No. 672,504. Patented Apr. 23, 1901.

J. WOLFENSPERGER.

WATER COOLING TANK.

(Application filed Oct. 24, 1900.)

(No Model.)

FIG. 1.

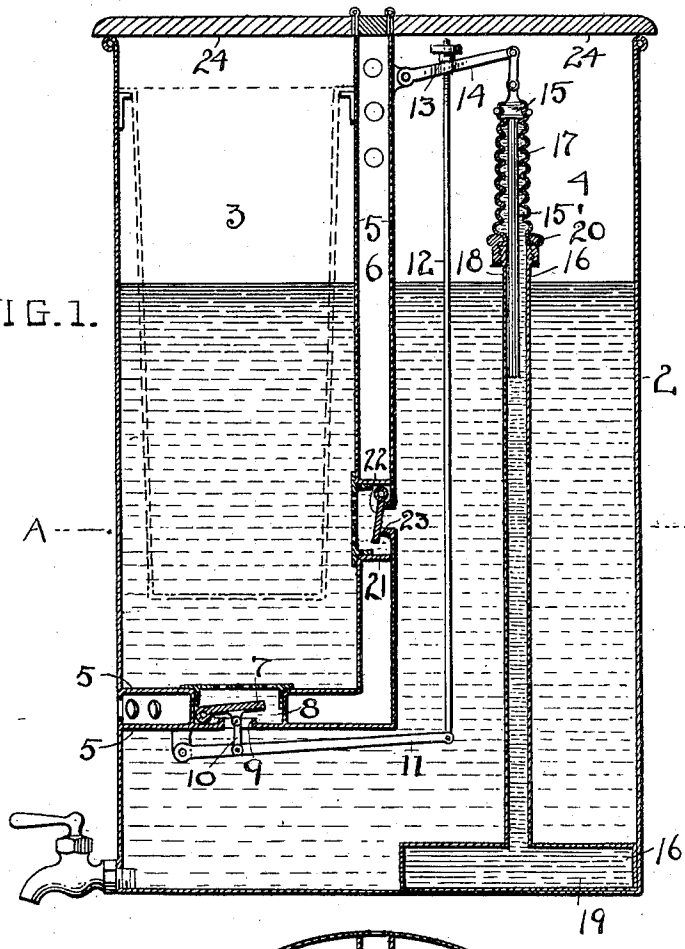


FIG. 3.

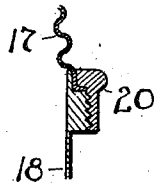
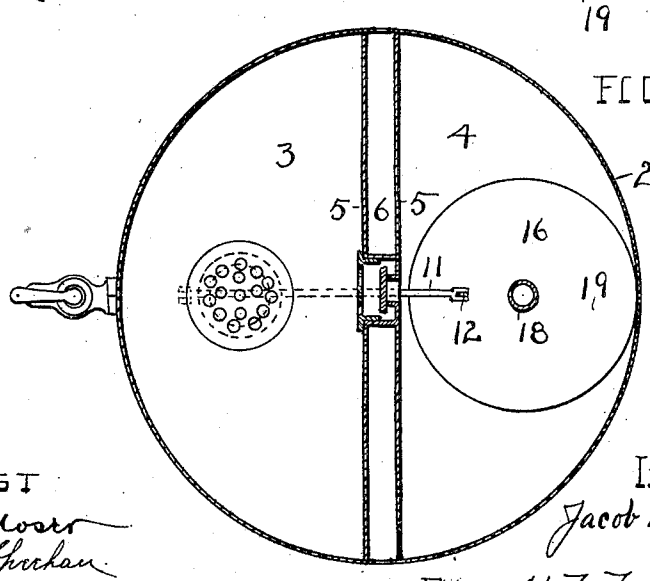


FIG. 2.



ATTEST

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UNITED STATES PATENT OFFICE.

JACOB WOLFENSPERGER, OF CLEVELAND, OHIO.

WATER-COOLING TANK.

SPECIFICATION forming part of Letters Patent No. 672,504, dated April 23, 1901.

Application filed October 24, 1900. Serial No. 34,126. (No model.)

To all whom it may concern:

Be it known that I, JACOB WOLFENSPERGER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Water-Cooling Tanks; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in water-cooling tanks; and the improvement consists in a tank provided with automatic means for keeping the drinking-water therein at an even temperature, all substantially as hereinafter shown and described, and more particularly pointed out in the claims.

In cooling-tanks, wherein water and ice are contained for drinking purposes, it is desirable to keep the drinking-water at an even temperature, preferably some degrees above the temperature of the ice-water and yet cold enough to suit the taste of every one, but not so cold as to be harmful.

In the accompanying drawings, Figure 1 is a sectional elevation of my improved cooling apparatus, and Fig. 2 is a cross-section thereof on line A A. Fig. 3 is a detail sectional view, enlarged, of the thermostat-tube connections.

