

(No Model.)

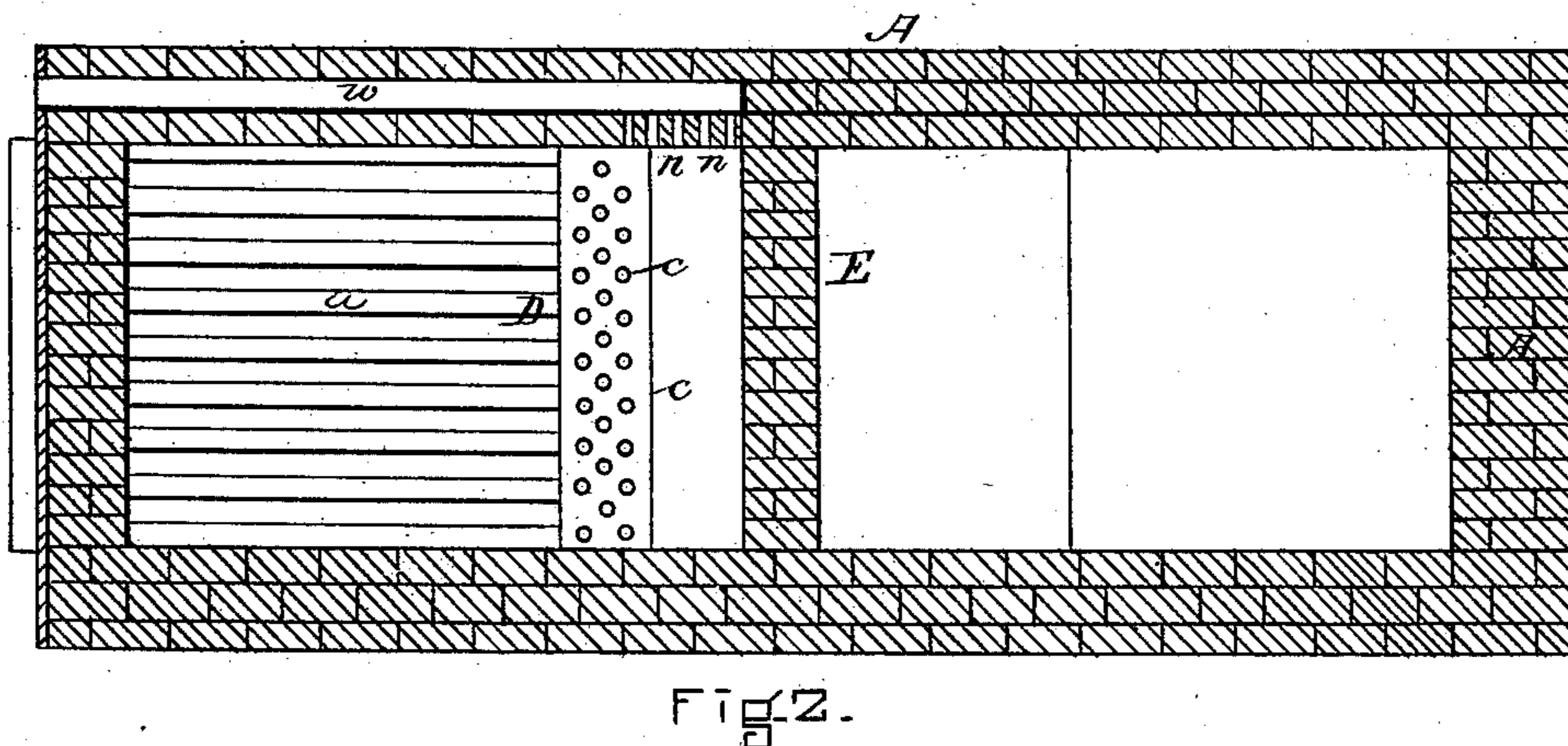
