

M. V. TRACY.
INSULATING MEANS FOR TANKS.
APPLICATION FILED JAN. 16, 1920.

1,371,949.

Patented Mar. 15, 1921.

Fig. 2.

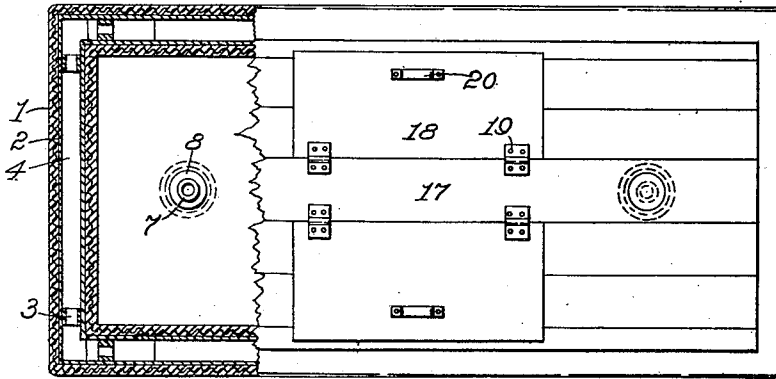


Fig. 1.

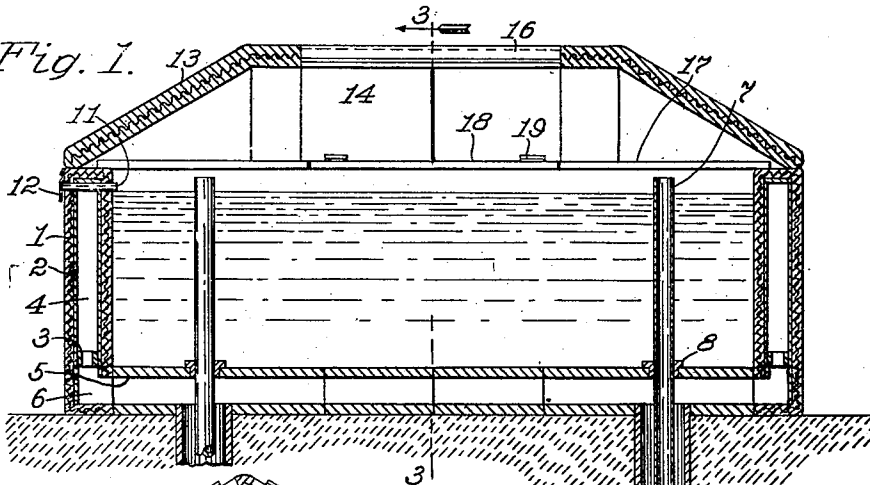
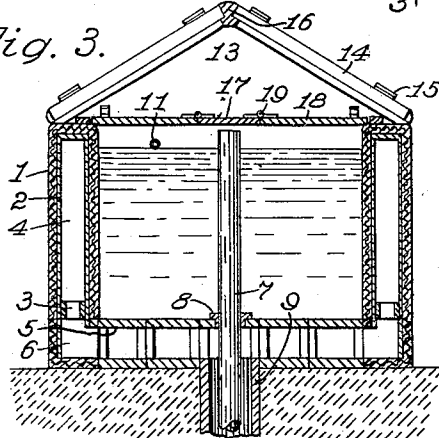


Fig. 3.



Inventor,
Mearl V. Tracy, by
G. C. Kennedy,
Attorney.

UNITED STATES PATENT OFFICE.

MEARL V. TRACY, OF ROLFE, IOWA, ASSIGNOR OF ONE-HALF TO BERNICE KERN, OF RAPID CITY, SOUTH DAKOTA.

INSULATING MEANS FOR TANKS.

1,371,949.

Specification of Letters Patent.

Patented Mar. 15, 1921.

Application filed January 16, 1920. Serial No. 351,978.

To all whom it may concern:

Be it known that I, MEARL V. TRACY, a citizen of the United States of America, and a resident of Rolfe, Pocahontas county, Iowa, have invented certain new and useful Improvements in Insulating Means for Tanks, of which the following is a specification.

My invention relates to improvements in insulating means for tanks, and the object of my improvement is to provide for a tank which has a double wall and bottom with included air space, means embedded in the ground below the tank for supplying a warmed circulation of air throughout said air space, and for extending this circulation to the interior of the tank above the contents thereof; and said object I have accomplished by the means which are hereinafter described and claimed, and which are illustrated in the accompanying drawings, in which Figure 1 is a medial vertical longitudinal section of a hollow walled tank and its covering devices with the air circulating device, parts being broken away; Fig. 2 is an upper plan view of said tank with its closure top removed, parts of the tank and of the intermediate cover being broken away, and Fig. 3 is a transverse section of said devices, with parts broken away, taken on the broken line 3—3 of Fig. 1.

