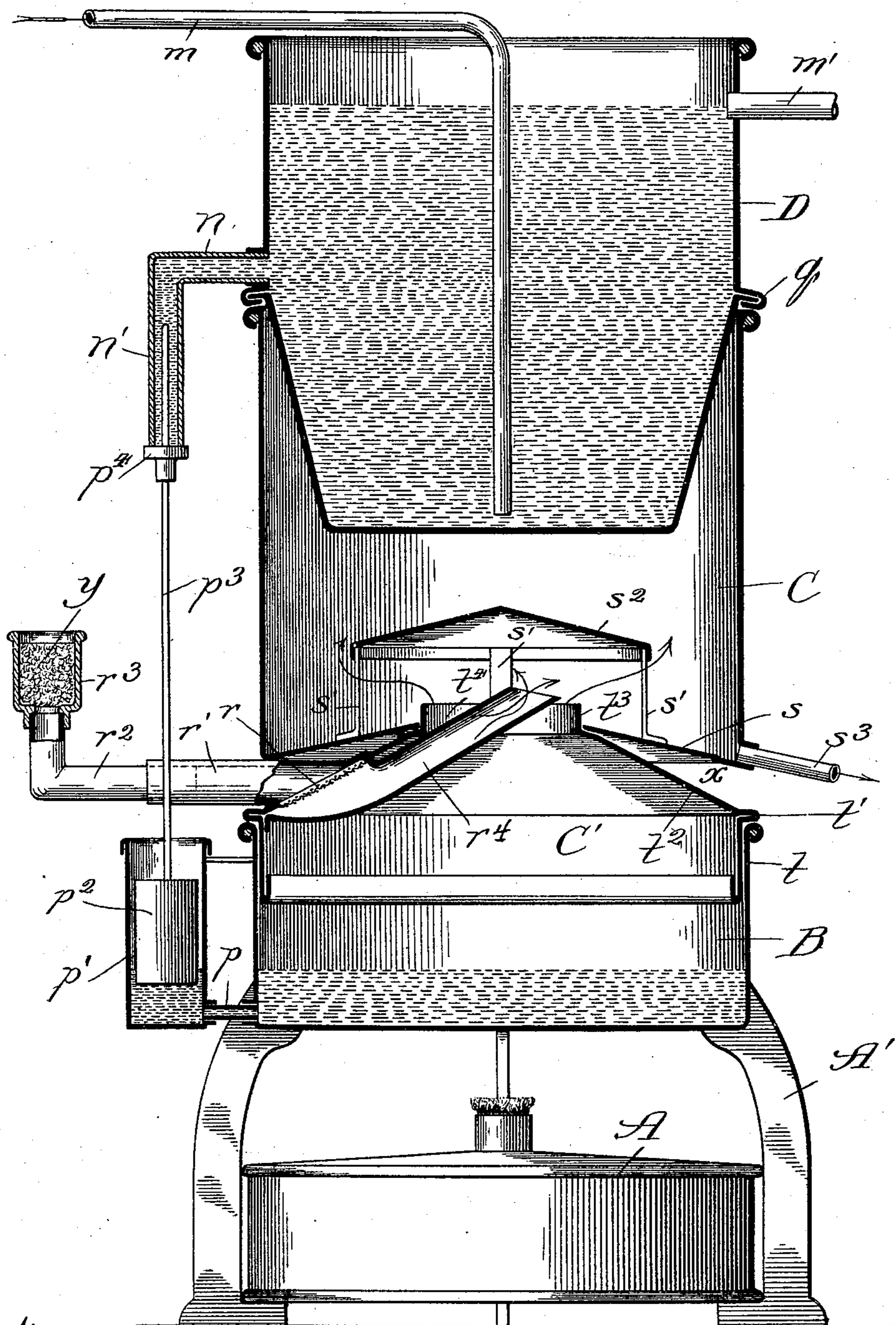


(No Model.)

F. ROSEBROOK.
DISTILLING AND AERATING APPARATUS.

No. 587,162.

Patented July 27, 1897.



Witnesses:
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UNITED STATES PATENT OFFICE.

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DISTILLING AND AERATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 587,162, dated July 27, 1897.

Application filed March 6, 1896. Serial No. 582,033. (No model.)

To all whom it may concern:

Be it known that I, FRANK ROSEBROOK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Distilling and Aerating Apparatus, of which the following is a specification.

My invention relates to an apparatus for distilling and aerating water to render it wholesome and palatable; and my object is to provide such an apparatus of particularly simple, durable, and inexpensive construction, adapting it more especially for family use.

My invention consists in certain details of construction and combinations of parts of my improved apparatus, and particularly to the construction of the aerating mechanism for thoroughly mixing with the vapor as it is formed an ample supply of pure air.

In the drawing is shown in vertical section a water distilling and aerating apparatus embodying my invention.

A is a heater mounted in a stand A', which supports a vessel or boiler B, open at its upper end.

C is a cylinder or condensing-chamber, and D a cold-water receptacle or steam-condenser.

