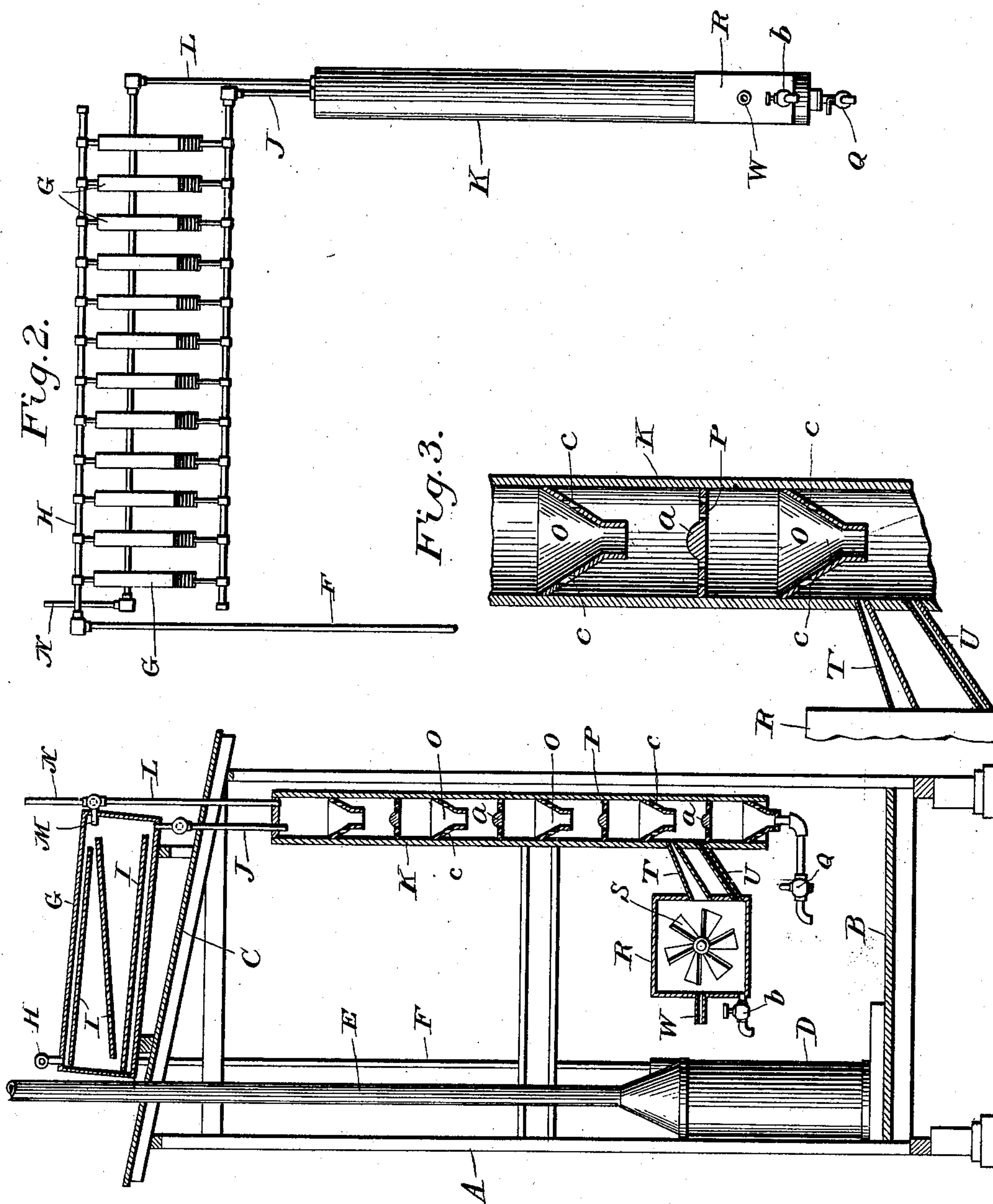


No. 720,671.

PATENTED FEB. 17, 1903.

J. F. CHASE.
WATER DISTILLING APPARATUS.
APPLICATION FILED JULY 10, 1902.

NO MODEL.



Witnesses
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Fig. 1.

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UNITED STATES PATENT OFFICE.

JOHN F. CHASE, OF ST. PETERSBURG, FLORIDA.

WATER-DISTILLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 720,671, dated February 17, 1903.

