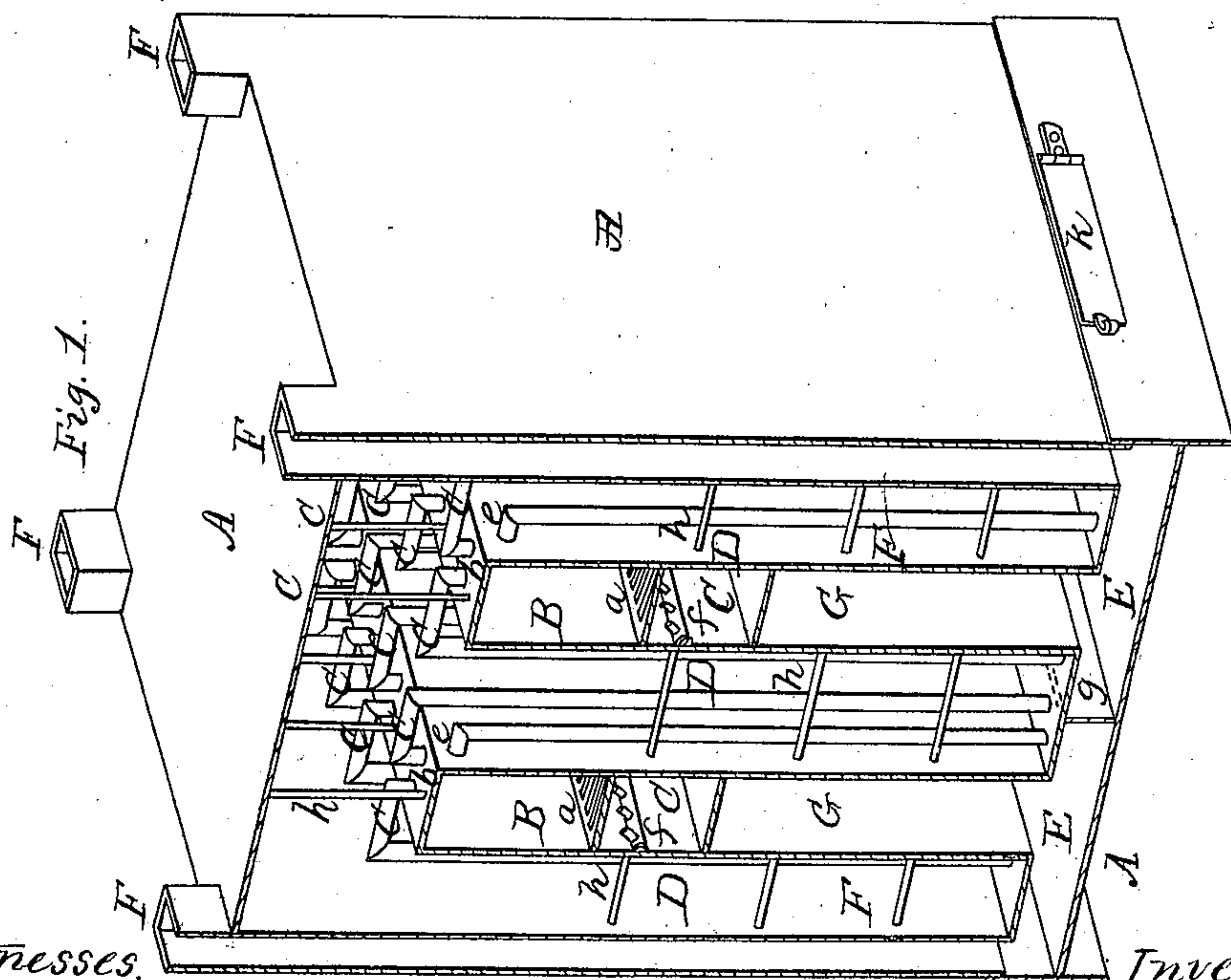
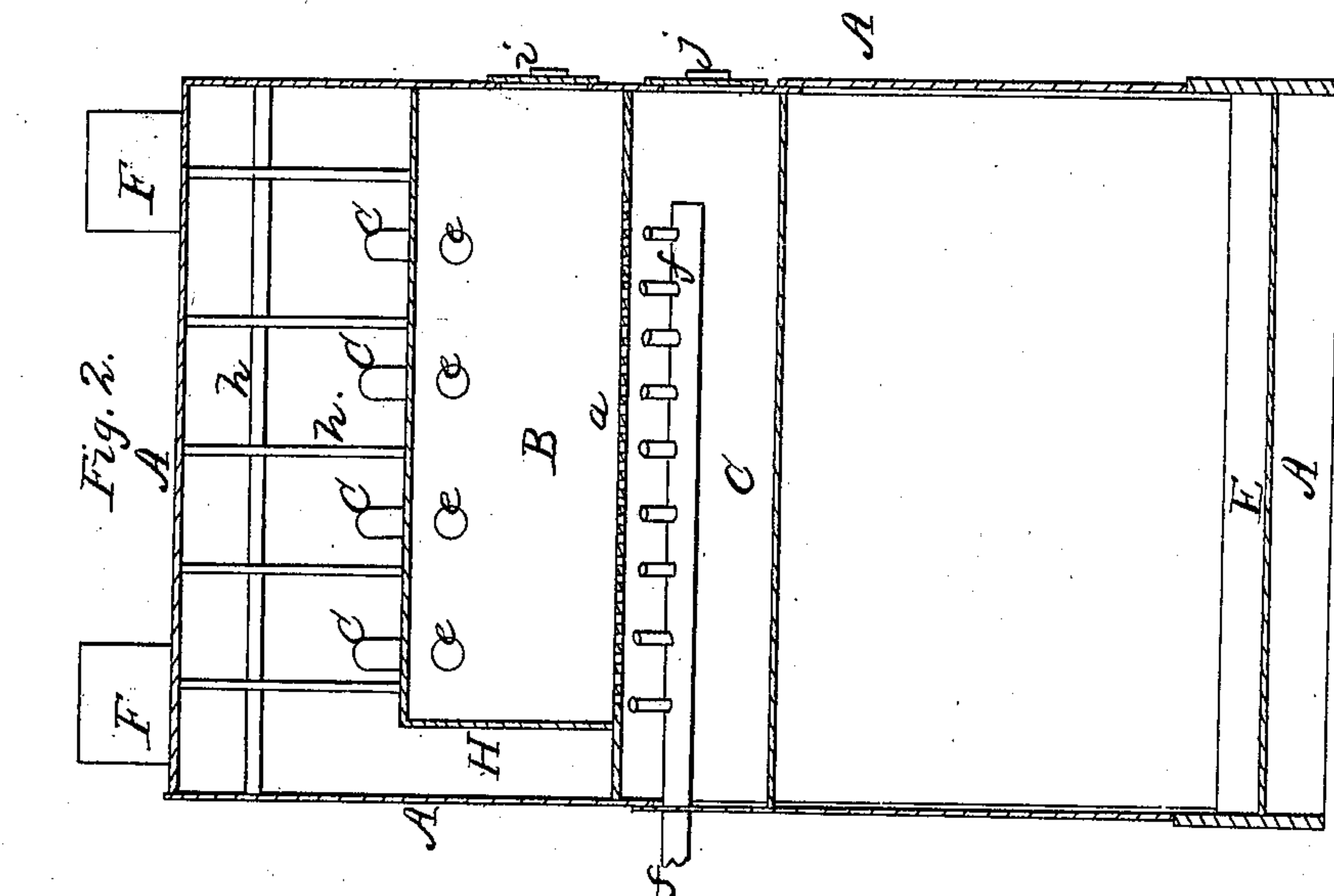


