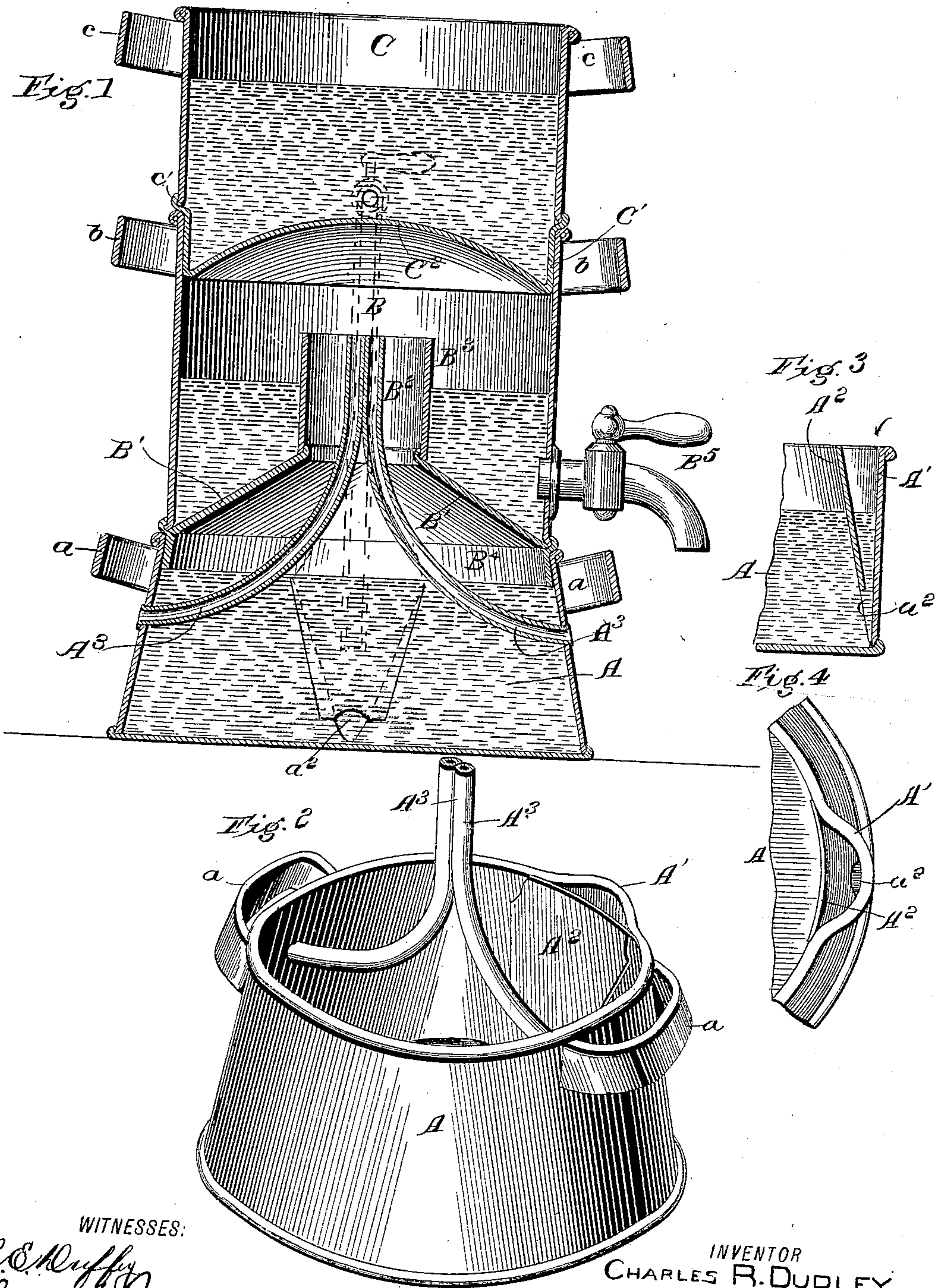


No. 824,630.

PATENTED JUNE 26, 1906.

C. R. DUDLEY.  
APPARATUS FOR DISTILLING WATER.  
APPLICATION FILED AUG. 11, 1905.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

CHARLES RUFUS DUDLEY, OF SYKESVILLE, MARYLAND.

## APPARATUS FOR DISTILLING WATER.

No. 824,630.

Specification of Letters Patent.

Patented June 26, 1906.

Application filed August 11, 1905. Serial No. 273,734.

*To all whom it may concern:*

Be it known that I, CHARLES RUFUS DUDLEY, a citizen of the United States, residing at Sykesville, in the county of Carroll and State of Maryland, have invented a new and useful Improvement in Apparatus for Distilling Water, of which the following is a specification.

My invention relates to improvements in apparatus for distilling water, its object being to produce a still designed more particularly for domestic use whereby water may be distilled quickly, efficiently, and economically and to produce a device which shall be cheap, simple, and adapted for use in connection with an ordinary stove or the like.

With these and other objects in view my invention consists in certain novel features of construction, arrangement, and combination of parts, as will be hereinafter fully described, and pointed out in the claim, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical central section through my complete device as in use. Fig. 2 is a perspective view of the lower member or boiler. Fig. 3 is a detail sectional view showing the boiler-filling means. Fig. 4 is a partial plan view showing shape of the filling-spout and inner wall forming the same.

