

(No Model.)

2 Sheets—Sheet 1.

H. HEIM.
FIRE PLACE.

No. 421,073.

Patented Feb. 11, 1890.

Fig. 2

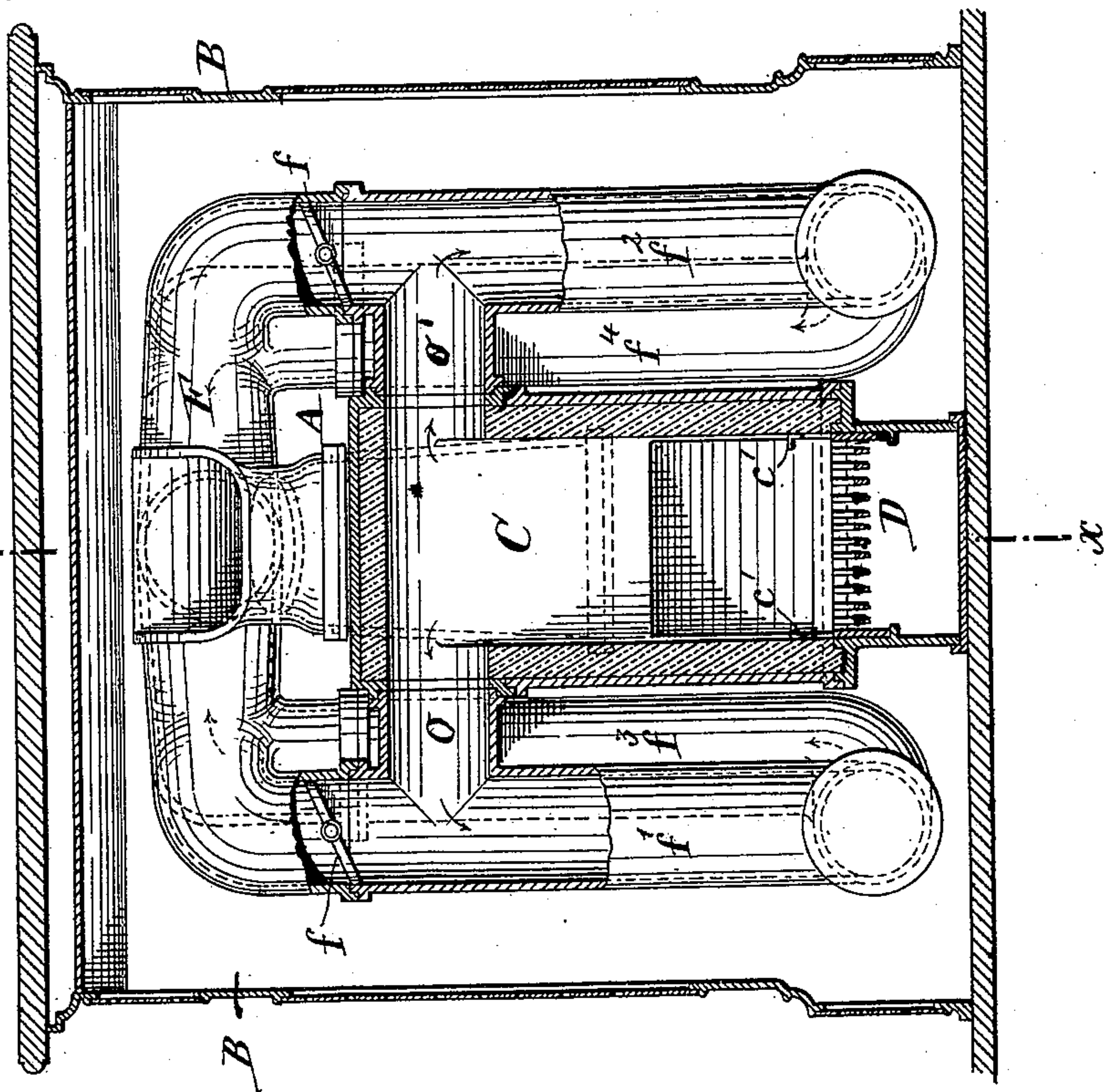
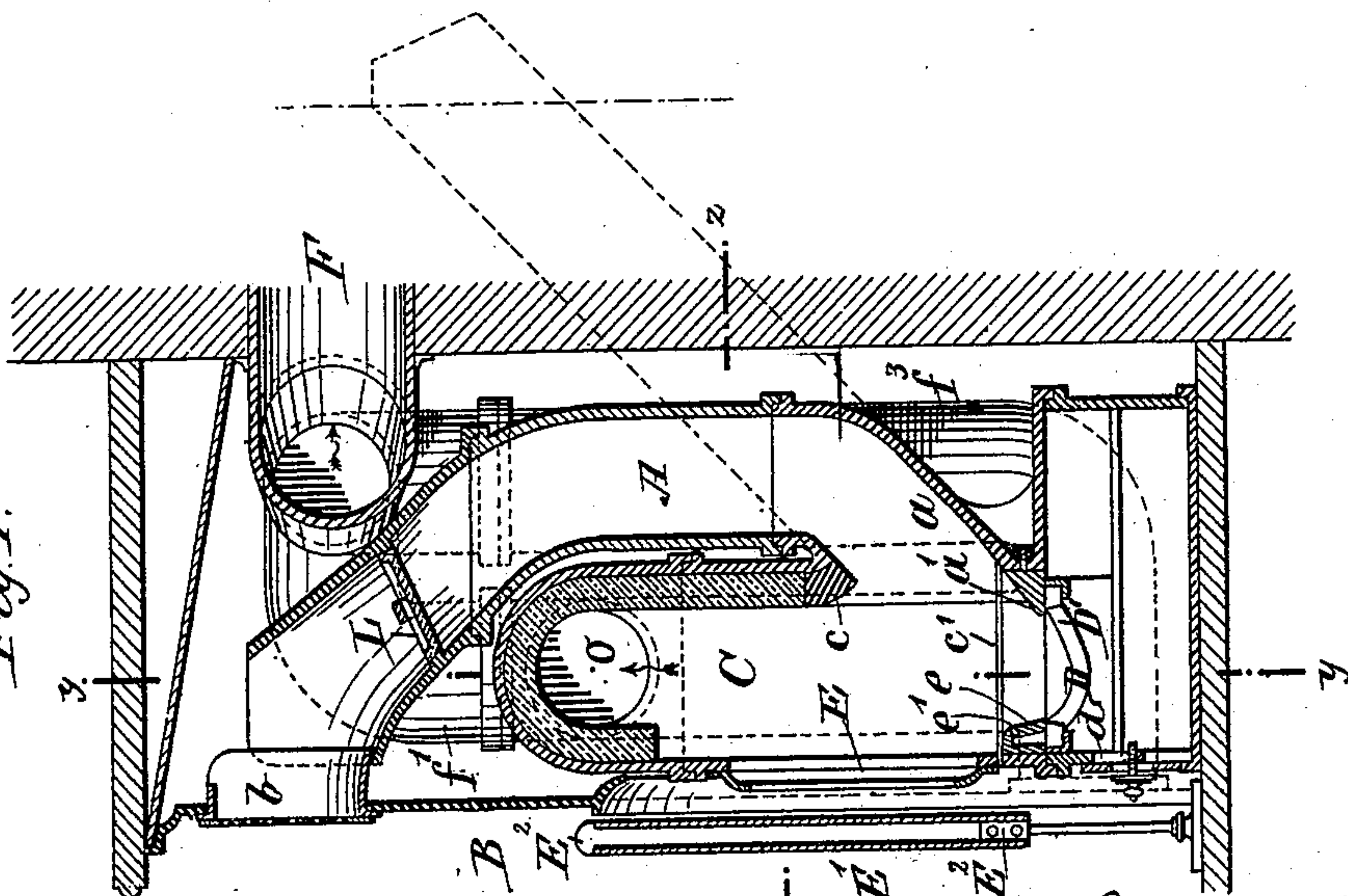


Fig. 1



Attest:
O. E. Soule
P. M. Knobloch

Inventor:
Hermann Heim
per *[Signature]* his atty

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Fig. 3.

