

(No Model.)

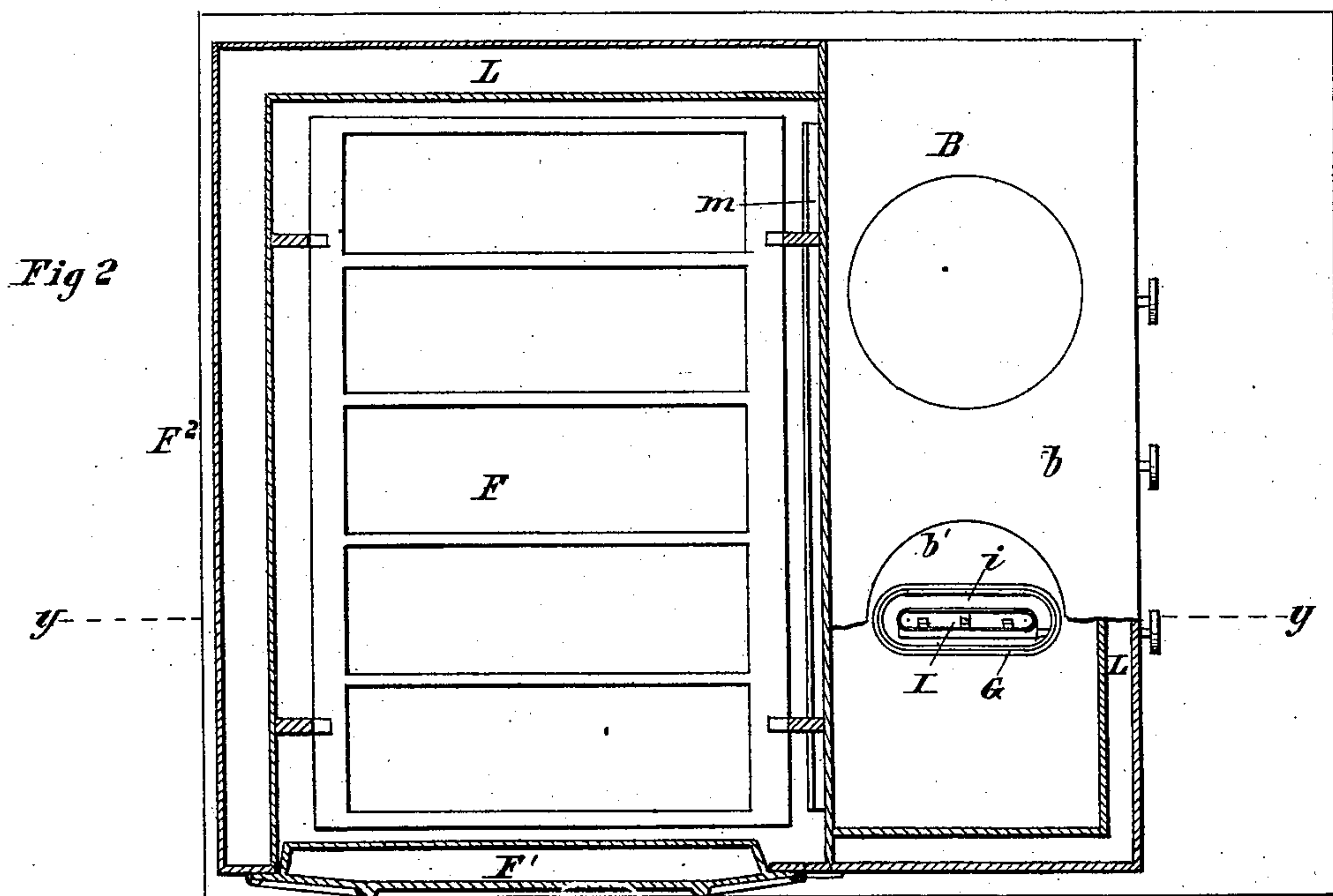
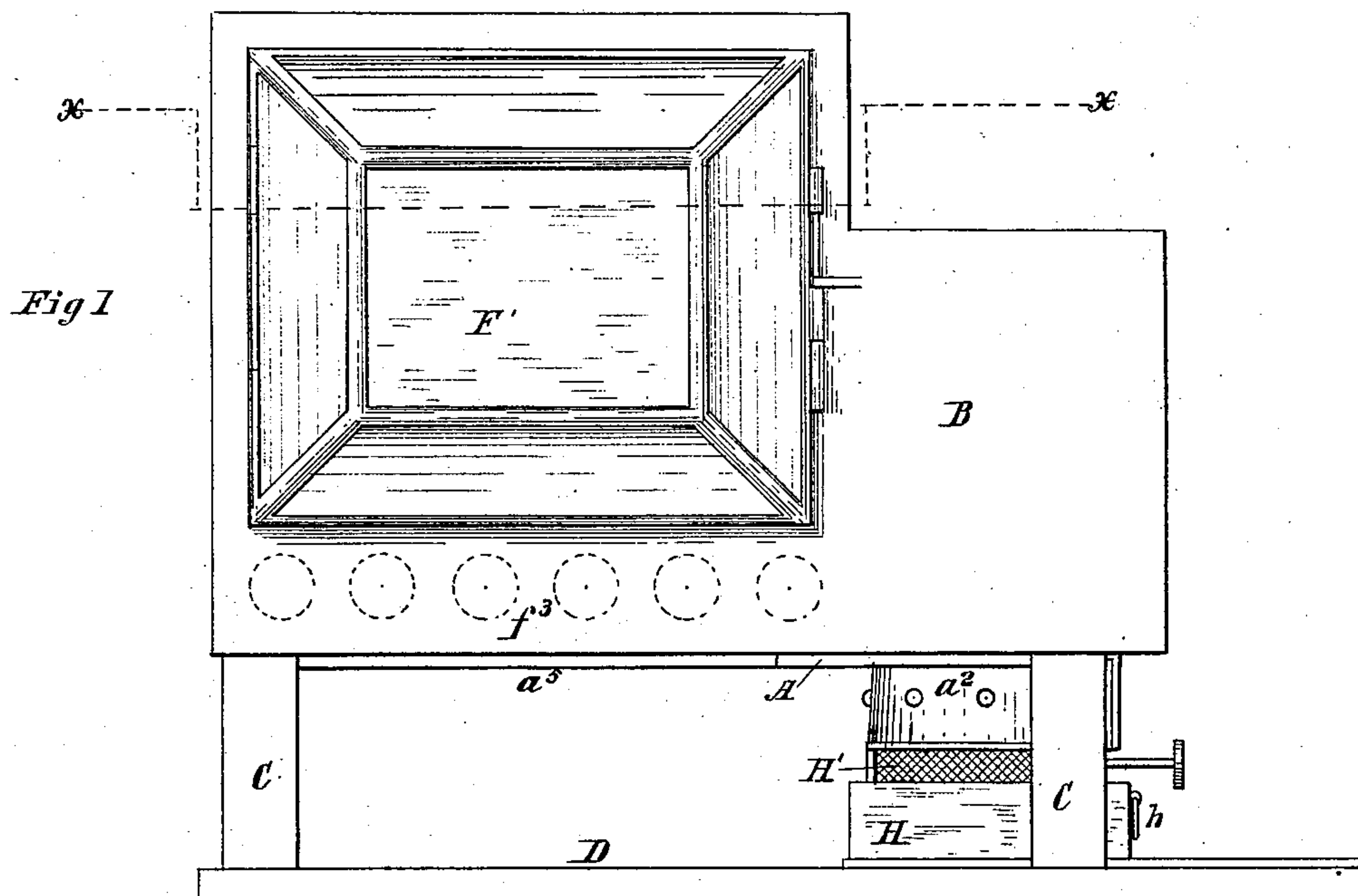
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M. C. ARMOUR.