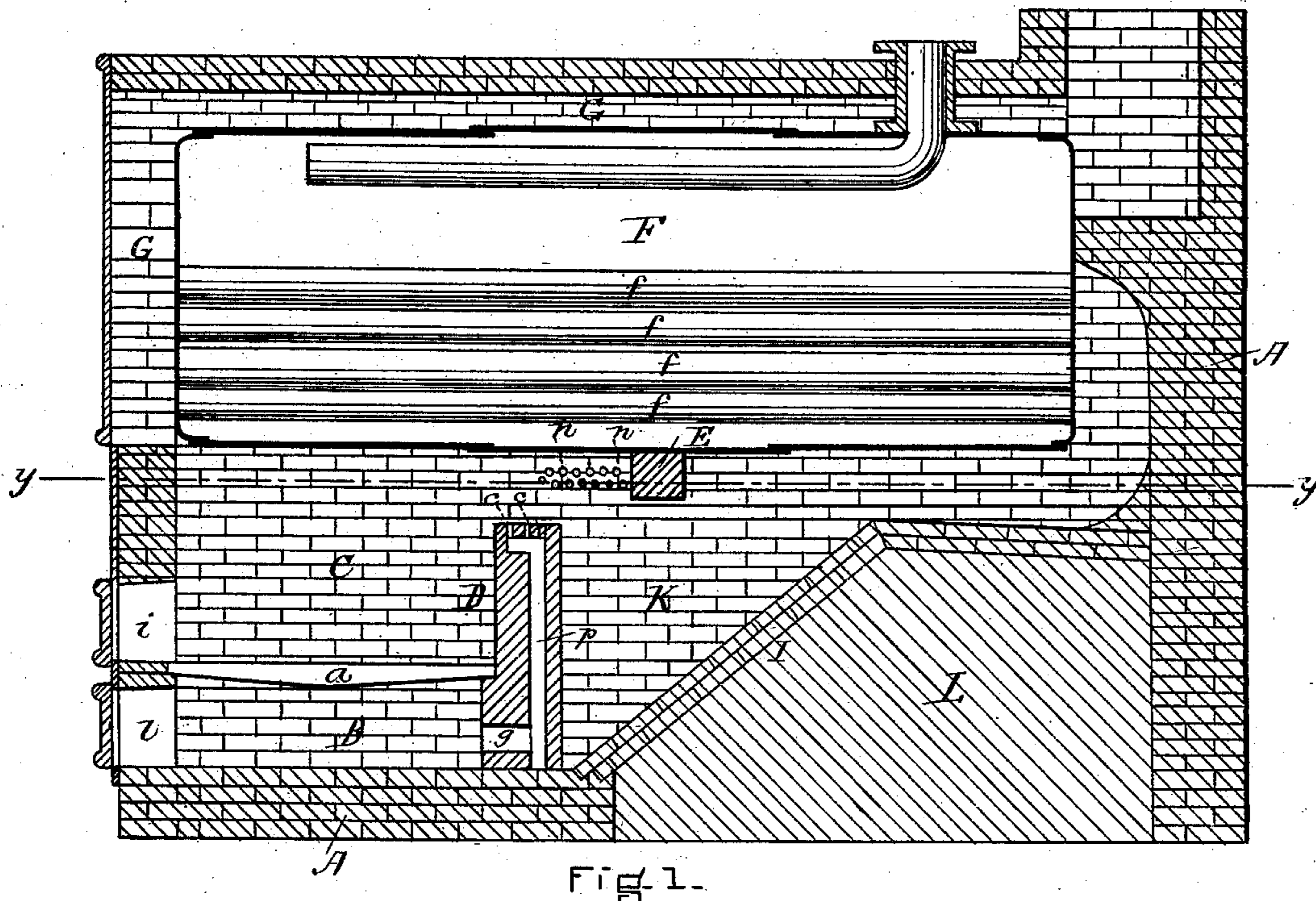
3 Sheets—Sheet 1.

