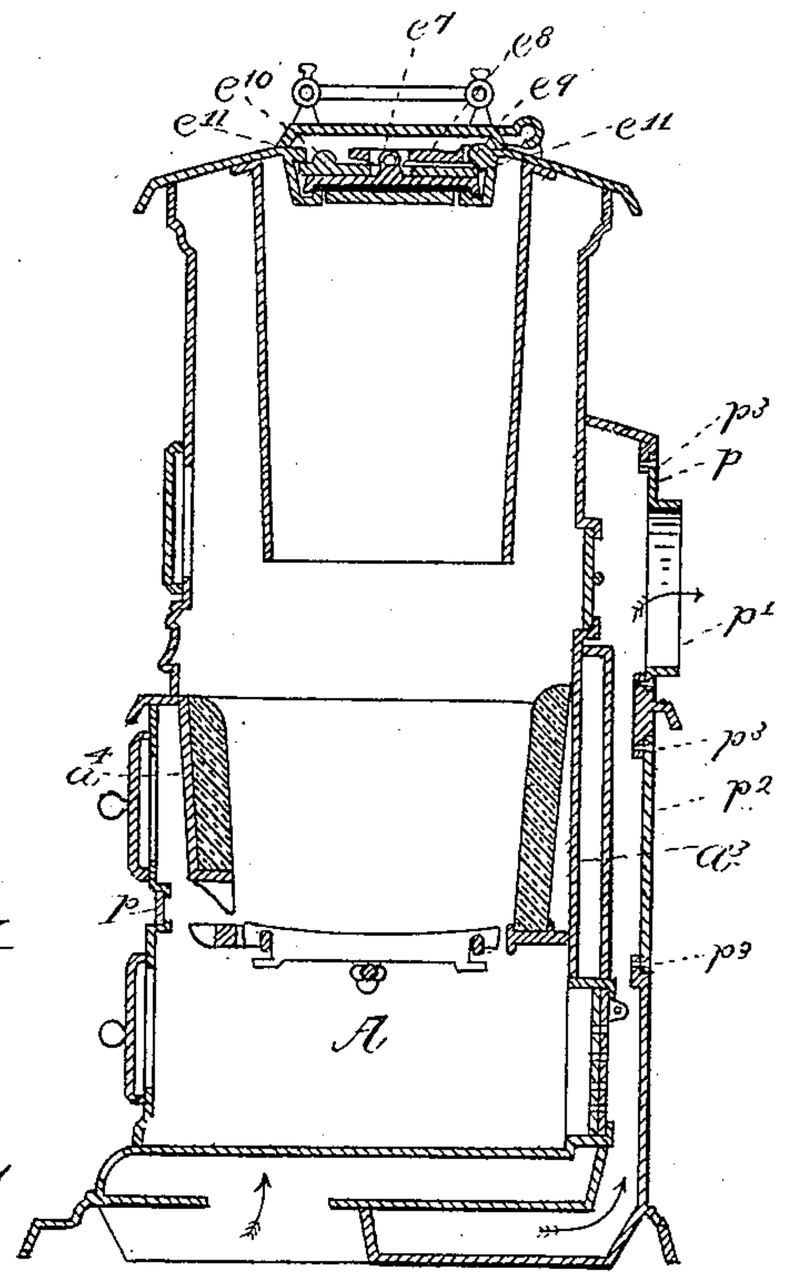

Fig. 3.

