

L. F. Hoke,

Grate.

No. 62,265.

Patented Feb. 19. 1867.

Fig. 1.

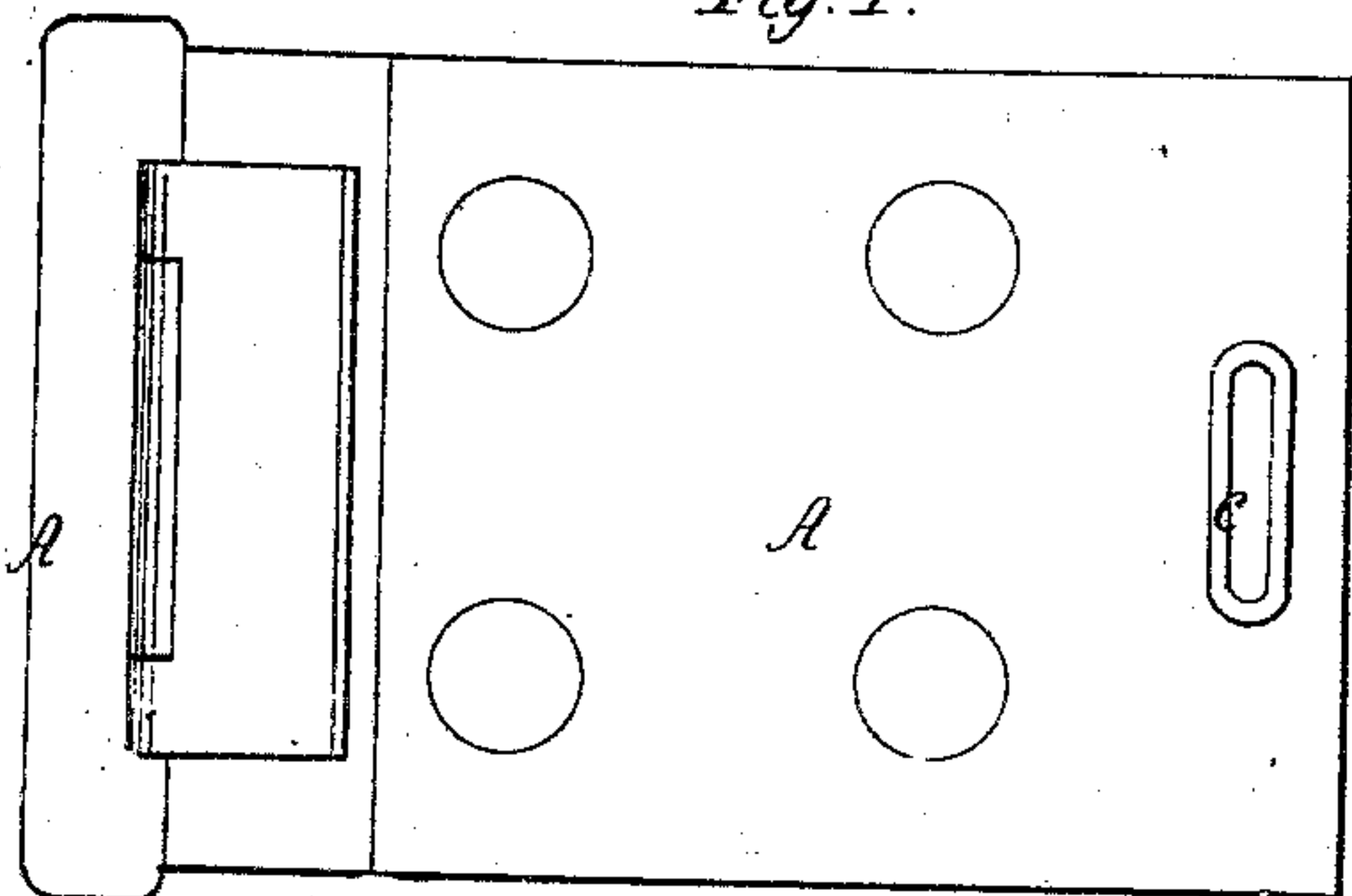


Fig. 3.