The tank 2 is divided into two distinct and separate chambers or compartments 3 and 4, which are respectively designed to hold ice-water and drinking-water at different temperatures, and these chambers are separated by a double wall 5, spaced apart to form an air-space 6 between them to prevent the ice-water in chamber 3 from appreciably affecting the temperature of the drinking-water in compartment 4 unless permitted to come in direct contact, which is brought about at the proper time by the action of a valve 7, located in a passage 8, formed between walls 5 at the bottom of chamber 3. As shown, this valve 7 is a hinged flap-valve adapted to rest horizontally on a seat 9 to close the passage 8 between chambers 3 and 4; but any other form of valve especially adapted for this purpose may be used instead.

The present form of valve has a link 10, operatively connected with arm 11, pivoted to the bottom wall 5, and an upright stem 12, pivoted to the free end of arm 11, is adjustably fastened at its top end, by means of thumb-screw 13, to an arm 14, hinged upon wall 5 in the upper part of chamber 4. The free end of this arm 14 connects with the vertically-movable head 15 of the alcohol-thermostat 16, and this head 15 forms the closed end of the extensible and collapsible annular corrugated rubber or other flexible tube 17, which is fastened at its lower end to the top of the rigid tube 18, forming an extension of the alcohol-chamber 19 of the thermostat. The flexible tube 17 is fastened in place by a sleeve 20, threaded upon the tube 18 and is held and guided in its vertical movement by head 15 and depending stem 15'. The object of this thermostat arrangement is to open and close valve 7 through the intermediate connections whenever the water in compartment 4 becomes either too warm or too cold. When the water in compartment 4 is above the desired temperature, the alcohol or other sensitive liquid in the thermostat-tubes and chamber 19 expands and rises and causes the corrugated rubber tube 17 to extend and carry up its head 15, and thereby open valve 7, more or less, by means of the link-and-lever connections. This allows cold water to flow into compartment 4 from chamber 3 through passage 8, the cold water having a tendency to settle and displace and cool the warmer water until valve 7 is again closed by the action of the thermostat. The effect of the cold water upon the alcohol in the thermostat causes sufficient contraction of the liquid therein to allow the rubber tube 17 and its head to collapse and descend, the weight of the several parts throughout being sufficient to close valve 7. The thumb-screw upon the end of rod 12 is used to adjust the position of valve 7 in relation to its seat 9.

At the side and near the bottom of chamber 3 is a passage 21, leading to compartment 4, and a hinged flap-valve 22, located therein, normally rests on a seat 23 and is kept closed by its own weight to prevent the inflow of cold water from chamber 3 into compartment 4, but which allows the warmer water in the latter compartment to flow into chamber 3 and furnish a constant supply therefor, which is allowed to cool before again passing into

compartment 4 through valve 7. The chambers are filled from the top by raising hinged covers 24; but, if desired, suitable piping having controlling-valves could be used to convey the water into the tank.

When in use, chamber 3 becomes the ice-chamber, either by placing the ice directly in the water therein or in a separate receptacle set into the water in chamber 3, as seen in dotted lines, Fig. 1. In the latter case the water in chamber 3 is cooled by contact with the ice-receptacle proper and the ice-water in the receptacle does not mix with the drinking-water, which is desirable in some instances, especially where the ice itself is impure and full of foreign substances, as is often the case.

In operation I find that when compartment 4 is filled with a fresh supply of drinking-water, which is, say, about 72° temperature, the alcohol-thermostat will open valve 7, and chamber 3, into which the ice has previously been placed, fills up to a level with the water in compartment 4. Then as soon as the ice has cooled the water in the tank to about 52° temperature the alcohol in the thermostat-tubes falls and allows valve 7 to close, and thereafter the drinking-water in compartment 4 is kept at substantially the same temperature, while the ice-water in chamber 3 lowers in temperature to its full limit. As the drinking-water in compartment 4 varies in degree of temperature, corresponding effect will be had on the alcohol-thermostat, and valve 7 will be more or less opened and closed alternately, as hereinbefore described.

What I claim is—

1. The water-tank comprising two separate chambers having walled air-spaces between them, a water-passage and valve therefor connecting said chambers, and a thermostatic device having link-and-lever connections to said valve all located and operating within one of said chambers, substantially as described.

2. A water-cooling tank having two chambers for water of different temperatures, and a passage and valve therefor connecting said chambers, in combination with a thermostat 16 arranged at the bottom of the chamber containing the water of the highest temperature and having operating connecting mechanism leading to said valve, substantially as described.

3. The tank 2 comprising the two distinct and separate chambers 3 and 4 having an air-space 6 between them, a connecting-passage at the bottom of chamber 3 and a second passage between said chambers above said bottom, a self-closing valve in the second passage and a separate valve for the bottom passage, a thermostat 16 in chamber 4 and pivoted lever-and-link connections for the bottom-passage valve operatively attached to and actuated by said thermostat, substantially as described.

Witness my hand to the foregoing specification this 15th day of October, 1900.

JACOB WOLFENSPERGER.

Witnesses:

M. A. SHEEHAN,

R. B. MOSER.