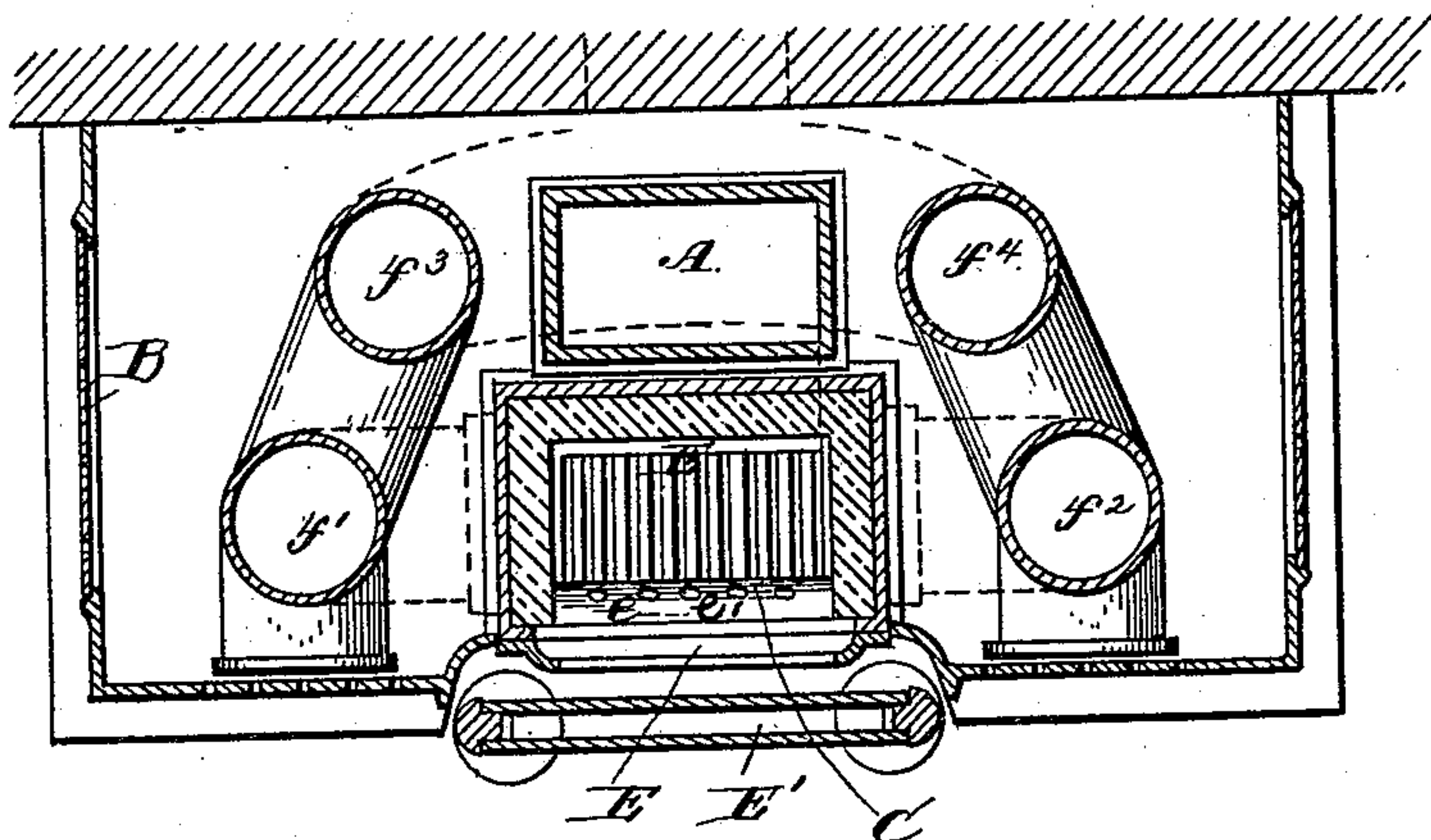


Fig. 4.

