

No. 731,921.

PATENTED JUNE 23, 1903.

T. E. LEACH.
WATER HEATER.

APPLICATION FILED JUNE 4, 1902.

NO MODEL.

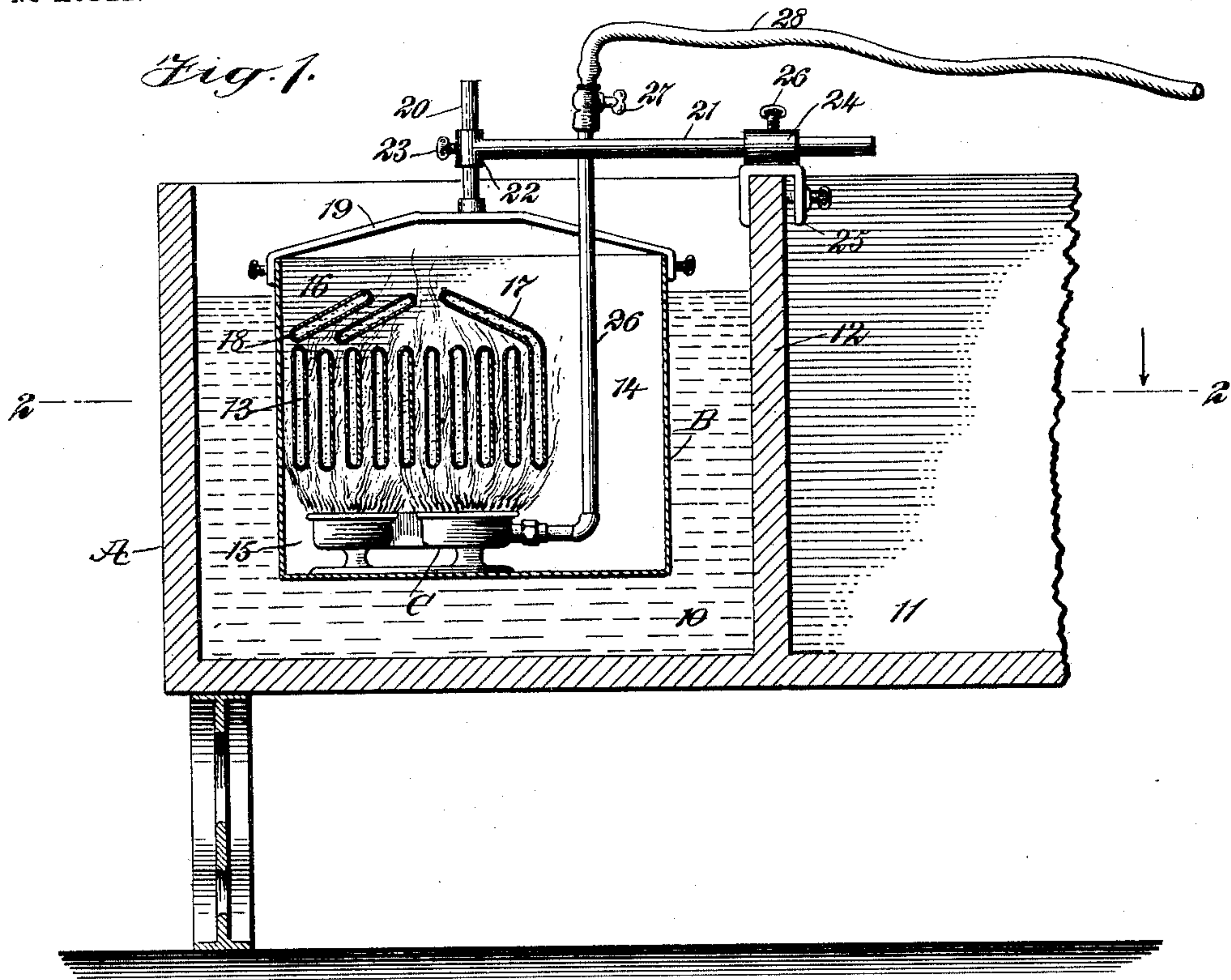
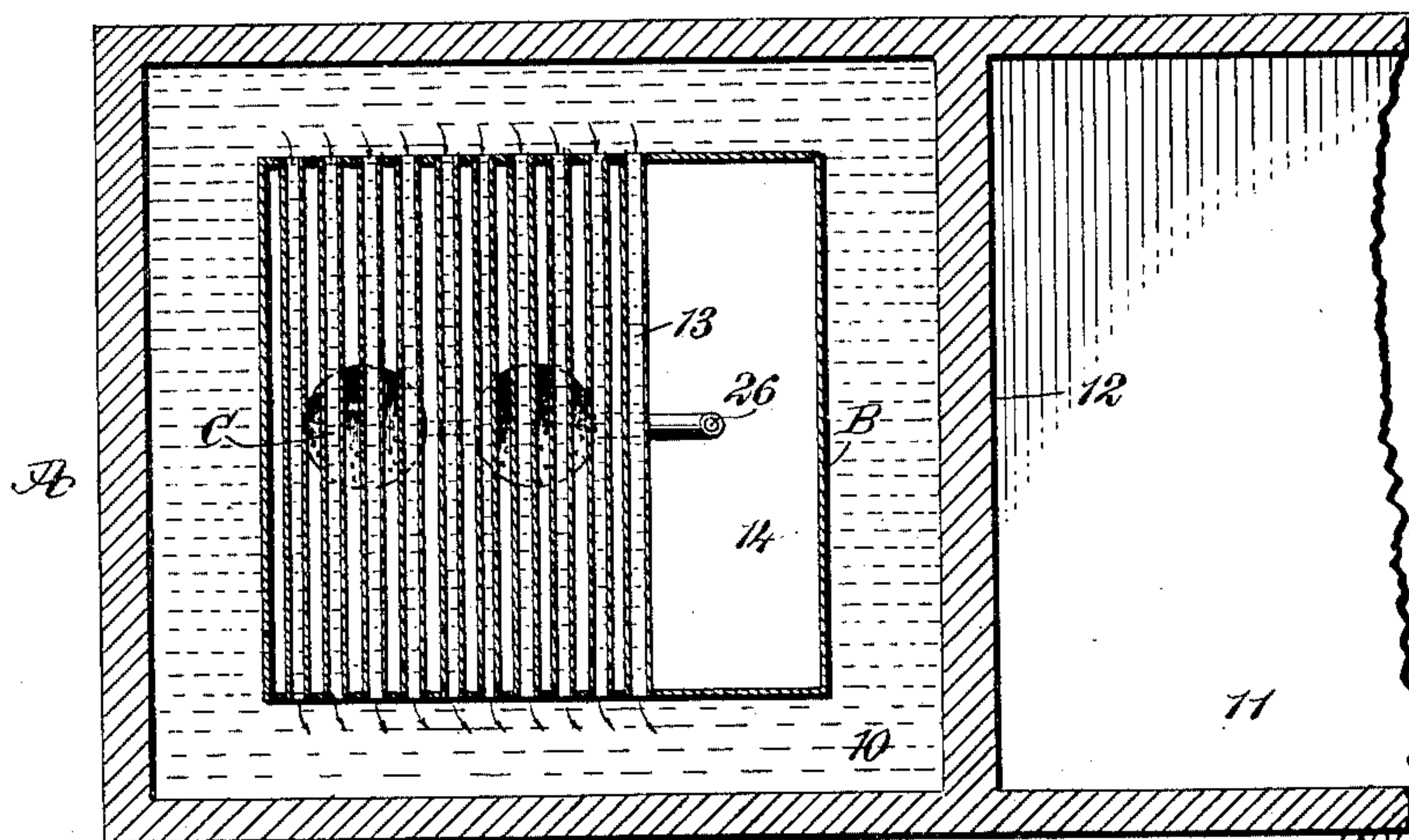