OIL STOVE.

No. 246,996.

Patented Sept. 13, 1881.



Witnesses

W. C. Corlies
Alice Hallister.

Inventor

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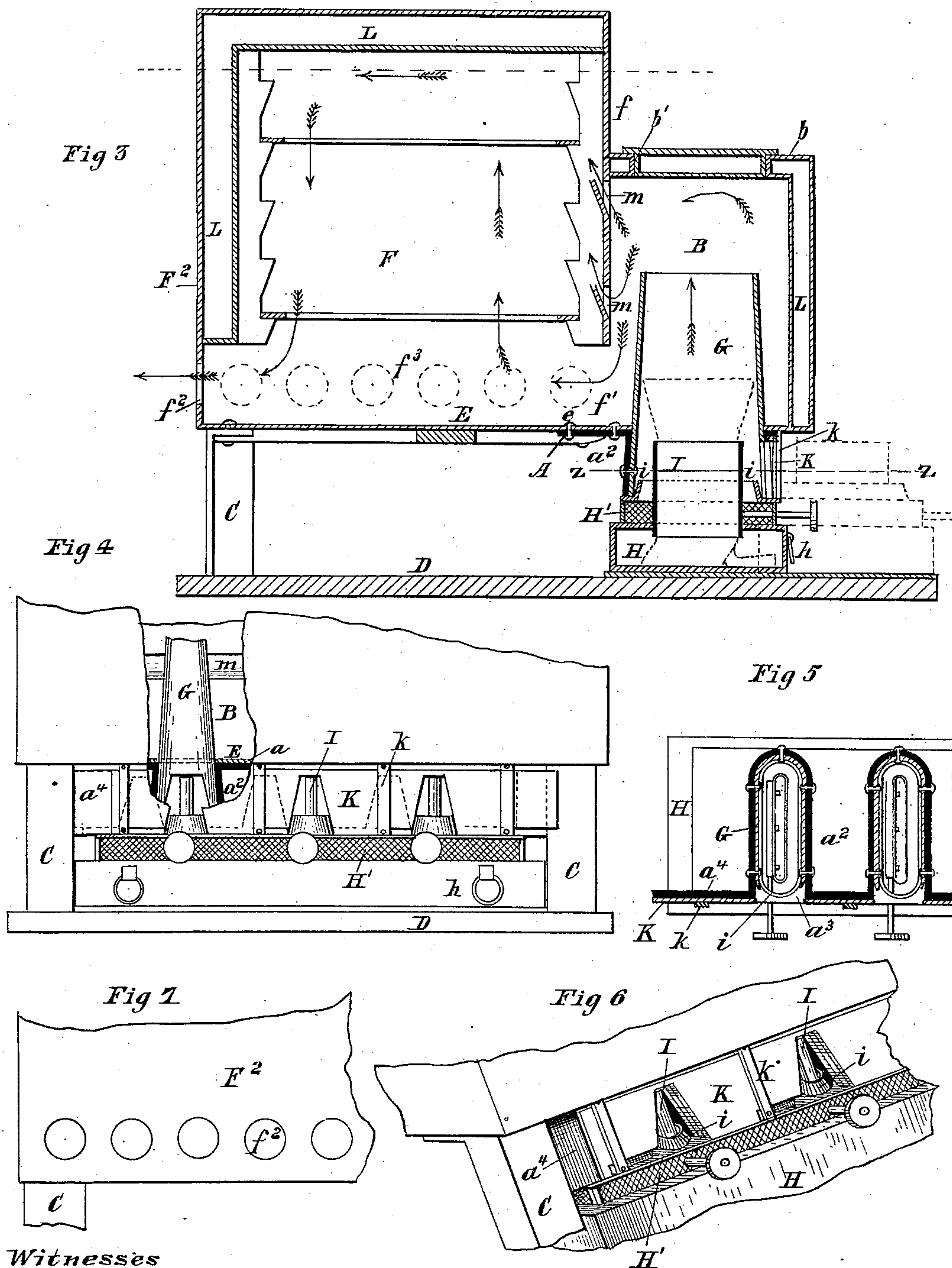
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Fig 8