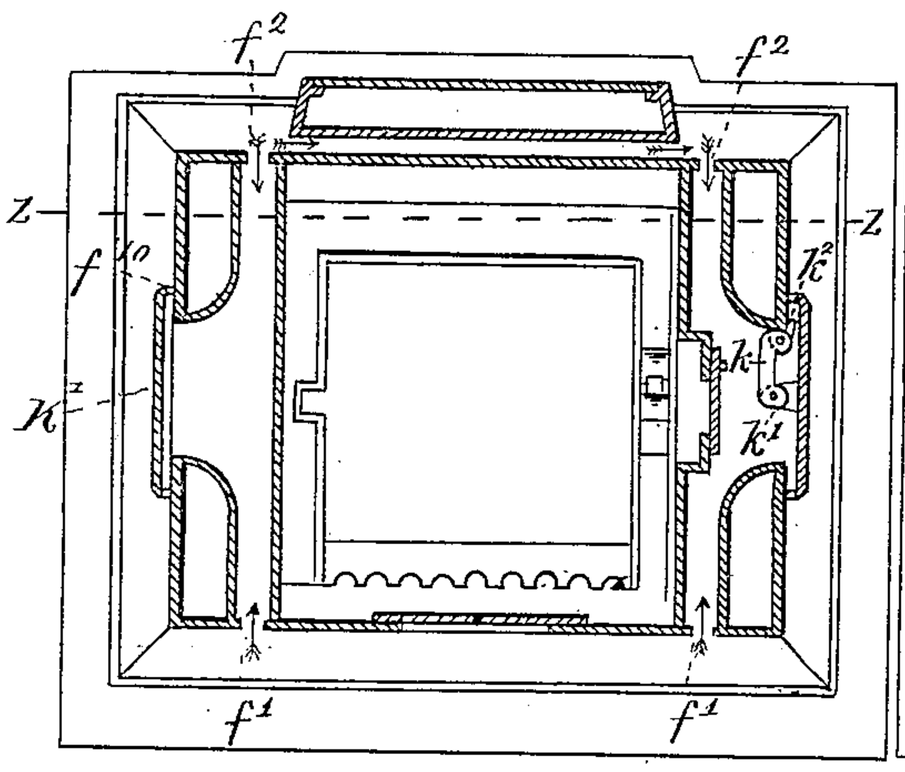

Fig. 4.

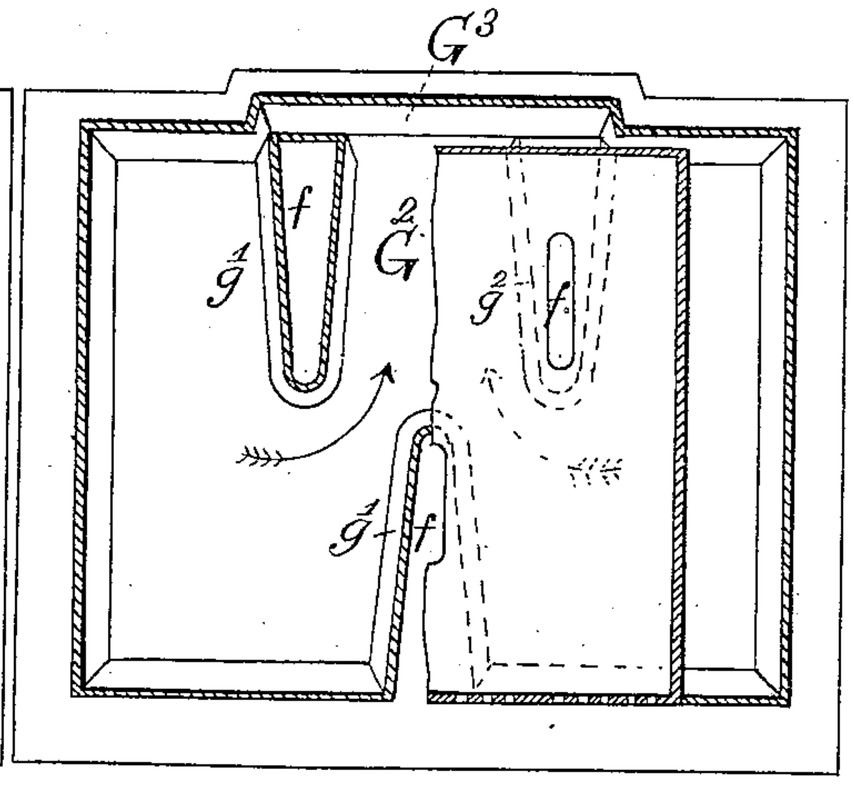

Fig. 5.

WITNESSES

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(No Model.)

