(No Model.) 3 Sheets—Sheet 1.

J. LAPP.

BOILER.

No. 411,249. Patented Sept. 17, 1889.

Fig. 1.

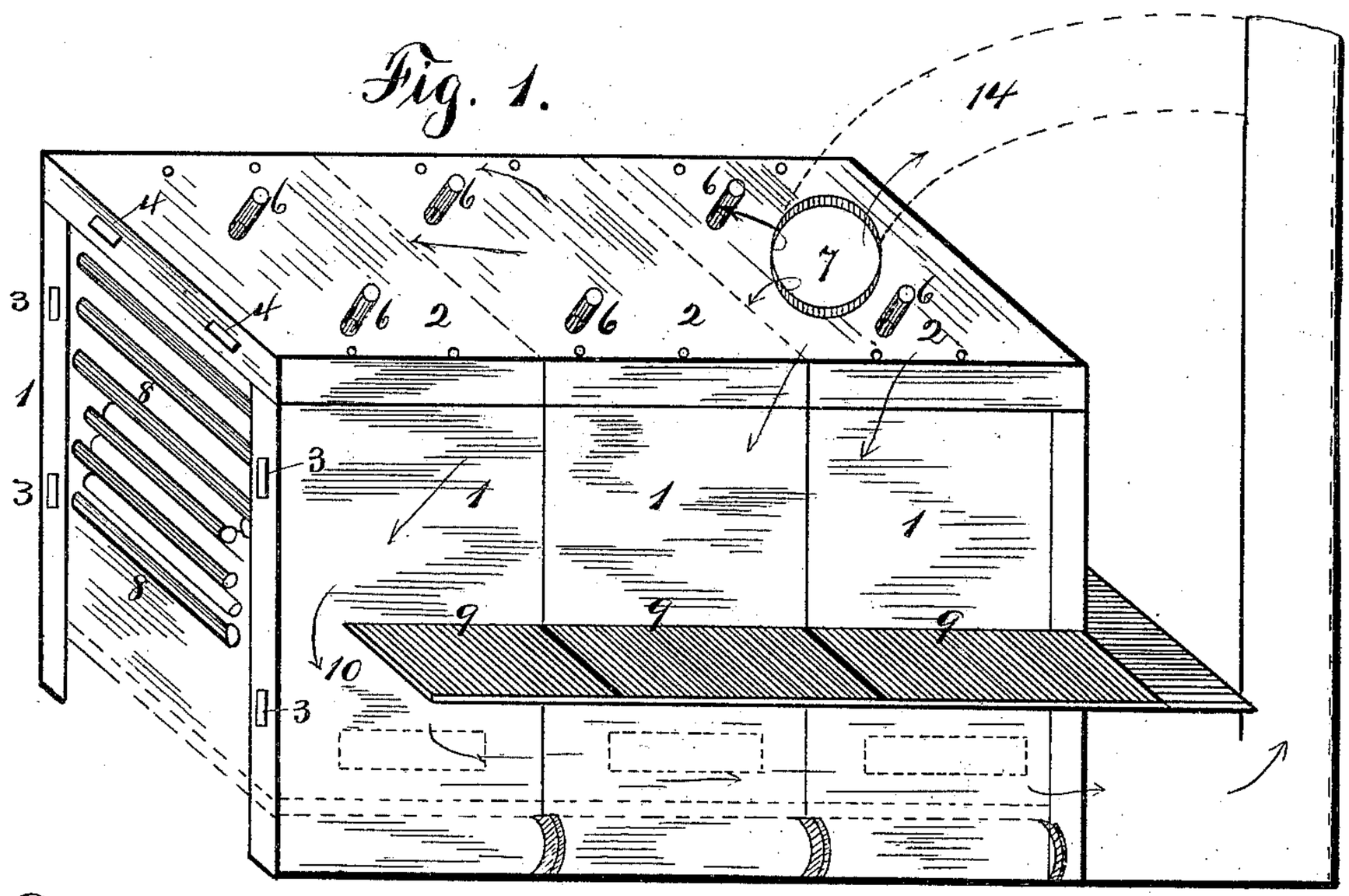
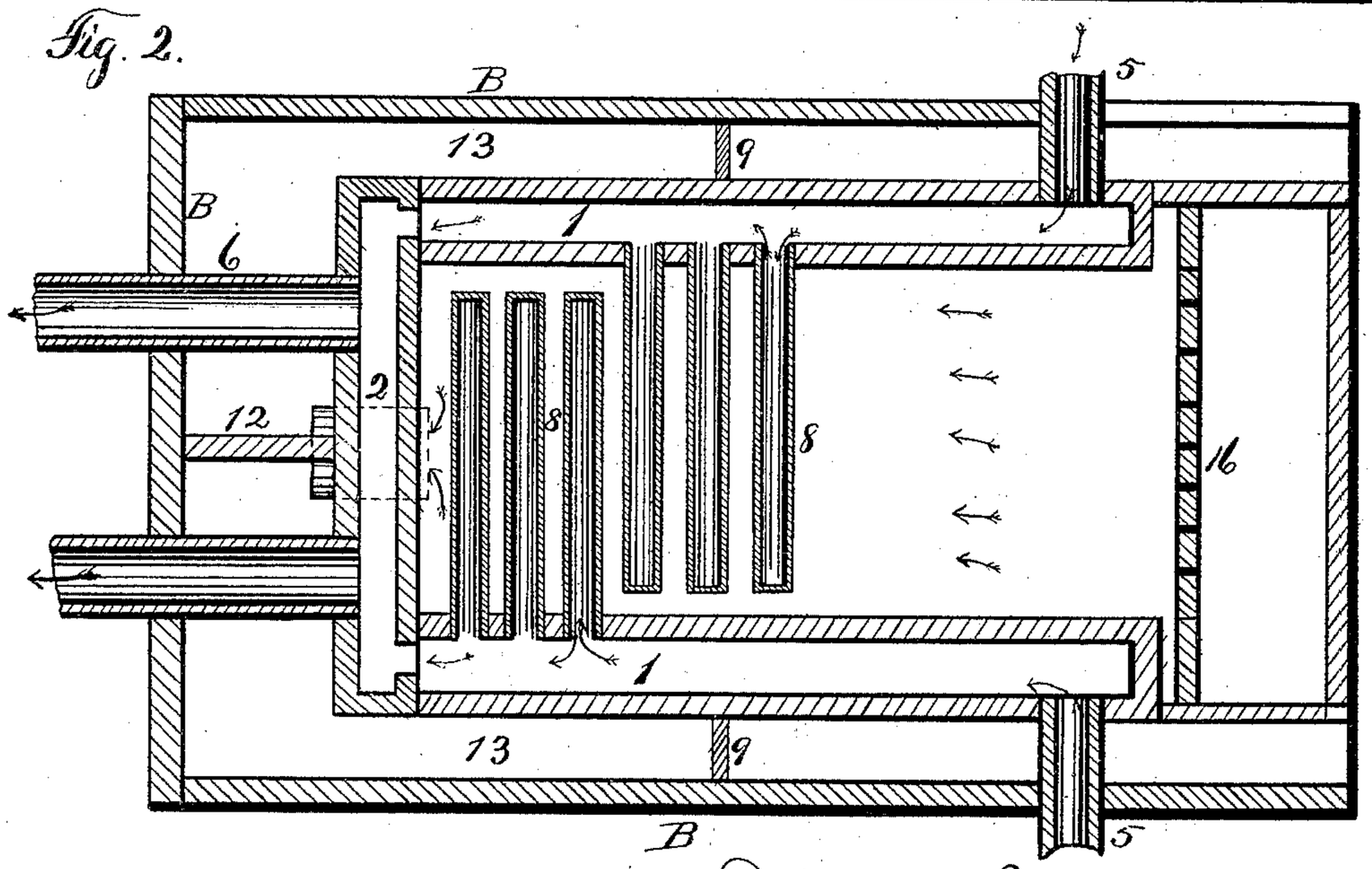


Fig. 2.



