C. H. BLANCHARD.

Stove.

No. 225,208. Patented Mar. 9, 1880.

Fig. 1.

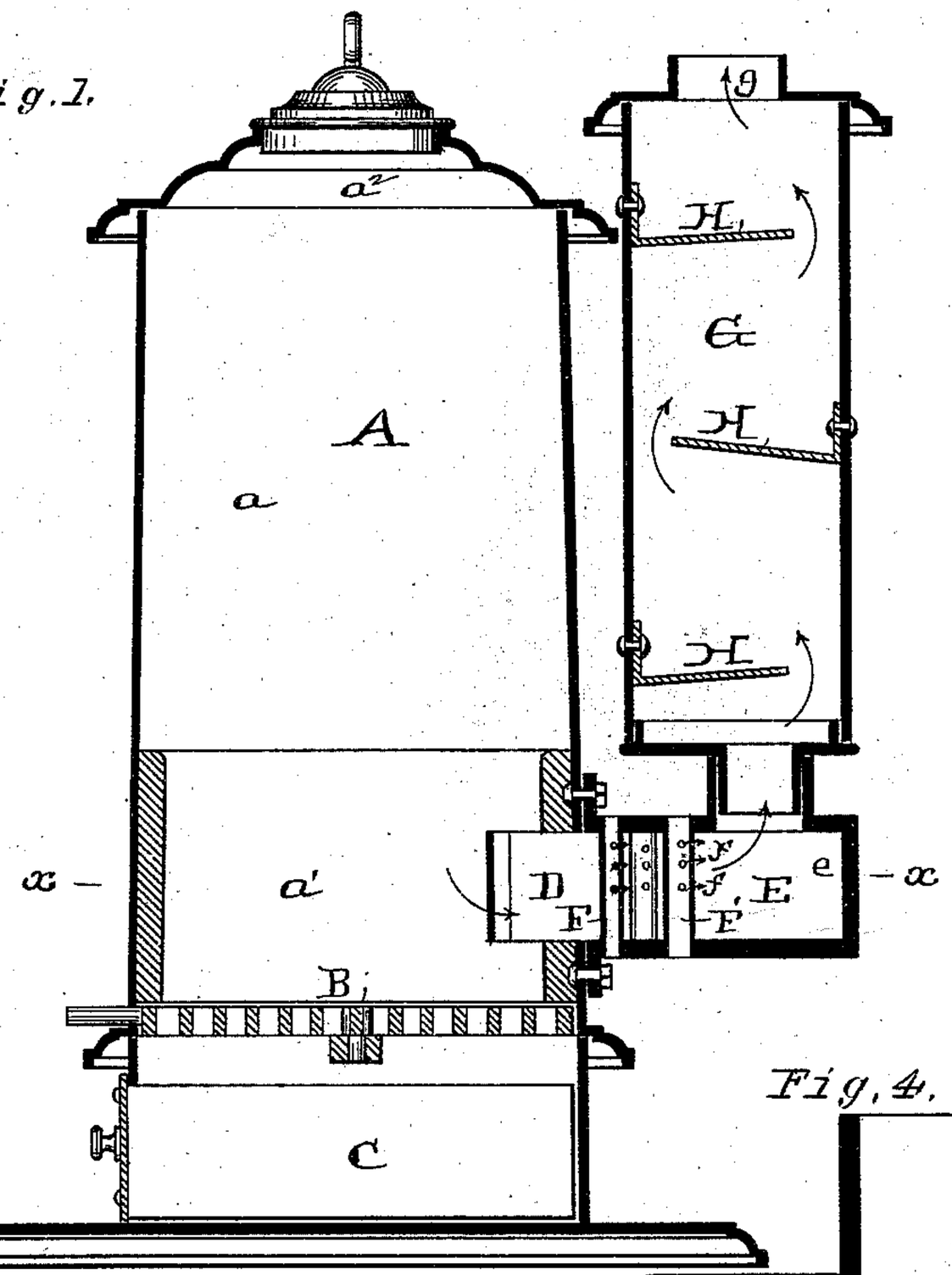


Fig. 3.

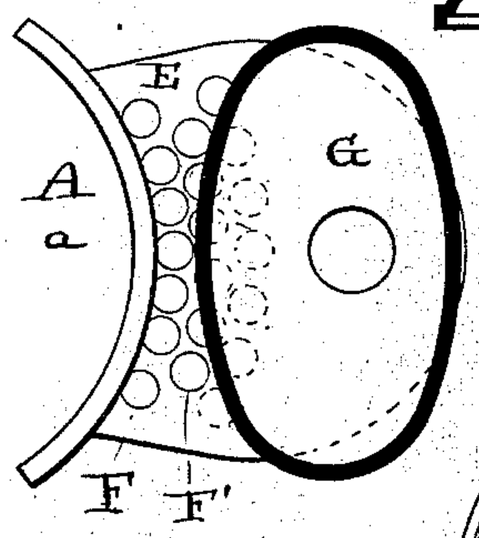


Fig. 4.

