

(No Model.)

3 Sheets—Sheet 1.

J. RAMSBOTTOM

STEAM BOILER.

No. 250,390.

Patented Dec. 6, 1881.

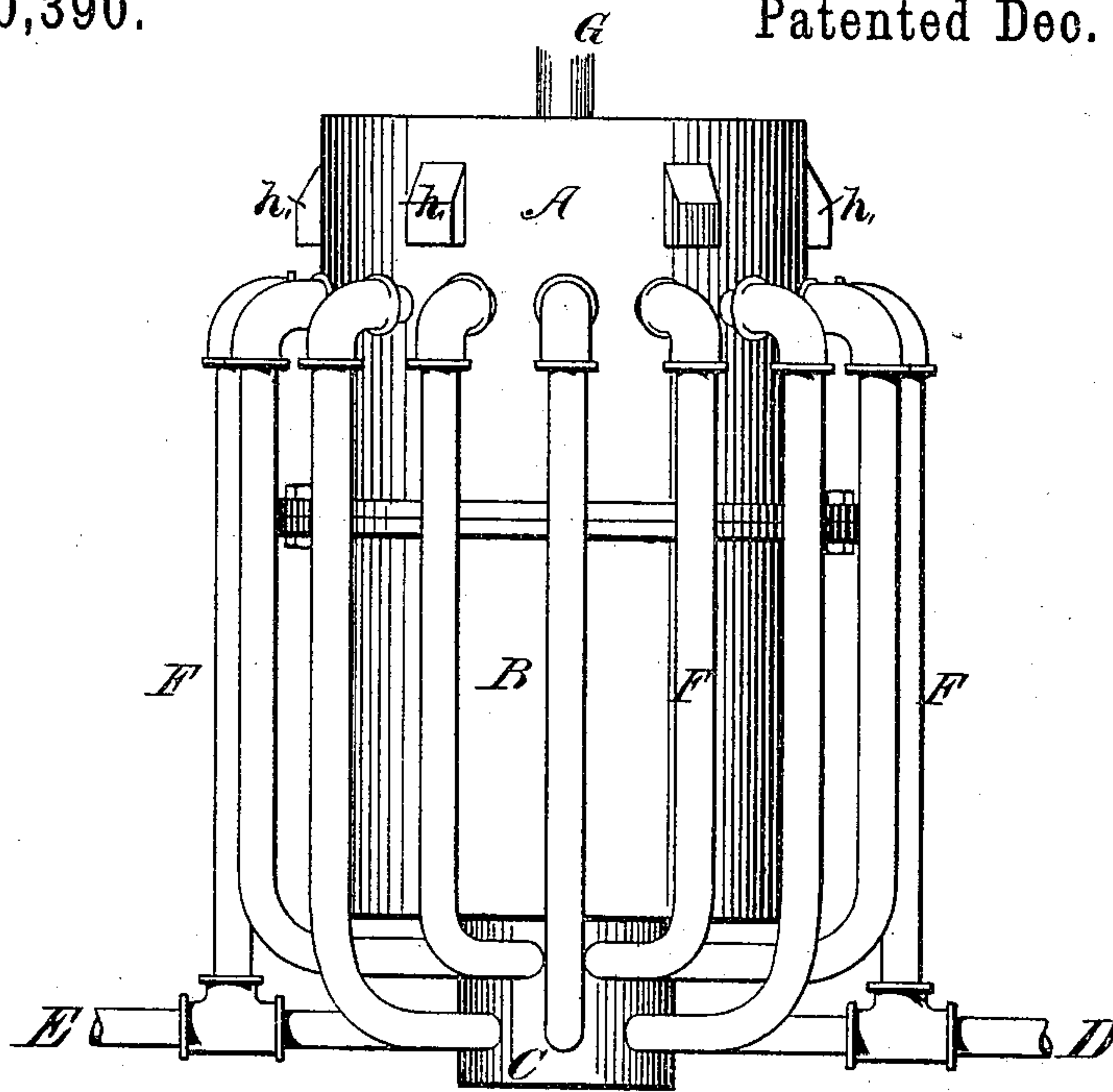


Fig 1.