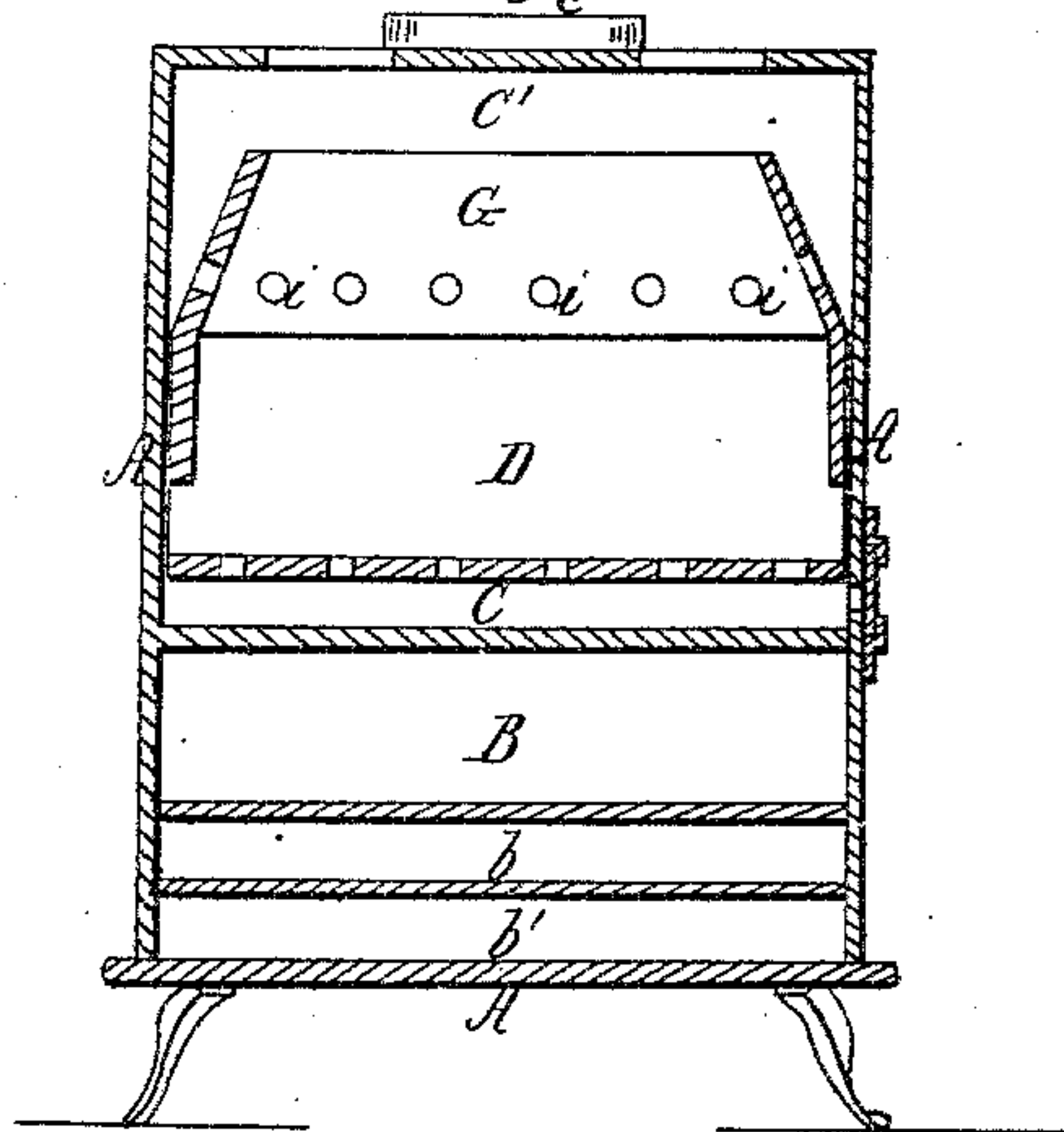


Fig. 2.