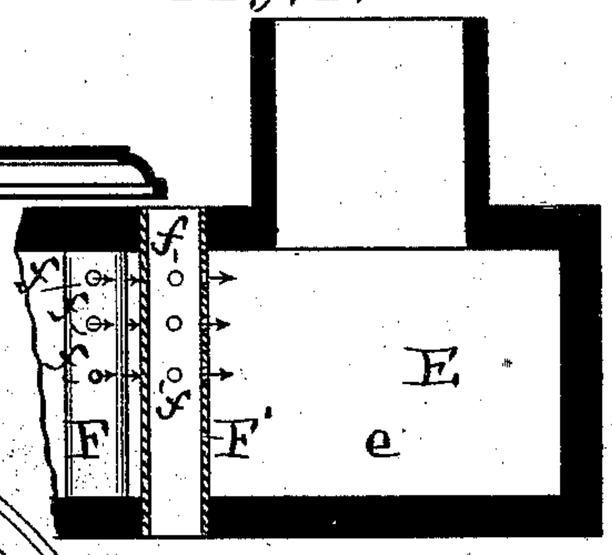
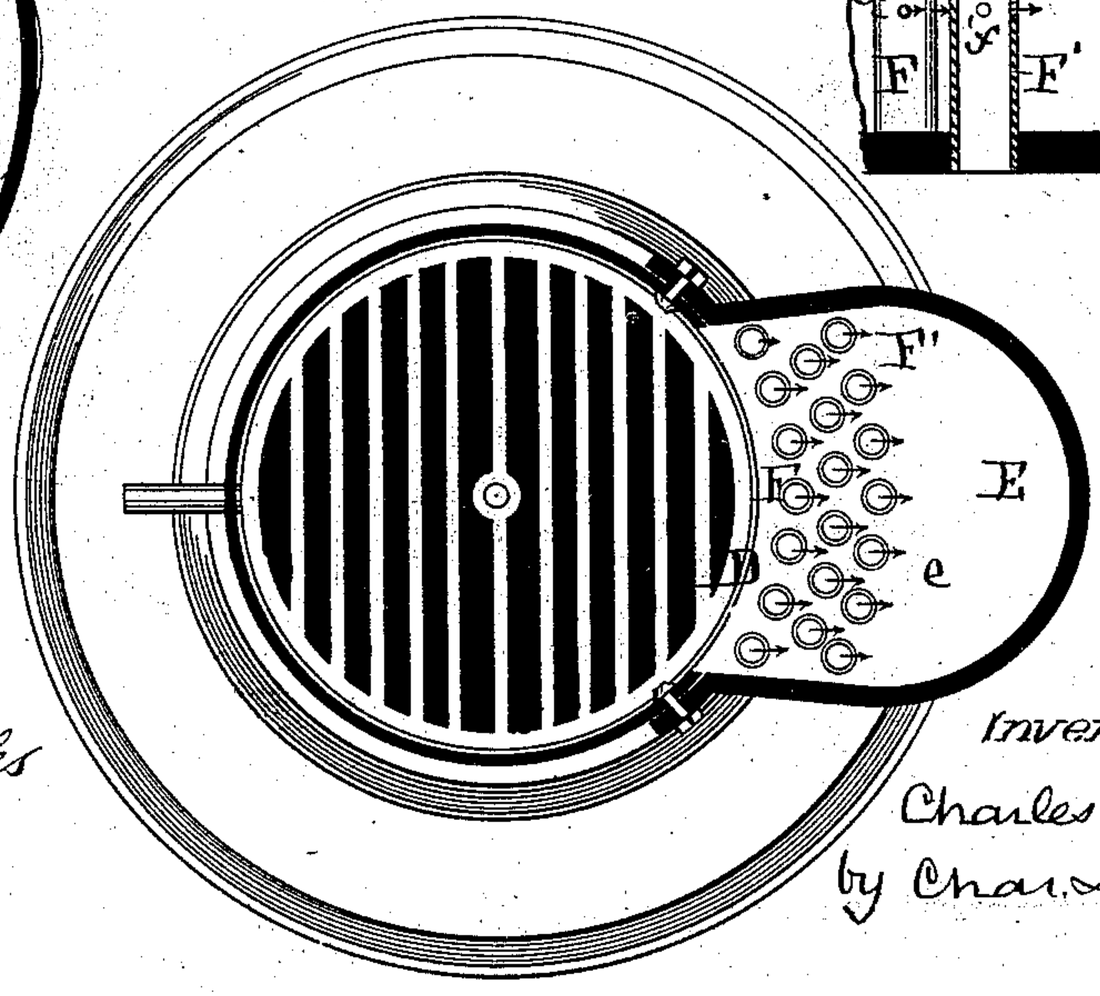


Fig. 2.



Attest,
Paul Bakewell
Charles Pickles

Inventor
Charles H. Blanchard
by Chas. S. Moody
atty.

UNITED STATES PATENT OFFICE.

CHARLES H. BLANCHARD, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-THIRD OF HIS RIGHT TO CHARLES D. MOODY, OF SAME PLACE.