Witnesses

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(No Model.) 3 Sheets—Sheet 2.

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Fig. 3.

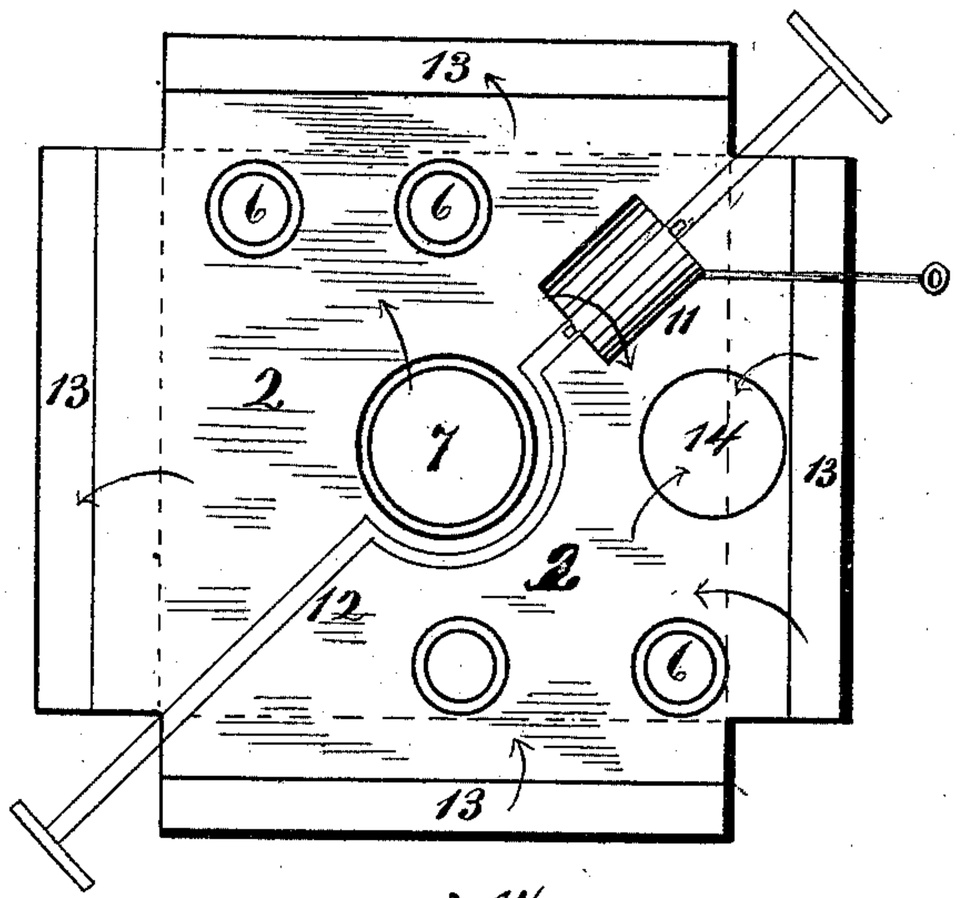
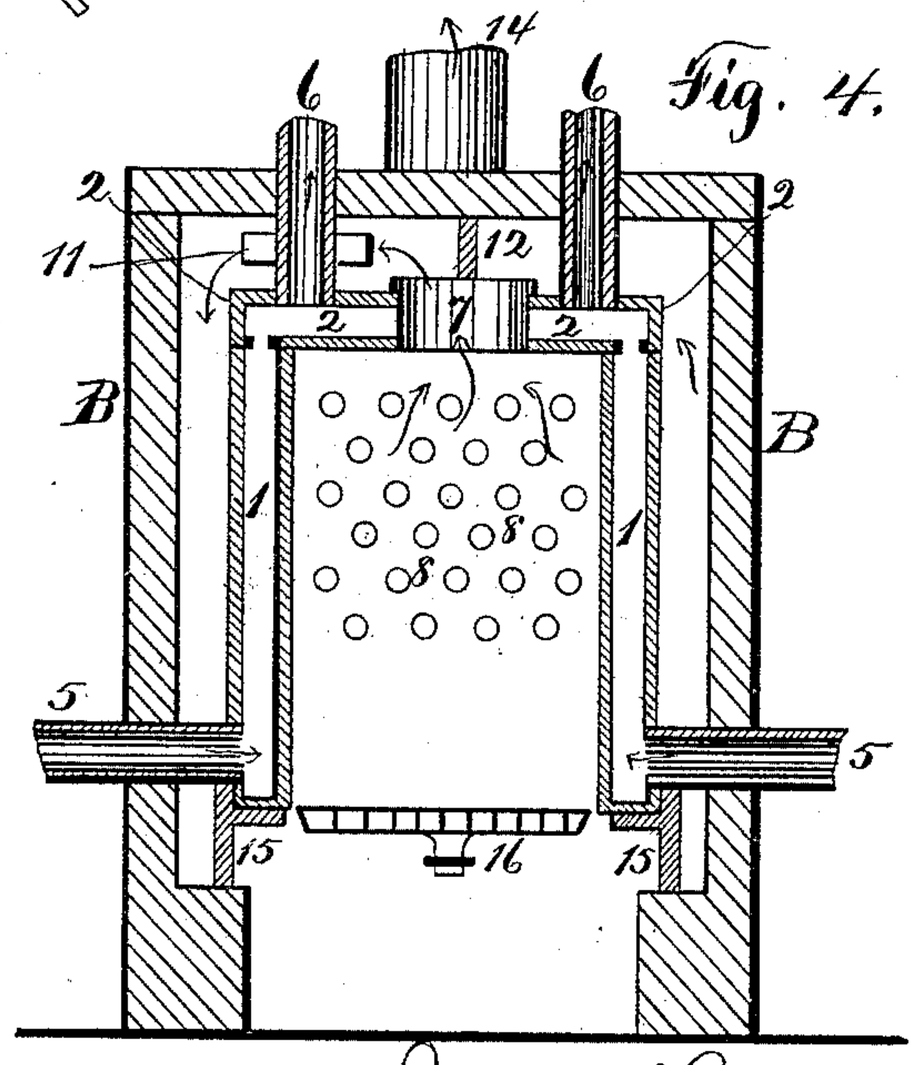


