

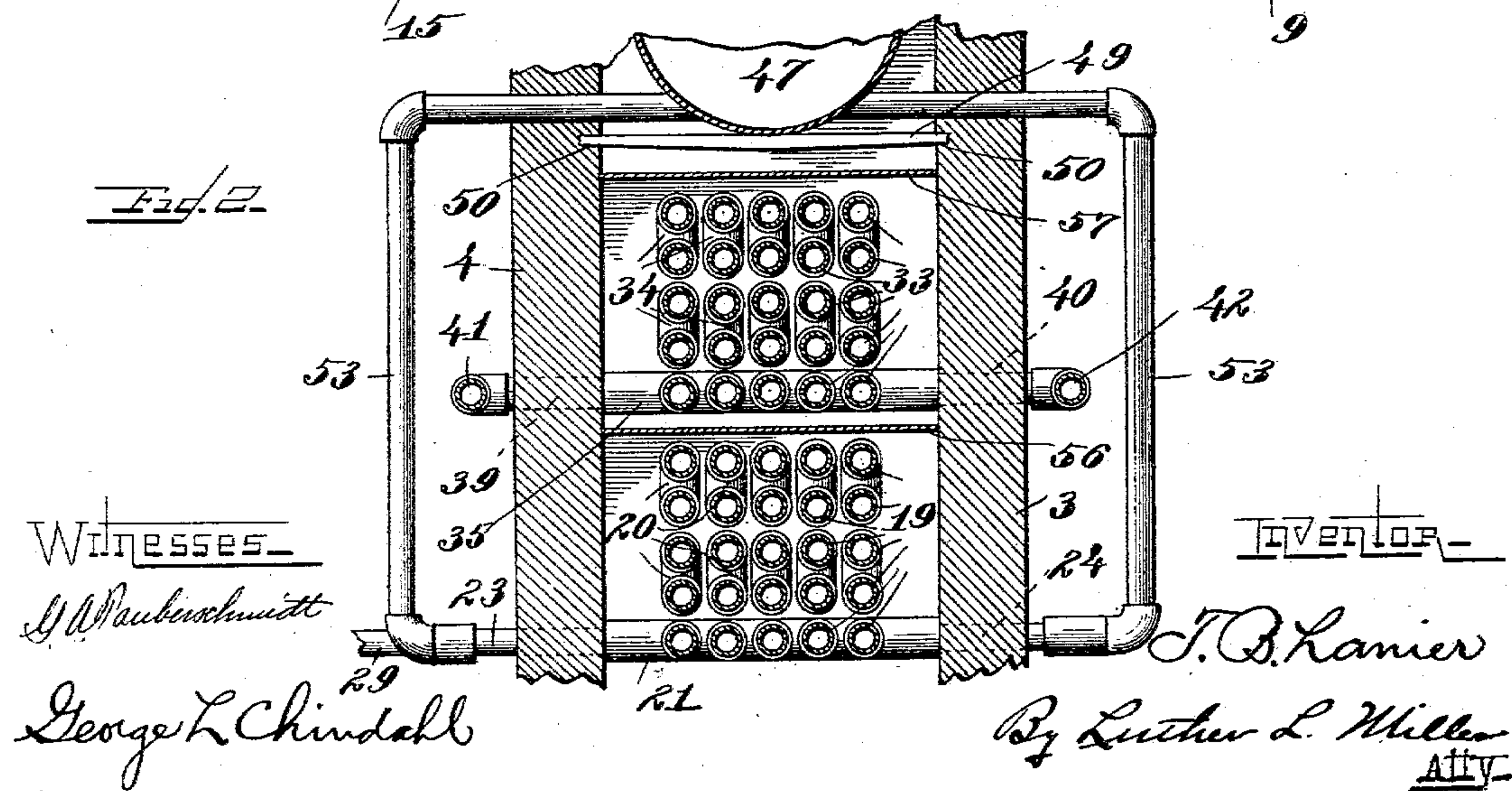
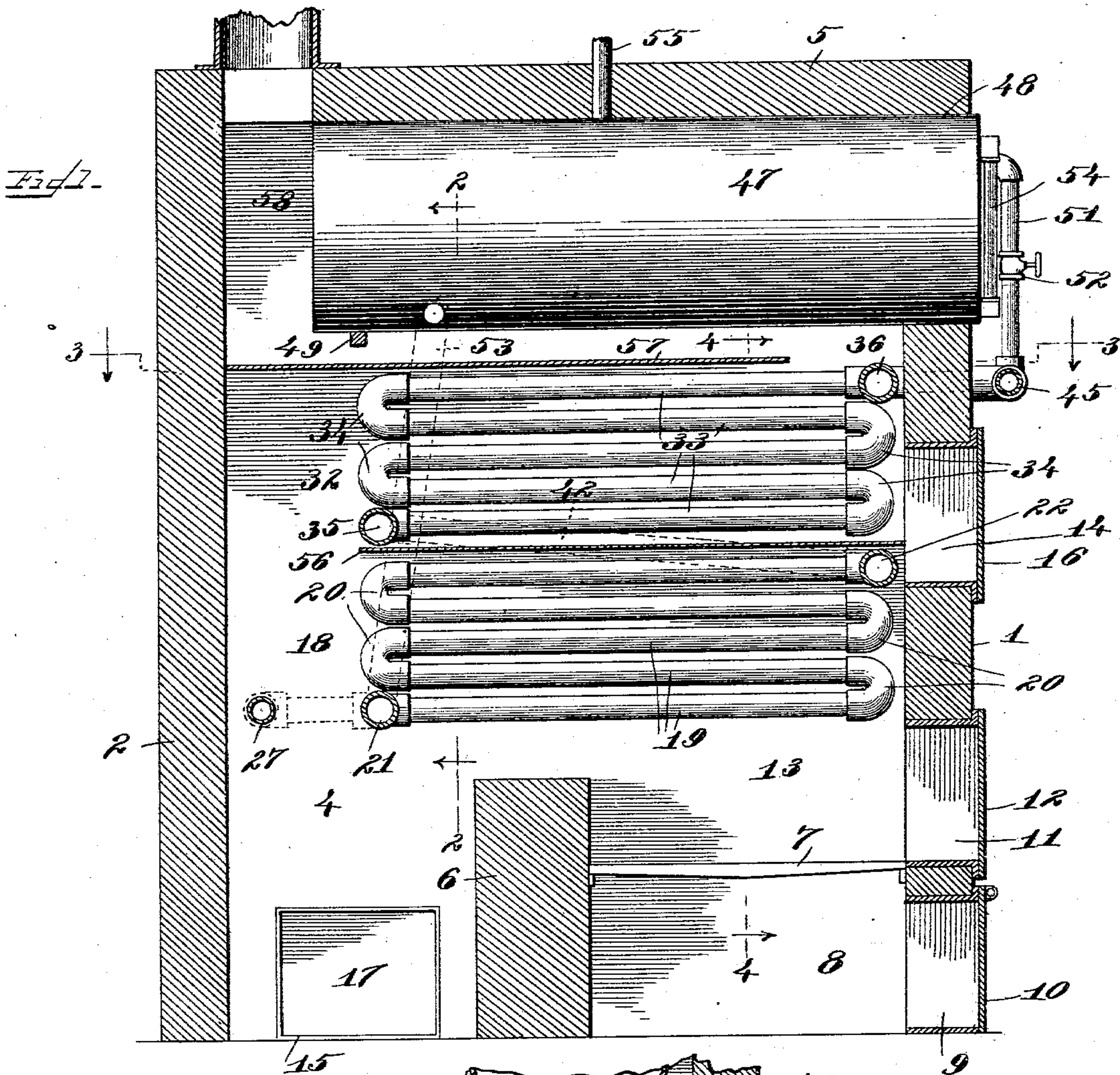
No. 743,649.