Application filed July 10, 1902. Serial No. 115,031. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. CHASE, a citizen of the United States, residing at St. Petersburg, in the county of Hillsboro and State of Florida, have invented certain new and useful Improvements in Water-Distilling Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates generally to water-distilling apparatus, and particularly to an apparatus for aerating and distilling water for household or domestic uses; and it has for its object to provide a simple and comparatively inexpensive plant adapted to provide and maintain a large and continuous supply of pure water; and it consists of the parts and combinations of parts hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a vertical section through my improved apparatus, showing it arranged in connection with the frame of a house or building; Fig. 2, a side elevation of the apparatus removed from the house or building; and Fig. 3, a detail view, in vertical section, of a portion of the drum. Similar letters refer to similar parts throughout the several views.

Referring to the drawings, A represents the framework, B the flooring, and C the roof, of a house or other building. A boiler D of any desired or preferred type, having a smoke-stack E extending to and above the roof, is arranged in any suitable position in the lower part of the house or other building, and the water to be purified is fed thereto to be converted into steam. A pipe F leads from the dome of the boiler to convey the steam to the condenser-chambers G through a pipe H, which is connected with and delivers into each of the chambers G. The chambers G are preferably narrow rectangular boxes of any suitable sheet metal—such as copper, steel, or iron—arranged vertically side by side in any desired number on the roof of the structure and braced and stayed in position by any suitable means, so that their entire outer surfaces will be exposed to the atmosphere. The condenser-cham-

bers are arranged, preferably, in a slightly-inclined position, and within the same a series of longitudinally-extending shelves I are arranged one above the other, so that the water of condensation may be conducted from one shelf to the shelf next below and so on down until it escapes to the bottom of the chamber and thence through a pipe J to the aerating-drum K. I preferably employ three shelves I and arrange them, as shown, with the top or first shelf discharging at its end onto the shelf next below, which projects slightly beyond and is inclined in the opposite direction to the top shelf, said second shelf discharging to the bottom shelf, which directs the water in the opposite direction and discharges onto the floor of the chamber, from which it flows to the discharge-pipe J.

During the passage of the water through the chambers it is partially aerated by purified air, which enters the chambers through the pipe L, which is directly in communication with each chamber through the lateral pipes M, and which leads from the closed upper end of the drum K. The pipe L is also provided with an escape-pipe N, through which the superfluous steam and air escapes and which serves to cause a draft through the aerating-drum K.

The drum K is arranged upright and is provided with a number of funnels O, arranged one above the other at suitable distances apart, and between each pair of which is arranged a perforated partition P, having a solid rounded or spherical-shaped center, as at a, immediately under and in line with the spout of the funnel above it, so as to receive the water therefrom directly on said solid center, and thus cause it to be sprayed therefrom and to pass through the partition in thin streams or drops. As the water enters the drum it falls onto a partition P and is sprayed and passes therefrom to the funnel next below, and so on down the drum, and is drawn off at intervals or otherwise by a spigot Q at the bottom of the drum. A chamber R, having a bladed wheel S mounted therein, adapted to be rapidly revolved by connection with any prime mover, is arranged adjacent the lower end of the drum and connected therewith by a tapering tube T and also by a small pipe U. A pipe W enters the opposite side

of chamber R, and an escape or overflow pipe *b* is also provided therefor. In order to increase the supply of air, small openings *c* are formed in the sides of the funnels.

5 In operation the steam is delivered to each of the drums and the bladed wheel caused to revolve rapidly, sucking the air into the chamber R through the pipe W and forcing it therefrom through the pipe or tube T and
10 into the drum, up which it is driven through the descending distilled water, which being in sprayed form or in thin streams is thoroughly aerated thereby. The purification of the air in chamber R is accomplished by feed-
15 ing a constant stream of distilled water from the drum thereto by the pipe U, into which the ends of the blades of the wheel S dip in their revolution, and thus beat it into a spray, through which the air entering through pipe
20 W passes.

The pipe U and tube T are both inclined from the drum to prevent the water entering the latter with the air from chamber R.

After the apparatus is once started there is
25 a constant draft from the air-chamber R through the drum and into the condenser-chambers and from thence to the escape-pipe N. The draft or current created by the

wheels is assisted by the vacuum created by the condensing-steam in the chambers and
30 the escaping of the superfluous steam and gases directly through pipe L to said escape-pipe N.

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

1. An aerating-drum for water-purifying apparatus, comprising a cylinder having a series of funnels arranged therein, and a series of perforated partitions having solid spherical
40 centers.

2. The combination in a water-distilling apparatus, of a series of condensing-chambers, an aerating-drum connected with said chambers, an air-purifying chamber having
45 air and water connections with said drum, and a bladed wheel for spraying the water in said air-chamber and forcing the purified air into said drum.

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

JOHN F. CHASE.

Witnesses:

GRANT J. AIKIN,
A. C. PHEIL.