

C. A. WOOD.
WATER HEATER.
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908,370.

Patented Dec. 29, 1908

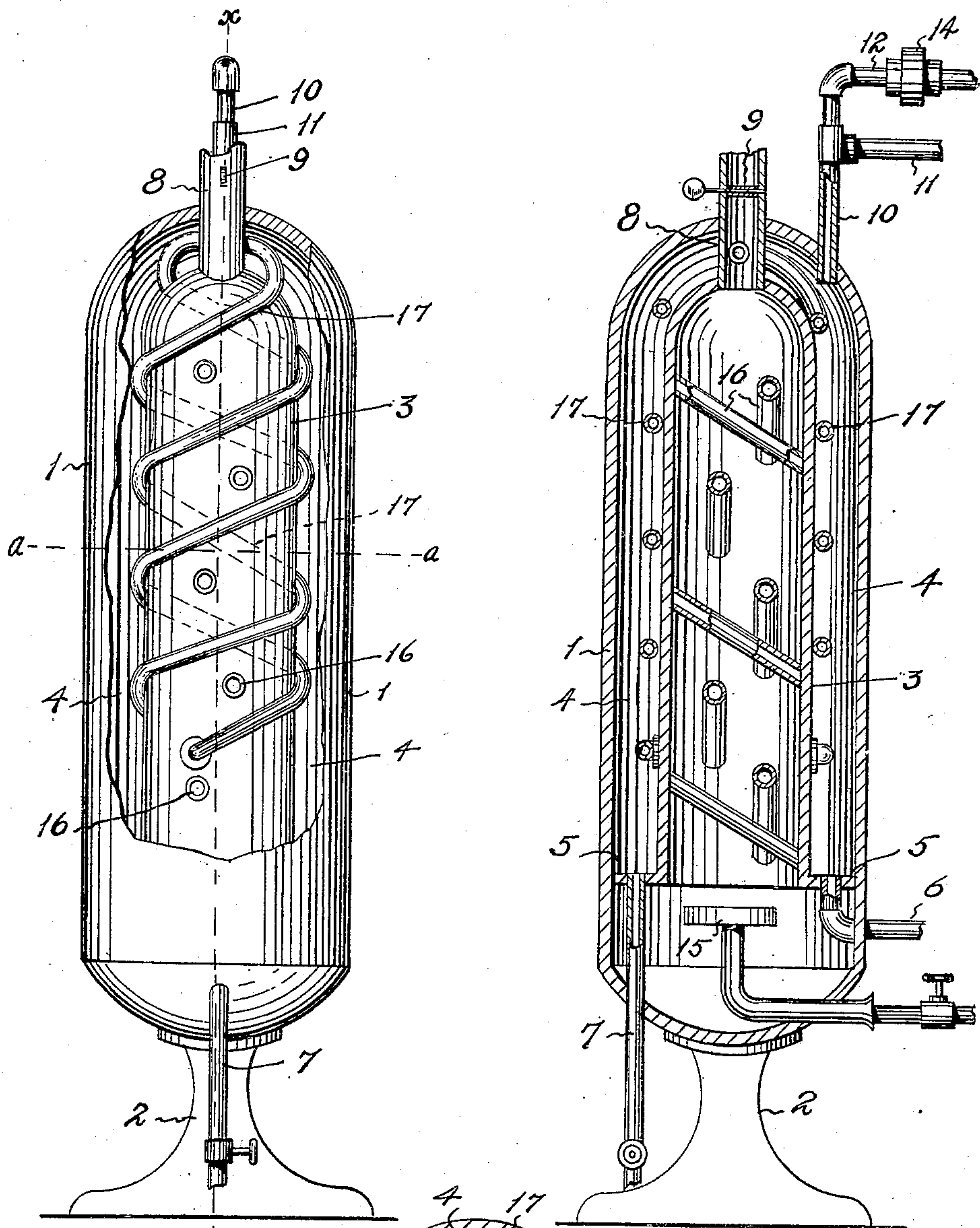


Fig. 1.
WITNESSES:

