

Duryea & Ennis.

Furnace.

N^o 75881

Patented Mar. 24, 1868

Fig. 1

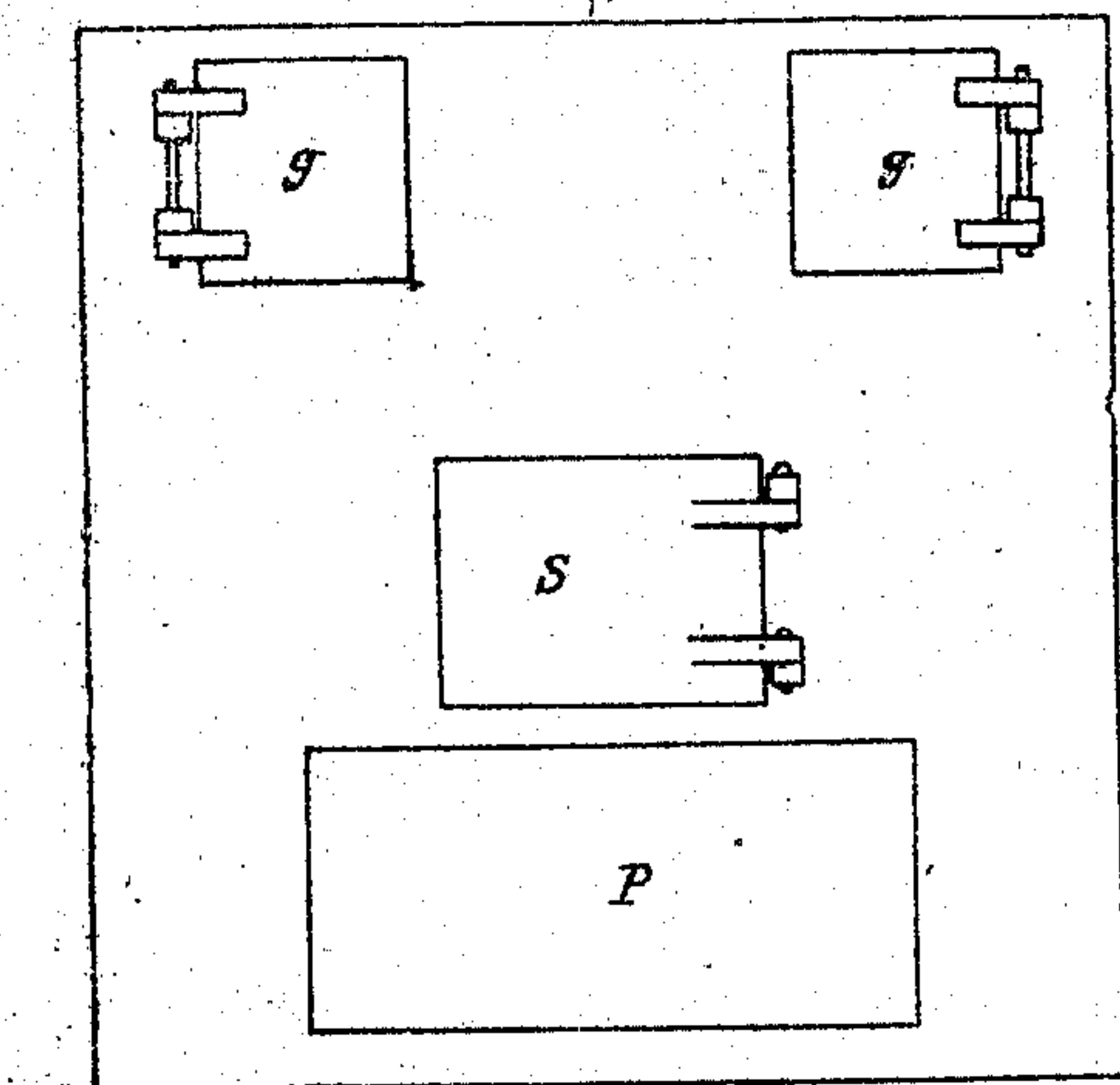


