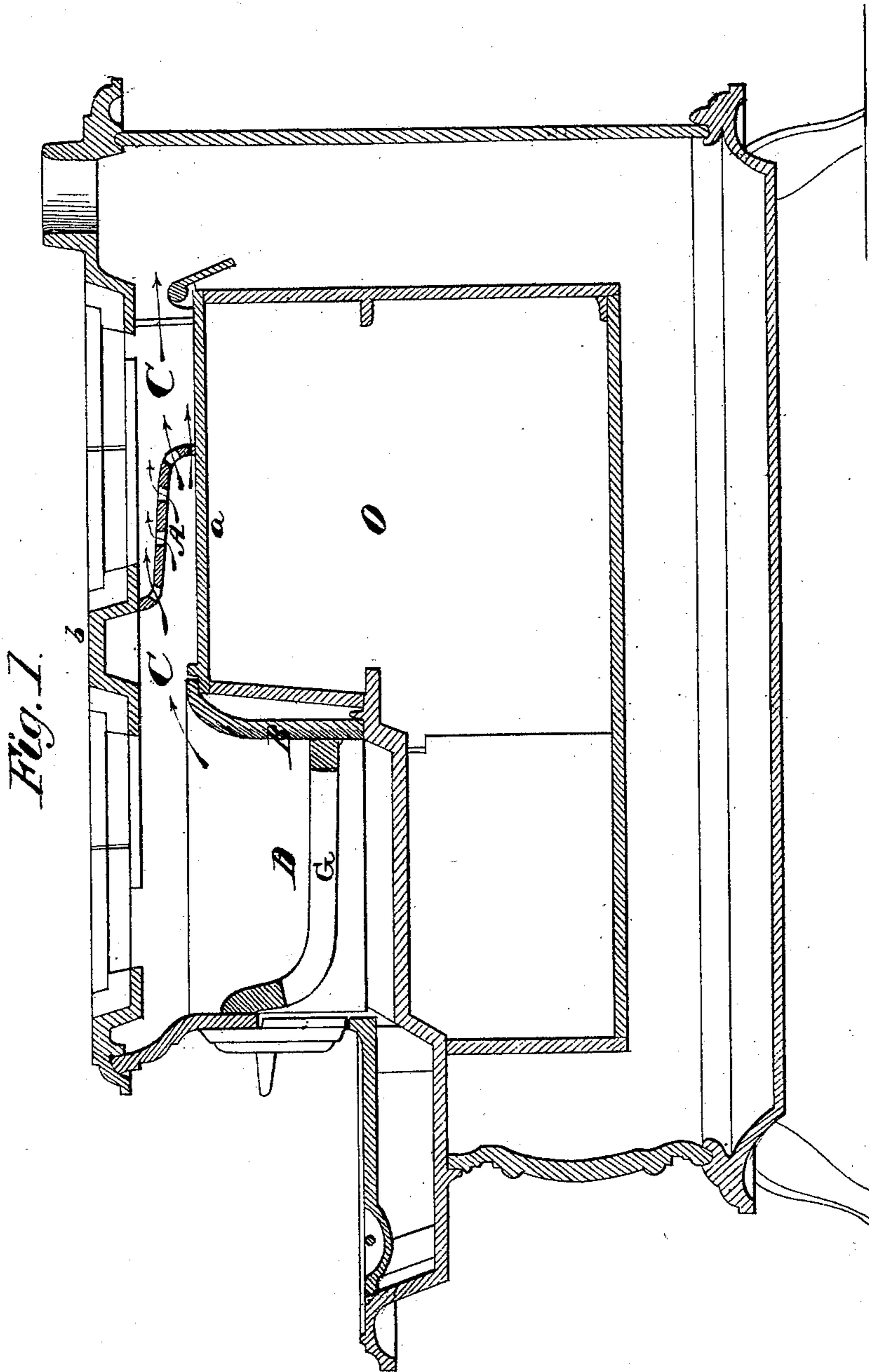


F. CLEMENT.
Cooking-Stove.

2 Sheets—Sheet 1.

No. 113,742.