F. A. JONES.

STEAM BOILER OR OTHER FURNACE.

No. 360,886.

Patented Apr. 12, 1887.



WITNESSES.

Mr W. Frothingham.
John F. Wallfield

INVENTOR_

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Florentine A. Jones.

(No Model.)

3 Sheets—Sheet 2.

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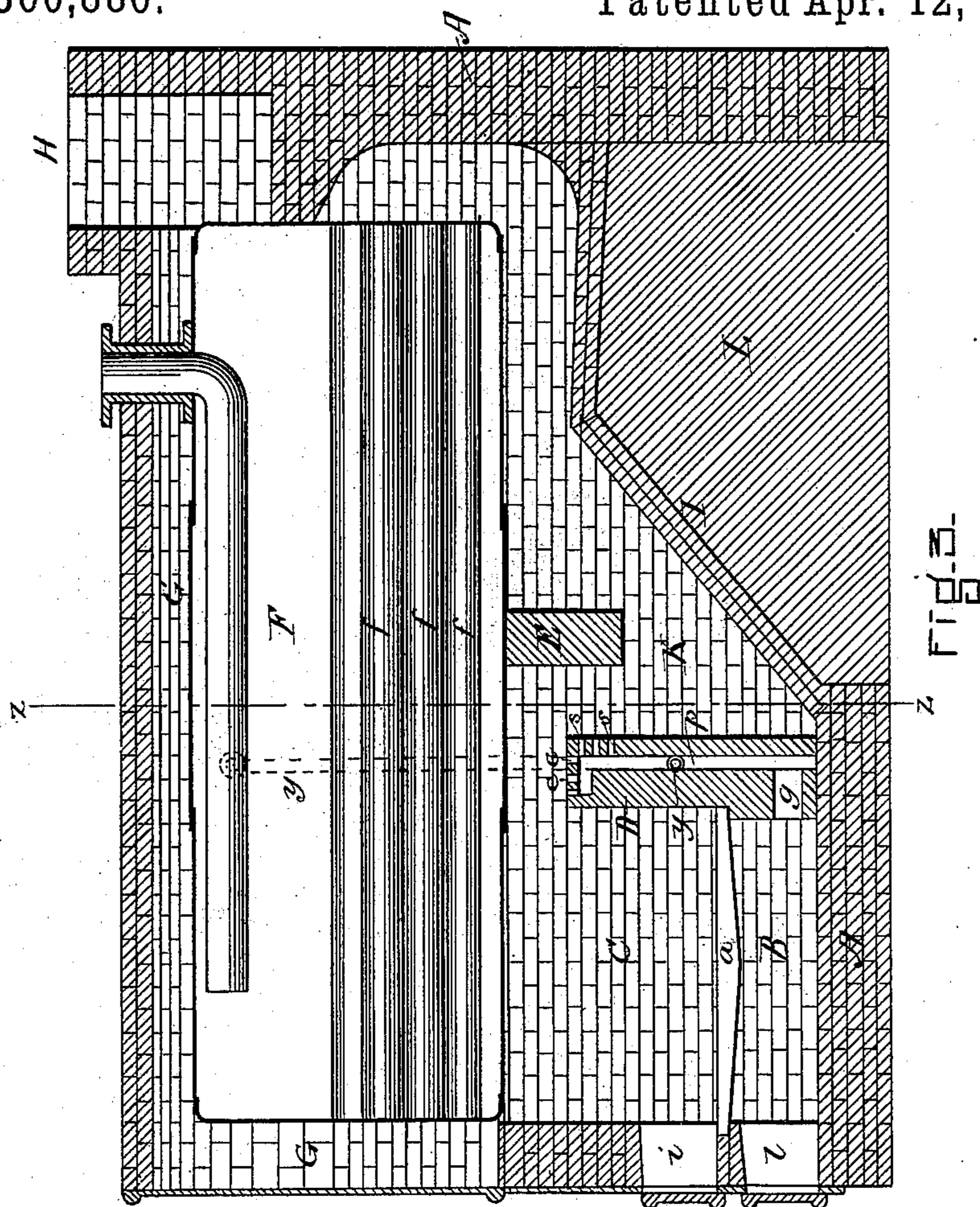


