

No. 75,300.

PATENTED MAR. 10, 1868.

G. SCHREYER.
FURNACE.

2 SHEETS—SHEET 1.

Fig. 1.

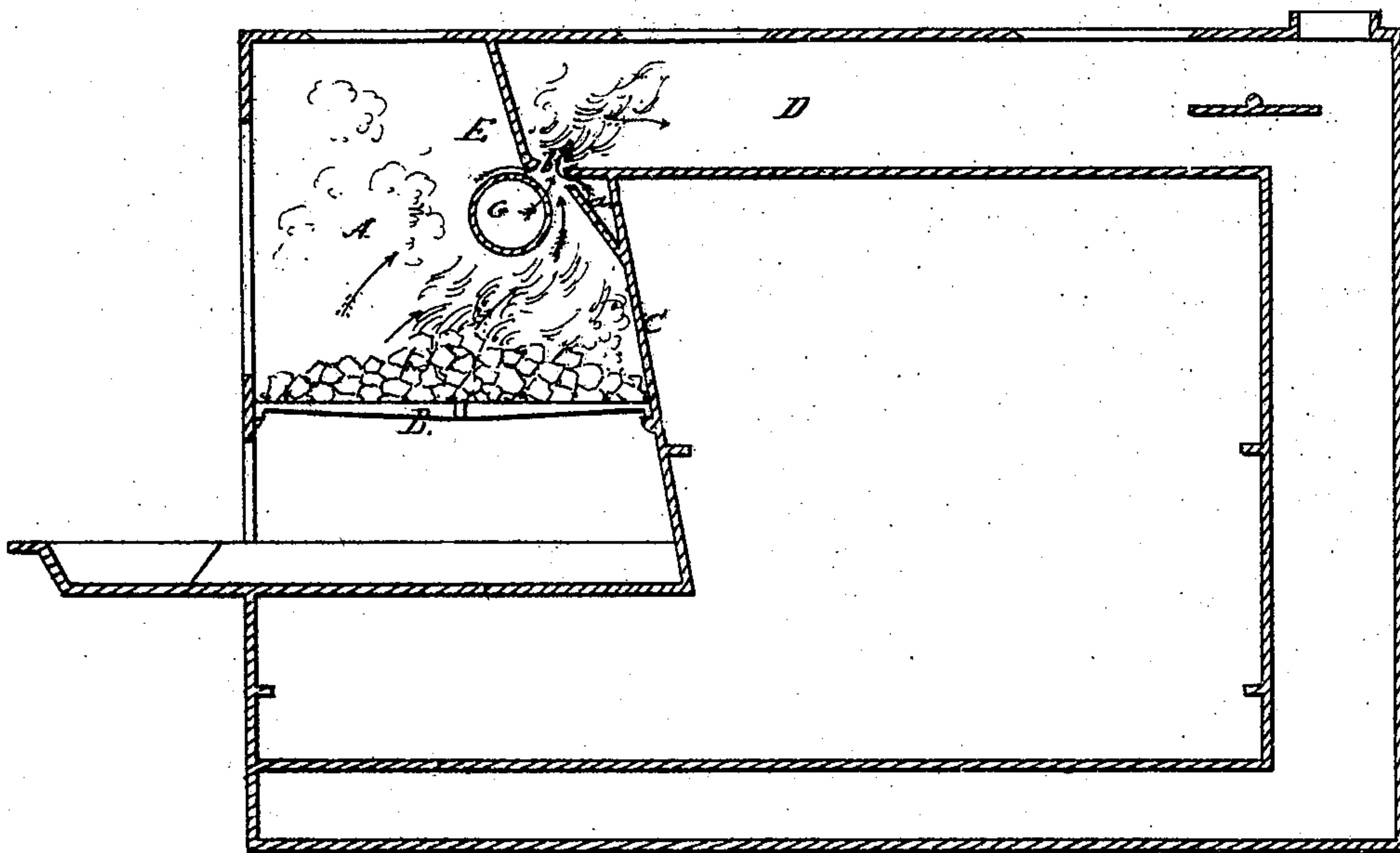
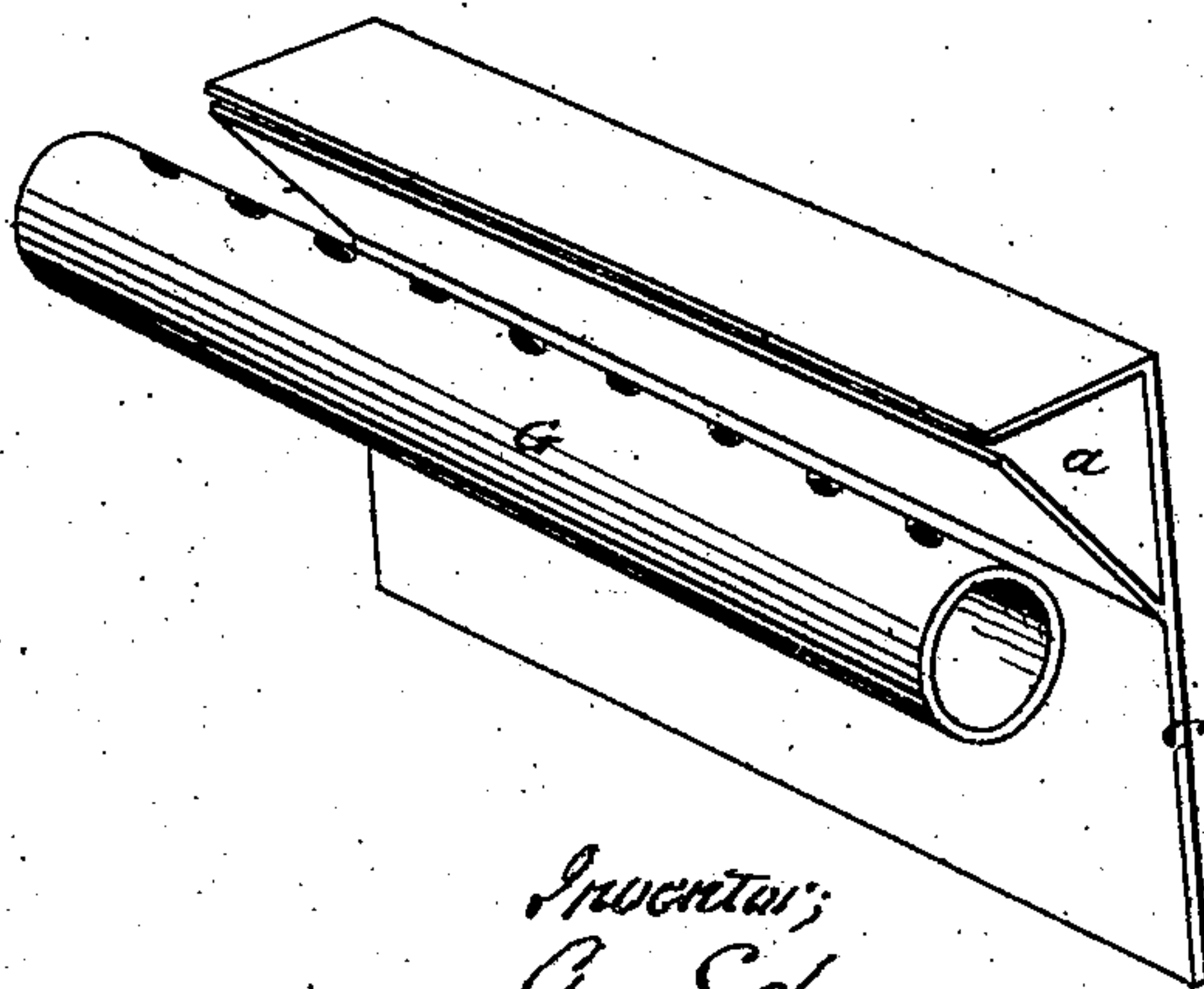


Fig. 2.