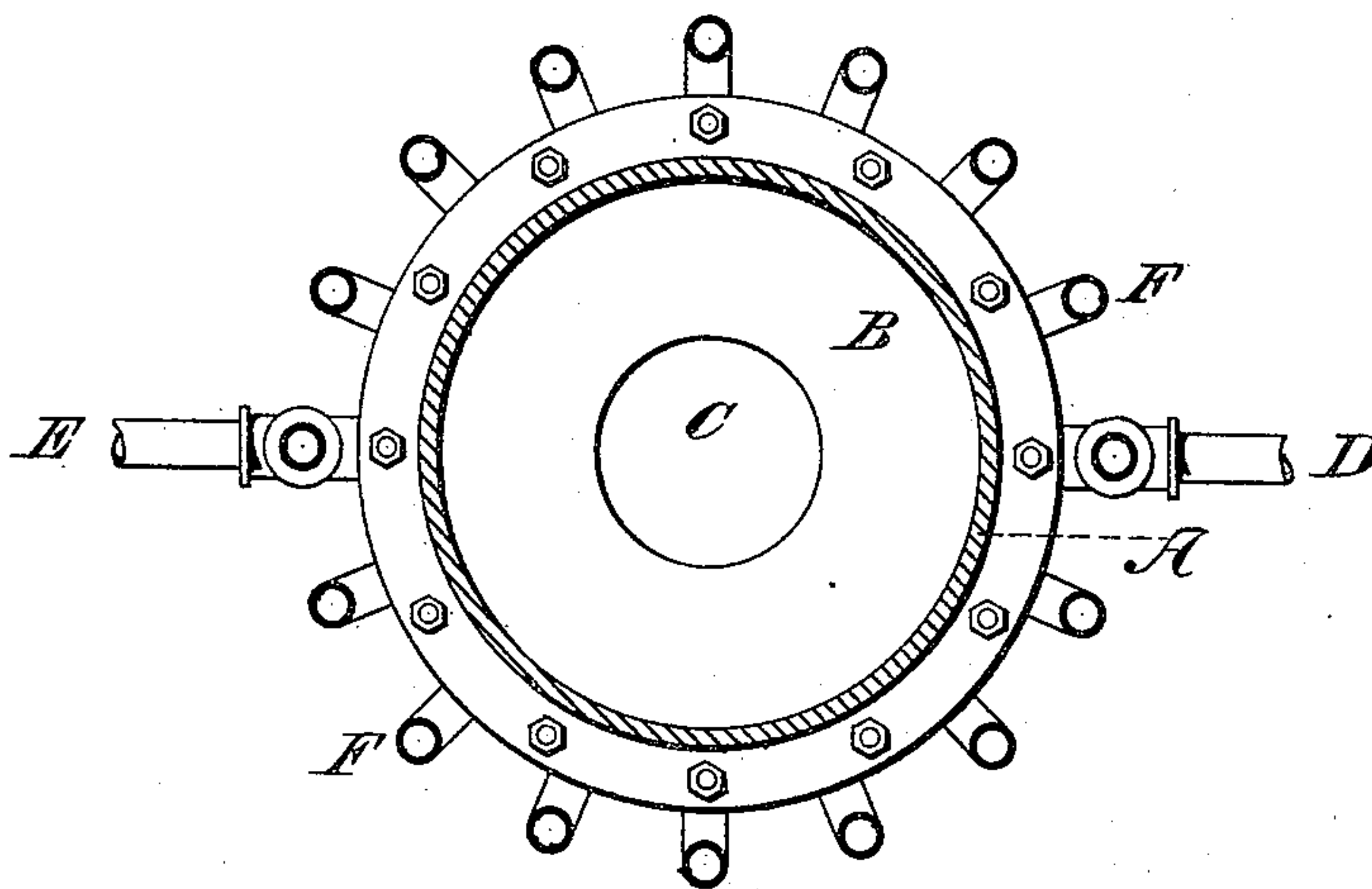


Fig 2.