STOVE.

SPECIFICATION forming part of Letters Patent No. 225,208, dated March 9, 1880.

Application filed December 1, 1879.

To all whom it may concern:

Be it known that I, CHARLES H. BLANCHARD, of St. Louis, Missouri, have made a new and useful Improvement in Stoves, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a central vertical section taken through a stove embodying the improvement; Fig. 2, a horizontal section taken on the line *x x* of Fig. 1; Fig. 3, a detail, being a horizontal section taken through the drum, and showing the combustion-chamber beneath and a portion of the wall of the fuel-magazine; and Fig. 4, a detail, being a vertical section taken through the outer combustion-chamber.

The same letters denote the same parts.

My invention relates to an improvement in that class of base-burning stoves wherein the exit for the escape of the products of combustion is at or near the bottom of the fire-pot, and more especially to the means employed for increasing the durability of that portion of the construction against which the flame and heat-rays impinge in leaving the fire-pot.

It also has reference to the means employed in obtaining a more perfect combustion, a higher degree of heat, and a more extended heating-surface.

Referring to the drawings, A represents an upright chamber, the upper and principal portion, *a*, of which serves as a fuel-magazine, and the lower portion, *a'*, as a fire-pot. The chamber may, in its general form, have any desired shape, being preferably a frustum of a cone, to facilitate the descent of the fuel into the fire-pot.

B represents the grate, and C the ash-pit.

The fuel is introduced into the chamber at a^2. The products of combustion pass off through the exit D, which is at or near the lower level of the fire-pot.

The exit, in place of being confined to one side of the fire-pot, may be widened as desired, and even may be extended entirely around the fire-pot.

The exit leads into the chamber E, which, in width, is preferably equal to the opening immediately beyond the latter, and thence widening slightly toward the farther end *e* of the chamber. In height, also, the chamber is preferably equal to the opening D, and in depth the chamber may be extended as desired.

Now, the fuel, unless prevented, would escape from the fire-pot into the chamber E and occasion trouble. The usual practice, therefore, is to make the opening D a grated one. The heat, however, in use, is intense immediately at the exit D, and an ordinary grating soon gives way.

Now, to strengthen and to increase the durability of this portion of the construction is an especial aim of this invention; and this part of the invention consists in making the bars forming the grating in the exit D hollow, forming air-passages, through which the cooler air without the stove or fire-pot can circulate, thereby keeping the grate-bars from becoming sufficiently heated to burn out. F F′ represent the air-passages in question, being in the form of tubes opening at both ends to the air without the stove.

One (F) or more (F′) series of tubes may be used, as desired, and they may be arranged, and also spaced apart, in any way consistent with their purpose, which is twofold as thus far described—viz., to keep the fuel in place in the fire-pot and to provide for the circulation of the air. These tubes, however, are valuable for other purposes. They increase the heating-surface of the stove, and they promote a circulation of air within the apartment containing the stove, and at or near the lower level of the apartment, the level at which an air-circulation is most desirable. They also serve another purpose.

f f f represent perforations in the tubes, preferably near the upper ends thereof, and preferably at points not opposite to the draft coming from the opening D. These perforations *f f* enable the outer air to pass into the chamber E, and thereby, by uniting with the gaseous currents issuing from the fire-pot, enable a more perfect combustion of the fuel to take place.

By locating the perforations toward the upper ends of the tubes the air is heated more before entering the chamber E, and by ar-

ranging them so as not to be opposed to the opening D they are not liable to become clogged with ashes, and the entering air does not conflict with the heat-currents. The perforations *f f* also serve to promote the air-circulation through the tubes, for the air entering at the lower end of the tubes, by being partly sucked into the chamber E, and ultimately into the final escape, necessarily must move more rapidly through the tubes than would be the case if the tubes were not perforated at *f f*. So far as the passage of air through the tubes F and perforations *f* into the chamber E is concerned, it is sufficient if the tubes F are open at one end only to the outer air.

The chamber E therefore, in connection with the air-supply described, forms an outer combustion-chamber, and provides means for a very thorough combustion of the gaseous currents coming from the fire-pot.

I preferably, to further multiply the heating-surface, cause the heat-currents, after leaving the chamber E, to pass into a drum, G, and thence off at *g*. The drum, however, may be regarded as an extension of the chamber E. Deflectors H H H are used to increase the heating capacity of the drum.

I claim—

1. The apartment A, having the opening D and the hollow grate-bars F, for the purpose described.

2. The combination of the apartment A, having the opening D, the hollow grate-bars F, and the chamber E, substantially as described.

3. The combination of the apartment A, having the opening D, the hollow bars F, and chamber E, said bars being perforated at *f*, substantially as described.

4. The chamber E and tubes F, the latter having the perforations *f* at the upper ends of the tubes, for the purpose described.

Witness my hand this 15th November, 1879.

CHARLES H. BLANCHARD.

Witnesses:

CHAS. D. MOODY,

PAUL BAKEWELL.