

J. C. MEEM.
HOT WATER HEATER.
APPLICATION FILED JUNE 21, 1910.

969,714.

Patented Sept. 6, 1910.

Fig. 1

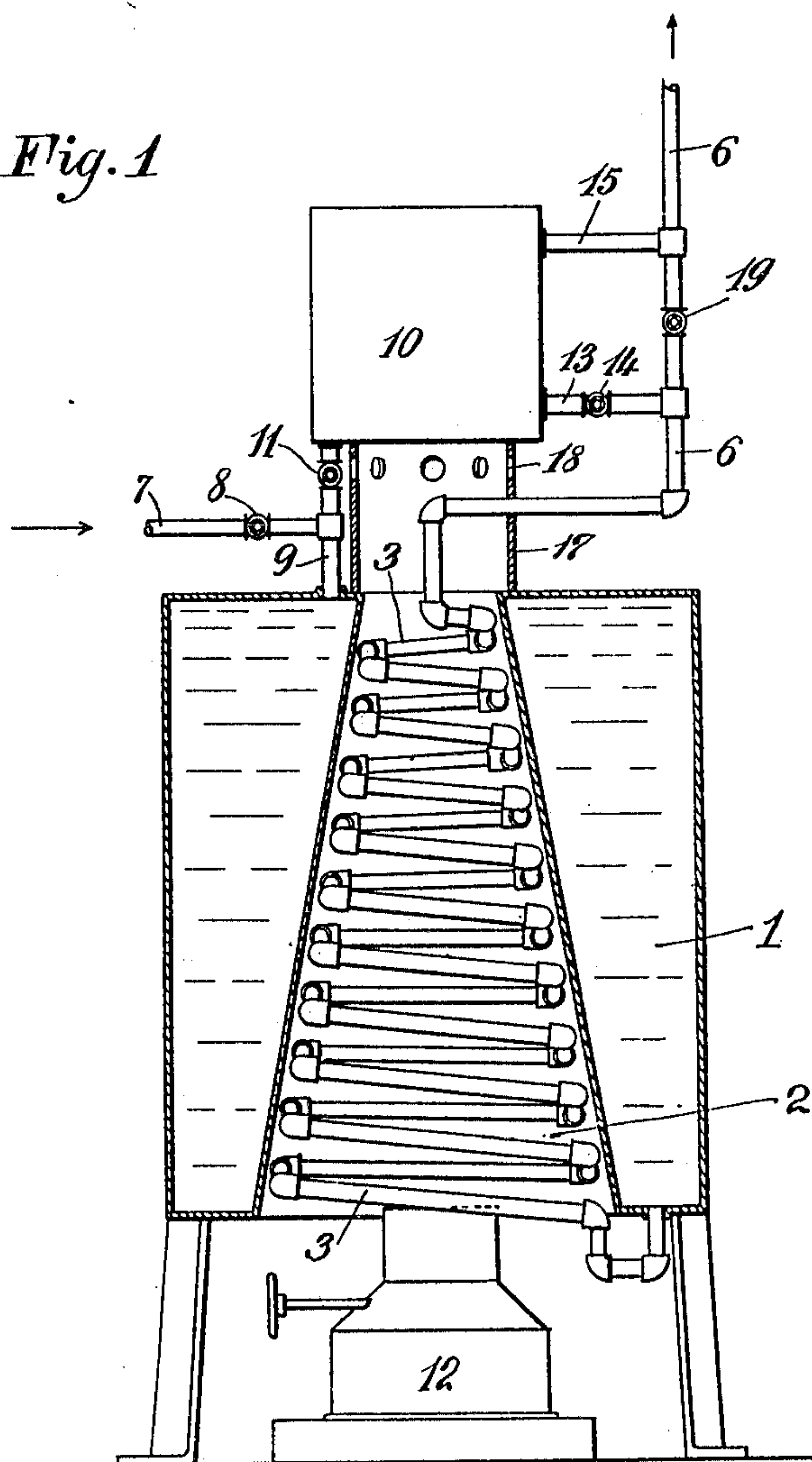
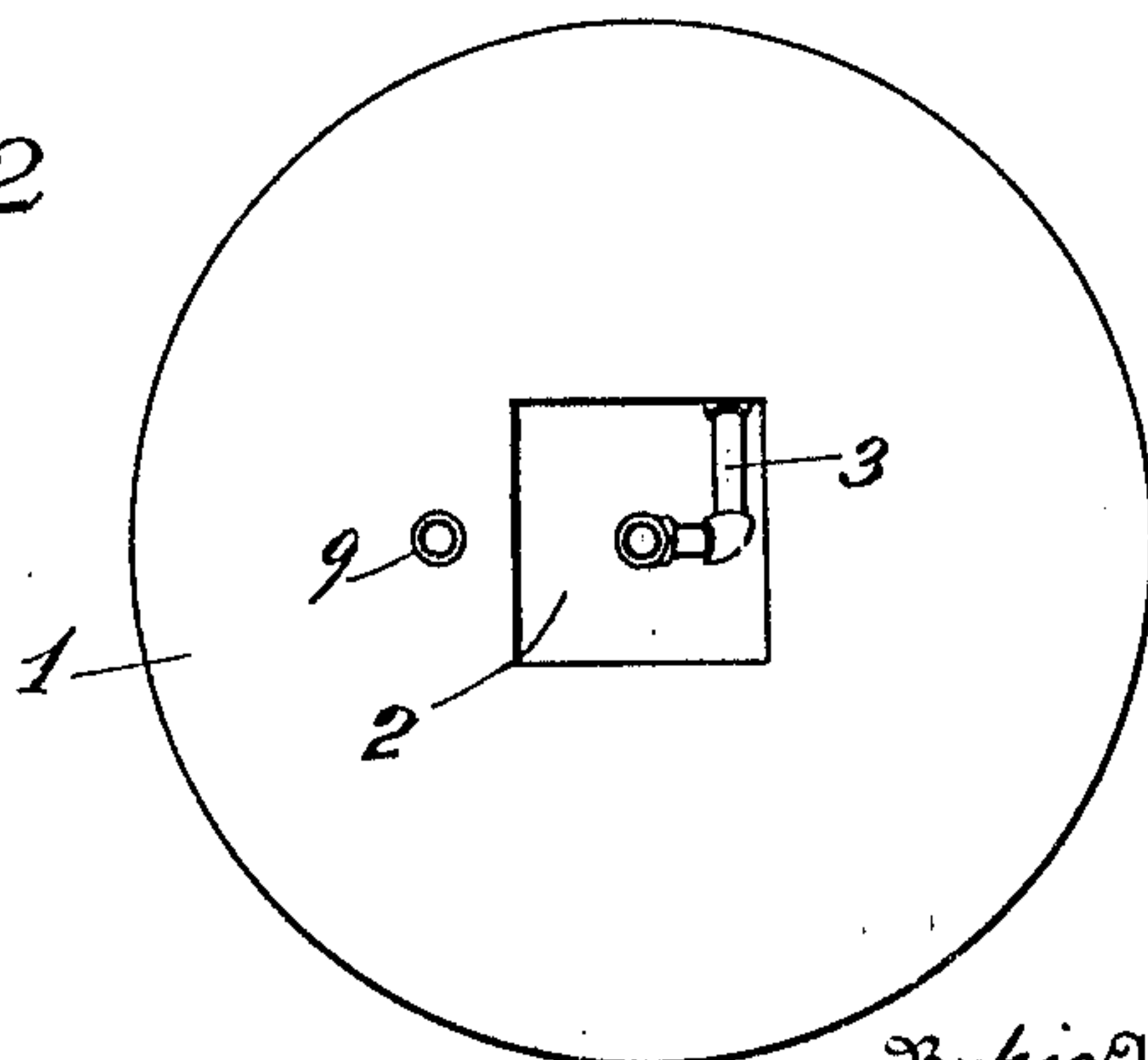