4 Sheets—Sheet 3.

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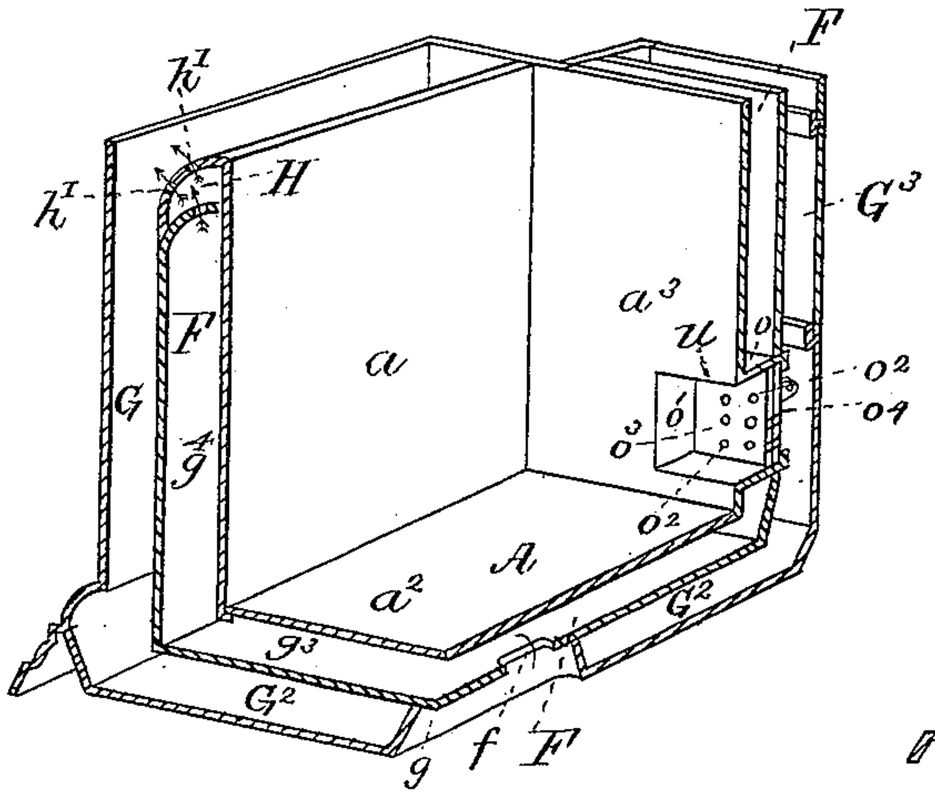

Fig. 6.

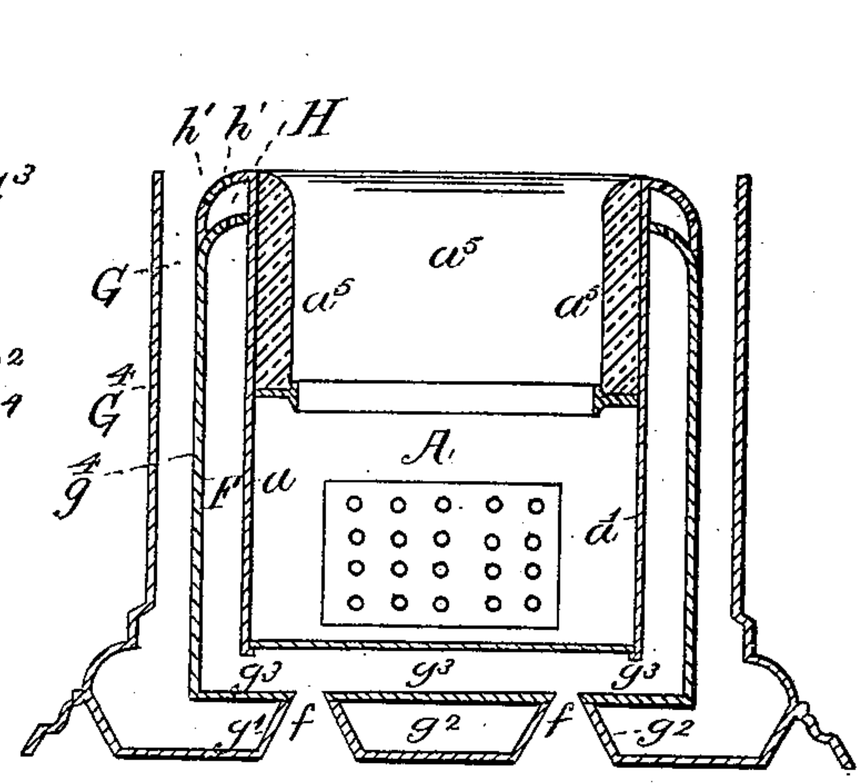

Fig. 7.