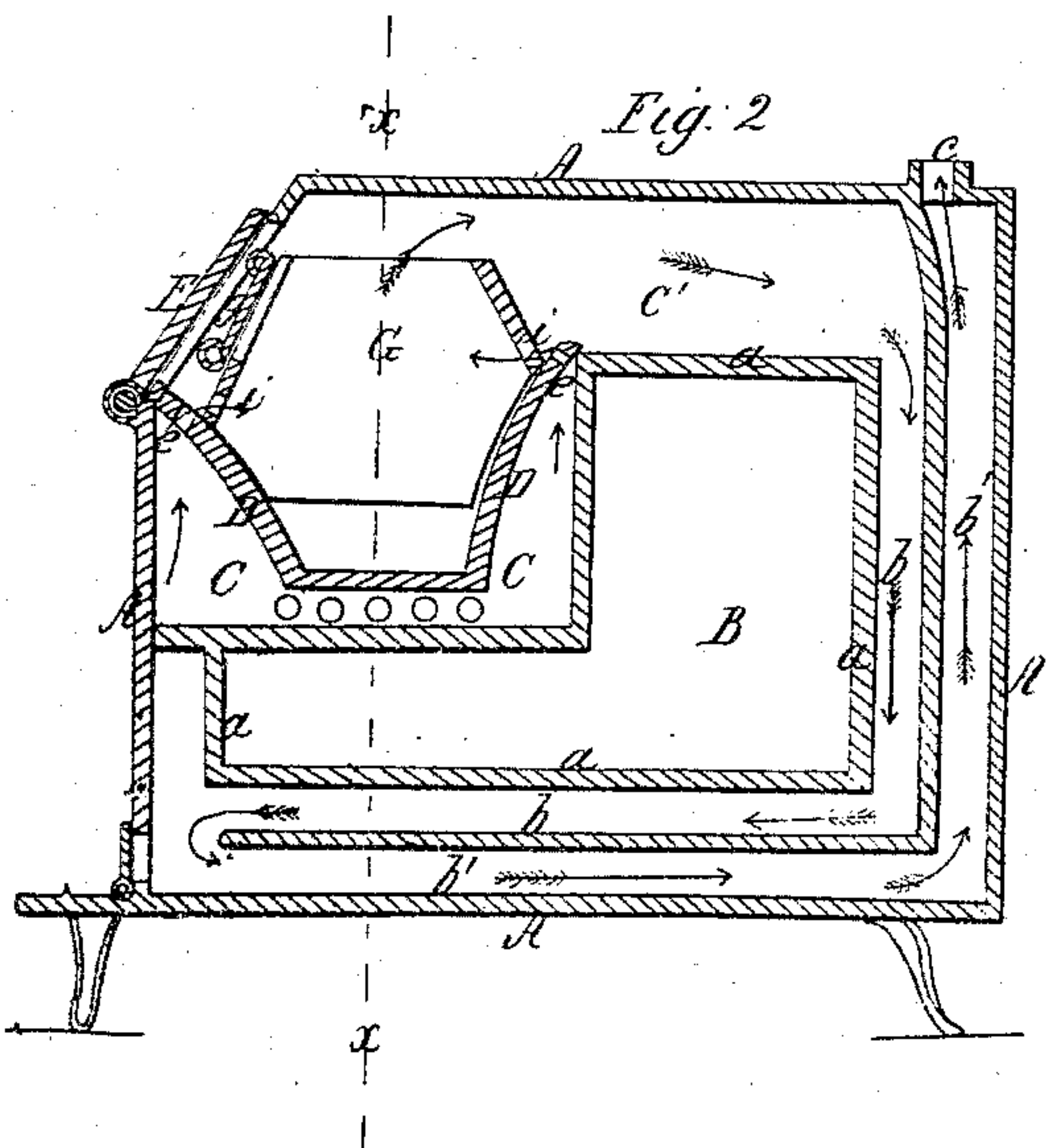