Patented Apr. 18, 1871.



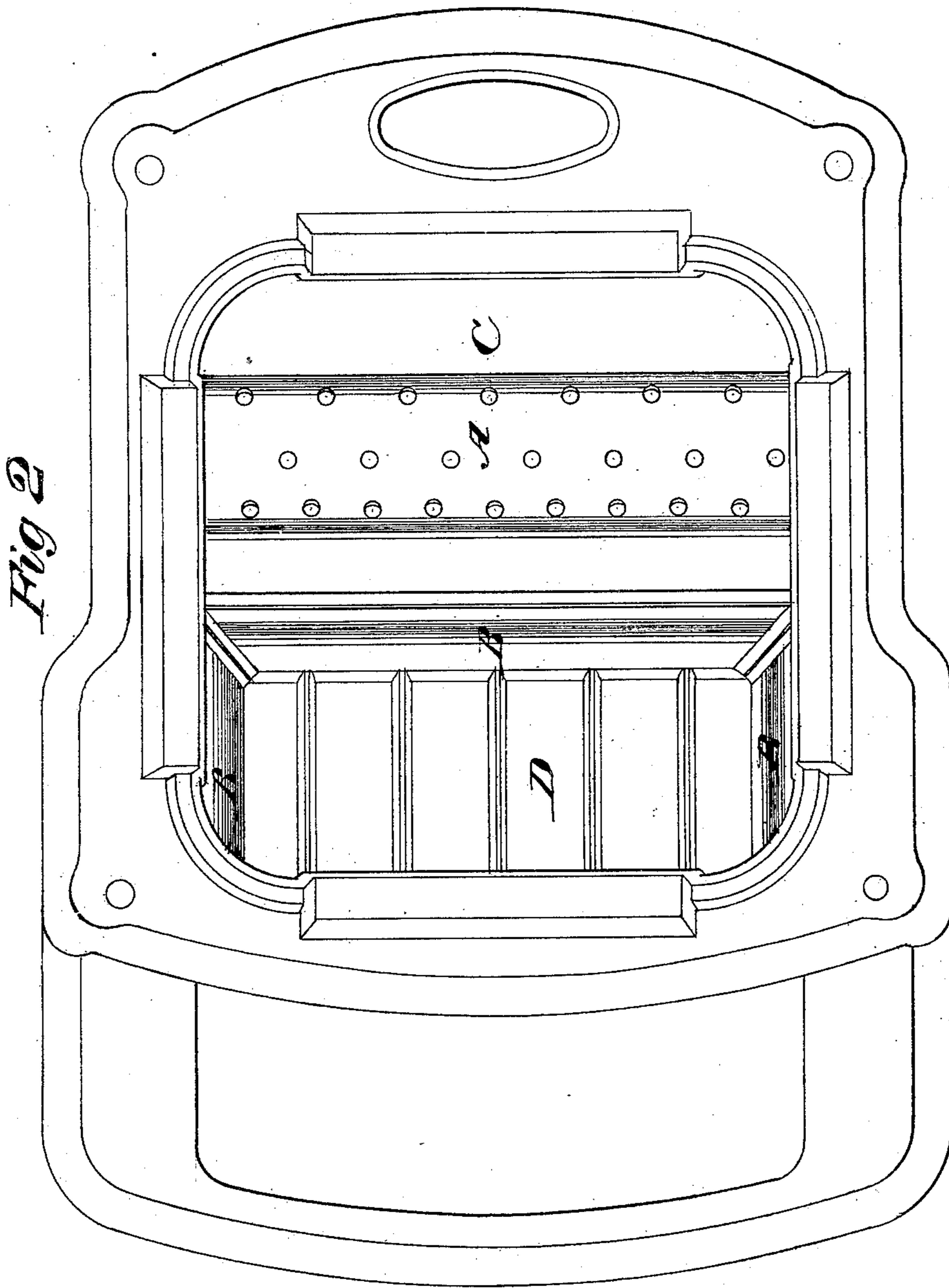
Witnesses.
R. H. Campbell
J. H. Campbell

Inventor
F. B. Clement
by
Mar. Smith & Lawrence

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UNITED STATES PATENT OFFICE.