Fig. 2

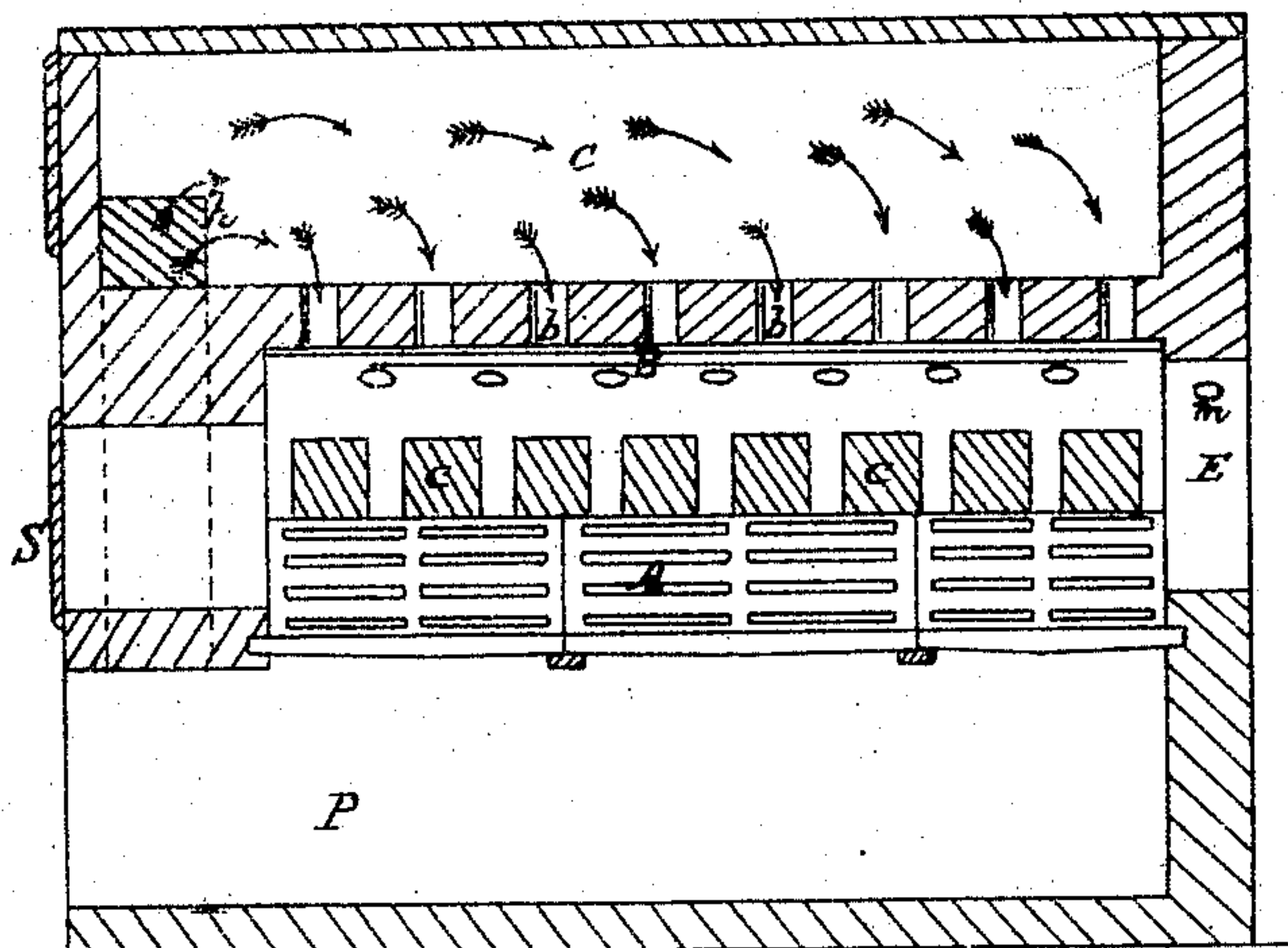


Fig. 3

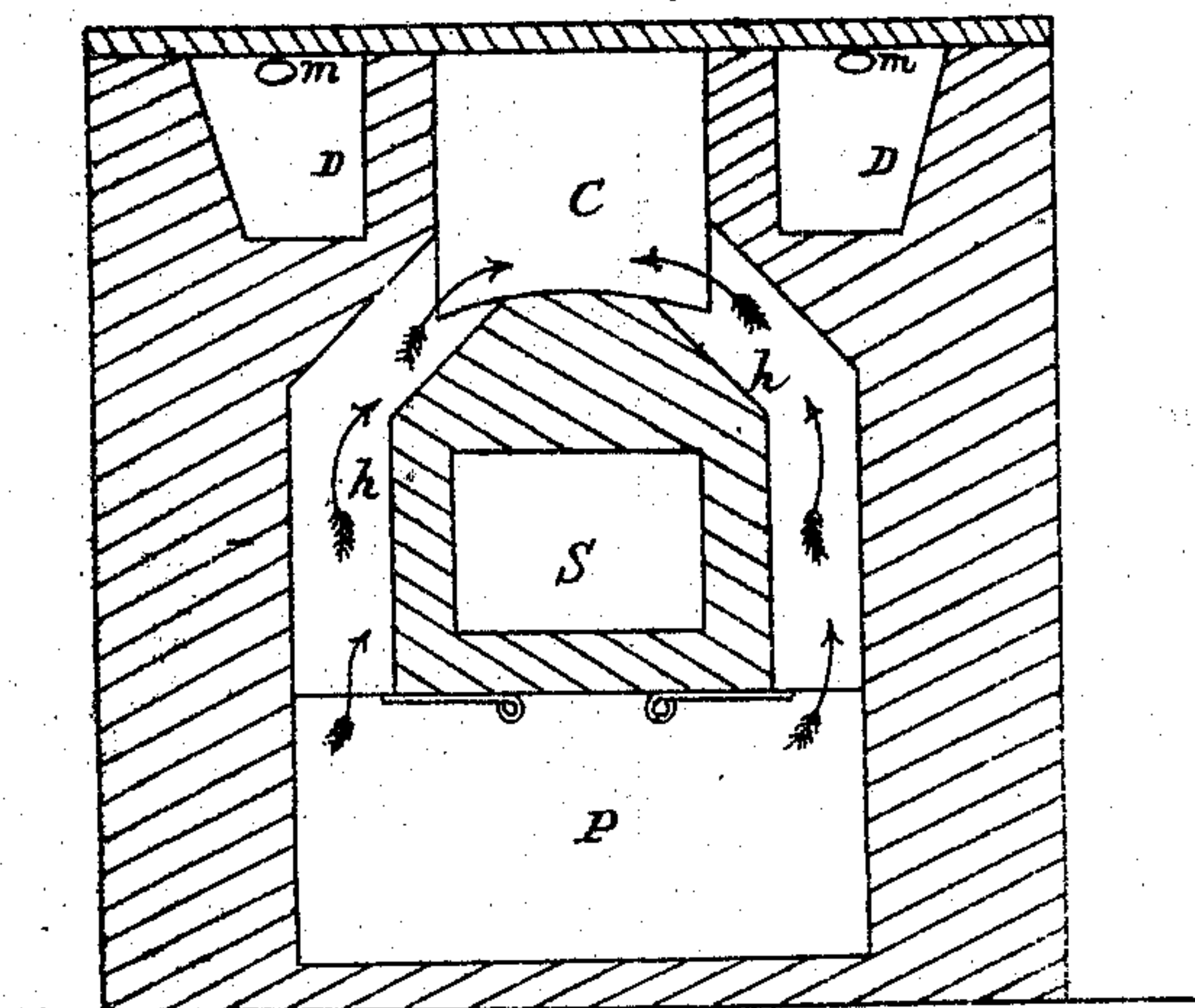