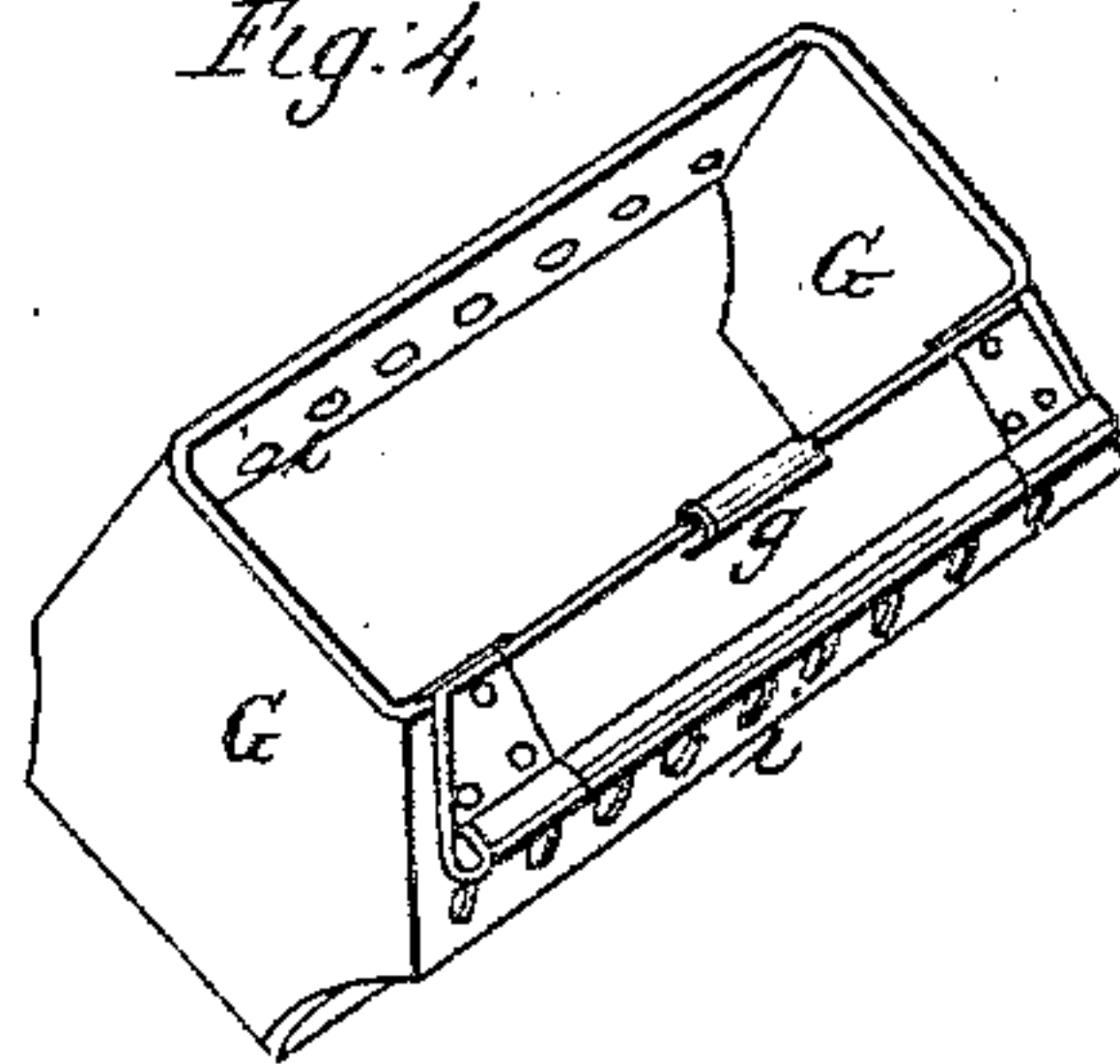