Fig. 2.



WITNESSES:

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THOMAS E. LEACH, OF BROOKLYN, NEW YORK.

WATER-HEATER.

SPECIFICATION forming part of Letters Patent No. 731,921, dated June 23, 1903.

Application filed June 4, 1902. Serial No. 110,194. (No model.)

To all whom it may concern:

Be it known that I, THOMAS E. LEACH, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Water-Heater, of which the following is a full, clear, and exact description.

The purpose of the invention is to provide a device for heating water in bath-tubs, wash-tubs, and other receptacles through the medium of gas, gasoline, or other ignitable vapors and to so construct the device that it will be simple, durable, and economic, quickly and conveniently applied and held in position, and adjusted to any depth of receptacle.

Another purpose of the invention is to so locate the water-circulating tubes that the heat will be circulated around and in engagement with them for a maximum period of time before escaping.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both figures.

Figure 1 is a vertical section through a wash-tub and a sectional side elevation of the heater supported in a compartment of the tub, and Fig. 2 is a horizontal section on the line 2 2 of Fig. 1.

A represents a washtub of the usual type, which is divided into two compartments 10 and 11 by a vertical partition 12, and B represents the body of the heater, which is shown located in the compartment 10; but it will be understood that the heater may be applied to a bath-tub or to any other receptacle in which it is desirable to heat water placed in the receptacle.

The body B of the heater is practically a receptacle open at the top and may be of any desired contour, but preferably it is made rectangular. The said body B is usually constructed of tin or sheet-iron. A series of horizontally-arranged tubes 13 is located in the said body. These tubes are flat and are of any desired height. They are preferably located about centrally between the top and

the bottom of the body B and extend from one side of the body in direction of the opposite side, but terminate short of the opposite side to provide a free space 14, extending uninterruptedly from the top to the bottom of the said body, as is shown best in Fig. 1. Thus a space 15 is likewise provided below the series of tubes 13, together with a space 16 above said tubes. The innermost tube 13 of the horizontal series above mentioned is carried upward and in direction of the opposite side of the body, over the upper ends of the adjacent tubes 13, and the said extension 17 of the innermost end tube is diagonally located in the space 16 above the series of tubes 13 other diagonal elongated tubes 18 are located. These tubes 18 are located one above the other and incline in direction of the extension 17 of the innermost tube 13. The extension-tube 17 and upper auxiliary diagonal tubes 18 practically form an arch over the horizontal series of tubes, so as to form more or less of a barrier for the products of combustion, retaining said products of combustion for a maximum length of time in contact with the tubes. All of the tubes 13 and 18 and the extension-tube 17 extend from side to side of the body B and out through the sides of the body, so that when the body is placed in water in any receptacle the water will circulate freely through the said tubes.

A spanner-bar 19 is secured to the upper portion of the body B, and a post 20 extends upward from the central portion of the said spanner-bar, which latter is usually attached to the body B by set-screws or their equivalents, as shown in Fig. 1. The body is supported by means of a horizontal arm 21, which is provided at one end with a vertical sleeve 22, adapted to be slipped over the post 20, and the post is adjustably held in the sleeve by means of a set-screw 23, carried by the sleeve. The opposite end of the supporting-arm 21 is passed through a horizontal sleeve 24, attached to a clip or clamp 25, which is shown fastened to the partition 12 of the tub at its upper portion and which is capable of application to the upper portion of a bath-tub or other receptacle.

A gas, gasoline, or vapor stove C of any desired type is placed beneath the series of

tubes 13, being carried to such position through the space 14, and said stove C is provided with an upwardly-extending pipe 26, having a valve 27 at its upper end. The said
 5 pipe 26 is connected, preferably by means of a flexible tube 28, with a convenient source of fuel-supply.

It will be understood that the character of the tubes may be changed and that they may
 10 be in connected series, sundry of which only extend through both sections of the body.

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

15 1. In a submerged heater, a receptacle provided with a combustion-chamber, a series of parallel circulating-tubes across said chamber and having their ends extended through said receptacle, and other circulating-tubes
 20 extended through said receptacle and disposed in inclined positions across the smoke-spaces formed by said parallel tubes.

2. In a submerged heater, the combination of a clamp having a socket and means for
 25 fastening said clamp firmly in place, a horizontal arm secured adjustably in said socket of the clamp and provided with a vertical socket, a spanner-bar, a receptacle fastened to the spanner-bar and adapted to be sus-
 30 pended thereby, and a vertical stem fastened to the spanner-bar and held adjustably in the socket of the arm, whereby the suspended receptacle may be adjusted in vertical and

horizontal directions through the medium of the stem and the arm. 35

3. A submerged heater comprising a receptacle having a burner-compartment, a group of water-tubes disposed transversely in said receptacle over the burner-compartment
 40 therein and forming intermediate heat-circulation passages, and other water-tubes disposed in inclined positions within the receptacle and overhanging said heat-circulation passages between the group of tubes.

4. A water-heater consisting of a series of
 45 horizontally-arranged pipes having flattened sides and being of greater dimensions vertically than transversely, the inner end pipe of a series having an extension extending diagonally over the upper ends of the adjacent
 50 pipes of the series in direction of the opposite side of the body-receptacle, and independent diagonally-arranged pipes also located above the horizontal series of pipes and inclining in direction of the extension from
 55 the inner end pipe, forming an arch of pipes above the horizontal series, all of said pipes extending from opposite sides of the body-receptacle, as and for the purpose described.

In testimony whereof I have signed my
 60 name to this specification in the presence of two subscribing witnesses.

THOMAS E. LEACH.

Witnesses:

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