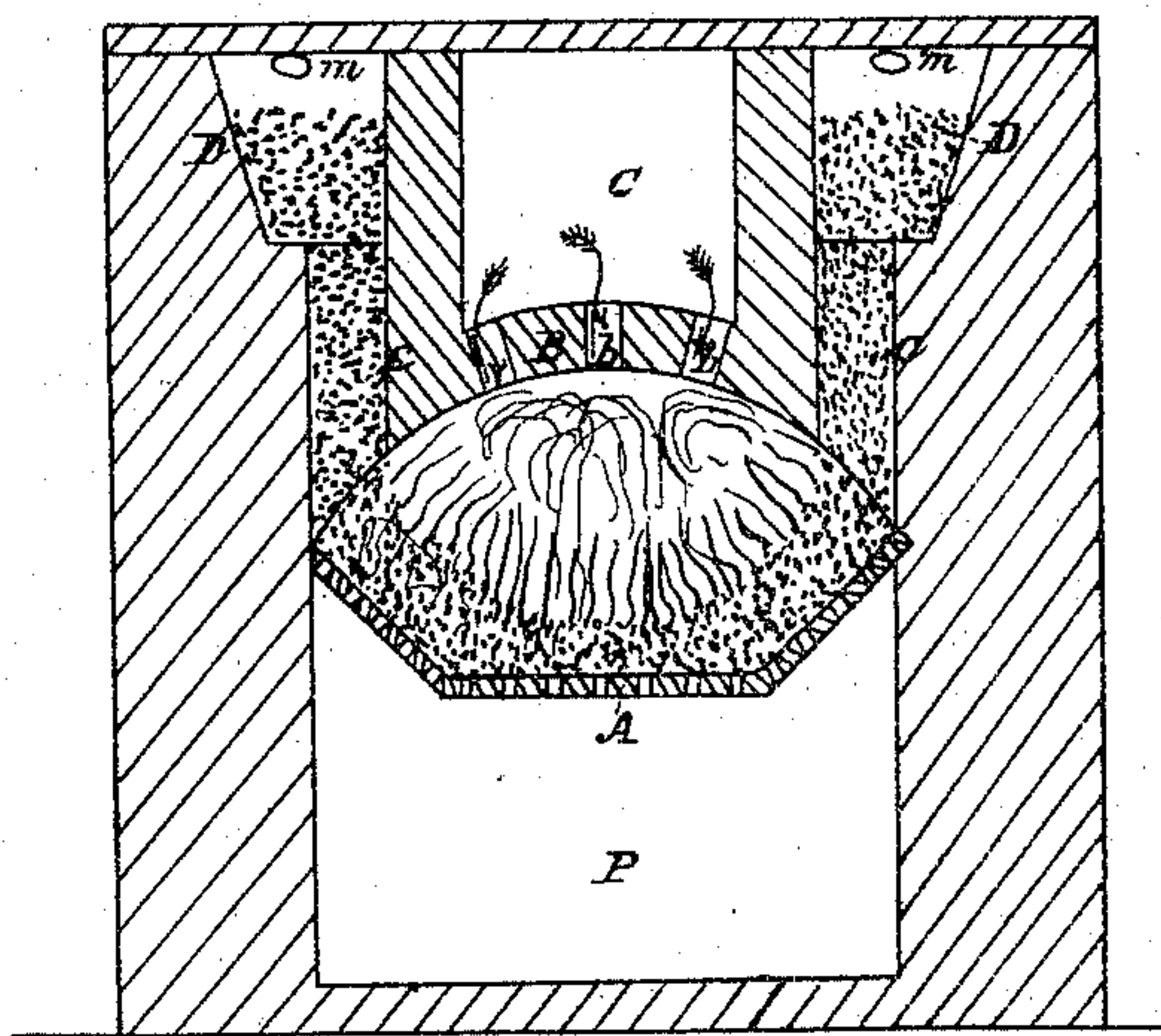


Fig. 4



Witnesses
Spencer
Geo. H. Ashton

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Wm. Duryea
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United States Patent Office.