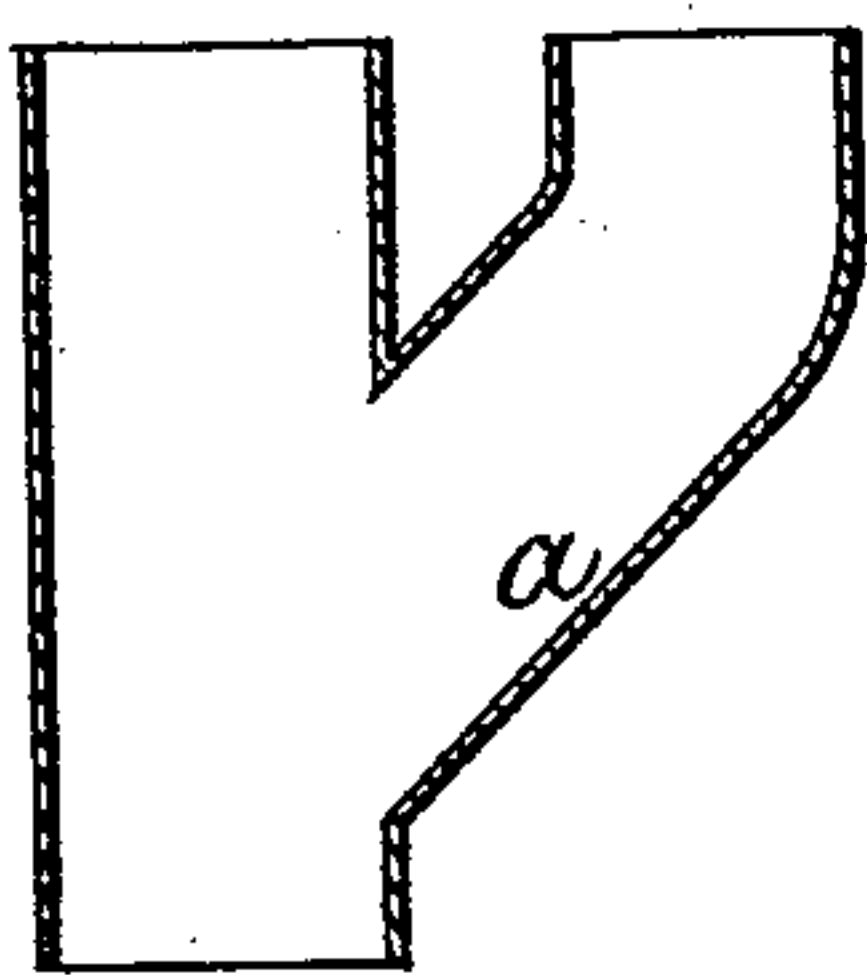


Fig. 5.