Witnesses:

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Inventor:

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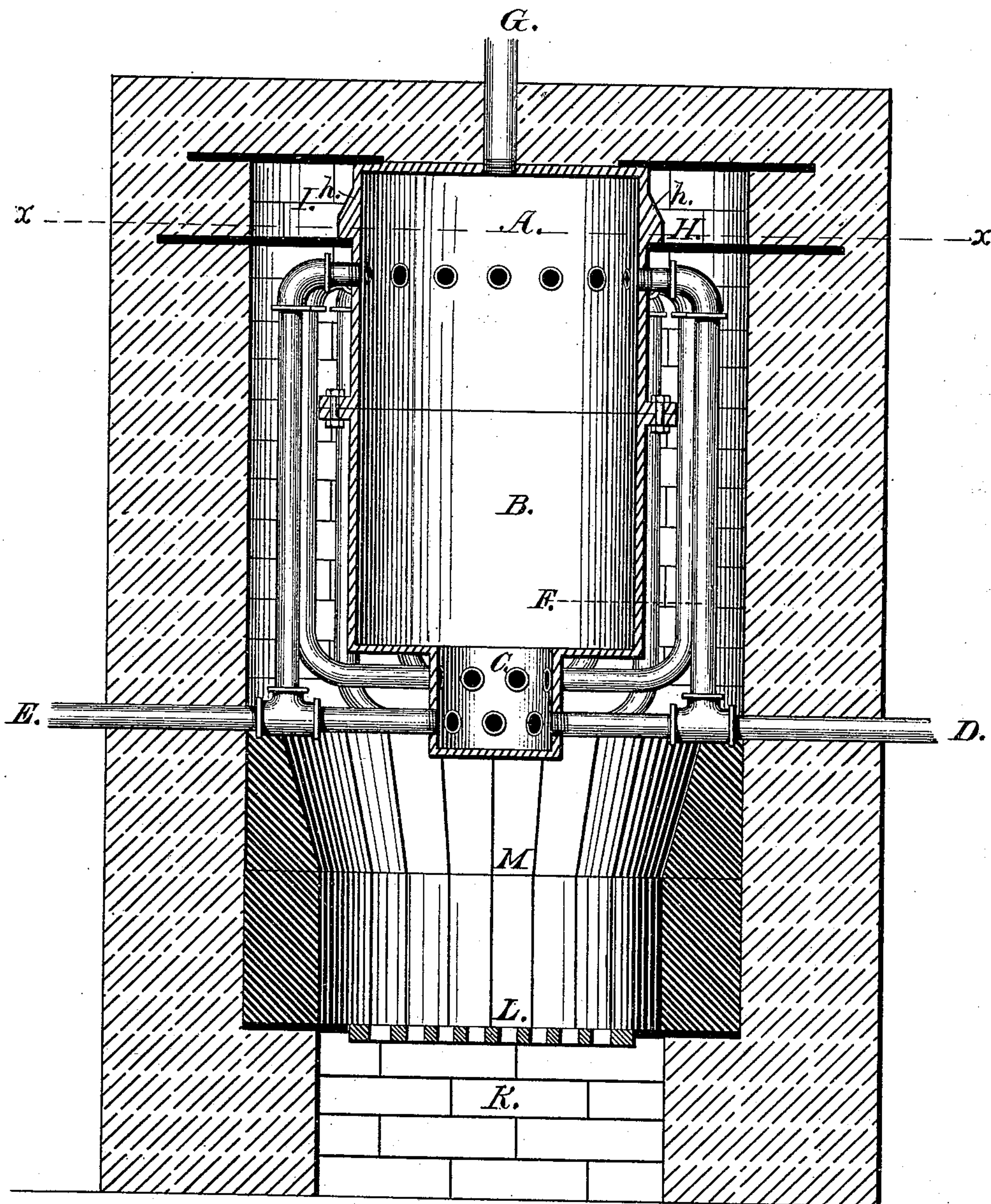


Fig. 3.