WRIGHT DURYEA, OF GLEN COVE, NEW YORK, AND WILLIAM ENNIS, OF HUDSON, NEW JERSEY.

Letters Patent No. 75,881, dated March 24, 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 we, WRIGHT DURYEA, of Glen Cove, in the county of Queens, and State of New York, and WILLIAM ENNIS, of Hudson, in the county of Hudson, and State of New Jersey, have invented a new and useful Improvement in Furnaces, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1 represents a front elevation of a furnace constructed according to our improvement.

Figure 2, a longitudinal section of the same, through the line *x x* in fig. 1.

Figure 3, a transverse section, taken as denoted by the line *y y* in fig. 2.

Figure 4, a similar section, through the line *z z* in fig. 2.

Similar letters of reference indicate corresponding parts.

Our improvement relates to furnaces, constructed substantially as described in Letters Patent of the United States issued to Joseph Heindle, assignee of Ferdinand Braun, bearing date May 17, 1864, and in which a basket-grate is used in connection with a reflector above it, and the fuel, of a fine or smally-broken character, fed from above to or down either side of the grate; but in this, our improvement, we do not restrict ourselves to burning fuel of any particular description, which may either be fine or coarse, bituminous coal being preferred. Our invention consists in a combination, with a furnace of such description, of a perforated reflector and air-chamber deriving its supply from the exterior, and whereby the combustion of the fuel thus fed and gases generated is effected by the ordinary current from below, and partially-heated air from above to burn the carbonic oxide. Said invention also consists in a combination of close fuel-supply chambers, separated by an intervening space or chamber, with a furnace of the character described.

Referring to the accompanying drawing, A represents the basket-grate of the furnace, P the ash-pit, and S an ordinary fireplace-door or opening for first lighting, and it may be, if necessary, from time to time, adjusting the fire. B is the arched reflector to or over the fire, and E the escape-outlet or flue. D D are the fuel-chambers for supplying with fuel in an automatic manner, by passages or openings, *c*, the fire, after the latter has been fairly lighted and the door S closed. These chambers are of a close character, and may be provided with charging-doors *g g*. They are thus constructed close, and kept separate and distinct from each other to check or prevent that general combustion of the fuel in them, and injury to the furnace, which, especially in the case of bituminous coal, would or might take place were they made to form a common open receptacle. Small outlets or passages *m* are or may be made in the rear of these chambers to prevent choking, and carry off the gases generated in them to the flue or outlet E. The space separating these chambers D D is made to constitute an air-chamber, C, supplied with air from the outside, say, by passages *h h*, in front, controlled by suitable dampers, or supplied with air in any other suitable manner. Such chamber C is situated over the arch B, which has perforations or openings *b* made in or through it, by which means the fire is not only supplied with air from below, in the ordinary manner to effect combustion of the fuel in the grate, but also air partially heated in the chamber C, admitted from the upper side of the reflector B, through it, to burn the carbonic oxide to the prevention of smoke, and more perfect combustion of the fuel and inflammable gases. A furnace thus constructed may be applied to any useful purpose for which furnaces in general are applicable.

What is here claimed, and desired to be secured by Letters Patent, is—

1. In a furnace of the character described, and composed of a basket-grate, A, with feed-openings for the fuel down either side, and reflector B, the combination of a chamber, C, supplied with air from the exterior, and communicating with the fireplace by openings or perforations *b* made in or through the reflector, substantially as specified.

2. The combination of the close fuel-chambers D D with the basket-grate A, with which they are in communication by openings *c*, and separated from each other by an intervening space or chamber C, essentially as shown and described.

WRIGHT DURYEA,
WILLIAM ENNIS.

Witnesses:

A. LE CLERC,

CHAS. H. ASHTON.