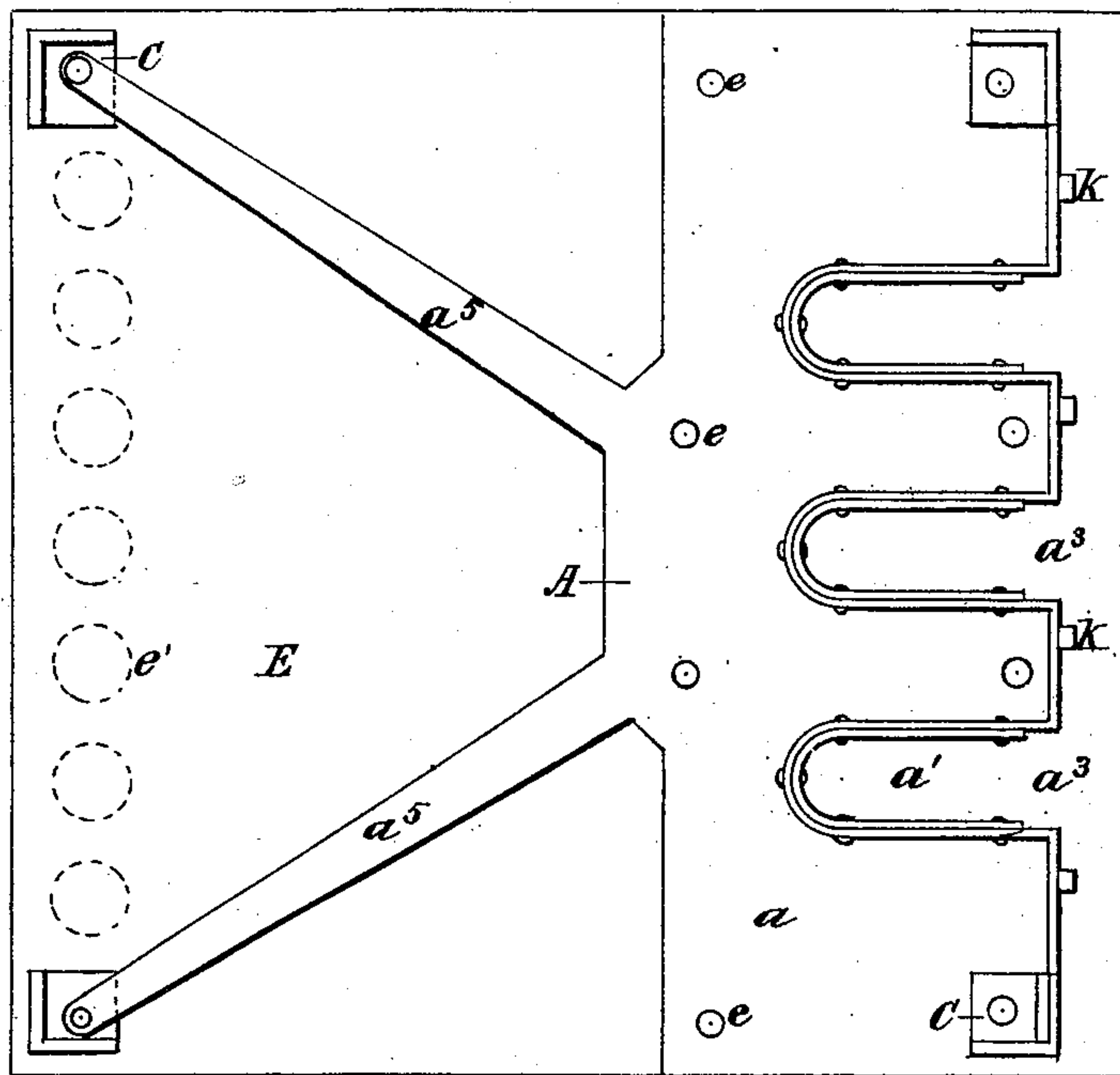


Fig 9

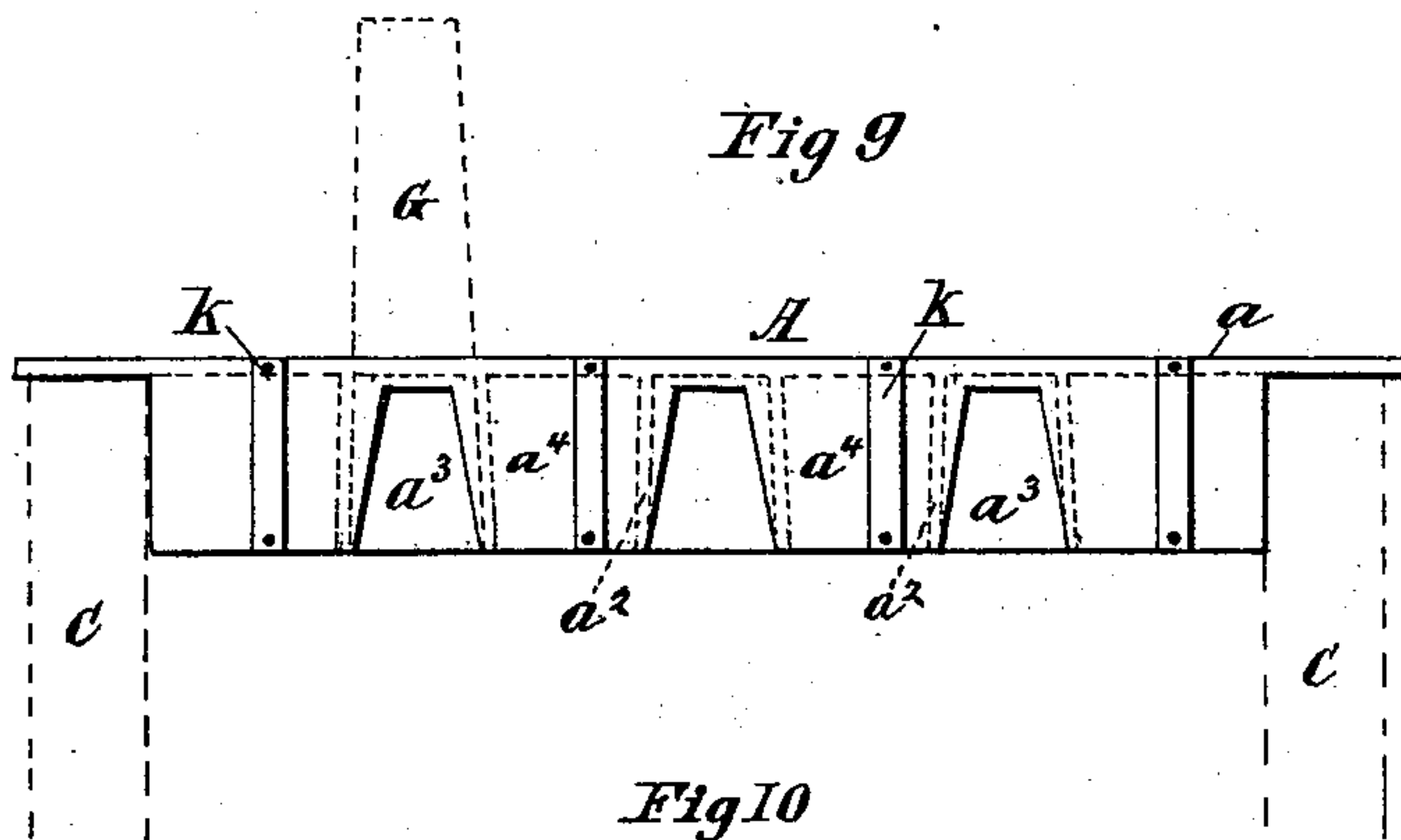


Fig 10



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UNITED STATES PATENT OFFICE.

MICHAEL C. ARMOUR, OF CHICAGO, ILLINOIS.

OIL-STOVE.

SPECIFICATION forming part of Letters Patent No. 246,996, dated September 13, 1881.

Application filed December 13, 1880. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL C. ARMOUR, of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Oil-Stoves, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is an end elevation of an oil-stove having my improvements. Fig. 2 is a horizontal section on the line $x x$ in Fig. 1. Fig. 3 is a vertical section of the stove on the line $y y$ in Fig. 2. Fig. 4 is a detailed front elevation of the lower part of the stove with the front wall of the heat-chamber partly broken away, showing the device for detaching the base. Fig. 5 is a horizontal section for a part of the length of the stove, taken on the line $z z$ in Fig. 3, looking downward. Fig. 6 is a detailed perspective view of the lower left-hand part of the stove-front, illustrating the same arrangement as Fig. 4. Fig. 7 is a rear elevation, showing the lower part of the back wall of the oven for a part of its length only. Fig. 8 is a bottom-plan view of the stove, the base (including the oil-tank and wick-tubes) being removed. Fig. 9 is a front elevation of the bottom casting of the stove. Fig. 10 is a side elevation of a form of cooking-vessel specially adapted for use in connection with my improved hot-air chamber.

The same letters denote the same parts in all the figures.

My invention relates to apparatus for the utilization of petroleum and similar fluids for heating and particularly cooking purposes known as "oil-stoves;" and it consists in an improved arrangement of an oven, in connection with the other parts of the stove, for use at the same time that other parts of the stove are used for boiling, frying, &c.

It consists, also, in an improved arrangement for detaching the base (including the oil-tank and wick-tubes) from the rest of the stove by means of openings in the lower front parts of the chimneys adapted to receive the wick-tubes and surrounding cones, and corresponding openings in the front of the stove, in combination with a sliding plate provided with similar apertures and arranged to register with the openings in the front of the stove or close

them at the pleasure of the operator; and it also consists in the several devices and combinations of devices which will be fully described hereinafter and definitely pointed out in the claims.

