

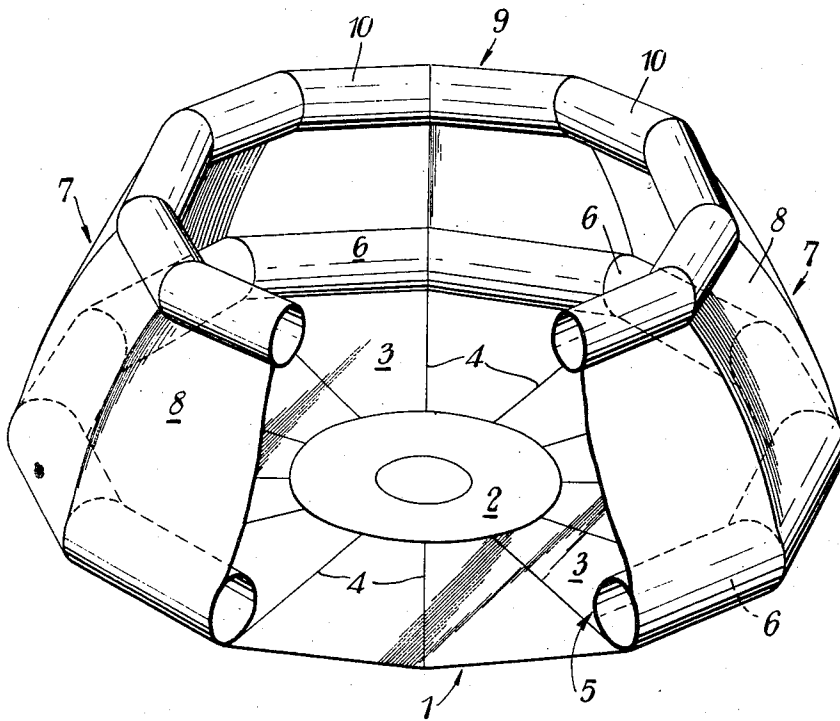
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COLLAPSIBLE STORAGE TANKS

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COLLAPSIBLE STORAGE TANKS

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4 Claims. (Cl. 150—1)

This invention relates to collapsible storage tanks such as may be employed for storing water intended for use in fire-fighting and otherwise.

It is an object of the invention to devise a collapsible storage tank which will in use have a high degree of stability so that it may be employed as, for example, a small swimming pool.

In accordance with the invention there is provided a collapsible storage tank for liquids, wherein an endless inflatable tube is attached by a flexible side wall to the base of the tank, said tube constituting the mouth of the tank and being of area smaller than that of the base so that, when the tank is erected, said wall converges towards said mouth, the arrangement being such that, when liquid is introduced into the mouth of the collapsed tank with said tube inflated, the latter floats upon the liquid and causes the wall to be erected.

For a better understanding of the invention and to show how the same may be carried into effect, reference will now be made to the accompanying drawing which is a perspective view of a collapsible storage tank with part of the tank removed for the sake of clarity.

Referring now to the drawing, there is shown a tank having a base 1 consisting of heavy waterproof fabric of the kind employed for making inflatable life rafts. The base 1 is composed of a central circular panel 2 to the periphery of which several radially outwardly extending sector-shaped panels 3 are joined. The sector-shaped panels 3 are also connected one to the other along their rectilinear radially extending sides 4 so that a composite, substantially circular base of, for example, about twelve feet in diameter, is obtained.

Around the periphery of the base 1 there is attached a circularly extending inflatable base tube 5. The base tube 5 is of such dimensions that, when it is inflated, the cross-sectional diameter of the tube is about fourteen inches, the tube being arranged for inflation to a pressure of about one to two pounds per square inch. The base tube 5 is built up from straight tube sections 6 joined end to end. Each tube section 6 is of length corresponding to the peripheral length of each of the sector-shaped panels 3.

A side wall 7 is attached effectively to the base 1 so as to enclose the base tube 5. The side wall is such that, when held erect, it constitutes an annulus having at the lower side a diameter corresponding to the external diameter of the inflated base tube 5, but diminishing in diameter upwardly away from the base tube. The side wall 7 is formed by joining together a plurality of panels 8. Each panel 8 appropriately tapers away from its junction with the base tube 5 towards the upper end of the erected side wall, such upper end constituting the mouth of the tank. The side wall at its mouth end is

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connected to an inflatable tube 9 constructed like the base tube 5 from a plurality of straight tube sections 10. The mouth tube 9, however, extends along a circular path of considerably smaller diameter than that of the base tube 5. The mouth tube 9 may, for example, afford a mouth opening of about eight feet in diameter, and, the erected tank may stand about four feet high.

In the use of the tank, both the mouth tube 9 and the base tube 5 are inflated through conventional inflation valves (not shown). At this time the side wall 7 will not be held erect and the mouth tube 9 will lie almost within the base tube 5. Water is now poured over the mouth tube 9 so that the water is initially stored between the base 1 and the base tube 5. As the water level rises, the mouth tube 9 will be lifted progressively by the water to erect the side wall 7 until the tank is filled. Assuming that the tank is upon a level supporting surface, with the dimensions indicated above, the tank may hold as much as two thousand five hundred gallons of water although it will be appreciated that tanks with widely different capacities can be made by varying the diameters of the mouth and the base, and by varying the height of the wall. It is found that the filled tank has a remarkable degree of stability. The mouth tube 9 is relatively rigidly supported by the water enclosed within the tank, and an adult person can stand upon the mouth tube, using it as a platform from which to dive. It is found that the filled tank is stable when placed on an inclined supporting surface with a gradient of up to about one in five. When the tank is filled whilst it is resting upon an inclined surface, it will be appreciated that the capacity of the tank will be decreased.

If so desired, the tank may be filled or emptied through a pipe passing through the side wall thereof at a location just above the base tube.

I claim:

1. A collapsible storage tank for liquids, comprising a flexible, substantially circular base panel, a first, endless, substantially circularly extending inflatable tube attached to the periphery of the base panel, a second, endless, substantially circularly extending tube constituting the mouth of the tank and enclosing an area smaller than that enclosed by said first tube, and a flexible side wall attached to and between said first and second tubes, whereby, when the tubes are inflated and liquid is introduced into the mouth, said second tube floats upon the liquid and causes the wall to be erected, and to converge inwardly from said first tube to said second tube.

2. A collapsible storage tank for liquids, comprising, a flexible, substantially circular base panel, a first, endless, substantially circularly extending inflatable tube attached to the periphery of the base panel and formed from a plurality of straight tube sections joined end to end, a second, endless, substantially circularly extending inflatable tube constituting the mouth of the tank and also formed from a plurality of straight tube sections joined end to end, said second tube enclosing an area smaller than that enclosed by said first tube, and a flexible side wall attached between said first and second tubes, whereby, when the tubes are inflated and liquid is introduced into the mouth, the latter floats upon the liquid and causes the wall to be erected and to converge from said first tube to said second tube.

3. A collapsible storage tank for liquids as claimed in claim 2, wherein the diameter of each tube is relatively

large as compared with its length, whereby low inflation pressures may be employed.

4. A collapsible storage tank for liquids as claimed in claim 2, wherein the side wall is constituted by a plurality of flexible panels, each of which is attached 5 at one end to a tube section of said first tube and at the other end to a tube section of said second tube, and each of which is broader at said one end than at said other end.

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