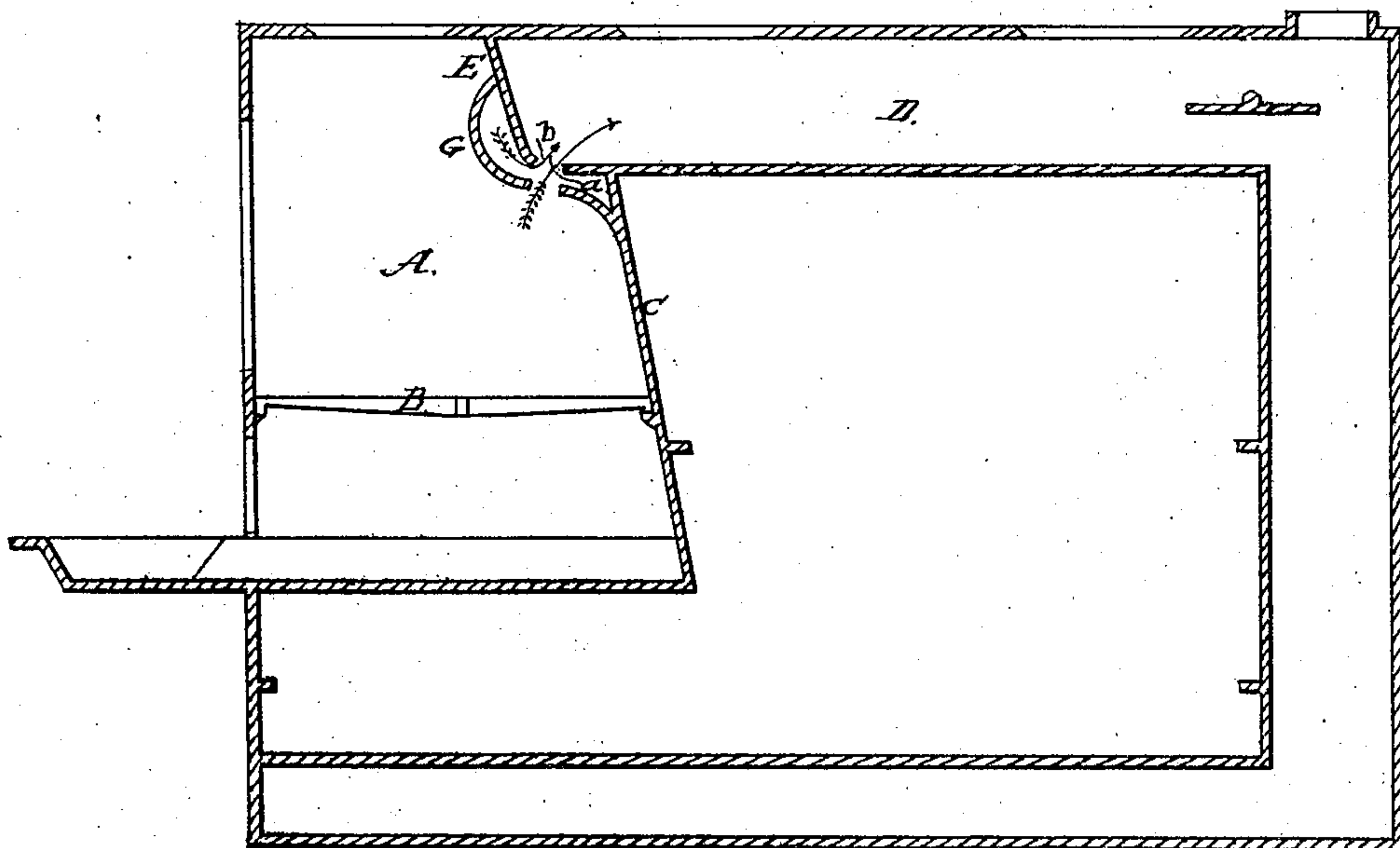
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2 SHEETS—SHEET 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

GOTTLIEB SCHREYER, OF COLUMBUS, OHIO.

