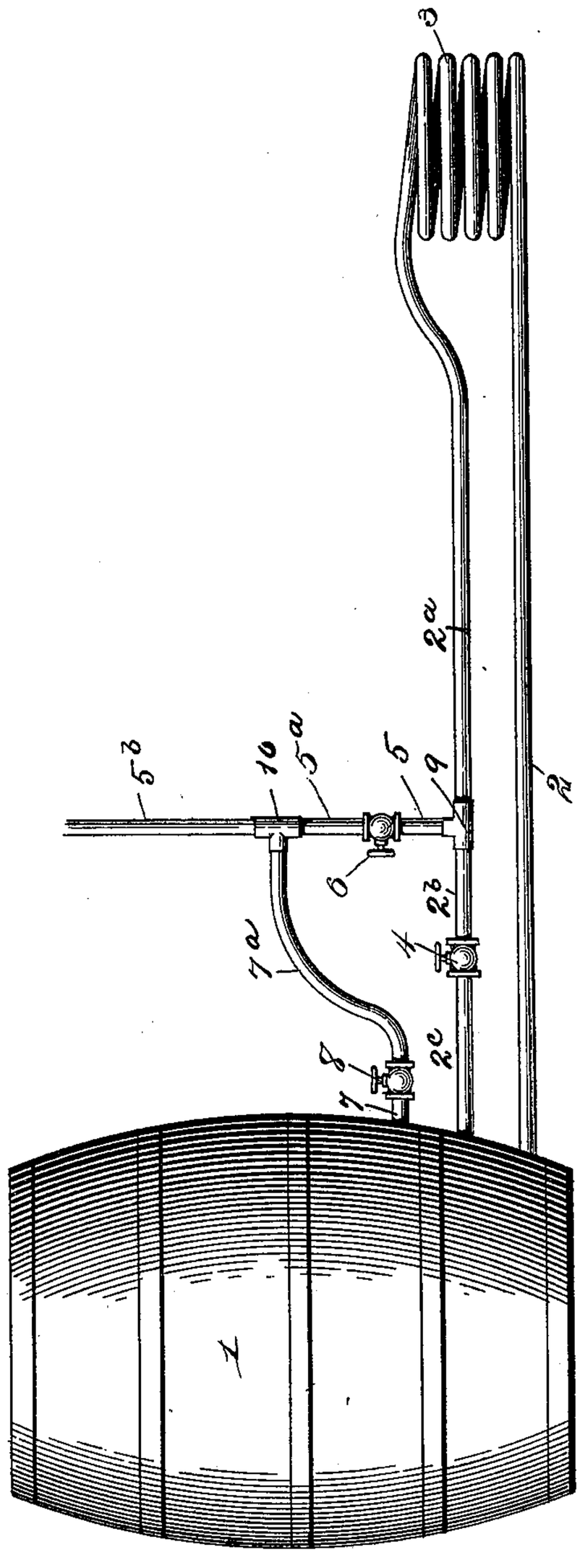
No. 675,777. Patented June 4, 1901.

J. B. HARRISON.

HEATER.

(Application filed Jan. 25, 1900.)

(No Model.)



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JOHN B. HARRISON, OF ROCKWOOD, TEXAS.

HEATER.

SPECIFICATION forming part of Letters Patent No. 675,777, dated June 4, 1901.

Application filed January 25, 1900. Serial No. 2,788. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. HARRISON, a citizen of the United States, residing at Rockwood, in the county of Coleman and State of Texas, have invented certain new and useful Improvements in Heaters, of which the following is a specification.

This invention relates to that class of water-heaters providing for the circulation of the water by which only a part of the water to be heated is brought into contact with the heating agent at any time.

The object of the invention is to provide a heater of the above-described character which may be used in connection with a stove or furnace or a fire built on the ground in the open air and be more effective and economic in its heating and more convenient in operation than the usual methods heretofore pursued in such instances where an inexpensive and portable device of this kind could be used to great advantage.