FIG. 3-

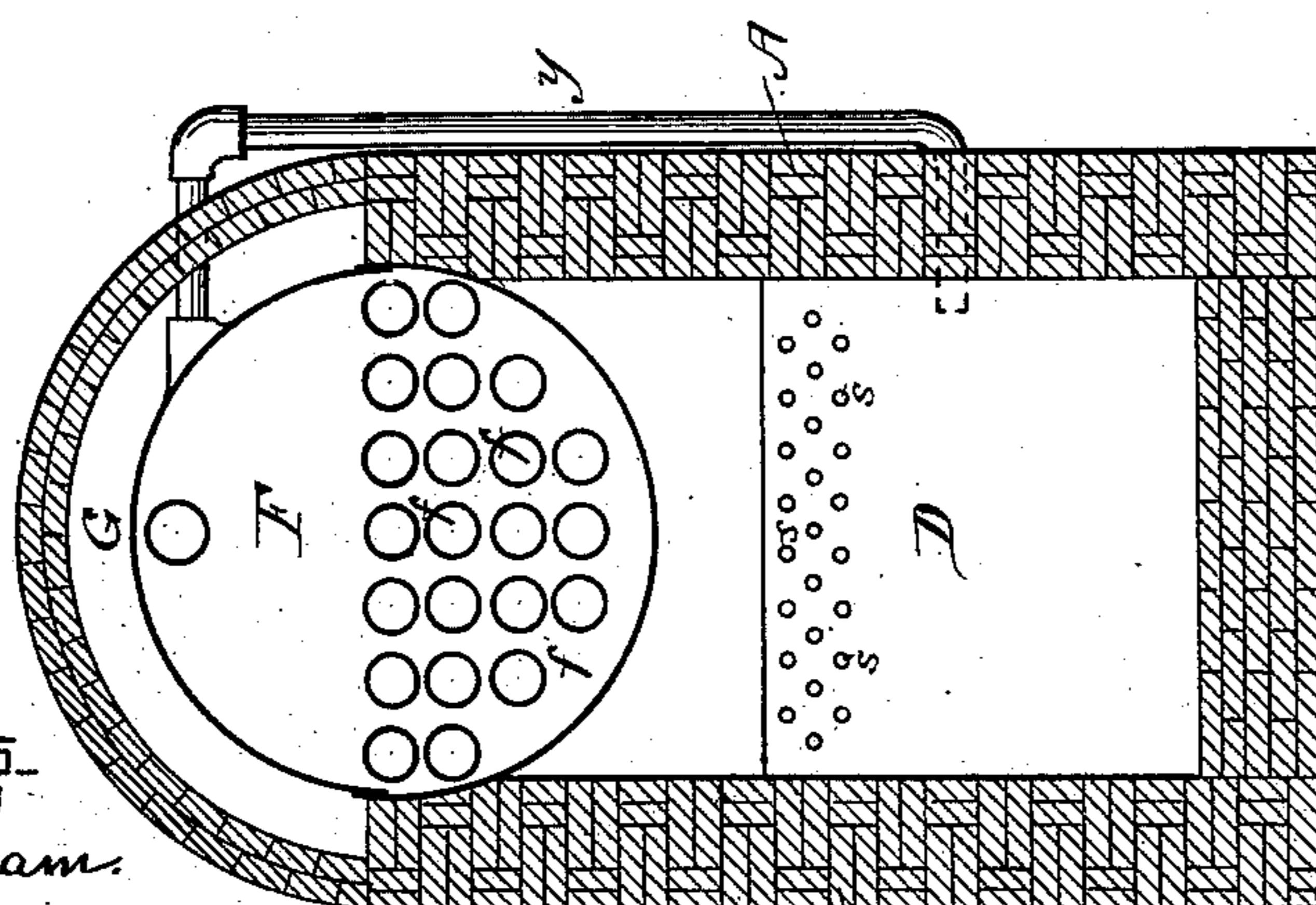


FIG. 4-