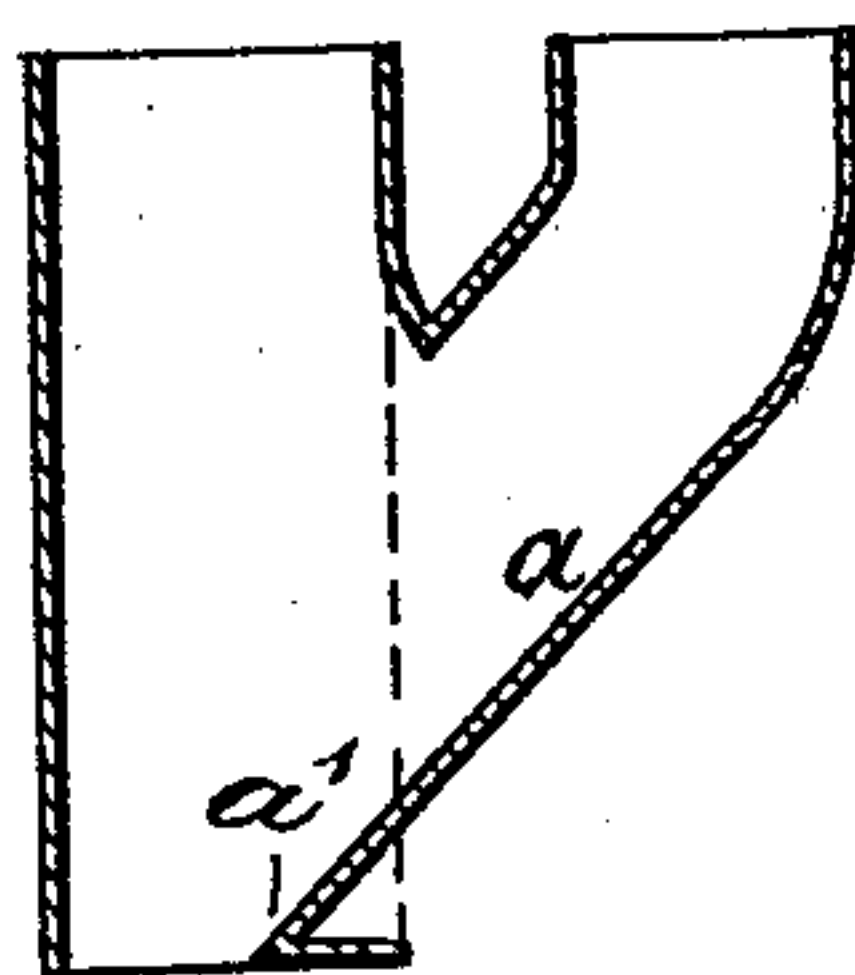
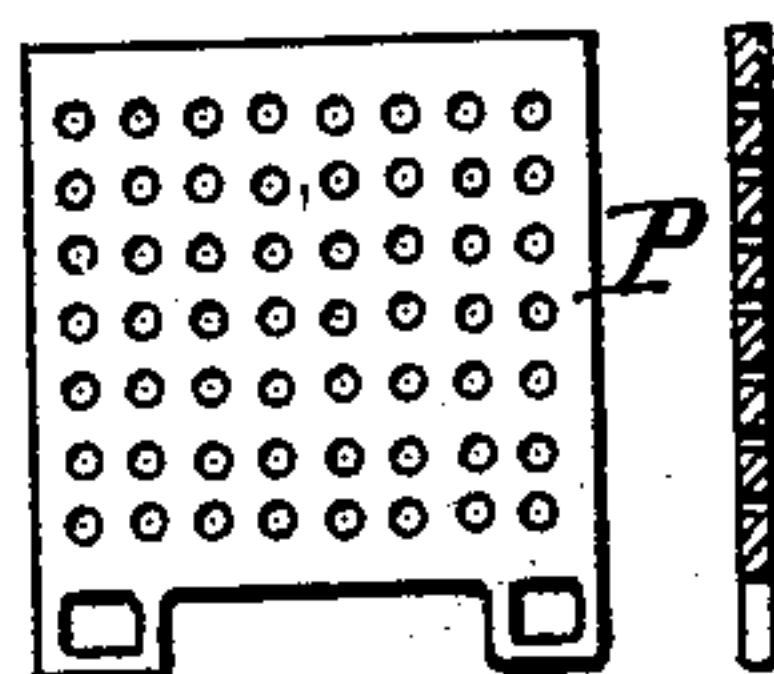


Fig. 6.



Fig. 7.



Witnesses.
J. Thomson Cross.
J. Theo. Sword.

Inventor.
Hermann Heim
per *Henry M. B.*
Att'y.

UNITED STATES PATENT OFFICE.

HERMANN HEIM, OF OBER-DÖBLING, NEAR VIENNA, AUSTRIA-HUNGARY.

FIRE-PLACE.

SPECIFICATION forming part of Letters Patent No. 421,073, dated February 11, 1890.

Application filed June 25, 1886. Serial No. 206,241. (No model.) Patented in France May 22, 1886, No. 176,300; in Belgium May 22, 1886, No. 73,221; in England May 22, 1886, No. 6,930; in Sweden May 22, 1886, No. 1,266; in Norway May 22, 1886, No. 145; in Italy June 30, 1886, XX, 19,921, and XXXIX, 276; in Canada July 6, 1886, No. 24,435, and in Austria-Hungary March 28, 1888, No. 50,356 and No. 2,708.

