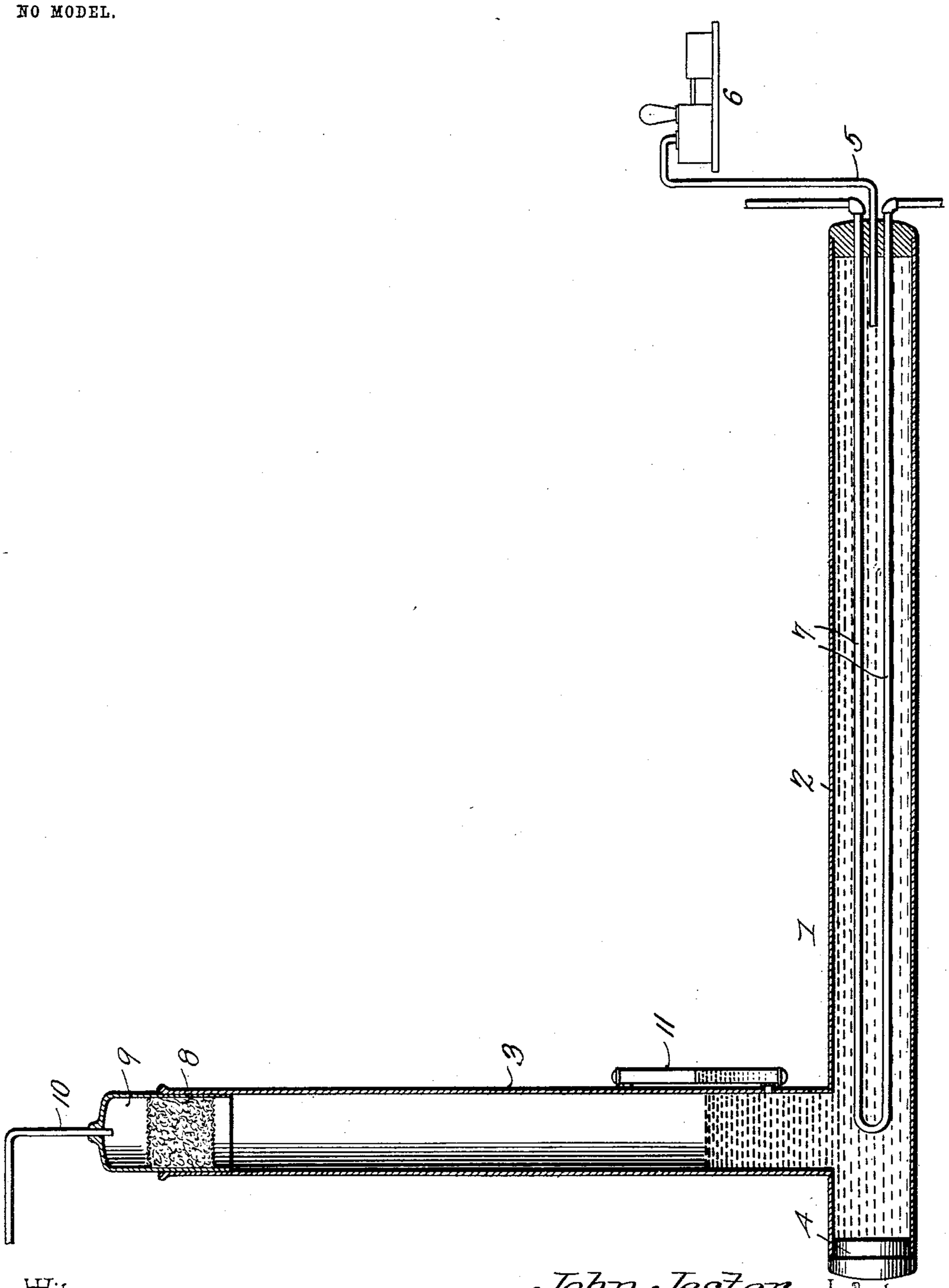
No. 756,643. PATENTED APR. 5, 1904.

J. JESTER.

AIR COOLER AND FILTER.

APPLICATION FILED JUNE 22, 1903.

NO MODEL.




Witnesses
E. F. Stewart
D. J. Elmore

John Jester, Inventor,
by Cachow & Co
Attorneys

No. 756,643. Patented April 5, 1904.

# UNITED STATES PATENT OFFICE.

JOHN JESTER, OF ST. JOSEPH, MISSOURI.

## AIR COOLER AND FILTER.

SPECIFICATION forming part of Letters Patent No. 756,643, dated April 5, 1904.

Application filed June 22, 1903. Serial No. 162,682. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN JESTER, a citizen of the United States, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented a new and useful Air Cooler and Filter, of which the following is a specification.