S. Salliday,
Steam-Boiler Furnace,
No 30,992, *Patented Dec. 18, 1860.*



Witnesses.
E. Cohen
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UNITED STATES PATENT OFFICE.

SAMUEL SOLLIDAY, OF SUMNEYTOWN, PENNSYLVANIA.

STEAM-BOILER.

Specification of Letters Patent No. 30,992, dated December 18, 1860.

To all whom it may concern:

Be it known that I, SAMUEL SOLLIDAY, of Sumneytown, in the county of Montgomery and State of Pennsylvania, have invented a new and useful Improvement in Steam-Boilers; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1, represents a perspective view of the boiler with one end of the jacket removed to show the interior arrangement, and Fig. 2, represents a vertical longitudinal section through one of the fire boxes of the boiler.

Similar letters of reference where they occur in the separate drawings, denote like parts of boiler in both of the figures.

My boiler is of that kind, known as vertical flue boilers, and is incased in a jacket, with the fire box and chambers in an elevated position—said fire boxes, or furnaces being in the interior, and supplied with an artificial draft to promote the combustion of the fuel burned in them. And my invention consists in the manner in which I have combined, and arranged, the fire boxes, the smoke flues, and water spaces surrounding them, within a tight jacket or outside shell, through which an artificial draft is passed to the fuel to promote its combustion.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A, represents the shell or jacket, which may be tight, except at the furnace doors,—where access is had to the ash-box, and where the exit flues are made. This outer case, may be of such dimensions and form, as will receive one, two, three, or more fire boxes, with their necessary appendages, as will be explained.

B, B, are fire boxes or furnaces, placed in an elevated position within the shell, *a, a*, being the grate bars thereof, and C, C, the ash pits or boxes. To the crown sheet *b* of the fire box, are connected a series of flue pipes *c, c, c* and *c*, and to the side sheets *d*,

other series of flue pipes *e, e*, and *e*, all of which receive and carry the smoke, gases, and products of combustion down through the water spaces D, D, D, into a common chamber E, E, located at the bottom of the boiler, and between the boiler plates and the jacket. From this common chamber the smoke, gases, &c., escape through the exit flues F, F, and to prevent the smoke and gas of one fire box from commingling with that of another fire box, when two or more are used within the same jacket, I put in a division plate *g*, between each series.

f, f, are blast pipes communicating with a fan blower; these pipes extend into and through the ash chamber *c*, immediately below the grate bars *a* and are furnished with a series of small jet pipes through which the blast is driven, to supply air to the burning fuel.

The bulk of the water space is in the upper part of the boiler, and the object in elevating the fire boxes, is to bring the more intense heat up to where the greater bulk of water is. Between the water legs D, D, D, through which the smoke flues pass, into the chambers E, there are elevated smoke and gas chambers G, which extend up to the bottom of the ash box, and thus any heat in the products of combustion that might otherwise pass off through the exit flues F, is permitted to be retained, or to circulate in said chambers imparting itself to the water in the water legs D.

h, h, are stay rods or bolts for securing the shell, and boiler, and water leg, sheets, to each other, and making the whole firm and strong.

i, is the furnace door, for putting in fuel. *j*, is the door for giving access to the ash box to clean it out.

k, is a door for giving access to the chamber E for cleansing it.

The water has a free circulation through the entire water space, the fire box or furnace, as shown at H, Fig. 2, being so made, as to afford free space at its rear end.

The whole boiler may be set up, taken down, or removed with facility, as it carries its furnaces with it, and its draft is supplied artificially.

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

The arrangement of the elevated fire box, 5 descending flue pipes, and surrounding water space, in combination with the arrangement for the artificial draft, and the exit passages, when located within a tight

exterior shell or jacket, the whole being constructed substantially as, and for the purpose set forth. 10

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Witnesses:

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