To all whom it may concern:

Be it known that I, HERMANN HEIM, manufacturer, a subject of the Emperor of Austria-Hungary, residing at Ober-Döbling, near Vienna, in the Province of Lower Austria, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in Fire-Places, (for which I have obtained Letters Patent in the following countries: in Austria-Hungary, Vienna, No. 50,356, and, Buda-Pesth, No. 2,708, dated March 28, 1888; in France, No. 176,300, dated May 22, 1886; in Belgium, No. 73,221, dated May 22, 1886; in Italy, Reg. Gen., Vol. XX, No. 19,921, and Reg. Att., Vol. XXXIX, No. 276, dated June 30, 1886; in England, No. 6,930, dated May 22, 1886; in Sweden, No. 1,266, dated May 22, 1886; in Norway, No. 145, dated May 22, 1886, and in Canada, No. 24,435, dated July 6, 1886;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Referring to the drawings, Figures 1 and 2 are vertical sections at right angles to each other, taken, respectively, on lines xx and yy . Fig. 3 is a horizontal section, taken on line zz of Fig. 1, of a heater embodying my improvements. Figs. 4 and 5 are schematic views of the magazine or feed-hopper. Fig. 6 is a detail plan and section of a removable grate, and Fig. 7 is an elevation and section of the grate-head or protecting-bar.

The invention relates to heaters, and has for its object to provide means whereby the greatest amount of heat is obtained from a given amount of fuel, and whereby the heat so obtained is most advantageously utilized.

The invention has for its further object improvements in heating devices to prevent the fuel in the magazine from becoming unduly heated and partially deprived of its carbon before being fed to the grate, and to protect the grate from becoming unduly heated and from too rapid wear.

The invention has for its further object to so construct the furnace relatively to the

magazine as to promote the combustion of the fuel, and, finally, the invention has for its object certain minor improvements in the class of apparatus whereby their efficiency is increased.

To these ends the invention consists in structural features and combinations of parts substantially as hereinafter fully described, and set forth in the claims.

In the drawings, A indicates the magazine, that may extend above the fire pot or chamber, so as to admit of the introduction of the fuel from in front of the heater, as shown in Figs. 1 and 2. The said magazine may, however, be extended through an adjoining wall and fed from an adjacent room, as shown in dotted lines in Fig. 1. In either of the arrangements described the receiving end of the magazine is closed by a cover or lid L.

That portion of the magazine that opens into the fire pot or space C above the grate D has its walls formed on angles about or preferably greater than forty-five degrees, so that the fuel will readily move by gravity onto the grate.

To prevent the fuel from falling into the spaces between the inclosing-casing or the shell B and the fire-space and heating-flues, I provide a feed-hopper b , that extends inwardly into the mouth of the magazine, as described in an application for patent filed on or about the 11th of June, 1886, Serial No. 204,865, and which I do not desire to claim herein.

To avoid the undue heating of the fuel in the lower portion of the magazine and the partial decomposition of the component elements thereof, which is the case in all magazine-stoves with which I am acquainted, I extend the lower wall a of the magazine some distance into the fire pot or space C, thus contracting the area thereof immediately above the grate, so that the draft of air through the grate-bars will not permeate the fuel lying in the lower or discharge end of the magazine, as plainly shown in Fig. 1 and the diagram Fig. 5. The difference between this arrangement and the arrangement heretofore in use is plainly shown by said diagram Fig. 5 and by diagram Fig. 4.

Inasmuch as the lip a' , that extends into

the fire pot or space above the grate, is subjected to high temperatures and liable to burn out sooner than other portions, I prefer to form it of a separate piece secured in position so as to be readily removed in case of wear and another substituted.

I have found that in all heaters in which the fuel is fed to the grate on an inclined plane, or at an angle thereto, the draft is materially impaired; and I have also found that this may be obviated by forming a portion of the grate on substantially the same angle. To this end I give the grate D the form of a segment, (shown in Fig. 1,) a portion D' of which has the same inclination or substantially the same inclination as the wall *a* of the magazine.

