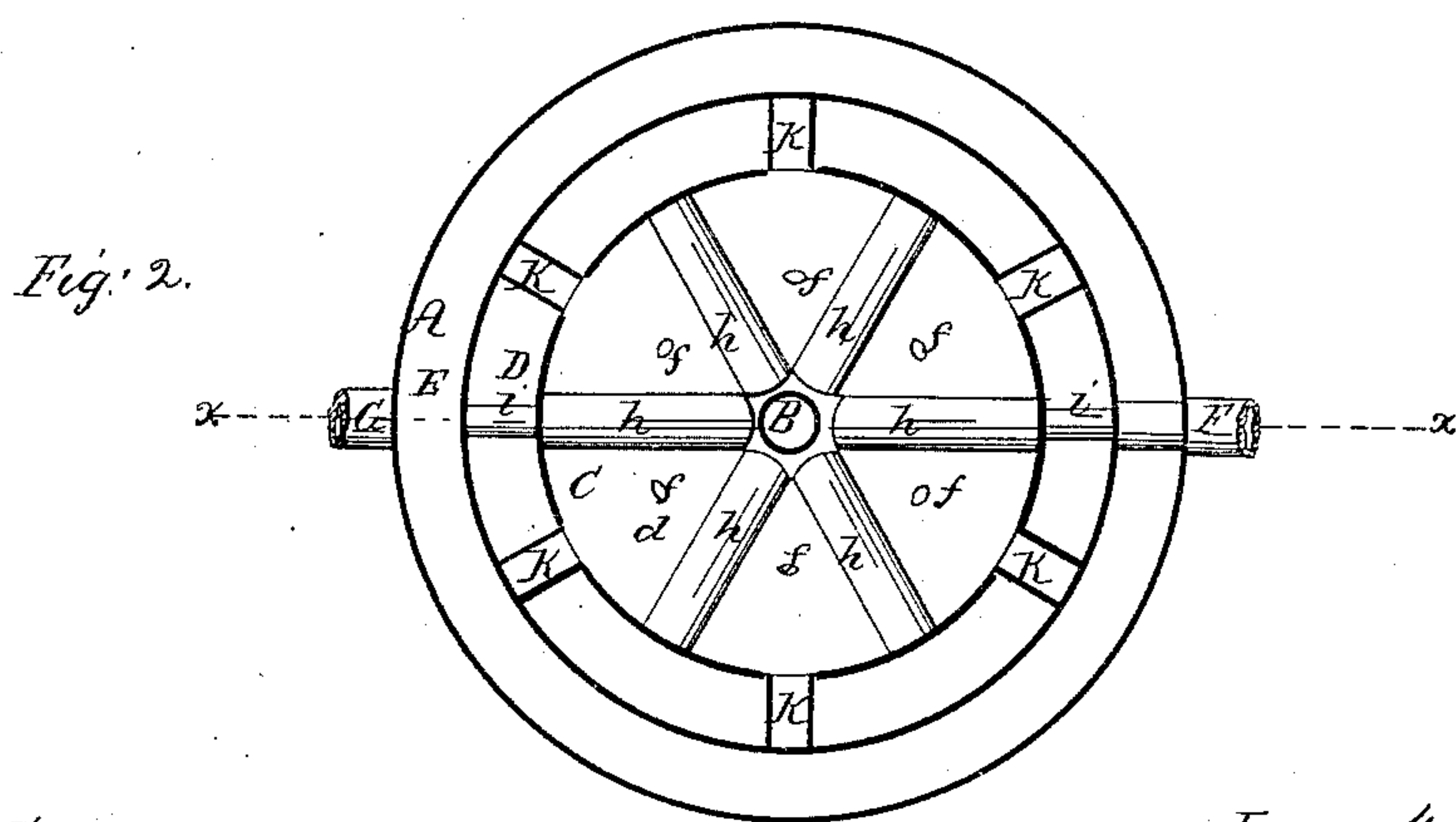
