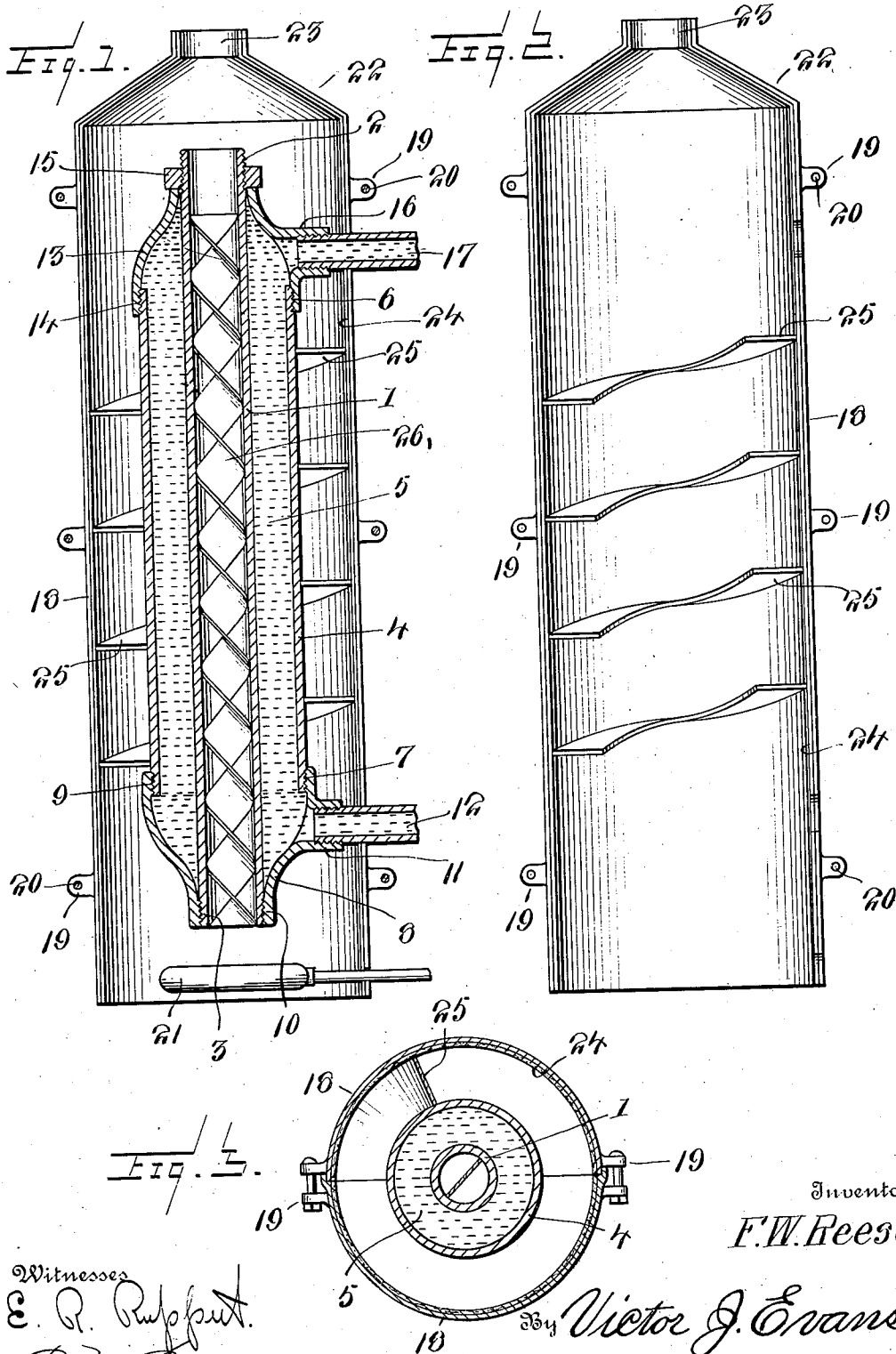


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WATER HEATER.
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1,077,160.



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WATER-HEATER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREDERICK W. REESE, a citizen of the United States, residing at East Palestine, in the county of Columbiana and State of Ohio, have invented new and useful Improvements in Water-Heaters, of which the following is a specification.

This invention relates to water heaters, especially adapted for domestic purposes in heating water for bath-rooms, laundry purposes, etc., the object in view being to provide a heater of the class described of exceedingly simple and inexpensive construction, and by means of which the body of water, as it passes through the heater, is subjected to the heat upon both the inside and outside of the jacket which confines the water. This adds to the rapid heating of the water and makes the device particularly desirable in use.