It is obvious that the projecting lip *a'* of the magazine-wall *a* also serves to protect the rear end of the grate-bars from becoming unduly heated, and to protect the front end thereof I support said end from hollow bearing-bars *e*, that are approximately V-shaped in section and provided at the apex with holes *e'*, Figs. 1 and 6, so that a circulation of air from the ash-pit may at all times be kept up through said bars *e*, whether the grate is a shaking or tilting grate.

For purposes of cleaning the grate without unduly disturbing the fuel thereon, I provide a false grate-plate P, Fig. 7; provided with perforations, adapted to be inserted above the grate D by sliding the same through a suitable opening in the front of the heater onto the supporting-bars *e'*, as described and claimed in my application for patent hereinbefore referred to, and which I do not desire to claim herein.

To further protect the fuel in the magazine from the heat in the combustion-chamber or fire-pot, I line the upper portion of the mouth thereof with a refractory material, as shown at *c*, Fig. 1, the rear surface whereof is parallel, or nearly so, to the inclined wall of said magazine.

The products of combustion pass from the combustion-chamber or fire-pot through openings *o* and *o'* into diving-flues *f' f²*, thence upward through pipes *f³ f⁴*, (connected, respectively, with the diving-flues *f' f²*), and from the latter into a pipe F, common to all the flues or pipes *f' f² f³ f⁴*, and from the said flue or pipe F into the chimney.

The pipes or flues *f' f²* at or near the point where they connect with the flue F are provided with valves or dampers *f*, so that the products of combustion may be conducted either through pipes *f' f²* and pipe F directly to the chimney, or through pipes or flues *f' f² f³ f⁴* to pipe F, and thence to the chimney.

In starting a fire, or whenever an increased draft is required, the dampers *f* are opened and the products of combustion take the course first described, otherwise the dampers *f* remain closed.

The pipes or flues F *f' f² f³ f⁴* are made of sheet metal and are not rigidly connected to-

gether and to the fire-pot and chimney, but the connection is sufficiently loose to allow them to expand and contract under the variations in the temperature without interrupting the connections.

Below the grate is formed the ash-pit, which is hermetically closed by a door *d*, Fig. 1, and said door is provided with draft-slides, as usual, for regulating the draft.

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

1. In a magazine stove or heater, the combination, with the grate and combustion-chamber, of a magazine arranged wholly or partially on an inclined plane relatively to the combustion-chamber and grate and opening into said combustion-chamber above the grate, the lower portion of said magazine being provided with a removable lip or extension projecting into the combustion-chamber beyond the vertical plane of the opening or mouth of the magazine, substantially as and for the purpose specified.

2. In a magazine stove or heater, the combination, with the combustion-chamber and a magazine arranged wholly or partially on an inclined plane relatively to the combustion-chamber, the lower portion of said magazine projecting into the combustion-chamber beyond the vertical plane of the opening or mouth of said magazine, of a grate having partly the same inclination as the lower portion of the magazine-wall, and whose rear end lies underneath the projecting portion of said magazine-wall, substantially as and for the purpose specified.

3. In a magazine stove or heater, the combination, with the combustion-chamber and the grate, of a magazine having its initial or feed opening at or near the front of the heater above the combustion-chamber and its terminal or discharge opening in rear of said combustion-chamber above the grate, the lower portion of said magazine forming an angle with the vertical axis of the combustion-chamber, substantially as and for the purpose specified.

4. In a magazine stove or heater, a fire-pot, a magazine arranged at an angle to the vertical axis of the fire-pot, with its lower wall *a* projecting into said fire-pot, a substantially V-shaped protecting-bar *e*, provided in its inner wall, near the apex, with apertures *e'*, and a grate whose bars are formed on inclines corresponding substantially to the inclination of the inner wall of the bar *e* and to that of the magazine-wall *a*, the ends of said grate-bars extending underneath the bar and wall, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

HERMANN HEIM.

Witnesses:

EDMUND JUSSEN,
OTTO SCHEFFER.