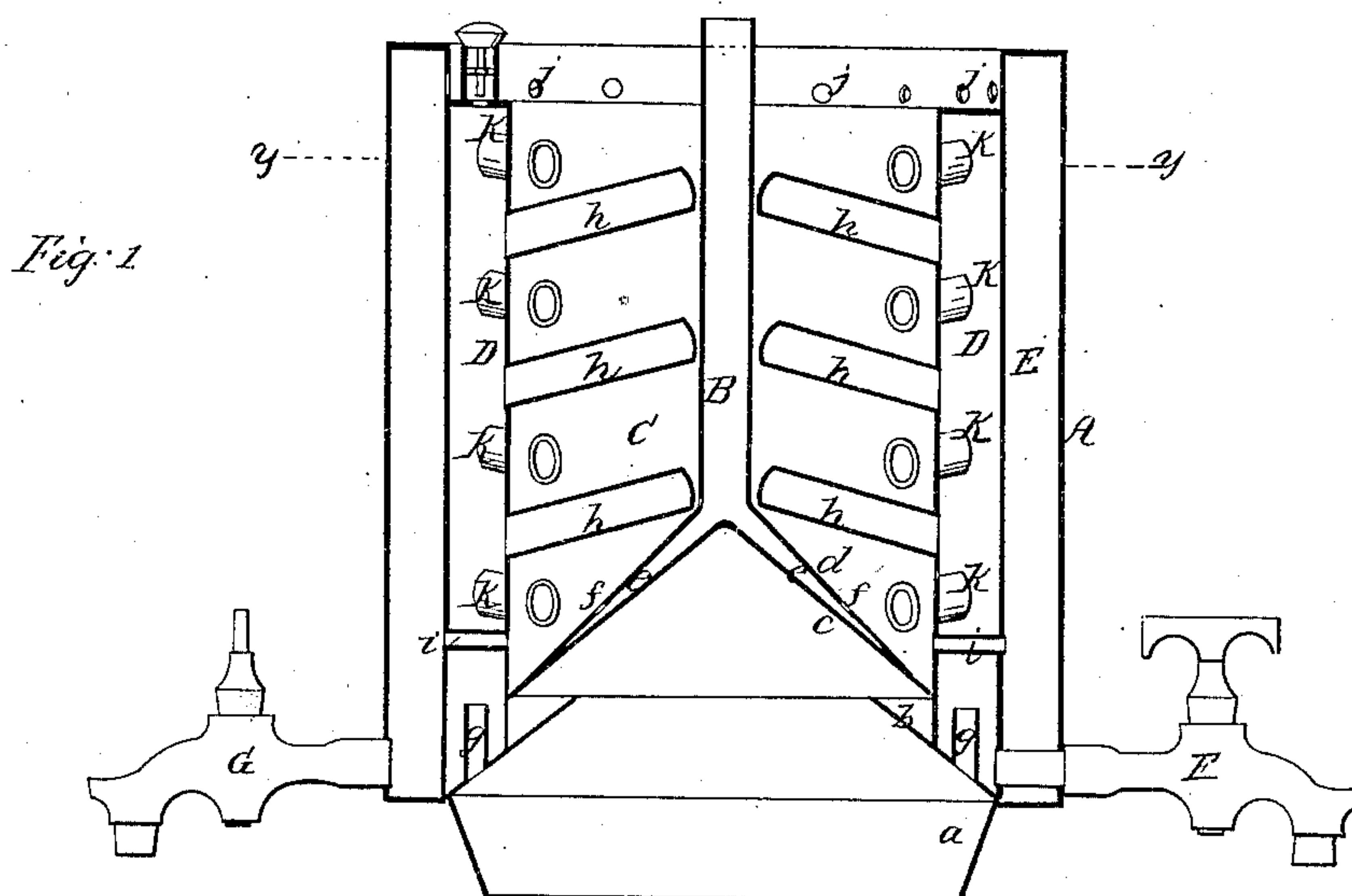