In the practical embodiment of my device I employ three main parts or members—the boiler A, the distilling-chamber B, and the condenser or cold-water chamber C. The boiler A is a vat substantially circular in shape, its lower end being about twelve inches in diameter, the side walls sloping inwardly to about ten inches. At a suitable point in the side wall it is bulged or bent outwardly for a slight distance, as at A', and across this bulged-out part is soldered the diaphragm A<sup>2</sup>, the lower end of said diaphragm not reaching entirely to the bottom of the boiler, but it has a space a<sup>2</sup> cut out, thus making communication between the filling-spout and the interior of the boiler. This diaphragm is soldered to the inside of the boiler instead of to the outside, as is the case in some stills, to protect it and prevent the solder being melted by the heat of the stove, as is likely to happen when a pouring-spout is soldered to the outside.

A<sup>3</sup> represents air-tubes, preferably two in number, which pierce the sides of the boiler at their lower ends and are curved upwardly to the center of the boiler, extending a con-

siderable distance above the same, and are united at their upper ends by soldering or other suitable means.

B is the middle chamber or steam-chest or distilling-chamber, and it is a vat having a cylindrical body and a bottom B', which slopes upwardly from the lower edge of the vat and has a central opening B<sup>2</sup>, which is surrounded by a circular band or flange B<sup>3</sup>, forming an upwardly-projecting stack secured at its lower edge to the bottom B' and having its upper end open. To the lower end of the vat B is secured the downwardly-projecting flange B<sup>4</sup>, which fits in the upper end of the lower member or boiler. A faucet B<sup>5</sup> may be secured in an opening in the side of the vat B to draw off the distilled water that collects therein. While the band or flange B<sup>3</sup> may be soldered to the bottom of the steam-chest, it may also be made in one piece with it. The air-tubes A<sup>3</sup> extend through the opening in the bottom of the steam-chest and reach to the height of the upper edge of the band or flange B<sup>3</sup>.

C is the condenser or cold-water chamber, consisting of a vat which fits the upper part of the middle chamber. Said upper chamber may be made in two parts, as shown—that is, the lower portion C' being slightly smaller than the upper part and soldered thereto, forming a small bead c', which prevents the said upper chamber from slipping into the steam-chest. The bottom C<sup>2</sup> of the condenser or cold-water chamber is dome-shaped, as shown in Fig. 1, and is made in one piece with the part C', or the entire upper chamber may be made of a single piece of metal and the bead c' spun thereon. The boiler, the steam-chest, and the condenser or cold-water chamber each have the two handles a, b, and c, if necessary, for manipulating the same.

The manner of using my improvement is as follows: The three members or main parts having been put together in their proper relation, the boiler member and the condenser having been filled with the requisite quantity of water, a lid is removed from a stove and the device placed over the same. As soon as steam is evolved from the water in the boiler it passes upwardly through the central opening in the bottom of the middle member or steam-chest, and coming in contact with the dome-shaped bottom C<sup>2</sup> of the condenser it is condensed and precipitated into the steam-chest, where it collects until



drawn off. At the same time air is passing upwardly through the tubes A<sup>3</sup> and, commingling with the condensed steam, aerates thoroughly the distilled water. The height  
5 of the water in the boiler can be observed in the filling-orifice, and care should be taken not to allow it to get too low. The boiler can be refilled with the water which has become warmed in the upper chamber, which  
10 will result in considerable saving of time in heating the water again in the boiler, as well as making a material saving in fuel. As soon as a sufficient quantity of distilled water has been collected in the steam-chest it is drawn  
15 off into suitable receptacles for use and the upper vat or condenser again filled with cold water and distillation proceeded with.

It will thus be seen that I provide a simple, cheap, and efficient still which will  
20 quickly distil water that is thoroughly aerated and one which can be used in any household. Of course it is obvious that the proportions of the various parts may be varied to suit the purpose to which the still is  
25 put.

My device is particularly useful in households; but it can be used in factories, hospitals, barracks, or shipboard, &c., by suitable hose and cut-off attachment to the cold-  
30 water chamber emptying the warmed water into the filling-spout of the boiler.

By giving the lower surface of the upper or cold-water chamber a dome shape a much greater condensing-surface is exposed to

steam which collects in the intermediate 35 chamber.

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

A still for water consisting of a lower boil- 40 ing-chamber, an intermediate steam-chamber fitted to the lower chamber and having an upwardly-sloping bottom, said bottom having a central opening and a vertical flange surrounding the same and forming an 45 upwardly-projecting stack, an upper cold-water or condensing chamber having a dome-shape bottom and fitted to the top of the intermediate chamber, a plurality of aerating-  
50 tubes extending from the side walls of the boiling-chamber below the upper end thereof, whereby the lower ends may be immersed in the water in said boiling-chamber, and converging inwardly and upwardly through the center of the upwardly-projecting stack of 55 the steam-chamber, said aerating-tubes being positioned to extend through the stack of the intermediate chamber and be surrounded by vapor arising from the boiling-chamber through said stack and adapted to discharge 60 air within the body of vapor emitted from the upper end of the stack of the steam-chamber.

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Witnesses:

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