Aug. 13, 1929. J. CARPITA 1,724,693

WATER IMPURITIES REDUCING TANK

Filed Feb. 28, 1928

Fig. 1.

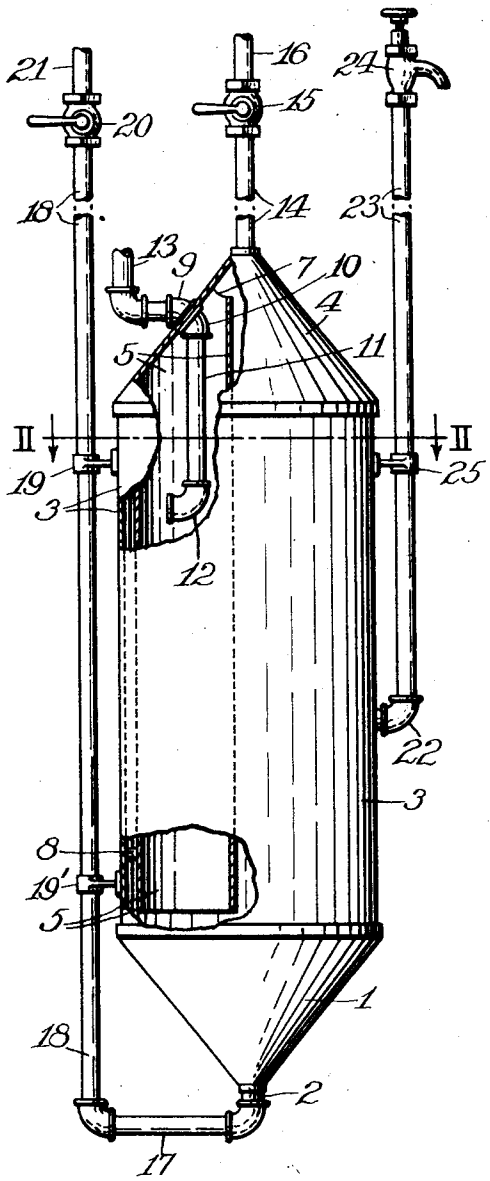


Fig. 2.

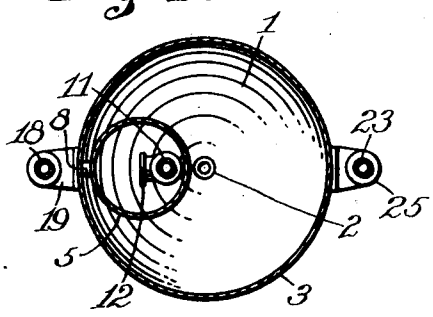
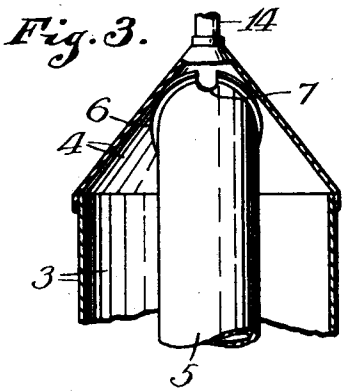


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN CARPITA, OF CHICAGO, ILLINOIS.

WATER-IMPURITIES-REDUCING TANK.

Application filed February 28, 1928. Serial No. 257,702.

This invention relates to a constant-temperature potable water supply and has reference more particularly to apparatus whereby a constant-temperature of drinking water with impurities minimized may be maintained throughout the year, especially in a palatably cool state.

An object of the invention is to provide simple and efficient yet not costly means adapted to be used in connection with water supply systems from which water for domestic purposes is obtained that may contain impurities and may require cooling, especially in summer seasons, to render it palatable, and without entailing cost of artificial cooling of the water, such as the expense of icing or other refrigeration.

Another object is to provide a water impurities reducing tank which shall be of such construction as to be adapted to operate reliably in connection with a water supply system without requiring attendance or expense for repairs, and whereby water may be automatically cooled and supplied at a uniformly cool temperature, and which shall be durable and economical in use.

With the above-mentioned and other objects in view, the invention consists in an improved separating tank and apparatus adapted to be used at considerable depth in the ground and connected with a source of forced water supply; the invention consisting also further in the parts and combinations and arrangements of parts as hereinafter particularly described and further defined in the appended claims.

Referring to the accompanying drawings,—Figure 1 is a side view partially broken away sectionally, showing the water impurities reducing tank as preferably constructed; Fig. 2 is a horizontal section approximately on the line II—II on Fig. 1; and Fig. 3 is a fragmentary vertical central section showing internal construction of the tank.

Similar reference characters in the different figures of the drawings indicate corresponding elements or features of construction herein referred to in detail.