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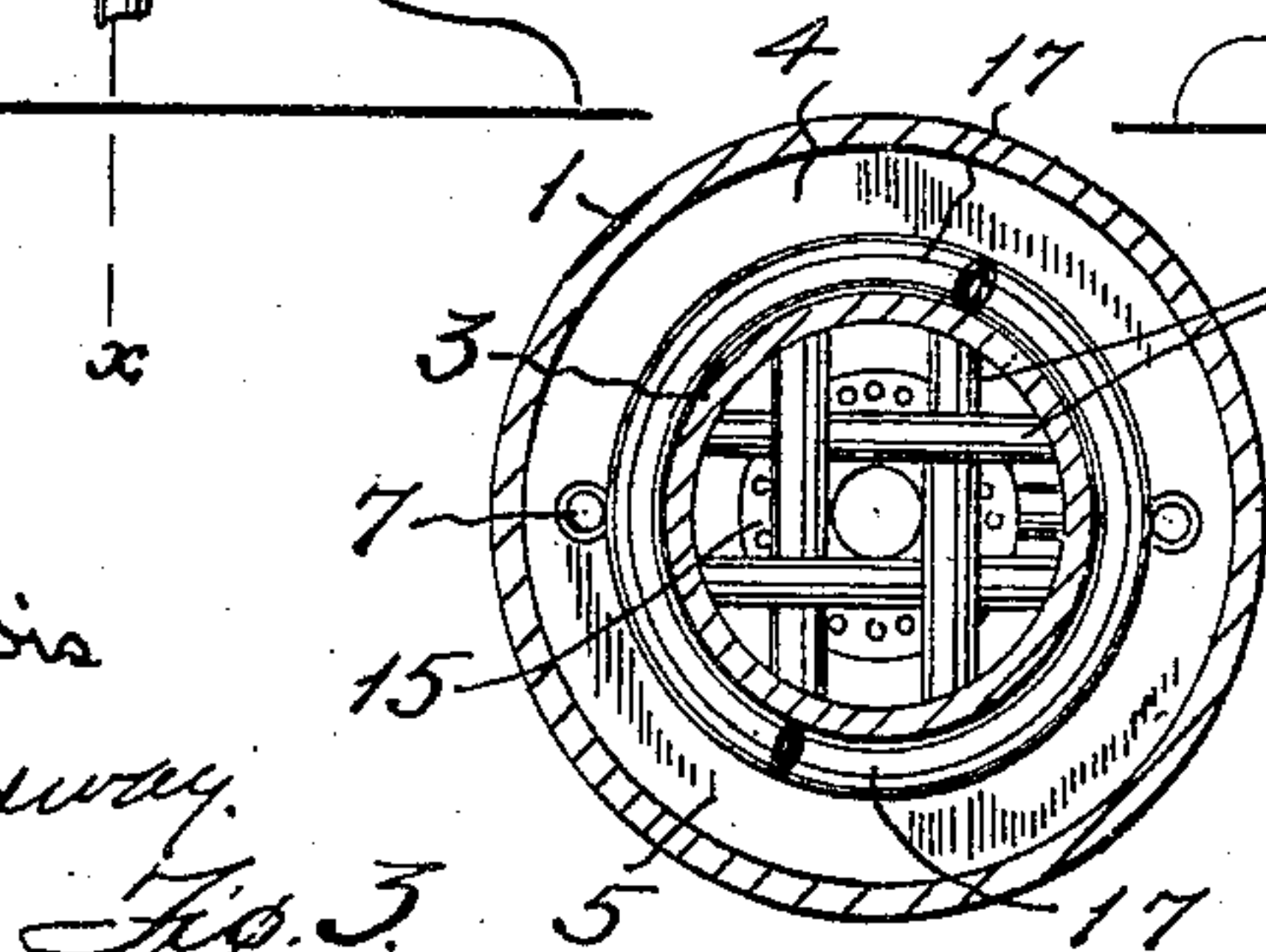


Fig. 3.

Fig. 2.

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CHARLES A. WOOD, OF HOUSTON, TEXAS.

WATER-HEATER.