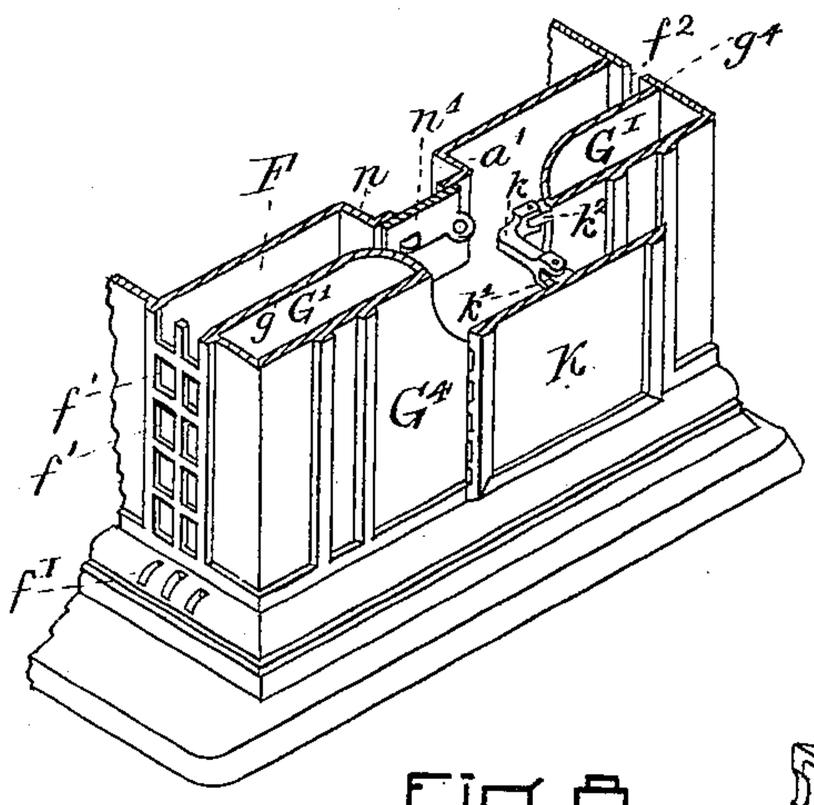

Fig. 8.

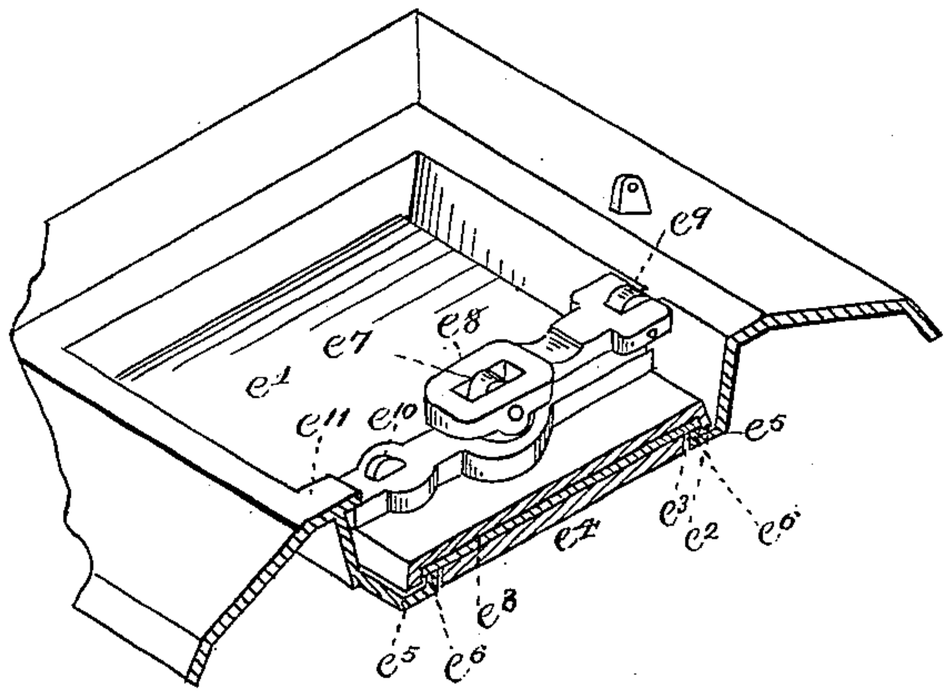

Fig. 9.

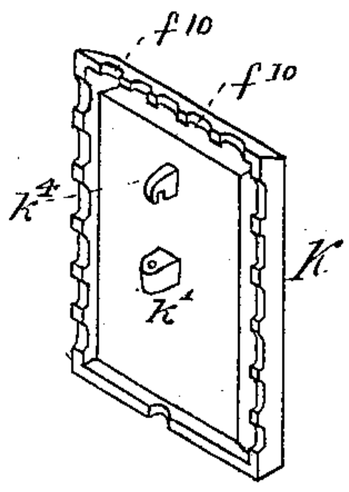

Fig. 10.