Fig. 2



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES C. MEEM, OF BROOKLYN, NEW YORK, ASSIGNOR TO JOHN SIMMONS COMPANY,
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HOT-WATER HEATER.

969,714.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES C. MEEM, a citizen of the United States, residing at Flatbush, in the county of Kings, borough
5 of Brooklyn, and State of New York, have invented certain new and useful Improvements in Hot-Water Heaters, of which the following is a full, clear, and exact specification.

10 This invention relates to hot water heaters, and more particularly has reference to heaters of the class designed for household use wherein at various times a supply of hot water is desired quickly, and also
15 wherein a supply of hot water can be maintained for use when required.

According to this invention, I provide a heating apparatus comprising generally a main tank adapted to be connected with a
20 source of supply, and a supplementary or storage tank in which the hot water can be stored when not desired for immediate use.

The invention also comprehends means wherein a supply of hot water may be ob-
25 tained in a very few minutes directly from a water coil adjacent the heater, so that the necessity of first heating the relatively large quantity of cold water in the tank is avoided.

30 The invention with respect to a preferred form thereof is shown in the accompanying drawings, wherein—

Figure 1 represents a vertical section of an apparatus embodying the invention, and
35 Fig. 2 represents a plan view of the main tank.

1 represents the main tank, which is preferably cylindrical outside, and inside is formed with a square passage 2 tapering
40 toward the top forming a truncated pyramid-shaped passage or central opening. Disposed within this upwardly tapering central opening 2 is a water coil of piping 3, connected at its lower end to the bottom
45 of the tank 1 and leading its upright to a discharge pipe 6 from which the hot water will be drawn. The tank 1 is supplied by a pipe 7 which may have a cut-off valve 8 therein and leading into the top of tank 1
50 by pipe 9. Pipe 9 is extended to connect with the bottom of the storage tank 10, and between the two tanks may be placed a valve 11.

