(No Model.)

J. F. CHASE.

FRESH WATER CONDENSER.

No. 475,036. Patented May 17, 1892.

Fig. 1.

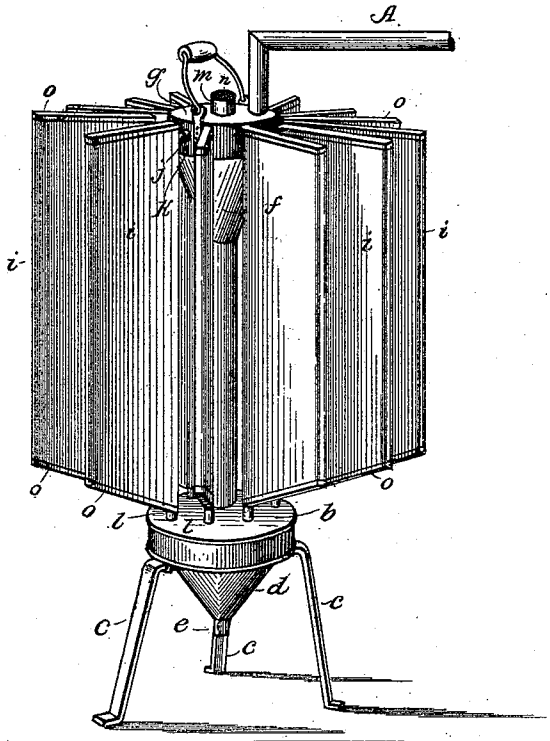
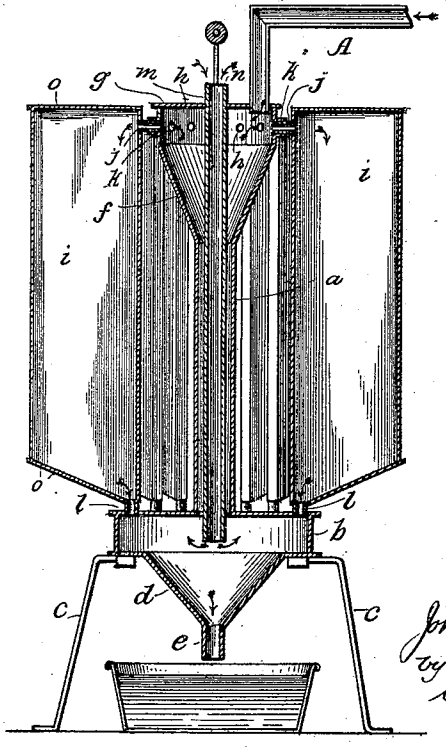


Fig. 2.



WITNESSES.
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UNITED STATES PATENT OFFICE.

JOHN F. CHASE, OF AUGUSTA, MAINE, ASSIGNOR OF ONE-HALF TO EUGENE W. WHITEHOUSE, OF SAME PLACE.

FRESH-WATER CONDENSER.

SPECIFICATION forming part of Letters Patent No. 475,036, dated May 17, 1892.

Application filed February 8, 1892. Serial No. 420,780. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. CHASE, a citizen of the United States, residing at Augusta, in the county of Kennebec and State of Maine, have invented certain new and useful Improvements in Fresh-Water Condensers; and I do hereby 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 condensing apparatus and particularly to fresh-water condensers; and it has for its object to provide a simple inexpensive apparatus for domestic use, whereby acrid or other bad-tasting water may be rendered fit for consumption at little expense; 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 perspective view, and Fig. 2 a vertical central section through my improved condenser.

Similar letters and figures refer to similar parts in both the views.