The invention consists of a heating-pipe coil which is adapted to be thrust into the fire-pot of a stove or furnace or have a fire built around the same, which coil forms the return-bend of pipes connecting at its ends, one end above the other, with a suitable water-receptacle, and whereby the water will be caused to circulate through the pipe and be heated.

The invention further consists in certain other novel features in the construction and arrangement of parts, all as hereinafter described and claimed.

The accompanying drawing is a side elevation of my improved water-heater connected with a cask.

The invention is represented as applied to a cask 1, that form of receptacle being shown as illustrating the serviceable use of such a receptacle owing to its large capacity, being easy of obtainment, and therefore in the use of a wooden receptacle the invention shows one of its most essential objects. The pipe leading from and to the cask or receptacle at points near its bottom is formed with a lower pipe-arm 2, extending in a horizontal or approximately horizontal position a distance which will place the cask or receptacle sufficiently removed from the fire or as circumstances may determine. The pipe is then formed into ascending coils 3, of open pitch and preferably of a size or number that will make their bulk of such size as to be readily inserted into a stove or furnace door opening and into direct contact with the flame of the fire. The pipe after completing the coil is carried back in the form of an upper pipe-arm 2^a, connected with a lower T-coupling 9, which in turn is connected with an outer pipe-section 2^b, coupled to a lower valve 4, controlling an inner pipe-section 2^c, connected with the cask above the connection of the end of the lower pipe-arm 2 in order to insure circulation of the water. To the lower T-coupling 9 is connected a lower vertical pipe-section 5, on the upper end of which is located a vertical valve 6, carrying an intermediate vertical pipe-section 5^a, supporting an upper T-coupling 10, which in turn has an upper vertical pipe-section 5^b. The water is taken from the cask or receptacle by means of a pipe consisting of an inner pipe-section 7, connected with the cask or receptacle at a suitable distance above the connection of the inner pipe-section 2^c, outer pipe-section 7^a, connected with the upper T-coupling, and an intermediate upper valve 8. It will thus be seen by this arrangement of valved pipes that provision is made for furnishing steam and hot water at will, a fire being built around and within the coil or the coil inserted in the fire-chamber of the stove or furnace.

The operation can be carried out as follows: If it is desired to heat the water in the cask, the lower valve 4 is opened and the vertical valve 6 and the upper valve 8 are closed. The water then passes through the lower pipe-arm 2, through the coil 3, and returns to the cask through the upper pipe-arm 2^a and pipe-sections 2^b 2^c. If it is desired to create steam, the lower valve 4 is closed, as well as the upper valve 8, and the vertical valve 6 is opened, the steam passing up and out of the vertical pipe 5 5^a 5^b as produced. When it is desired to draw water from the cask, the lower valve 4 remains closed and the upper valve 8 is opened, when the steam ascending through the vertical pipe 5 5^a 5^b creates a suction through the upper section 5^b and draws the water through the upper pipe 7 7^a and expels or discharges it through upper vertical pipe-

section 5^b, the steam passing out with the water. As steam is created the necessary water is supplied through the lower pipe-arm 2 to the coil 3. It will be understood that the fire within and without the coil 3 is so intense as to soon heat the water therein and when the lower valve is closed will as quickly convert the water therein into steam.

What I claim is—

A water-heater comprising a receptacle, a pipe formed with a lower arm, an open pitch-coil, and an upper arm, the lower T-coupling, an outer pipe-section, a lower valve, an inner pipe-section, a lower vertical pipe-section, a vertical valve surmounting the lower vertical pipe-section, an intermediate vertical pipe-section above the vertical valve, an upper vertical pipe-section, an upper T-coupling connecting the intermediate vertical pipe-section and the upper vertical pipe-section, and the water-pipe consisting of an inner pipe-section, an upper valve and an outer pipe-section connected with the upper T-coupling.

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

JOHN B. HARRISON.

Witnesses:
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J. H. STEWARD.