My invention relates to a combined air cooler and filter, such as is employed in breweries or the like for supplying air to the charging-tanks, &c., and has for its objects to produce a device of this character of simple construction which will be efficient in operation, one which will be extremely compact in form, and one by which pure dry air will be supplied for use.

To these ends the invention comprises the novel details of construction and combination of parts more fully hereinafter described.

In the accompanying drawing there is represented in side sectional elevation an apparatus embodying my invention.

Referring to the drawing, 1 indicates a tank consisting, preferably, of a horizontally-disposed cylinder or chamber 2 and a vertically-disposed cylinder or chamber 3 in open communication with the first-named cylinder adjacent to one end thereof, which is normally closed by a removable plug or cap 4.

5 is an air pipe or conduit which communicates with the end of cylinder 2 opposite the plug 4, said pipe being connected with a suitable pump or the like 6 for forcing air through the pipe and delivering it under pressure to the cylinder for the purpose which will presently appear.

7 indicates a pipe or conduit which enters the cylinder 2 at its permanently-closed end beneath the air-pipe, extends substantially the entire length of the cylinder, and is bent back upon itself for exit from the cylinder through said closed end and above the air-conduit. This pipe serves for the circulation of a cooling medium, such as brine or ammonia, through the cylinder for cooling the air in the latter, said cooling medium being pumped or otherwise forced through the pipe in any suitable manner. In this connection it is to be understood that, if so desired, a heating medium, such as steam or hot air, may be circulated through the pipe 7 for heating the air within the cylinder if circumstances render such a course necessary or desirable.

Disposed within the cylinder 3 adjacent to its upper end is a dry filter 8, composed of any suitable absorbent material—such as cotton, sponge, or the like—maintained in place, preferably, by upper and lower sheets of suitable perforated or reticulated material. The filter 8 is disposed sufficiently below the end of the cylinder to form an upper chamber 9, from which extends a pipe or conduit 10. It is here to be noted that the filter is carried by a removable cap seated in the end of the vertical cylinder 3 and that said cap or closure, together with the closure 4 at the end of cylinder 2, may be removed for purposes of cleaning the interior of the tank.

In practice the cylinder 2 will be filled with water, which latter will also partially fill the cylinder 3 at its lower end, and air will be forced through pipe 5 into said cylinder and through the contained water therein, whereby it will be thoroughly filtered and purified and will pass off into the cylinder 3, where it will, owing to its passage through the water, accumulate in a moist condition beneath the filter 8. In the meantime there will be circulated through the pipe 7 either a cooling or heating medium, as circumstances may direct, whereby the air during its passage through the water in cylinder 2 will be either cooled or heated, as the case may be. The filtered air after its passage through the water will next pass through filter 8, whereby the moisture will be entirely extracted from the air, and the latter will be delivered in a thoroughly-dried condition to the chamber 9, from which it may be drawn off through pipe 10 for use as required.

11 indicates a water-gage disposed upon the side of cylinder 3 and communicating therewith above and below the water-line, whereby the proper amount of water may be maintained in the tank.

From the foregoing it will be seen that I produce a device of simple construction and of compact form in which the air will, after being filtered by the liquid medium, be dry-filtered to relieve it of moisture and deliver it

in a thoroughly-dry condition for use, and in attaining these ends I do not wish to limit myself to the precise details herein shown and described, inasmuch as minor changes may be made therein without departing from the spirit or scope of my invention. For example, while the cylinder 2 is shown herein as being of a greater length than and of an equal diameter with the cylinder 3, I have found it more practical to form the horizontal cylinder of the same length or slightly shorter than cylinder 3 and of a greater diameter than the latter. Also in practice I will employ gages of the usual form to indicate pressure in the air-chambers.

Having thus described my invention, what I claim is—

1. The combination with a vertically-disposed cylinder, of a horizontally-disposed liquid-containing cylinder in open communication with the lower end thereof, a conduit situated within the horizontal cylinder for circulating a temperature-regulating medium therethrough, an air-conduit also communicating with said cylinder for delivering air through the contained liquid to the vertical cylinder, a movable cap for closing the upper end of the latter, a dry filter situated in and carried by the cap, and means for forcing the air through the liquid and dry filter.

2. The combination with a vertically-disposed cylinder, of a horizontally-disposed liquid-containing cylinder in open communication with the lower end thereof, a conduit situated within the horizontal cylinder for circulating a temperature-regulating medium therethrough, an air-conduit also communicating with said cylinder for delivering air through the contained liquid to the vertical cylinder, a removable cap for closing the upper end of the latter, a dry filter situated in and carried by the cap, means for forcing the air through the liquid and dry filter, and a removable closure for one end of the horizontal cylinder.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN JESTER.

Witnesses:

JOHN S. EDWARDS,

GEORGE GITZ.