12 represents a heater or lamp, for which

I preferably use what is known as a "blue
55 flame" oil burner.

From the hot water discharge pipe 6 a pipe 13 containing a valve 14 leads to the bottom of the storage tank 10, and from the top of the storage tank 10 a pipe 15 con-
60 nects with the discharge pipe 6, the latter being provided of course with a stop valve, not herein shown.

The heating coil 3 is preferably made rectangular and tapering to generally fit the
65 central passage 2 of the main tank 1, and is preferably formed by straight sections of pipes of gradually decreasing lengths connected by elbows so as to form a generally spiral coil which will be directly in the
70 flame from the burner 12.

17 represents a cylindrical support for the storage tank 10 which may have vent
holes 18 for the gases from the burner. In this manner, the waste gases from the
75 burner tend to heat the water in the storage tank 10, which latter it should be mentioned is closed and intended to be always filled with water.

In use, if it be desired to obtain a supply
80 of hot water immediately, this will be accomplished by heating the coil 3 and taking the hot water from the pipe 6, the valve 14 being shut, and valve 19 open. As the water flows from the pipe 6, it will be re-
85 placed by water from the supply 7 through valve 8, valve 11 being closed. If it is desired to store hot water in the tank 10, a circulation is permitted from tank 10 through valve 11 and pipe 9 to main tank
90 1, thence through coil 3, pipe 6, to tank 10, this last circulation being either through pipes 13 or 15, or both, it being assumed that the discharge valve at the end of pipe 6 is closed. By opening valve 11 at the
95 same time with valve 8, and also opening valve 14, it will be seen that a supply of hot water may be drawn from pipe 6, and at the same time any excess of hot water not drawn off be discharged into the storage
100 tank 10, so that the water in the storage tank 10 will gradually be warmed. If it be desired to draw a large quantity of hot water the valve 19 in pipe 6 will be closed, and valve 14 opened, and valve 11 closed,
105 whereupon the circulation will be the cold water through pipe 7, valve 8, pipe 9, tank 1, coil 3, pipe 6, valve 14, and pipe 13 to

tank 10, and thence out through pipe 15 and pipe 6. In this manner a large quantity of hot water can be obtained, or hot water already in tank 10 drawn off through pipe 15 and pipe 6 by closing valve 19.

From the foregoing description it will be seen that a convection water heating apparatus is provided, wherein the flow of cold water is always downward and the flow of hot water always upward, and wherein hot water can be drawn directly from the coil independently of the cold water which may be in the storage tank 10; the entire body of water in both tanks heated by circulation when none is being drawn off; or the water from the coil directed through the storage tank 10, and thence out. In this manner, it will be possible to always obtain quickly a supply of hot water directly from the coil without requiring time to heat any cold water which may be in the storage tank, and also maintain a supply of hot water when none is being drawn off.

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

1. In a hot water heater, the combination with a tank having a central passage, of a pipe coil disposed in said central passage having its lower end connected to the bottom of the tank and its upper end to the hot water delivery pipe, a storage tank disposed above said passage, connections for supplying cold water from said storage tank to the heating tank and coil, and a heater for said tanks and coil.

2. In a hot water heater, the combination with a tank having a central passage, of a pipe coil disposed in said central passage having its lower end connected to the bottom of the tank and its upper end to the hot water delivery pipe, a source of supply con-

nected to the top of the tank, a heater for the coil and the interior of the tank, a storage tank disposed above said passage, and connections between said coil delivery pipe and said tank whereby hot water may be used directly from the coil or stored in the storage tank, and a heater for the coil.

3. In a hot water heater, the combination with a main tank having a central passage, of a pipe coil disposed in said central passage having its lower end connected to the bottom of the tank, a storage tank above said passage, a connection from the upper end of said coil to said storage tank, a delivery pipe from the upper portion of said storage tank, a supply for the main tank, and a heater for said coil.

4. The combination with a main tank, of a separate storage tank located above said main tank, a heating coil having its lower end connected to said main tank, and its upper end to the hot water delivery pipe, a source of supply for the main tank, and connections for circulating the water from the storage tank through said main tank and coil, and a heater for said coil.

5. The combination with a main tank and a source of supply of a separate storage tank, a burner for heating both tanks, a coil connected with the main tank and disposed within said main tank, connections between said coil and a discharge pipe outside of said storage tank, and connections through said storage tank between said coil and said discharge pipe.

In testimony whereof I affix my signature, in presence of two witnesses.

JAMES C. MEEM.

Witnesses:

J. S. WOOSTER,
GEO. N. KERR.