No. 908,370.

Specification of Letters Patent.

Patented Dec. 29, 1908.

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To all whom it may concern:

Be it known that I, CHARLES A. WOOD, citizen of the United States, residing at Houston, in the county of Harris and State of Texas, have invented certain new and useful Improvements in Water-Heaters, of which the following is a specification.

My invention relates to new and useful improvements in water heaters.

The object of the invention is to provide a simple water heater of superior construction, comprising a plurality of peculiarly arranged heating pipes and coils whereby a comparatively small amount of water is heated at a time, but which heating is expeditiously carried out.

Another object is to provide a device of the character described that will be strong, durable and efficient, and simple and comparatively inexpensive to construct, and one in which the several parts will not be liable to get out of working order.

With the above and other objects in view, the invention has relation to certain novel features of construction and operation, an example of which is described in the specification and illustrated in the accompanying drawings, wherein:

Figure 1 is an elevation broken away to show the inner shell and heating coils, Fig. 2 is a vertical sectional view taken on the line $x-x$ of Fig. 1, and Fig. 3 is a horizontal cross-sectional view, taken on the line $a-a$ of Fig. 1.

In the drawings, the numeral 1 designates an outer shell or casing suitably supported on a stand 2. While the shell may be of any suitable shape, I prefer to form it cylindrical, as shown in the drawings.

Within the outer shell an inner shell 3 is supported in concentric relation therewith, so as to provide a vertical cylindrical water space 4 closed at its lowered end, by a ring-plate 5. A water or fluid inlet pipe 6 passes through the outer shell to the ring-plate to supply water or fluid to the space 4; while on the opposite side a drain pipe 7 leads down from the ring-plate through the bottom of the outer shell.

From the top of the inner shell, a short flue or waste product outlet 8 extends through the outer shell, being provided with a suitable damper 9. A hot water supply pipe 10 extends from the top or dome of the outer shell having communication with the

water space 4. A service pipe 11 leads from the supply pipe, while the latter terminates in an overflow pipe 12, with which a suitable safety valve 14 is incorporated.

Beneath the inner shell, the bottom of which is open, a suitable burner 15 is arranged. The heat or products generated by the burner rises in the inner shell, thus thoroughly heating the same, and the water which surrounds it in the space 4. For expediting the heating of the water, tubes 16 are passed through the inner shell at right angles to each other and in staggered relation; also inclined or at an angle to the horizontal and vertical axes of the said shell. These tubes having communication with the water space permit the passage of the water therethrough directly over the burner and in the path of the rising heat generated thereby. As an additional heating means, coils 17 leaving the inner shell on diametrical opposite sides and near the bottom thereof, pass around the shell in the water space and then enter the flue 8 between the shells. The products of combustion upon entering these coils will freely circulate around the inner shell, and the water in the space 4 coming in direct contact therewith, will be heated to a high degree.

It is obvious that an extremely extensive heating surface is provided in a comparatively small space and that by heating a substantially small amount of water as it passes through the heater, an efficient and expeditious water heating device of a simple and substantial nature is provided.

What I claim, is:

1. In a water heater, the combination with an outer shell, of an inner shell supported within the outer shell so as to provide a water space therebetween, said shells having a waste product outlet; cross-tubes extending through the inner shell having communication with the water space; heating coils having communication with the inner shell extending about the same in the water space; means for supplying fluid to the water space, and means for conveying the fluid from the water space.

2. In a water heater, the combination with an outer shell, of an inner shell supported within the outer shell so as to provide a water space therebetween, having an open bottom, said shells having a waste product outlet, a burner beneath the open bottom of the inner

shell, a ring-plate closing the bottom of the water space, means for supplying a fluid at the bottom of the water space, means for conveying the fluid from the upper end of the
5 water space, inclined cross-tubes extending through the inner shell at angles to each other, and in staggered relation, and having communication with the water space and opposed coils extending from the lower portion

of the inner shell through the water space to 10 the outlet.

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

CHARLES A. WOOD.

Witnesses:

WM. A. CATHEY,
M. HEAFER.