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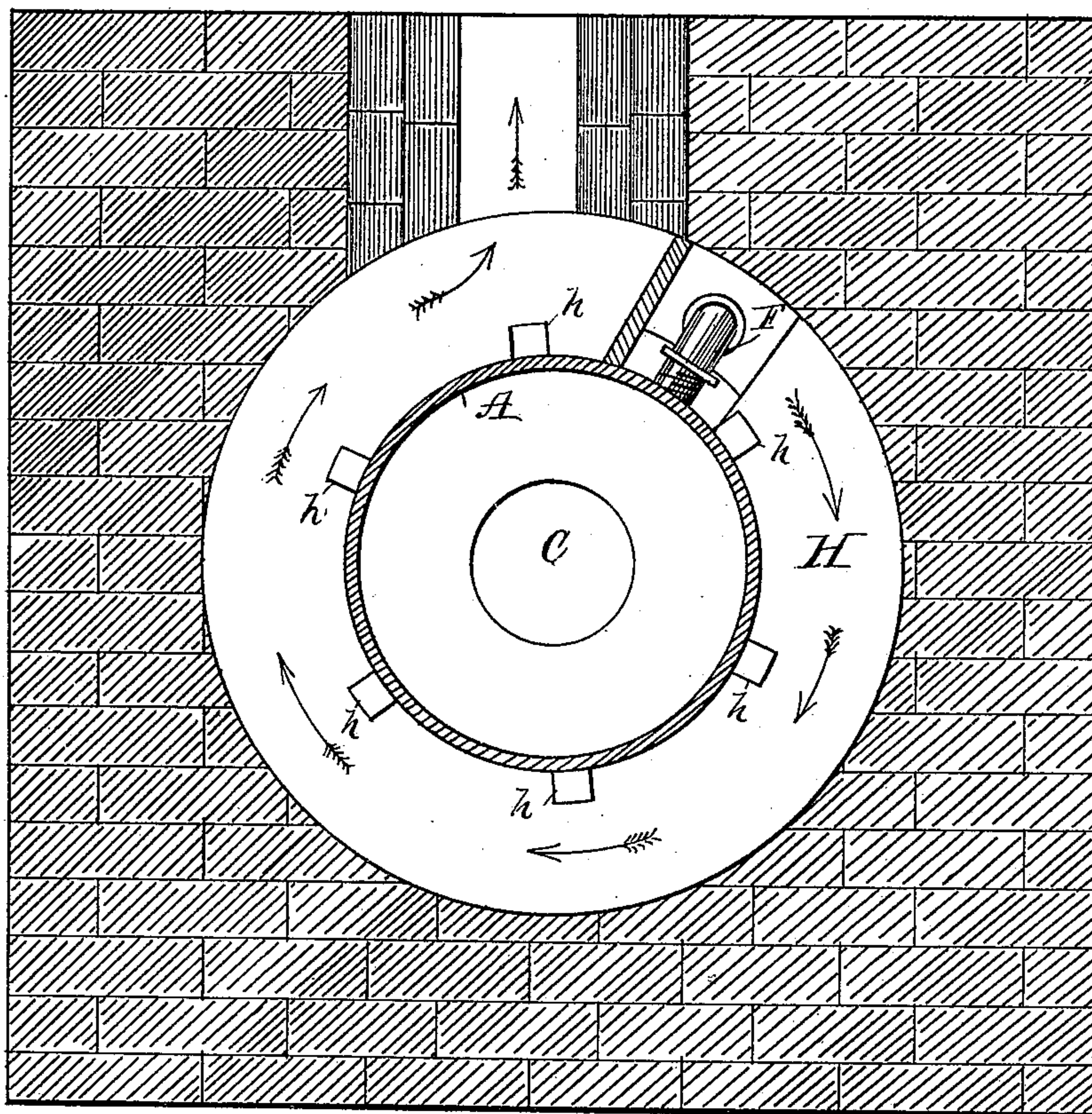
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Fig. 4.



Witnesses;
Charles S. Meyer.
Witness

Inventor;
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E. B. Doolittle

UNITED STATES PATENT OFFICE.

JOHN RAMSBOTTOM, OF CENTRAL FALLS, RHODE ISLAND.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 250,390, dated December 6, 1881.

Application filed December 24, 1880. (No model.)