PATENTED NOV. 10, 1903.

T. B. LANIER.
HOT WATER HEATER.
APPLICATION FILED AUG. 29, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES—

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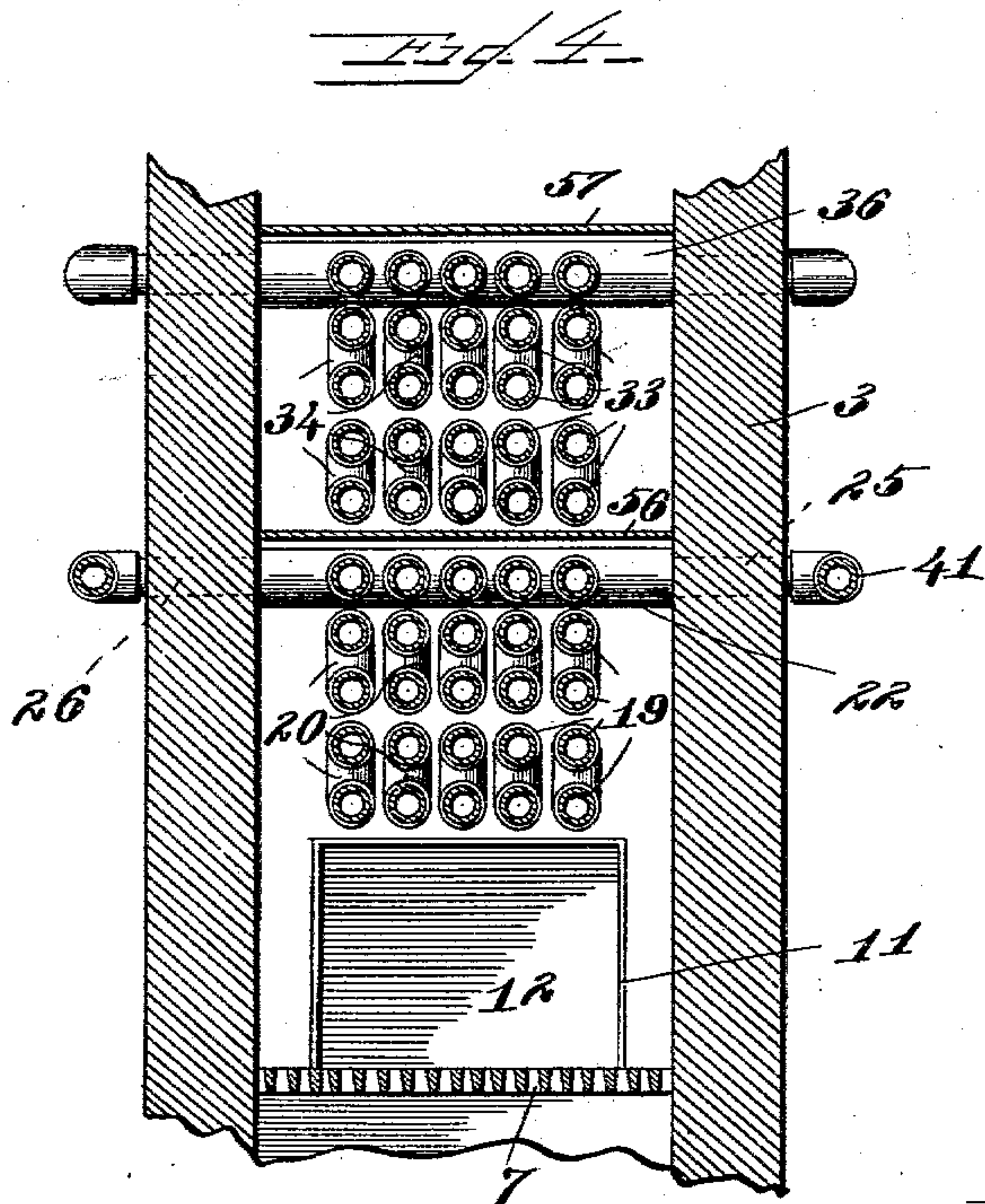
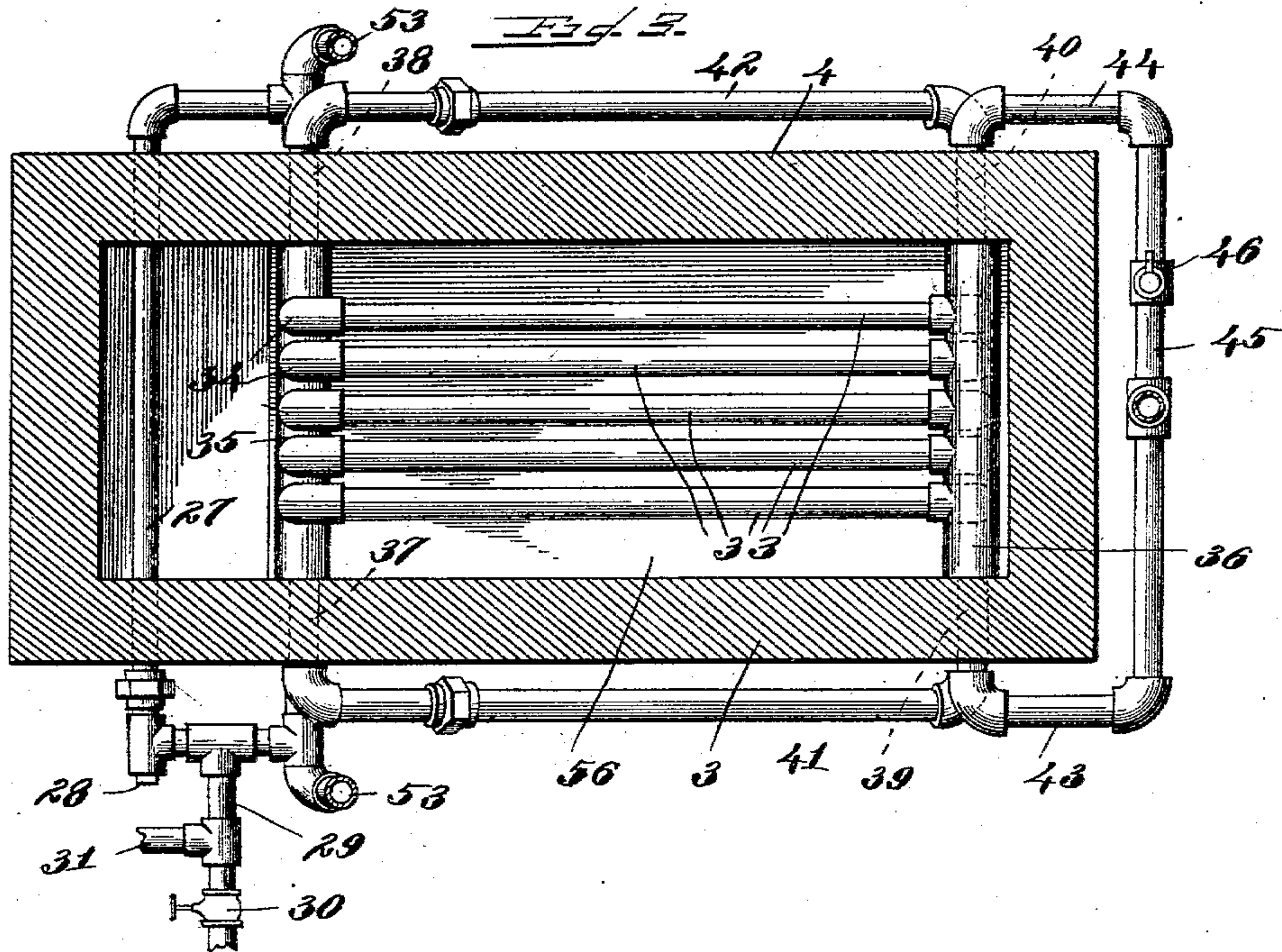
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2 SHEETS—SHEET 2.