In practically carrying out the objects of invention a normally upright tank or reservoir is provided that is adapted to be embedded in the ground at a suitable depth, approximately thirty or more feet below the ground surface, to obtain low water temperature of uniform degree. The tank comprises an inverted conical bottom 1 having a pipe nipple 2 centrally connected therewith, a cylindrical shell or body portion 3 secured to the bottom, and a conical top 4 secured to the shell. A separator tube 5 is arranged in the tank and has an oblique angled upper end conforming to the inclination and contour of the inner side of the top 4, the tube being secured to said top, preferably by means of a flange 6 fixed to the tube. The higher edge portion of the top of the tube has a notch 7 therein for the passage of water and impurities that may float in the water to the interior of the tank outside the tube. The tube extends downward nearly to the bottom 1 and preferably is secured to a side portion of the tank by means of a brace 8, the lower end of the tube being open. An inlet pipe is connected to the top 4 whereby to conduct water into the tube 5, preferably through an elbow 9 secured in the top 4 and to which an elbow 10 is connected so as to be within the tube 5. A pipe 11 of suitable length is connected to the elbow 10 and has a deflector elbow 12 connected to its lower end to discharge water against a side portion of the tube 5 whereby to facilitate separation of impurities from the water. A service pipe 13 is suitably connected with the elbow 9 and extends upward to any convenient point desired where it may be connected with a pressure water main or distributing pipe of a water works system.

A flushing pipe 14 is connected centrally to the top 4 of the tank and is of suitable length to discharge above the ground surface, being provided with a suitable stop-cock 15 to which a pipe 16 is connected that may be extended to any suitable point for disposing of water having floating impurities. Another flushing pipe is provided which comprises a lateral section 17 suitably connected with the nipple 2 and an upright section 18 suitably connected with the section 17, the section 18 being of such length as to extend above the ground surface. Preferably the pipe section 18 is steadied by braces 19 and 19′ connected thereto and secured to the shell 3 of the tank. A stop-cock 20 is connected with the section 18 and has a discharge pipe 21 connected thereto

which may be extended to any suitable point to dispose of the water impurities having greater density than water.

A service pipe is provided which comprises an elbow 22 connected to the shell 3 at a suitable point higher than the bottom 1 and a pipe section 23 connected to the elbow and extended upward to a point higher than the surface of the earth where water may be drawn at will through a faucet 24 connected with the pipe, or obviously through any desired number of branches of the service pipe. Preferably the pipe section 23 has a brace 25 connected thereto and secured to the tank in proximity to the top thereof.

In practical use, the tank being buried in the earth where the depth insures low temperature, the pipe connections being as above-described, the water flows into the tube 5 from the elbow 12 and, the pressure being substantially uniform throughout the tank, the heavier than water impurities slowly settle to the bottom 1 of the tank without materially disturbing the body of water in the tank from which the water is drawn as needed through the service pipe and practically free from impurities that may have been received from the water works system. In operation the lighter than water impurities rise in the tube 5 and float out of the notch or aperture 7 into the upright portion of the tank to be periodically drawn off under control of the stop-cock 15. The stop-cock 20 is operated to periodically discharge water containing impurities from the bottom of the tank.

What is claimed is:

1. A water impurities reducing tank having an inlet pipe and a flushing pipe connected to its top and also a flushing pipe connected to its bottom, the tank being provided therein with a vertical separating-tank freely receiving the end of the inlet pipe, and a service pipe connected to the body of the tank intermediately of the bottom and the top thereof.

2. A water impurities reducing tank having a separating-tube therein secured to the top of the tank and having an aperture in its uppermost portion, an inlet pipe connected to the top of the tank and extending downward in the separating-tube to discharge therein, a service pipe connected to the body portion of the tank, and two flushing pipes connected to the bottom and the top respectively of the tank.

3. A water impurities reducing tank having an inlet pipe and an outlet pipe connected to its upper portion and an outlet pipe connected to its lower portion and also an outlet pipe connected to the body portion of the tank, all the pipes extending upward outside the tank, and a separating-tube secured in the tank receiving from the inlet pipe and discharging through its top and its bottom into the tank.

4. A water-supply system including an upright tank having an inlet pipe connected to its top and an outlet service pipe connected to its body portion higher than the bottom of the tank, a separating-tube vertically arranged in the tank and secured at its top to the top of the tank to receive from the inlet pipe and discharge into the lower and upper portions of the tank, and two flushing pipes connected to the bottom and the top respectively of the tank.

5. Water-cooling and impurities reducing apparatus including a tank to be uprightly embedded deeply in the earth, a separating-tube uprightly arranged in the tank and secured at its top to the top of the tank and having an aperture in the upper portion thereof, the lower end of the separating-tube being open, an inlet pipe leading downward through the top of the tank and into the separating-tube, a flushing pipe connected to the bottom of the tank and leading upward therefrom, a flushing pipe connected to the top of the tank and leading upward therefrom, and a service pipe connected to the body portion of the tank and leading upward therefrom.

6. In water-impurities reducing means, the combination of a tank comprising a body portion and oppositely conical ends, a separating-tube arranged in said body portion and extending into the top one of said ends and secured to the end and being provided with an aperture adjacent to said end, the separating-tube being adjacent to one side of said body portion and extending nearly to the other one of said ends, a service pipe connected to the opposite side of said body portion, an inlet pipe connected to said top end and extending into the separating-tube, and flushing pipes connected centrally to said conical ends respectively.

In testimony whereof, I affix my signature on the 23rd day of February, 1928.

JOHN CARPITA.