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(No Model.)

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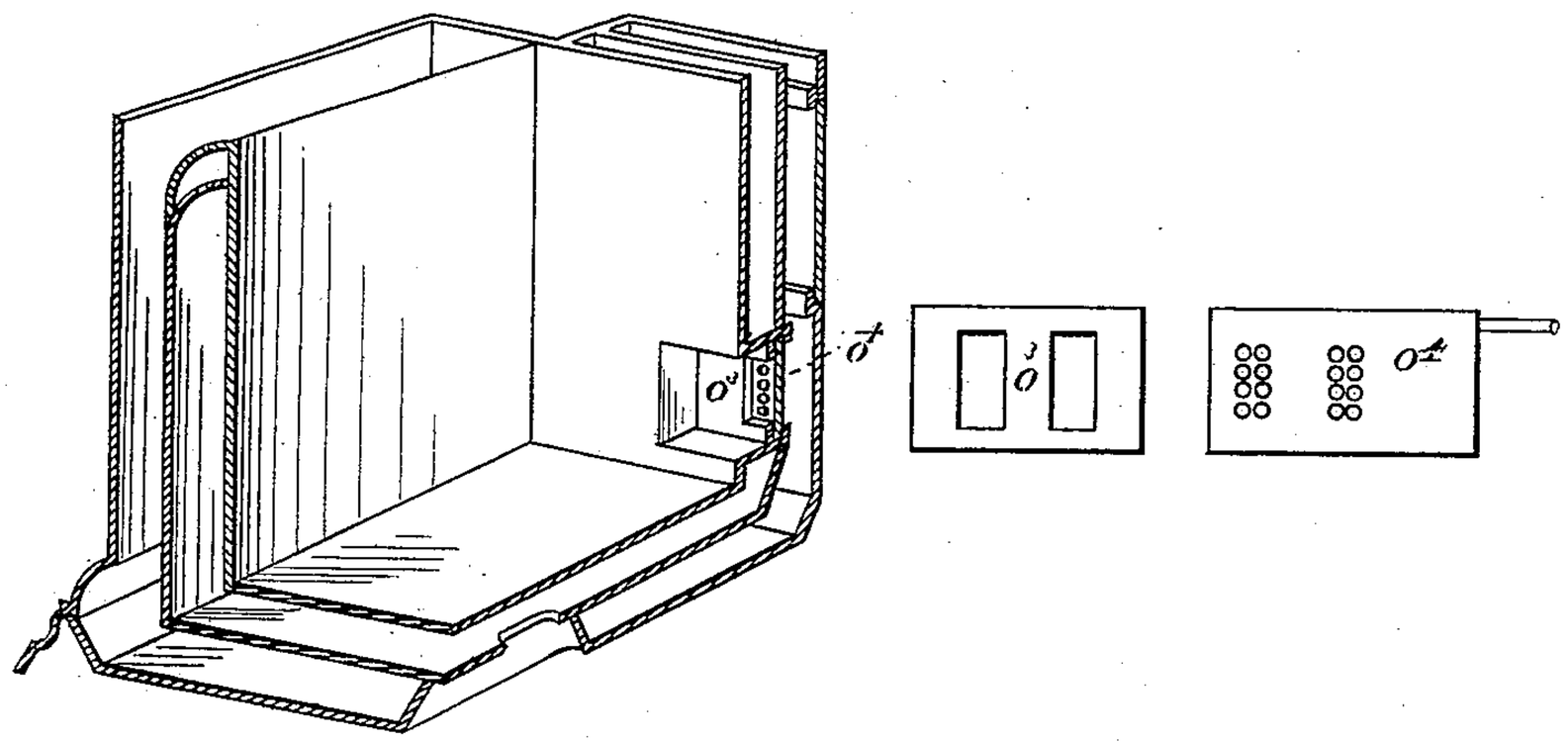

Fig. 11.

WITNESSES

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UNITED STATES PATENT OFFICE.

EDGAR W. ANTHONY, OF BOSTON, MASSACHUSETTS.

HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 265,363, dated October 3, 1882.