In the drawings, A denotes the bottom casting of the stove—most distinctly shown in Figs. 8 and 9. Its front part consists, mainly, of a horizontal plate, a , underlying the hot-air chamber B, and perforated with openings a' of a generally oval shape for the insertion of the chimneys. From the margin of each opening a flange, a^2 , projects perpendicularly downward to inclose the lower part of the chimney. An aperture, a^3 , in the front end of each flange is made of suitable size and shape to allow the wick-tube and surrounding cone to pass in and out through it, and the perpendicular length of the flange is such as to cover the wick-tube and cone without friction against the cone-plate. The flanges are connected with each other in front of the vertical portion a^4 , so as to close the space in front between the apertures a^3 . From the back edge of the plate a , at two points near the middle and equally distant therefrom, diverge at equal angles a pair of bracing-arms, a^5 , to the back corners of the structure. To the outer ends of these arms and to the front corners of the plate a are bolted feet C, of any suitable form. These feet are affixed to a level platform, D, of metal, thoroughly seasoned wood, or other suitable material, and are of a height just sufficient to allow the base from which the wick-tubes rise to slide smoothly under the downwardly-projecting portions a^2 and a^4 of the bottom casting, A. This casting supports the sheet-metal flooring E of the oven F and heat-chamber B, this flooring being bolted at e to the ends of the arms a^5 and to the horizontal plate a , or attached thereto in any other suitable manner.

In the particular construction shown in the drawings both oven and heat-chamber are rectangular in shape, (though the shape may be considerably varied without affecting the principle of the invention,) the heat-chamber occupying the space above the plate a and the oven the space above the diverging arms a^5 . The front wall, f , of the oven does not come quite down to the floor E, the open space

f' , as represented in the drawings, being about a fifth of the whole distance from the top of the oven, though the precise proportion is not essential. The roof b of the heat-chamber is set against the front wall, f , of the oven at a height about two-thirds as great as the roof of the oven, though the proportion may be considerably varied without altering the character of the invention, the front and end walls of the heat-chamber resting on the edges of the plate a , and its back wall being thus the same as the front wall of the oven, and affording free communication between the two by means of the open space f . There are also upward openings, m , from the heat-chamber into the oven through the wall f , which may be conveniently made by incisions in the form of three sides of a narrow rectangle extending nearly the whole length of the stove, the piece thus partly cut out being bent at a slight inclination. The chimney-openings a' in the plate a are continued through the flooring E . The chimneys G fit these openings closely, and extend from the lower margins of the flanges a^2 to a point some distance below the roof of the heat-chamber, the lower margin of the wall f , which separates the heat-chamber from the oven, being somewhat below the tops of the chimneys. The aperture a^3 in the fronts of the flanges a^2 is continued through the chimneys also, each of which is riveted to its surrounding flange, and is thus prevented from warping out of shape and losing its correspondence with the wick-tube and cone. The oil-tank H is of a length to pass between the front feet, C , and its height added to that of the air-chamber H' reaches to the bottoms of the flanges a^2 and chimneys G ; the number and positions of the wick-tubes I and surrounding cones i corresponding to the chimneys. The base $H H'$ has handles h in front for convenience of drawing it out from under the plate a , so that, if desired, it may be used independently or in connection with other apparatus.

An upright plate, K , is arranged above the base $H H'$ and in front of the chimneys in guides k , supported on the bottom casting, A , which allow the plate to slide lengthwise. This plate is somewhat longer than the space occupied by the fronts of the chimneys, and has openings k' corresponding to the openings a^3 in the chimneys and surrounding flanges, so that by moving the plate lengthwise in its guides the openings a^3 may be closed, so as not to interfere with the proper draft of the flame, or may be made to continue through the plate, so that the base $H H'$ can be drawn out or put in, as may be desired.

The operation of this device is shown in Fig. 4, the full lines showing the plate in position for removing and replacing the base, while the dotted lines show the plate in position for using the stove.

The ceilings and all outer walls of both oven and heat-chamber are made double, except in

the lower part of the oven, whose lining-walls (except in front) come down as far as the partition between the oven and the heat-chamber. Their lower margins are connected with the nearest outer wall so as to form a dead-air chamber, L , between the two, or, if preferred, a receptacle for asbestos or other non-conductive packing. The oven-door F' is also made double, so as to form a similar close-air chamber.