Similar numerals of reference denote corresponding parts throughout the several views.

I have shown a water tank 1, having a removable arched closure 13 for its open top, and having an intermediate horizontal cover 17 supported removably on the upper edge of the tank.

The tank has a double wall and bottom, the bottom preferably constructed of a plurality of hollow vitrified tile 5 cemented in juxtaposition, supplying longitudinal hollows or air-passages communicating with the interspaces of the double walls. The walls are constructed of concrete shaped at 1 upon an interior hollow supporting mold 2, whose opposed inner faces are braced by interposed hollow blocks 3, whereby the hollow 4 of the walls may communicate with the hollows 6 of said tiles 5. The concrete facing 1 may be reinforced by intersticed material if desired, and as shown.

The arched closure top 13 is also formed of reinforced concrete and is supported re-

movably upon the outer part of the upper edge of the tank. This closure top 13 comprises like end parts spaced apart medially relative to the tank, connected by a ridge-beam 16, and the spaces between said closure parts are closed by pairs of doors 14 swinging on hinges 15. However, the form and construction of the closure top may be otherwise than that shown when desired.

The cover 17 which closes the top of the tank, is of lighter construction, and may be made from planks as shown, or otherwise, and has a pair of like doors 18 hinged at 19 to swing upwardly to uncover side openings in said cover, to permit access to the contents of the tank, handles 20 being supplied on the doors.

The top parts of certain of the hollow tiles 5 at the bottom of the tank are orificed to receive hollow bushings 8, and below these bushings and alined vertically therewith, the lower parts of the same tiles are supplied with larger openings to receive and fit sealingly the upper open ends of the tubular members or housings 9, in this instance vertically arranged and communicating sections of cylindrical hollow tiles, which project downwardly into the underlying soil for a considerable depth.

The numeral 7 denotes open ended hollow members, or pipes, extending vertically through the interior of the tank from the upper part thereof but spaced from the intermediate cover 17, to and through the bushings 8, and through the alined vertical underlying hollow tile 9, nearly to the lower end thereof, supported by hollow blocks 10 in the latter.

A horizontal outlet-tube 11 traverses the wall of the tank at a proper height to prevent the level of the water rising to the tops of the pipes 7. A flexible check-valve 12 of the flap variety, may be used to keep air from passing into the tube 11, but yielding to permit issue of overflow water from the tank.

As the ground temperature, during cold weather, is normally considerably higher than that of the atmosphere, my improved means for causing a circulation of air within the hollow bottom and walls of the tank, and also within the upper part of the interior of the tank, is such as to keep the air in these hollows at a higher temperature than the outer atmosphere, whereby water

in the tank is prevented from freezing. This result is due to the passage of the colder air from said hollows, and from the interior of the tank into the soil-embedded housings 9, and the movement upwardly of warmer air from the latter into said hollows and tank. The circulation of air thus established, is unimpeded, and effective, by conduction of heat to the water in the tank to prevent freezing. The warmer air conducted to the interior of the tank under the cover 17, also aids in preventing freezing of the water.

It is to be understood that my invention herein is not confined in scope to the specific constructions shown, but that the principles of the invention cover various changes in structures and the avenues of air circulation for the purposes mentioned.

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

1. In combination, an open top tank having hollow walls, a closure for the open top of said tank having openings, and hingedly connected doors for said openings, a longitudinally pitched cover removably covering said tank and closure, said cover having openings over said closure openings and having hingedly connected doors for its open-

ings, a tubular housing in communication with the hollow of said tank walls extending therefrom a distance below the bottom of the tank, for insertion into the earth, and an open-ended tube extending from the upper part of the interior of the tank spaced from said closure through the bottom of the tank into and nearly through said housing, spaced from the latter at the sides and terminally.

2. In combination, an open top tank, a closure therefor, said tank having hollows in its bottom and walls, a tubular housing projecting a distance downwardly from the bottom of the tank in communication with said hollows at its upper end, and a tubular member traversing the bottom of the tank with its upper end opening into the upper part of the interior of the tank below and spaced from said closure, the lower part of the tubular member extending into the said housing nearly to the lower end thereof and in spaced relation thereto to afford a communication between the upper part of the tank, the lower part of the tubular member, and the hollows in the bottom and walls of the tank.

Signed at Waterloo, Iowa, this 13th day of Dec. 1919.

MEARL V. TRACY.