Application filed May 22, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDGAR W. ANTHONY, of Boston, in the county of Suffolk and State of Massachusetts, a citizen of the United States, have invented a certain new and useful Improvement in Heating-Stoves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature, in which—

Figure 1 is a perspective view of a stove containing my invention. Fig. 2 is a vertical central section thereof from side to side. Fig. 3 is a vertical central section thereof from front to rear. Fig. 4 is a horizontal section on the dotted line *x x* of Fig. 2, and Fig. 5 is a horizontal section on the dotted line *y y* of Fig. 2. Fig. 6 represents a portion of one side and of the rear end of the stove, in perspective, to better illustrate the construction. Fig. 7 is a vertical section upon the line *z z* of Fig. 4. Fig. 8 is a perspective of a part of one side, representing a construction hereinafter described; and Fig. 9 shows in enlarged perspective and section the cover to the magazine. Fig. 10 is a perspective view of the inner side of the stove-panel, hereinafter described. Fig. 11 is a view representing a modification in construction, hereinafter described.

The invention relates to the class of stoves known as "low-magazine" or "base-burning" stoves; and it comprises a novel arrangement of the flues and air-heating chamber, means for supplying the combustion-chamber with air from the air-heating chamber, means for making the magazine air-tight, the construction, hereinafter specified, whereby the grate may be shaken from the side of the stove, the manner of attaching to the stove a swinging panel or door, the manner of attaching the cover of the magazine to the stove, and various other features.

In the drawings, A is the ash-pit; B, the grate; C, the fire-pot; D, the combustion-chamber, and E the magazine.

The ash-pit chamber and the fire-pot are surrounded upon the sides and bottom and back, if desired, by the air-heating chamber F. This heating-chamber is separated from the ash-pit by the vertical plates *a a'*, forming the sides of the ash-pit, and by the horizontal plate a^2, forming its bottom, and the plates *a a'* also, in connection with the rear plate, a^3, and front plate, a^4, form the walls of the fire-pot, to which the fire-brick a^5 is a lining. The air-heating chamber F is surrounded upon its bottom and sides by the flues G G' G^2, the flue G being upon one side and the flue G' upon the other side of the stove, and both flues being the down-passages from the combustion-chamber D. They unite under the chamber F, forming the flue G^2. The flue-plates *g g' g²* direct the products of combustion in their passage from the flues G G' into the flue G^2, so that the heat and products of combustion from both flues, instead of coming directly in contact, are turned in the same direction and have the same general course where they meet from the flue G. They enter the uptake G^3 at the rear of the stove. The flue-plates *g g' g²* are formed, substantially as shown in Fig. 5, to provide the openings *f* from underneath the stove into the horizontal portion of the chamber F. The plate g^3 separates the lower or base flue, G^2, from the heating-chamber, and the side plates, g^4, the side portions of said chamber F from the down-flues G G'.

G^4 are the outer side plates of the stove.

Arranged over the heating-chamber F at the sides and at the rear, if desired, is the small chamber H, which is formed by means of the curved plate *h* and the curved upper portion of the side plates, g^4. This curved plate *h* may be separate or cast with the plates *a a'*, and it has the perforations *h'* on its upper portion, whereby the chamber is connected with the combustion-chamber, and the plates g^5 also have holes whereby the said chamber H is connected with the heating-chamber F. This construction provides air for assisting combustion in the combustion-chamber and in what is called a "gas-burner." It varies from others in that the supply of air is taken from the air-heating chamber. The heating-chamber F has openings *f'* at the front of the stove, f^2 at the rear for the escape of the heated air from its side portions, and suitable openings for the same purpose in the rear portion.

In order that the grate may be shaken from the side of the stove, I have attached the panel

K to the stove so that it may be swung to one side and provide an opening to the chamber F, and there is formed by the wall *a* a box or inclosure, *u*, into which the end of the shaft or shafts for turning the grate projects, and which box projects into the chamber F, as shown in Fig. 8. A swinging slide or door, *u'*, serves to close the front or end of the box.

When it is desired that the panel shall appear to be stationary and not to be a door closing an opening I use the construction herein described, or one substantially like it, consisting of the link *k*, pivoted to the lug or projection *k'* upon the inside of the panel and at k^2 to the frame of the stove within the chamber F, and the latch k^3, which is adapted to engage with the catch k^4. This method of supporting the panel does not appear from the outside of the stove and does not interfere with its ornamentation.