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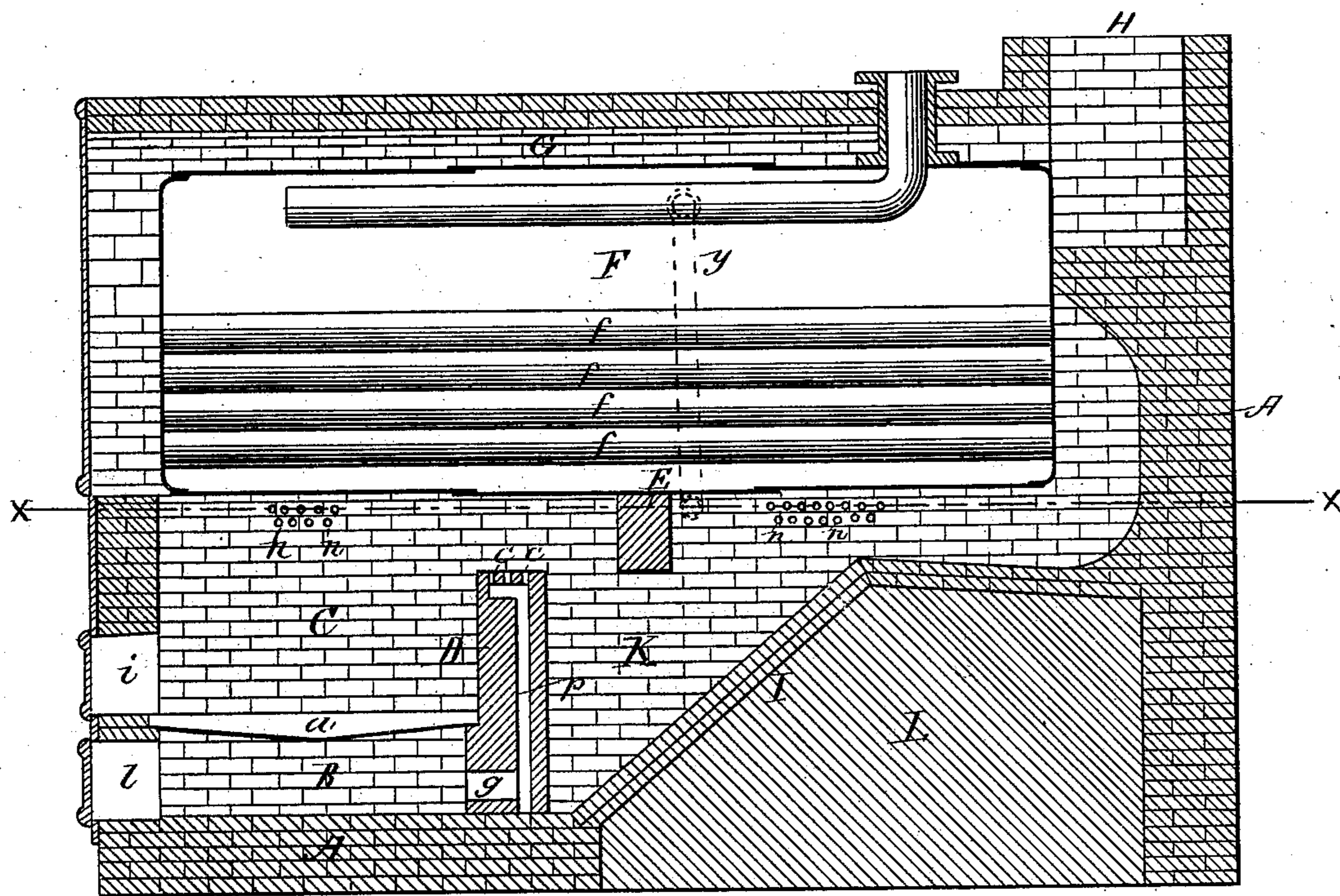


Fig. 5.