C' is a top or lid for the vessel B, having an annular flange t to fit into the top of the vessel, a bead or shoulder t' to rest upon the rim of the vessel, and a conical top t^2 , terminating in a central upward-extending flange or sleeve t^3 , affording an outlet-opening t^4 .

The base s of the chamber C may be slightly conical, as shown, and is provided with a central opening to fit snugly over the sleeve t^3 . This construction affords an annular air-space x between the top of the vessel B and bottom of the chamber C.

Mounted on legs s' in the chamber C is a preferably conical hood or deflector s^2 , which extends over the opening t^4 . At one side of the chamber C, close to the base s , is an outlet-pipe s^3 . In the conical top t^2 is an opening r , from which extends an air-tube r^4 , terminating at the top of the part C' centrally or nearly so of the opening t^4 . The opening r may be provided with a screen, as shown. Extending from the top plate t^2 around the opening r is a horizontal sleeve r' . Fitting

into the sleeve r' is a tube r^2 , preferably provided at its end with a receptacle r^3 for air-filtering material y .

The vessel D is provided with a circumferential flange or bead q , and below the said bead it is gradually reduced, as shown. The flange q rests upon the upper end of the chamber C, and the part below the flange extends down into the chamber to afford an extended condensing-surface, as shown.

The boiler B is provided near its base with an inlet-tube p , connecting with a vertical cylinder p' , which is mounted upon the side of the boiler B. In the cylinder p' is a float p^2 , having an upward-extending stem p^3 . At the flange q of the vessel D is an outlet-tube n , having a downward-extending part n' , terminating in a valve-seat. The stem p^3 extends upward into the tube n' and carries a valve p^4 , adapted to seat against the lower end of the tube n' and close the latter.

The vessel D may be provided, as shown, with an inlet-tube m and an overflow-pipe m' .

In operation the vessel or condenser D is filled with cold water through the pipe m and allowed to overflow through the pipe m' to maintain a constant supply of cold water. Through the tube n water flows and runs down the stem p^3 to the vessels p' and B until the latter is filled to the desired level, when the water will lift the float p^2 and close the valve p^4 . The water in the boiler B is raised to the boiling-point by the heater A, and the steam rises through the opening t^4 against the hood s^2 and rises thence to the base of the vessel D, which affords a condensing-surface. As the steam is condensed it falls to the base s and runs off through the pipe s^3 . The flow of steam through the opening t^4 causes a suction of air through the tube r' , the same as in the case of a Gifford injector, and as the steam and air strike the hood s^2 they become thoroughly mixed and escape together to the condensing-chamber C. The tube r^2 and sleeve r' telescope together, so that the air-inlet may be extended some distance beyond the side of the vessels and out of the way of the hot products of combustion from the heater A. The air drawn through the tube r' first passes through the filtering material y and screen, so that it will

be particularly pure. The heat of the steam will tend, of course, as it mingles with the air to kill any germs carried by the air. Thus the distilled water as it passes through the outlet s^3 will be perfectly wholesome and thoroughly aerated. As the water in the vessel B is reduced the float p^2 descends to lower the stem p^3 and open the valve p^4 . By this means a constant supply of water is maintained in the vessel B. The air-space x between the parts C and C' tends to maintain the lower end or base of the condensing-chamber cool. Were there no space between the top plate t^2 and base s the latter would become heated and tend to vaporize the water as it drops thereon from the condensing-surface.

If desired, the air-inlet pipe r' r^2 may be formed of several telescoping sections, so that the mouth, which is preferably provided with the filtering material y , may extend a farther distance from the side of the device to insure a supply of pure air.

One of the particular advantages of my construction and which adapts it readily for family use lies in the fact that the parts may be separated from each other to render them readily transportable and easy to clean. The part C' fits the top of the boiler A in a manner to render it substantially steam-tight at the joints, but it may be easily lifted out of the boiler. The chamber or vessel C at its base s fits snugly but removably around the flange t^3 of the part C', and the condenser D, while it forms a steam-tight joint at its flange g with the top of the vessel C, may be readily lifted out of the said vessel.

While I prefer to construct my improvements in every way as shown and described, they may be modified in the matter of details without departing from the spirit of my invention as defined by the claim.

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

In a water distilling and aerating apparatus the combination with a water-boiler, of a removable tapering cover for the boiler having an outlet at its upper end, a chamber having an opening in its base fitting the said outlet, said base being slightly tapered and providing an annular air-space between it and the cover, a discharge-opening at one side of said base, a cold-water receptacle fitting into the top of the said chamber, a deflector in the said chamber between the base-opening and the cold-water receptacle, means for supplying the boiler with water consisting of a cylinder connected with said boiler, a float in said cylinder, a tube connected with the cold-water receptacle and having a part extending downwardly in line with the cylinder and terminating in a valve-seat, a valve for said tube and a stem connecting the valve and float, and an air-supply tube attached to the cover, having its inner end terminating at the outlet therein, said tube extending from said cover through the annular air-space and provided at its outer end with an air-filter, substantially as described.

FRANK ROSEBROOK.

In presence of—

J. N. HANSON,
J. H. LEE.