The cover *e* of the magazine consists of the plate *e'*, preferably having a downwardly-extending flange, e^2; and I may use in connection therewith the packing e^3, which is held to the plate *e'* by the retaining-plate e^4, which is bolted or otherwise fastened to the upper plate. This packing may be of asbestus board, or of vulcanized compound, like the Jenkins packing, or of any other suitable material, and when the packing is employed I prefer to form the supporting-ledge e^5 with the raised seat e^6, upon which the packing shall rest when the cover is in position, the flange e^2 shutting beyond the raised seat and not upon it, and not extending to the horizontal portion of the supporting-ledge e^5, so that the entire weight of the cover is upon the raised seat, thereby bringing the raised seat and packing in close contact. As the weight of the cover may not, however, always be sufficient to force the packing into contact with the metal seat, I have represented independent means for pressing the cover to its seat, consisting of the link e^8, to which the cover is pivoted at e^7, and which is in turn pivoted to the frame of the stove at e^9, and the locking-bar e^{10}, which is pivoted to the plate *e'*, and is adapted to be swung under the ledge or projection *e''* and wedge the cover *e* to its seat. Over this magazine-cover is arranged another cover, e^{12}, which is hinged to the top plate of the stove, and is adapted to be operated in the ordinary manner.

The grate which I prefer to use with this stove is that known as the "Card grate," and is described in Patent No. 220,464, October 14, 1879.

The back plate, a^3, is provided with an extension, *o*, forming a box, *o'*, which is at the rear of the ash-pit chamber, and which opens into the direct uptake G^3 by means of the holes o^2 in the plate o^3. This, as is obvious, is a dust-flue for the escape of dust form the ash-pit when the grate is being shaken or ashes removed; and I use a perforated plate to prevent ashes from falling into the uptake. Behind the plate o^3 is a damper, o^4, also perforated to correspond with the perforations in the plate o^3, and which damper is adapted to be moved to close or open said passages o^2.

It will be observed that the side portions of the chamber F are so shaped that they divide the vertical flues G G' into two parts—one part at the front corner of each side and the other at the rear corner of each side. By thus dividing the flue into two parts I obtain a much more uniform passage of heat through the flues than would be the case if the flues were not thus separated into two passages, for if they were not separated the tendency of the heat and products of combustion in passing through the flues would be to take the course toward the front corner of the stove, as that would be the shortest passage from the combustion-chamber to the uptake; but by dividing the flues as indicated the effect is as I have described, the heat and products of combustion being divided into two very nearly uniform currents or streams.

That portion of the invention which is herein illustrated as applied to the cover *e* of the magazine—namely, the providing of a packing for more effectually sealing the joint of the door—may of course be used for any other stove door or joint without departing from the spirit of the invention, and of course it may be used therein, if desired, with means for forcing the door or section to its seat, to provide a proper and close contact between the packing and the part of the stove against which it is brought in contact; and in lieu of the construction described for forcing the cover to its seat I may use a screw which shall pass through a proper support. When this construction is used the cover e^{12} should be fastened at its front to the stove-frame by a button or in any other suitable way, and the screw passed through a nut therein and bear with its lower end upon the cover *e*, whereby upon turning the screw the cover may be forced to its seat.

It is not necessary that the packing be in a sheet, for it may be cut in strips and of a width sufficient to cover or partially cover the raised seat, and be held in place by a binding or clamping plate.

The magazine is preferably rectangular in cross-section, and is without means for enlarging its discharge-opening, which is made of a proper size in the first instance and needs no further regulation.

It is not necessary for the purpose of the invention that the portion of the heating-chamber at the rear of the stove between the uptake and the rear plate, a^3, be used; neither is it necessary that the air-heating chamber F be between the flues G G' and the ash-pit and fire-pot, as they may be upon the outside of the flues without departing from the spirit of the invention.

It will be observed, also, that the flue-plates *g g' g²* may be cast with the base-plate of the stove, and that they perform two offices—namely, that of directing the passage of the

products of combustion through the flues and that of providing a passage for the entrance of the cold air to be heated to the heating-chamber.

In lieu of perforating the plate o^3 and arranging the perforations in the damper o' to correspond, I may make large apertures in the plate o^3, (shown in Fig. 11,) and may arrange the perforations in the damper o^4 so that they may be brought in line with the apertures in opening the flue, and may be moved behind the solid portion of the plate in closing the flue—that is, the construction would be like an ordinary front draft of a stove, with the exception that in lieu of having apertures in the damper to correspond with the apertures in the plate the damper is made of one piece of metal and provided with perforations.