A represents a steam-pipe, which is led from any suitable steam-generating vessel to and into the upper end of the condensing apparatus. The condensing apparatus consists of the vertical tube *a*, secured at its lower end to the center of the upper surface of a chamber *b*, supported by legs *c*, the bottom *d* of said chamber being formed funnel-shaped and terminating in a tubular outlet-pipe *e*. At its upper end the tube *a* is connected to the end of the funnel-shaped bottom *f* of the steam-receiving cylindrical chamber *g*, through the upper surface or top of which the steam to be condensed is admitted to the apparatus. In the wall of the chamber *g* a series of openings *h* are formed, through which the steam escapes to the condensing-chambers *i*, said chambers being connected to the chamber *g* by means of pipes *j*, which are secured to the edges of the chambers *i* and enter the lips *k*, which are secured to the outer surface of the wall of chamber *g*, surrounding the opening *h*, thus affording communication between the chamber *g* and the interior of the chambers *i*. At their lower ends the chambers *i* are provided with short outlet-pipes *l*, through which the water of condensation may escape into the chamber *b*, and from thence find its way to the pan or other receptacle placed beneath the tubular outlet-pipe *e*. As water which has been boiled and converted into steam and then condensed has a flat insipid taste, I render it more palatable by mixing air therewith, the air being admitted thereto during the condensation of the steam by means of a pipe *m*, inserted through the center of the top of the chamber *g* and extending through the pipe or tube *a* into the bottom chamber *b*, said pipe *m* having its upper end projecting slightly above chamber *g* and protected or covered by a fine wire-gauze covering *n* to prevent the entrance thereto of any foreign substances. The bodies of the chambers *i* are each formed of a single piece of thin sheet metal bent on itself and its edges overlapped and soldered securely together at one side, the top and bottom being covered by caps *o*, soldered thereto, the bottom of the chamber being cut off so that it inclines toward the outlet-pipes *l*, which are secured at the lower corner of the bottom, as best shown in Fig. 2. As shown in Fig. 1, the chambers *i* are arranged at a slight distance apart around the pipe or tube *a* and extend radially therefrom. By this construction and arrangement of the parts of my improved condenser I provide a large superficial area of condensing-surface, all parts of which are exposed to the atmosphere within a comparatively small space.

In operation the steam passes from the pipe A into chamber *g*, and from thence through the openings *h* into the chambers *i*, as indicated by the arrows 1, such water as may be produced in the chamber *g* running down the funnel-shaped bottom of the chamber and through the tube *a* into chamber *b*, and from thence into the receptacle arranged beneath the outlet-pipe of the apparatus, while the water produced in the chambers *i* falls to the bottom of the same and passes into the chamber *b* and through the outlet-pipe to the receptacle thereunder. The steam creates a vacuum within the apparatus and draws a current of air through the pipe *m*, as indicated by the arrows 2, which passes upwardly

as it escapes from the lower end of pipe *m* and mingles with the water and steam in the apparatus.

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

1. In a fresh-water condenser, the combination, with a central steam-chamber, a chamber for receiving and discharging the water of condensation, and a central vertical tube connecting said chambers for conveying off the water of condensation from said steam-chamber, of a series of condensing-chambers connected at their upper ends to and extending radially from said steam-chamber and emptying into said discharge-chamber at their lower ends, substantially as described.

2. In a fresh-water condenser, the combination, with a central steam-receiving chamber, a water receiving and discharging chamber, a central vertical tube connecting said chamber for conveying off the water of condensation from said steam-chamber, and a series of condensing-chambers extending radially from said steam-chamber and forming a connecting-passage between said chambers, of an air-pipe passing through said steam-chamber and vertical tube and into said discharging-chamber, substantially as described.

3. The combination, in a fresh-water condenser, of a cylindrical steam-receiving chamber having a funnel-shaped bottom, a discharging-chamber, a tube connecting said chambers, a series of narrow condensing-chambers radiating from and communicating with said steam-chamber and discharge-chamber, said condensing-chambers being formed with inclined bottoms, an air-pipe having a gauze-covered end, extending centrally through the steam-chamber and its connecting-tube and into the discharging-chamber, and a pipe connecting said steam-chamber with a steam-generator, substantially as described.

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

JOHN F. CHASE.

Witnesses:
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