In the lower single part of the back wall, F^2 , of the oven, I make a series of apertures, f^2 , for the escape of air, the only other openings in the oven (when the door is shut) being those which admit hot air from the heat-chamber. By this arrangement, when the heating of the oven begins, the colder air with which it is filled at first escapes naturally as fast as the hot air can enter, instead of remaining to undergo a slow process of heating, as would be the case were the escape-openings at the top instead of the bottom of the oven. Substantially the same results would be attained by openings e' in the back part of the flooring E , as shown in dotted lines in Fig. 8, or by openings f^3 in the lower parts of the end walls, as shown by dotted lines in Figs. 1 and 3; or the openings might be distributed through all these parts. I believe, however, that the change of air will be most directly effected by the arrangement first described.

From the described arrangement of the heat-chamber and oven, as shown in Fig. 3 of the drawings, it results that nearly the whole heating-space of the oven is higher than the tops of the chimneys, the lowest part of the oven being appropriated to the outlet of the cooler air and the lowest shelf for baking being almost on a level with the tops of the chimneys, so that bread or meats placed on it bake as readily for all practical purposes as in any other part of the oven.

The height of the ceiling of the heat-chamber B above the tops of the chimneys gives room to set the cooking-vessels almost entirely within the heat-chamber, thus making the process of cooking much more rapid. For this purpose I have devised the peculiar form of vessel shown in Fig. 10. This consists of an upper portion, N , whose vertical dimension is barely sufficient to allow room for the spout n or other part, which must be outside the heat-chamber, and a deeper lower portion, N' . The diameter of the upper portion, N , is somewhat greater than that of the opening b' in the roof of the heat-chamber, while the diameter of the lower portion, N' , is somewhat less than b' , so as to be wholly within the heat-chamber, thus heating the contents much more rapidly than with apparatus of the ordinary construction.

The level platform D , firmly attached to the rest of the structure, obviates the inconvenience which often arises from having to set the stove on an uneven surface. With the arrangement shown a steady and level position of the stove is readily secured.

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

1. In an oil-stove, a heat-chamber elevated above the platform and provided with apertures in its floor, in combination with a petroleum-burner arranged under the floor, and chimneys fitting in the apertures and opening into the heat-chamber above and reaching to the cone-plate below, substantially as and for the purpose described.

2. In an oil-stove, a heat-chamber above the platform and provided with apertures in its floor, a burner or burners beneath the floor, and a chimney or chimneys adapted to the burner or burners and extending upward from the apertures in the floor of the chamber, substantially as described.

3. In an oil-stove, a heat-chamber elevated above the platform and provided with apertures in its floor, in combination with a petroleum-burner detachably arranged under the floor, chimneys fitting in the floor-apertures and opening into the heat-chamber above and reaching to the cone-plate below, and provided with front apertures at their bases adapted to allow the passage of the wick-tubes and their cones, and a sliding plate arranged below the heat-chamber and in front of the chimneys and provided with apertures corresponding to the front apertures of the chimneys, substantially as and for the purpose described.

4. The bottom casting, A, provided with the diverging arms a^5 and downwardly-projecting

flanges a^2 and a^4 , having the front apertures, a^3 , substantially as and for the purposes described.

5. The bottom casting, A, provided with the diverging arms a^5 , substantially as and for the purpose described.

6. The movable burner H H', in combination with the chimneys G and projecting flanges a^2 , both chimneys and flanges being provided with the front aperture, a^3 , substantially as and for the purpose described.

7. The oven F, heat-chamber B, chimneys G, provided with front apertures, a^3 , bottom casting, A, sliding plate K, and base H H', all constructed, arranged, and operating in combination, substantially as and for the purposes described.

8. A heat-chamber, in combination with an oven arranged at the side of it and having a common wall with it, and communicating with it by apertures m , formed and arranged substantially as and for the purpose described.

9. A petroleum-burner, in combination with a heat-chamber arranged above it and an oven arranged at the side of and communicating with the heat-chamber and having the principal part of its heating-space higher than the tops of the chimneys, substantially as and for the purpose described.

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Witnesses:

JNO. C. MACGREGOR,
THOMAS H. PEASE.