Witnesses—

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UNITED STATES PATENT OFFICE.

TIMUEL B. LANIER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
WILLIAM GOOLDEN, OF CHICAGO, ILLINOIS.

HOT-WATER HEATER.

SPECIFICATION forming part of Letters Patent No. 743,649, dated November 10, 1903.

Application filed August 29, 1903. Serial No. 171,210. (No model.)

To all whom it may concern:

Be it known that I, TIMUEL B. LANIER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Steam or Hot-Water Heaters, of which the following is a specification.

This invention relates to heating apparatus, and has for one of its objects the production of apparatus which may be used for heating with either steam or hot water.

The invention further refers to various improvements hereinafter pointed out in the construction and arrangement of the parts of such apparatus.

In the accompanying drawings, Figure 1 is a vertical sectional view through a heater embodying the features of this invention. Fig. 2 is a vertical section on dotted line 2 2 of Fig. 1. Fig. 3 is a horizontal sectional view taken on dotted line 3 3 of Fig. 1. Fig. 4 is a vertical section on dotted line 4 4 of Fig. 1.

In the construction of a heater embodying the features of my invention I provide a brickwork frame or casing, which casing is oblong in horizontal section and comprises the front wall 1, the rear wall 2, the side walls 3 and 4, and the top wall 5. A bridge 6 extends through the lower portion of the casing from side to side thereof, and between this bridge and the front wall 1 are suitably supported the grate-bars 7. Access to the ash-pit 8 beneath the grate is had through an opening 9, formed in the front wall 1, which opening is closed by a door 10. An opening 11, closed by a door 12, provides access to the combustion-chamber 13. 14 and 15 are cleaning-openings formed in the front wall 1 and the side wall 4, respectively, said openings being closed by suitable doors 16 and 17.

Directly above the combustion-chamber 13 is a box-coil 18, comprising a plurality of pipes 19, which pipes are connected in continuous vertical series by the return-bends 20. The vertical series of pipes 19 are united at their lower rear ends by the header 21 and at their upper forward ends by the header 22. Pipes 23 and 24, communicating with opposite ends of the header 21, extend through suitable openings in the side walls 3 and 4. Connected with opposite ends of the header

22 are pipes 25 and 26, also extending through said side walls. These pipes 23, 24, 25, and 26 support the box-coil 18 within the brickwork casing. A blow-off pipe 27, extending through the rear portion of the brick setting, communicates at one end with the pipe 24 and at its other end with the pipe 23, one branch of the T that joins the pipes 23 and 27 being closed by a plug 28, which plug is removed when it is desired to flush out the heater. An intake-pipe 29 also communicates with the pipe 23, said intake-pipe being provided with a cut-off valve 30. A return-pipe 31 is connected with the intake-pipe 29 at a point between the valve 30 and the point of juncture of said intake-pipe with the pipe 23.