Fig. 4.



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3 Sheets—Sheet 3.

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Fig. 5

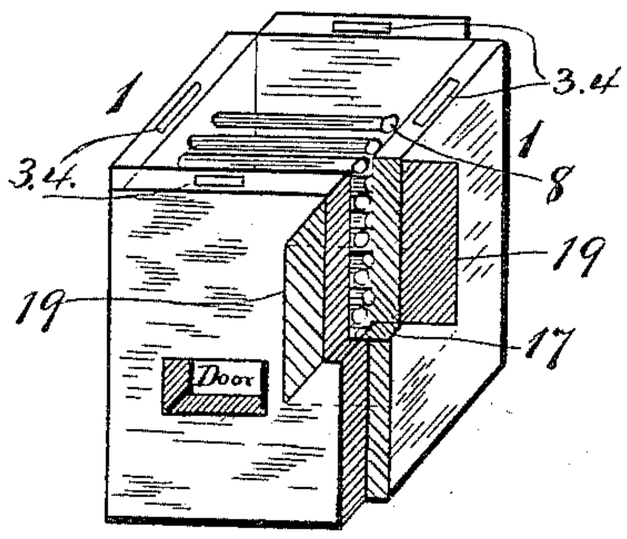


Fig. 6.

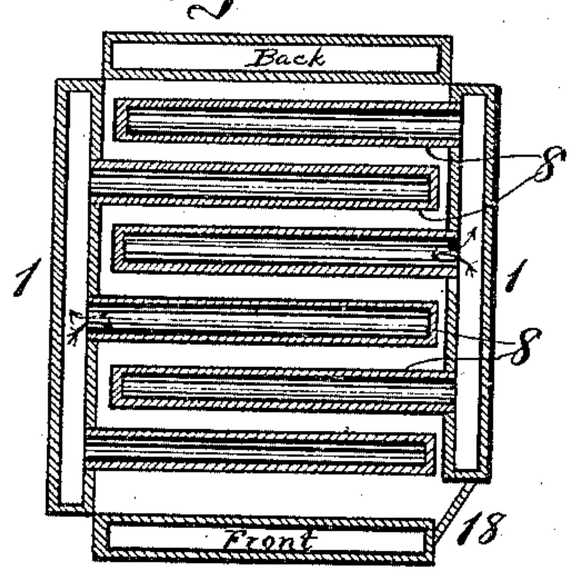


Fig. 7.

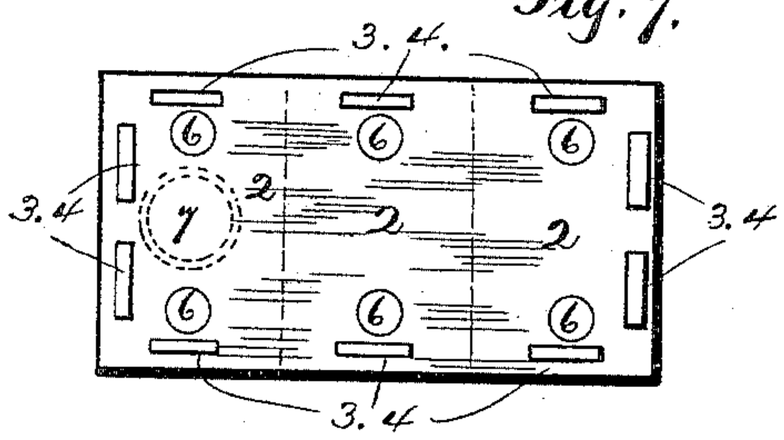


Fig. 8

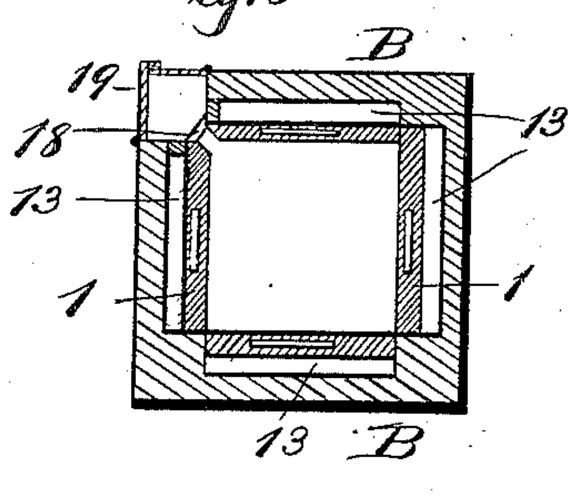
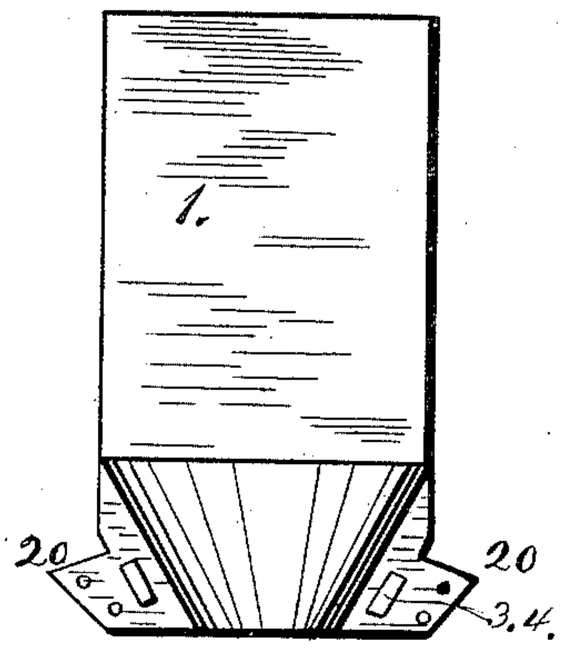


Fig. 9.