By reason of the construction involved, the heater will not easily clog, as is the case with the ordinary heaters now in common use, employing coils and disks, as in the improved heater, herein described, the water has a free and unobstructed rise or circulation. Furthermore, the heater may be readily taken apart for cleaning and repair, thus enabling all parts of the heater to be maintained in first-class condition, thereby eliminating frequent purchase of new parts.

With the above and other objects in view, the invention consists in the construction, combination and arrangement of parts, as will be hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claims hereunto appended.

In the drawings: Figure 1 is a vertical diametrical section through a heater, embodying the present invention. Fig. 2 is a diametrical section through the drum or casing, with the water jacket removed. Fig. 3 is a cross section through the heater, illustrating the manner of connecting the sections of the drum or casing together.

The main body of the heater contemplated in this invention is composed in the main of stock material, and is seen to comprise a water jacket, the inner wall 1 of which consists of a suitable length of pipe of any desired diameter or capacity, having the opposite ends thereof threaded externally, as shown at 2 and 3. The outer wall 4 of the jacket consists of another suitable length of pipe of any desired diameter and

length, the latter being arranged concentric with the inner pipe or wall, so as to leave a water space 5 of any desired capacity. The pipe 4 is also threaded at its opposite ends, as shown at 6 and 7.

At the base, the two pipes are connected by a common fitting or T 8, the same being internally threaded at 9 to receive the larger pipe and internally threaded, at 10 to receive the smaller pipe, said fitting being also provided with the lateral extension 11, internally threaded to receive a pipe 12 from a boiler or other source of supply. A similar fitting 13 is arranged at the upper end of the heater, being internally threaded at 14 to receive the upper extremity of the larger pipe 4; while the upper extremity of the fitting 13 is left open to receive the inside pipe 1 and to form an annular shoulder or seat for a nut 15, whereby all parts of the jacket are securely fastened together. The fitting 13 is also provided with a lateral extension 16 threaded to receive a pipe 17, leading back to the boiler or to any suitable point to which the heated water is to be conducted.

Extending around and inclosing the water jacket, hereinabove described, in an outer drum or casing 18 formed preferably of sheet iron and made in two semi-cylindrical sections, the edges of which are adapted to slightly overlap, as shown in Fig. 3, said sections being provided adjacent to their edges with outwardly extending ears 19 provided with holes 20 to receive bolts, whereby the two sections of the casing or drum are fastened together. The drum 18 is open at its lower end, so as to fit over and receive a burner 21 of any suitable description, adapted to use any liquid fuel, such as gas, gasoline, alcohol, or other oil. The upper end of the casing is provided with a frusto-conical top 22, in which is provided a central vent 23, through which the heat escapes. The drum or casing is internally lined with sheet asbestos, as shown at 24, to conserve the heat, and is further provided with a spiral web 25, in the form of a sheet metal strip, wound spirally around the water jacket and secured along its outer edges to the outer drum or casing 18, the inner edges of said spiral web lying in close proximity to or contact with the outer surface of the water jacket, as shown in Fig. 1. If desired, a corresponding but much smaller spiral web 26 may be arranged within the inside pipe 1, as shown in Fig. 1, having the

same function as the spiral web 25 referred to, namely, to impede or retard the progress of the products of combustion through the heater, so as to subject the water in the space 5 of the water jacket to the thorough action thereof, both interiorly and exteriorly of the water jacket.

While the column of heat, passing upward through the outer drum or casing and also through the inside pipe, is retarded for the purpose specified, it will be observed that the water passing upward through the jacket has a free and unobstructed flow, but at the same time it is spread out in an annular column and subjected to the action of the heat, both interiorly and exteriorly of the water jacket. The parts of the heater may be readily disconnected, and all of them disassociated, whenever necessary, for the purpose of cleaning and repairing the heater, as a whole.

What is claimed is:

A water heater, comprising an inner pipe having both ends threaded, an outer pipe shorter in length and arranged co-axial

therewith but spaced therefrom to leave an intervening annular water space, a bowl-shaped fitting connecting the lower ends of the pipes and provided with a water inlet, an inverted bowl-shaped fitting connecting the upper ends of said pipes and provided with an outlet, the said pipes and fittings forming a water jacket, a drum surrounding the water jacket and having an internal diameter greater than the external diameter of said bowl-shaped fittings, a spiral web encircling the outside of the jacket and interposed between said jacket and the inner wall of the drum, the said spiral web being attached to the drum and serving to centrally position the water jacket, and a spiral web contained within and supported by the inner pipe.

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

FREDERICK W. REESE.

Witnesses:

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