Letters Patent No. 75,300, dated March 10, 1868.

IMPROVEMENT IN FURNACES.

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, GOTTLIEB SCHREYER, of Columbus, in the county of Franklin, and State of Ohio, have invented a new and improved Smoke-Consuming Furnace; 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 longitudinal section, taken in a vertical plane through a cooking-stove, having my invention applied to it.

Figure 2 is a perspective view of the air-pipes.

Figure 3, sheet 2, is a modification of figs. 1 and 2.

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

This invention relates to a novel improvement on the construction of fire-chambers for stoves, steam-boilers, and other purposes, whereby the highly-heated gases and smoke are caused to pass between two inflowing currents of air, which air is introduced through conduits arranged at the upper termination of the fire-back or bridge-wall of the fire-chamber, in such manner as to form a contracted throat and outlet for the products of imperfect combustion, thereby compelling the latter to thoroughly mingle with the air flowing from the conduits, and causing a very perfect combustion of the inflammatory products, 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 a common form of stove, but I do not confine myself to stoves, as the invention is applicable to all kinds of furnaces.

A represents the fire-chamber, upon the grate B of which the fire is made, and C represents the back wall of the fire-chamber, which may be inclined, as shown, and which is constructed with a horizontal transverse air-chamber, *a*, at its upper end, over which the heated products of combustion pass on their way to the flue D. This air-chamber or conduit is made of the triangular form shown in the drawings, for the purpose of directing the ascending products of combustion backward, and thus retarding their escape into flue D.

The upper angle of the chamber or conduit *a* has a narrow opening extending its entire length, from which air escapes in a thin stream. If desirable, registers may be applied to the extremities of the conduit *a*, for the purpose of regulating the influx of air into this conduit.

E is a partition, which is dropped from the top plate of the stove, so as to extend down nearly to the angle of the conduit *a*, through which the inlet-opening is made, and leaves a narrow opening, *b*, through which the products of combustion pass to the flue D. Below this opening *b* is a horizontal transverse conduit, G, which receives air at both ends, and discharges this air through small openings, *c*, in a direction which is toward the opening for the escape of air from the conduit *a*, as indicated by the arrow in fig. 1. This conduit G is so arranged that the products of combustion rising from the fire-chamber have to pass around it, and between it and the front wall of the air-conduit *a*, thereby heating the walls of the two conduits, and causing the air which enters them to become more or less heated before escaping and mingling with the smoke and gases.

It will be seen from the above description that I have two streams of air crossing a contracted throat in opposite directions, through which the highly-heated products of combustion are compelled to pass before escaping through the opening *b* into the flue D. This has the effect of thoroughly mixing the products of combustion with air, and consequently of supplying oxygen to the gases and smoke, which will cause a very perfect combustion thereof.

In fig. 3, sheet 2, I have shown a modification of the arrangement shown in figs. 1 and 2. In this figure it will be seen that I dispense with the cylindrical air-conduit G, and form the upper chamber G upon the lower edge of the divisional plate E.

It will be seen that in this instance, as well as in that above described, I have two air-inlet chambers, forming a contracted throat, through which the products of combustion have to pass, with two streams of air escaping and crossing such throat in opposite directions. In some cases the pipe G will be used, but for stoves the arrangement shown in fig. 3 may be preferable, on account of compactness.

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

1. The contracted throat *b*, which is formed by two independent air-receiving conduits or chambers *G a*, from which two independent streams of air escape, and meet or cross one another in said throat, substantially as and for the purpose described.

2. The construction and relative arrangement of the independent air-receiving air-conduits *a G*, and escape-aperture *b* in the fire-chamber, in the manner and for the purposes described.

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