P. MIHAN & M. A. LANE.  
DISTILLING APPARATUS.

No. 30,078.

Patented Sept. 18, 1860.



Witnesses,  
J. W. Combs  
R. S. Spencer

Inventor;  
Patrick Mihan  
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per Mm H. Co. atty

# UNITED STATES PATENT OFFICE.

PATRICK MIHAN, OF BOSTON, AND MAJOR A. LANE, OF CHARLESTOWN,  
MASSACHUSETTS.

## IMPROVEMENT IN APPARATUS FOR CONDENSATION.

Specification forming part of Letters Patent No. 30,078, dated September 18, 1860.

*To all whom it may concern:*

Be it known that we, PATRICK MIHAN, of Boston, in the county of Suffolk and State of Massachusetts, and MAJOR A. LANE, of Charlestown, in the county of Middlesex and State of Massachusetts, have invented a new and Improved Distilling Apparatus; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a vertical central section of our invention, the line *x x*, Fig. 2, indicating the plane of section. Fig. 2 is a horizontal section of same, the plane of section being indicated by the line *y y*, Fig. 1.

Similar letters of reference in both views indicate corresponding parts.

Wherever the only water which can be had under ordinary circumstances is unfit for immediate use by the impurities mixed with the same it is desirable to have an apparatus by the aid of which the water can be distilled, and by thus being separated from its impurities rendered fit for drinking or for culinary purposes. It is obvious that an apparatus for this purpose which with the least amount of fuel and with the least possible trouble distills the largest possible quantity of water is the most preferable. Such an apparatus is the subject of our invention, which we will now proceed to describe with reference to the drawings. The vessel A is furnished at its bottom with a rim, *a*, which fits into the top of a kettle or boiler containing hot water. The bottom of the vessel A forms a truncated cone, *b*, which is surmounted by the trumpet-shaped false bottom *c*. The lower edge of this bottom projects beyond the upper edge of the truncated cone, as clearly shown in Fig. 1, and above the point of said bottom a tube, B, rises which is supported by its trumpet-shaped end *d*, that rests on the bottom *c*. The tube B is surrounded by the inner wall of the vessel A, said wall forming the inner water-space, C, and this space communicates with the space *e*, between the trumpet-shaped end *d* of the tube and the bottom *c*, by means of small apertures *f*. The inner water-space, C,

is surrounded by the steam-space D, which in its turn is surrounded by the outer water-space, E. The steam-space D communicates with the space below the truncated cone *b* by means of small tubes *g*, which carry the steam from the kettle or boiler up into said steam-space, and tubes *h*, which incline upward, and the outer ends of which are closed, extend from the steam-space into the inner water-space, C. The space C extends over the steam-space D, and communicates with the outer water-space, E, by means of small pipes *i* at the bottom, and by means of openings *j* on the top, and a number of short tubes, *k*, extend from the inner water-surface into the steam-space. These tubes are placed in an inclined position, and they are closed at their outer ends similar to the tubes *h*. A safety-valve, *l*, is intended to prevent danger if the pressure of the steam in the space D should rise beyond a certain point. A faucet, F, serves to draw off the contents of the steam-space, and a faucet, G, on the opposite side of the vessel A, serves to empty the water-spaces or to keep up a circulation of cold water through these spaces. If the vessel A is now placed on a kettle or boiler containing boiling water, the steam arising from the contents of the boiler enters into and fills the space below the trumpet-shaped bottom *c* and steam-space D, and if the water-spaces C and E are filled with cold water a portion of the steam as it comes in contact with the bottom *c* is condensed, and the condensed water drips down over the inclined sides of said bottom to the bottom of the steam-space, whence it can be drawn off by the faucet F. The balance of the steam which has entered the steam-space D condenses by coming in contact with the cold sides of the water-spaces, and the condensation is materially facilitated by the tubes *h* and *k*, the tubes *h* being surrounded by the cold water contained in the space C, and the tubes *k* being filled with water from the same space. The water which condenses in the tubes *h* runs down through the same and collects at the bottom of the steam-space, and the steam which condenses on the outside of the tubes *k* on the walls of the steam-space also collects in the form of water on the bottom of said steam-space, whence it is drawn off by



the faucet F. If the water in the water-spaces becomes warm, it is drawn off by the faucet G, and a new supply is introduced through the tube B; or, by keeping the faucet G open, a constant current of cold water may be made to pass through the apparatus, and the steam arising from the boiler can thereby be condensed as quick as it forms. This apparatus is of particular advantage for sea-going vessels where it is in many cases very desirable to render the sea-water fit for drinking or for culinary purposes; but it may also be used on land in such places where nothing but impure water can be obtained.

What we claim as new, and desire to secure by Letters Patent, is—

The arrangement of the water-spaces C and E with the tubes B and *k*, and with the trumpet-shaped bottom *c*, in combination with the steam-space D, and tubes *h*, constructed and operating substantially in the manner and for the purpose herein set forth.

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