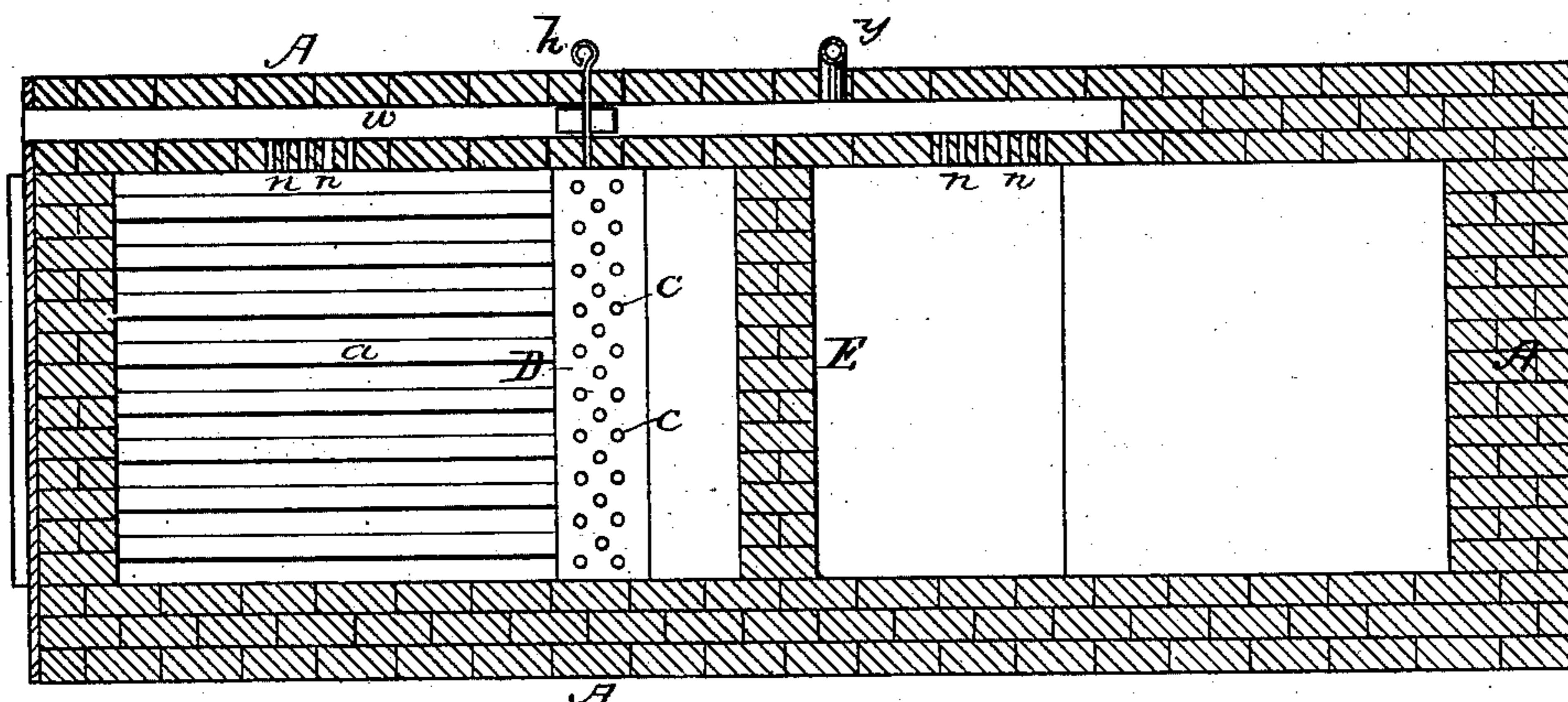


Fig. 6.

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UNITED STATES PATENT OFFICE.

FLORENTINE A. JONES, OF MALDEN, MASSACHUSETTS.

STEAM-BOILER OR OTHER FURNACE.

SPECIFICATION forming part of Letters Patent No. 360,886, dated April 12, 1887.

Application filed June 12, 1886. Serial No. 204,963. (No model.)

To all whom it may concern:

Be it known that I, FLORENTINE A. JONES, a citizen of the United States, residing at Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Steam-Boiler or other Furnaces, of which the following is a specification.

My invention relates to steam-boiler or other other furnaces.

The object of this invention is to insure a more complete and perfect combustion of the fuel and of the resulting gaseous products.