Above the box-coil 18 is another similar box-coil 32, comprising the pipes 33, connected in continuous vertical series by the return-bends 34. The vertical series of pipes 33 are joined at front and rear by the headers 35 and 36. Short pipes 37 and 38 communicate with opposite ends of the header 35, and similar pipes 39 and 40 are connected with opposite ends of the header 36, said pipes 37, 38, 39, and 40 passing through suitable openings in the side walls 3 and 4 and supporting the box-coil 32 within the casing of the heater. The pipe 25 from one end of the header 22 of the lower box-coil 18 is connected through the pipe 41 with the pipe 37 from the lower header 35 of the upper box-coil 32. A pipe 42 connects the pipe 26 from the opposite side of the header 22 with the pipe 38 from the header 35. The outer ends of the pipes 39 and 40 are connected, by means of pipes 43 and 44, with a pipe 45, extending across the front of the heater. The pipe 45 is provided with an air-valve 46.

47 refers to a storage tank or drum located above the upper box-coil 32, the forward end of said tank projecting through and being supported in an opening 48 in the front wall 1 of the heater. The rear end of said tank is supported upon a bar 49, having its ends seated in recesses 50 in the side walls 3 and 4. The upper portion of the drum is connected with the pipe 45 through a pipe 51, which latter pipe is provided with a cut-off valve 52. The lower portion of the drum communicates with each end of the lower

header 21 of the lower box-coil 18 by means of the downflow-pipes 53. The tank 47 is provided with the usual water-gage 54, and from its upper portion extends the service-pipe 55, communicating with the radiators or other apparatus to be supplied with steam or hot water.

In order that the products of combustion shall pass entirely through the two box-coils 18 and 32 and beneath the entire length of the storage-tank 47, I support in any suitable manner two baffle-plates 56 and 57, the plate 56 extending between the two box-coils from the front wall 1 to the rear end of said coils and the other plate extending between the upper coil 32 and the tank 47 from the rear wall 2 to within a short distance of the front wall 1 thereof. A smoke-flue 58 is provided between the rear wall 2 and the rear end of the drum 47, the upper end of said smoke-flue communicating in any convenient manner with the smoke-stack or chimney.

When the apparatus hereinbefore described is to be operated as a hot-water heater, water is admitted to the heater and the communicating circulating-pipes of the heating system through the intake-pipe 29. When the proper amount of water has been admitted, the supply is cut off by means of the valve 30. The flame and furnace-gases sweep through the box-coils 18 and 32 and beneath the storage-drum 47, passing out of the heater through the smoke-flue 58. The heated water passes from the lower box-coil 18, through the pipes 41 and 42, to the upper box-coil 32 and from said upper coil into the storage-drum 47 through the pipes 43, 44, 45, and 48. From said drum it passes through the service-pipe 55 to the circulating system of the building, returning to the lower box-coil 18 through the return-pipe 31. The downflow-pipes 53 facilitate the free circulation of

water through the box-coils 18 and 32 and the tank 47.

The operation of the heater when used to generate steam is substantially the same as when used for hot-water heating, except that only sufficient water is admitted through the intake-pipe 29 to fill the box-coils 18 and 32 and to partially fill the drum 47.

The apparatus herein illustrated and described is susceptible of many modifications in the form and arrangement of its parts without a departure from the spirit and scope of my invention, wherefore I do not limit myself to the particular construction herein set forth.

I claim as my invention—

1. In a steam or hot-water heater, in combination, two box-coils supported one above the other; means of communication between the upper portion of the lower coil and the lower portion of the upper coil; a service-pipe communicating with said upper box-coil; and a return-pipe communicating with the lower portion of the lower box-coil.

2. In a steam or hot-water heater, in combination, two box-coils supported one above the other; means of communication between the upper portion of the lower coil and the lower portion of the upper coil; a storage-tank supported above said coils; means of communication between the upper portion of the upper coil and the upper portion of said tank; means of communication between the lower portion of the tank and the lower portion of the lower coil; a service-pipe communicating with the upper portion of said tank; and a return-pipe communicating with the lower portion of the lower coil.

TIMUEL B. LANIER.

Witnesses:

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