FRANKLIN CLEMENT, OF ST. LOUIS, MISSOURI, ASSIGNOR TO CHARLES H. BUCK AND WILEY S. WRIGHT, OF SAME PLACE.

IMPROVEMENT IN COOKING-STOVES.

Specification forming part of Letters Patent No. **113,742**, dated April 18, 1871.

To all whom it may concern:

Be it known that I, FRANKLIN CLEMENT, of St. Louis, in the county of St. Louis and State of Missouri, have invented certain new and useful Improvements in Stoves for Cooking and other Purposes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1, Plate 1, is a section taken vertically and longitudinally through a cook-stove having my invention applied to it. Fig. 2, Plate 2, is a top view of the stove with the top plates, bridges, and grate removed.

Similar letters of reference indicate corresponding parts in both figures.

One of the objects of my invention is to arrange a device in the flue of a cook-stove (or other kind of stove or heater) between the fire-place and outlet for the products of combustion which will arrest the soot on its way to the escape-flue and retain it long enough to be burned, thus utilizing fuel and preventing, in a great measure, the fouling of the flues of the stove, as will be hereinafter explained.

Another object of my invention is to employ chilled-iron linings and grates for the fire-chambers of stoves, ranges, and other heaters, the chilled surfaces being contiguous to the fuel, and thus adapted to prevent the rapid destruction of the metal, and also the accumulation or attachment of "clinkers" thereto, as will be hereinafter explained.

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

In the accompanying drawing I have represented my invention applied to a single-oven cooking-stove.

It will be obvious from the following description that the invention is equally applicable to other forms of stoves, such as ranges, heaters, and the like, without changing the principle thereof.

In the flue-space C, between the fire-chamber and the exit-pipe, and between the top plate *a* of the oven and the top plate of the stove, a perforated diaphragm, A, is applied, through which the products of combustion are compelled to pass on their way to the flues

back of the oven O. This diaphragm A may be perforated with round or oblong holes, and it is arranged in such close proximity to the fire-chamber D that it will become highly heated. It may be movable so that it can be adjusted and set at different points between the fire-chamber and the exit-flue; and, if desirable, it may be removable, so that should it become broken or burned out another can be substituted in its stead. This diaphragm A operates as a soot-trap. It will allow the gaseous products of combustion to pass freely through it, but it will catch and collect the particles of soot and other unburned matters and retain them until they are consumed. By thus collecting and burning the soot a more perfect combustion, and consequently a saving of fuel, is obtained.

The stove will not require to be cleaned as often as it would without the diaphragm, and as the stove-plates do not with such a device become thickly coated with soot, their heat-conducting properties are not diminished.

The fire-chamber D is lined with cast-iron plates B B, the exposed surfaces of which are hardened and condensed by casting them in molds, which will chill them. The grate G (shown in Fig. 1) is treated in like manner, so that it will present chilled surfaces to the fire. Plates thus chilled are more durable than plates or grates that are not chilled.

The chilling process closes the pores of the iron and thereby prevents this metal from becoming impregnated with sulphur and other matters found in coal, coke, and wood, that would combine with unchilled iron, and not only destroy its tenacity and durability and leave it in a condition to be easily broken, but which would cause cinders, slag, and other impurities to attach themselves to it. Such impurities will not adhere to a chilled lining, B, nor to the chilled grate G, consequently they will always keep smooth and clean.

I claim—

Cast-iron walls for the fire-chamber of a cooking-stove, constructed with chilled surfaces, substantially as described.

FRANKLIN CLEMENT.

Witnesses:

WILEY S. WRIGHT,

H. J. BRINKENCAMP.