My invention consists in momentarily arresting the products of combustion at a point in the rear of the fuel and its attendant bridge-wall, and in deflecting said products downward and away from the boiler, and in contact with air or steam, or both, as will be set forth.

I am aware that both air and steam have been supplementarily admitted to furnaces; but I am not aware that it has been done in the manner and under the conditions herein set forth, whereby I am enabled to obtain a highly economical and beneficial result from the combustion of fuel.

In the accompanying drawings, in which similar letters of reference indicate like parts, the form of boiler shown is the usual type of tubular boiler and setting.

Figure 1 is a longitudinal vertical section of a furnace embodying my improvements. Fig. 2 is a horizontal section of Fig. 1 on line *y y*, showing the perforations in the top of the bridge-wall and the flue *w* in the side wall of the furnace communicating with the openings *n n*. Fig. 3 is a longitudinal vertical section of my improved furnace, showing the bridge-wall perforated on the top and rear side and with a steam-pipe entering the bridge-wall. Fig. 4 is a cross-section of Fig. 3 on line *z z*, showing steam-pipe and perforations in the rear of bridge-wall. Fig. 5 is a longitudinal vertical section of my improved furnace, showing air-jets or openings in side wall of fire and combustion chambers with steam-pipe. Fig. 6 is a horizontal section of Fig. 5 on line *x x*, showing flue in side wall of furnace communicating with passages *n n* and steam-pipe.

F represents the boiler; *f f f*, the tubes; A,

the brick-work; I, an inclined wall, and L the filling behind it; C, the fire-chamber; *a*, the grate-surface; B, the ash-pit; *l*, the ash-pit door; *i*, the door to the fire-chamber; D, the bridge-wall provided with the air-chamber *p*, entrance *g*, and perforations *c c*; and *n n* are perforations in the side wall, connecting with flue *w*. (Shown in Figs. 2 and 6.)

E is a wall or obstruction situated in the rear of the bridge-wall and leaving an open passage under the lower side or bottom of said wall E for the passage of the products of combustion after they have passed over the bridge-wall D, and the function of this wall E is to arrest, deflect, and intermingle the products arising from the fuel with air or steam supplied through openings in the bridge or side walls of the furnace.

K is the combustion-chamber; G, the uptake or flue connecting with the chimney H.

The object in perforating the side wall of the furnace at a point in the rear of the wall E is that in case a fuel is used which is highly gaseous and therefore requiring a large volume of air, then it is better to admit it in several places rather than in one large volume, and by the damper or valve *h* (shown in the flue, Fig. 6) it will be seen that when it is closed and the valve in the steam-pipe *y* of Fig. 5 is open, then steam alone will enter through the perforations in the side wall in the rear of the wall E, and this steam may be superheated by bringing the pipe *y* in contact with the heat of the furnace by means of a bend or coil, or in any other suitable manner.

The operation of my improved furnace is as follows: The products arising from the fuel on the grates *a* pass over the bridge-wall D, and are arrested and deflected down and under the wall E, and are brought in contact with the jets of air or steam coming from the bridge-wall and side walls of the furnace, thus insuring mixture, and pass off through the combustion-chamber K, tubes *f f f*, flue G, and into the chimney H to the atmosphere.

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

1. In combination with a furnace having a hollow bridge-wall provided with perforations through its top face, a solid deflecting-wall situ-

ated behind the rear face of the bridge-wall under the boiler, and so constructed as to arrest and deflect the products of combustion downward and underneath the lower face of
5 said deflecting-wall after they have passed over and beyond the bridge-wall, substantially as and for the purpose set forth.

2. In combination with a furnace having a hollow bridge-wall provided with perforations
10 through its top face and rear side, a solid deflecting-wall situated behind the rear face of

the bridge-wall, and so constructed as to arrest and deflect the products of combustion downward and underneath the lower face of said deflecting-wall after they have passed over
15 and beyond the bridge-wall, substantially as and for the purpose set forth.

FLORENTINE A. JONES.

Witnesses:

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JOHN F. WAKEFIELD.