In addition to the outlets $f' f^2$ for the escape of heated air from the heating-chamber I may provide outlets f^{10} about the panel K K'. These escape-openings or apertures are provided by forming the recesses in the horizontal portions or edges of the panels preferably upon the sides and top, and a perspective of a panel shaped in this manner is represented in Fig. 10.

The stove-pipe collar p' is supported by the movable plate p, which is held to the frame of the stove by screws p^3 or in any other suitable way, the collar preferably being nearer one end of the plate than the other, so that by reversing the plate provision for adjustment to two heights or levels is obtained. Below the plate p is another plate, p^2, which is removable from the back of the stove and interchangeable with the plate bearing the collar, so that by removing the plate bearing the collar from the position that it is in to that occupied by the lower plate still further provision for adjustment as to height of the collar is obtained, in which event of course the lower plate will take the place of the one bearing the collar.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a heating or other stove, the combination of the combustion-chamber, the downflues G G', the flue-plates $g\ g'\ g^2$, the base-flue G^2, and the uptake G^3, all substantially as and for the purposes described.

2. In a heating or other stove, the combination of the combustion-chamber, the downflues G G', the base-flue G^2, and the uptake G^3, all substantially as and for the purposes described.

3. In a heating or other stove, the combination of the air-heating chamber F, the inlets f, and its outlets, all substantially as and for the purposes described.

4. In a heating or other stove, the combination of the combustion-chamber, the downflues G G', the base-flue G^2, the uptake G^3, and the air-heating chamber F and its inlets and outlets, all substantially as and for the purposes described.

5. In a heating or other stove, the combination of the combustion-chamber, the downflues G G', the base-flue G^2, the flue-plates $g\ g'\ g^2$, the uptake G^3, the air-heating chamber F, the inlets f thereto, and its outlets, all substantially as and for the purposes described.

6. The combination of the combustion-chamber, the downflues G G', the base-flue G^2, and uptake, and the flue-plate g^4, shaped substantially as described, whereby each of the downflues G G' is separated into two passages for a portion of its length, all substantially as and for the purposes described.

7. In a heating or other stove, the combination of the combustion chamber, the downflues G G', the base-flue G^2, and uptake G^3, with the air-heating chamber F above the base-flue, and shaped at the sides in relation to the downflues as shown and described, all as set forth.

8. In a heating or other stove, the combination of the chamber F, the grate shaft or shafts adapted to project within a box in said chamber, and the removable panel or door K, all substantially as and for the purposes described.

9. In a heating or other stove, the combination of the chamber F, the chamber H, and the holes or perforations connecting said chambers with each other and with the combustion-chamber, all substantially as and for the purposes described.

10. In a heating or other stove, the base-plate having the flue-plates $g\ g'\ g^2$ cast therewith, and of a shape substantially as represented, all as described.

11. In a heating or other stove, the combination, in a stove, of the door or cover e, provided with a packing, e^5, indestructible or substantially indestructible by heat, and the seat e^6, all substantially as and for the purposes described.

12. In a heating or other stove, the combination, in a stove, of the cover or door e, the packing e^5, the seat or frame against which the cover or door is adapted to be closed, and means for forcing the cover or door to the seat or frame, all substantially as and for the purposes described.

13. In a heating or other stove, the combination of the panel or door K, and the link k, pivoted to the panel and to the frame of the stove, all as described.

14. The combination of the panel or door K, link k, pivoted as described, and the catch k^4 and latch k^3, all substantially as and for the purposes set forth.

15. In a heating or other stove, the combination of the panel or door K, the latch k^3, projecting inwardly therefrom, and catch k^4, all substantially as and for the purposes described.

16. The combination of the cover e and the link e^8, pivoted at one end to the top plate of the stove and at or near the other end to the top of the cover, all substantially as described, and for the purposes set forth.

17. In a heating or other stove, the combi-

nation of the cover *e*, link e^8, and locking-bar e^{10}, all substantially as described.

18. In a heating or other stove, the combination of the cover *e* and packing e^5 with the raised seat e^6, all substantially as and for the purposes described.

19. In a heating or other stove, the combination of the ash-pit, the perforated plate o^3, uptake G^3, and damper o^4, all substantially as and for the purposes described.

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