Fig. 4.



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LEWIS F. HAKE, OF SALEM, OHIO.

Letters Patent No. 62,265, dated February 19, 1867.

GRATE FOR STOVES.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that I, LEWIS F. HAKE, of Salem, Columbiana county, State of Ohio have invented a new and useful Improvement in Stoves; and I 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 is a top view of a stove having my invention applied to it.

Figure 2 is a longitudinal section through the stove taken in a vertical plane.

Figure 3 is a transverse section taken in a vertical plane indicated by red line *x x*, fig. 2.

Figure 4 is a perspective view of the contracted portion of the fire-box.

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

The object of this invention is to obtain a more perfect combustion of the gas and smoke arising from the open fire-boxes or grates of warming and cooking stoves, ranges, and furnaces of every description, by applying a contracted cap to the open fire-box, which will concentrate and retain the gas and smoke directly over the fire at the hottest point of the stove a sufficient length of time to effect their combustion, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings I have represented my invention applied to one form of stove having an open fire-box, but do not desire to confine the invention to this form of stove, as it is applicable to all open fire-boxes wherever arranged.

A represents the outer walls of a cooking stove, and B is the oven thereof, which is formed by means of the plates *a a*, so as to leave a chamber, C, at the front, a flue-chamber, C', on top, two flues *b b'* at the back, and two flues *b b'* at the bottom, as shown in figs. 2 and 3. The products of combustion and heated air escaping from the open fire-chamber C, pass over the oven B down through the flue *b* forward to the front of the stove, and thence back again through the flue *b'*, and finally escape through the smoke pipe or exit flue *c*, as indicated by the course of the arrows in fig. 2. I have merely described the flues *b b'* for the purpose of illustrating how my invention is applied to a stove, but such flues constitute no part of the invention which I claim. The form of the stove and the arrangement of the stove may be such as shown, or of any other suitable known construction. Within the fire-chamber C I apply a grated bottom box, D, the front and rear sides of which flare upward and outward so as to leave spaces for the passage of air before and behind the box D, upward and through perforations which are made through this box, as shown at *e e*, fig. 2. Cold air is allowed to enter the chamber C at suitable points, so as to supply oxygen to the fire in the box D, and to commingle with the products of combustion arising in this box for the purpose of effecting the combustion of the smoke and gas. The fire-box D in horizontal section is rectangular, and upon this box is supported a pyramidal cap, G, which has an opening of considerable less area than the area of the fire-box, as shown in figs. 2 and 3. The inclined ends and sides of this cap G fit snugly down upon the fire-box, and are perforated at *i i* for allowing air to enter and commingle with the gas and smoke therein. This cap G is so applied to its fire-box that it can be removed therefrom at pleasure and readily replaced. It is provided with a hinged door, *g*, which admits of the introduction of coal into the fire-box D when the stove door E is opened. By providing said cap G, with a door, *g*, the upper end of the cap can be raised to a point which is very near the top plate of the stove, without interfering with the supply of fuel through the door E. As the highly heated gas and smoke rise from the burning coals in the fire-box D they impinge upon the inclined sides of the cap G, and are deflected downward; this retards the escape of the gas and smoke from the cap, and allows highly heated air to commingle with them and thus increase the heat to such an extent that they will in a great measure be consumed in the contracted chamber formed by the pyramidal cap.

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

1. Providing for contracting the exit passage for the products of combustion from an open fire-box by means of a pyramidal or conical cap, substantially in the manner and for the purpose specified.
2. The application of a door or its equivalent to the cap G, substantially as described.
3. Perforating the cap G when applied to an open fire-box, substantially as described.

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