To all whom it may concern :

Be it known that I, JOHN RAMSBOTTOM, of Central Falls, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Steam-Boilers; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

10 This invention has reference to an improvement in steam-generators, and is also applicable to water-circulating boilers for hot-houses.

The invention consists in providing a central chamber, in which the water is contained, with a downward-projecting turret, and connecting circulating-pipes with the same.

15 It further consists in the construction of the central chamber, and in the peculiar method of constructing the furnace, by which the boiler is suspended in the fire-box, and a circular flue is formed around the upper end, as will be more fully set forth hereinafter.

Figure 1 is a view of my improved steam-generator, shown without the brick-work or other fire-box. Fig. 2 is a horizontal section of the same. Fig. 3 is a vertical section, showing the steam-generator inclosed in brick-work. Fig. 4 is a horizontal section on line *x x*, Fig. 3.

20 In the drawings similar letters of reference indicate corresponding parts.

30 A represents the upper half, and B the lower half, of a cylindrical vessel, each of which is provided with a flange, so that the two can be readily secured together by means of bolts, as is shown in the drawings.

C is a pendent dome extending downward over the fire.

D represents the feed-water pipe, and E the blow-off pipe, or vice versa.

40 F F are a series of circulating-pipes secured near the water-line, but below the same, at the upper part of the cylindrical vessel, and also in the downwardly-extending chamber C, and as this dome is of less diameter than the larger vessel A B the circulating-pipes F F are arranged to enter the same in two or more rows, so as to enable a large number of tubes or pipes F to be entered in the central chamber.

G is the steam or hot-water outlet pipe.

50 The whole boiler is suspended from the plate H, which is made in two or more parts and

firmly secured in the masonry, as shown in Fig. 3. The boiler is provided with the lugs *h h*, which rest on the plate.

To withdraw the smoke from the fire a hole 55 is left in the plate H, and close to this hole the flue I is closed by a partition, the smoke-exit being on the other side of this partition. By this arrangement the heated products of combustion are made to pass around the upper end 60 of the steam-boiler, and thus add more heat to the same.

K is the ash-pit, L the grate, and M the furnace.

By making the cylindrical vessel A B in two 65 parts the same can be readily cast in green sand, and a good, cheap, and reliable casting secured.

By extending the tubes or pipes F F from the central chamber, C, outward several advantages 70 are secured.

First. In a vessel exposed to the fire the water ascends along the sides exposed to the heat, and is most solid in the center. The circulating-pipes are therefore more readily supplied with 75 solid water.

Second. The circulating-pipes F F, when secured with short connections close to the sides on both ends, are liable to leak from expansion, which difficulty is overcome by the long 80 arm extending to the central chamber, which secures more elasticity to the tubes or pipes.

Third. A larger area of the pipes is exposed to the direct action of the heat, being placed directly over the fire, insuring a more rapid 85 circulation of the water.

As the cylindrical vessel A B is made in two parts the tubes or pipes F F may be expanded into the lower part or chamber, and when the two parts are secured together the pipes may 90 be connected at the upper part by right and left bends, as is shown in the drawings.

This steam-generator is well adapted for the heating of houses by either steam or hot water. It has a solid body of water, a large amount of 95 heating-surface, occupies a small space, and is economical in construction. It requires only a small quantity of coal to get up steam, as the water circulates rapidly and sends the heated water to the surface. It is therefore economical 100 in fuel.

Having thus described my invention, I claim

as new and desire to secure by Letters Patent—

1. The combination, with the vessel A B, provided with the chamber C and the tubes or pipes F F, of the lugs *h h* and the plate H, constructed
5 to suspend the steam-generator within the furnace, as described.

2. The combination, in a steam-generator, of the circulating-tubes outside the main cylinder, and connected near the top and bottom thereof,
10 said cylinder being suspended within the fur-

nace by a plate provided with an aperture, and arranged in such manner that the products of combustion passing from the main flue will pass through said aperture and circulate around its top, by which the steam in the cylinder is
15 superheated, as shown and described.

JOHN RAMSBOTTOM.

Witnesses:

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