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UNITED STATES PATENT OFFICE.

JOHN LAPP, OF HONEOYE FALLS, NEW YORK.

BOILER.

SPECIFICATION forming part of Letters Patent No. 411,249, dated September 17, 1889.

Application filed June 1, 1889. Serial No. 312,895. (No model.)

To all whom it may concern:

Be it known that I, JOHN LAPP, of Honeoye Falls, county of Monroe, in the State of New York, a citizen of the United States, have invented certain new and useful Improvements in Boilers, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is an isometrical elevation of the combustion-chamber with one end and also with the outer casing removed. Fig. 2 is a vertical transverse section of the same with the casing applied. Fig. 3 is a top plan view, on a smaller scale than Fig. 1, of the top of the combustion-chamber, showing the partition. Fig. 4 is a vertical section of Fig. 3. Fig. 5 is an isometrical elevation of Fig. 3, showing the corner-opening for cleaning the flues. Fig. 6 is a horizontal section of Fig. 5. Fig. 7 is a bottom plan of the top of Fig. 1. Fig. 8 is a horizontal section of Fig. 5 with the inclosing-casing, omitting the flues. Fig. 9 is a front elevation of a section, showing a rectangular top forming a rectangular combustion-chamber and frusto-conical base or lower end, all integral with each other, the lower part forming a round fire-pot.

My invention relates to the construction of what is known as "hot-water heating apparatus," and particularly to that class in which the vertical walls and top of the combustion-chamber are constructed hollow, the chambers within the walls and top communicating with each other, thus forming a complete water-chamber around the combustion-chamber and above it and around and below the fire-pot continuous, excepting at the front, where it is broken by the door for fuel and by the ash-pit, all constituting one chamber by means of the connections between the sides themselves and between the sides and the top.

The object of my invention is to produce a heating apparatus the sides of which are hollow pieces of metal, and which are adapted to be set up side by side and be secured together with suitable connections connecting the chambers in the side pieces, and of vertical hollow end pieces the chambers of which are connected to the side pieces, and of hollow horizontal section or sections constituting the top, the whole space inclosed by the sides and top constituting the combustion-chamber, excepting what is occupied by the grate and ash-pit, and in which a brick-work or other outer casing is so laid up or arranged as to create vertical flues upon the sides and ends and a horizontal flue across the top subdivided by a partition in which is a damper, so that when the damper is closed the products of combustion are thrown part down one side and part down the other, thus creating, in connection with horizontal wings upon the side pieces extending to the casing, a reverse flue, so that the products of combustion pass downward around under the partition, and thence to the smoke-pipe, and so that when the damper in the partition is open all of the products of combustion will pass direct through the opening in the top of the combustion-chamber, and thence into the smoke-pipe, the apparatus being also provided with suitable inlet-openings admitting the cold water into the water-chambers in the sides adjacent to the bottom, and with suitable outlet pipe or pipes through which the heated water passes to the radiating system.

My invention consists in the several novel features of construction and operation hereinafter described, and which are specifically set forth in the claims annexed. It is constructed as follows:

In Fig. 1 I show an isometrical elevation of my apparatus with the front removed as adapted for heating a large building, and consisting of three side sections 1, placed edge to edge, three top sections 2, placed upon the top of the side sections horizontally, and end sections fitting against the side sections and top. These sections are secured together by any ordinary system of bolting. These sections are all hollow, the side sections being provided with edge-openings 3 in both vertical edges, the top sections with edge-openings 4, and the end sections with like openings in their vertical sides and top, the openings in the end sections coinciding with those in the edge of the outer top sections, and those in the meeting edges of the side sections coinciding with each other, and those in the top of the side sections coinciding with like openings in the lower faces of the top sections. These side sections and end sections extend down to substantially the level of the bottom