

Sept. 26, 1944.

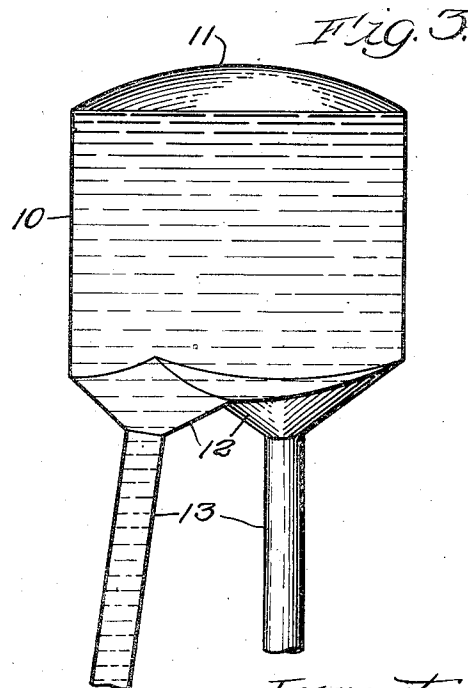
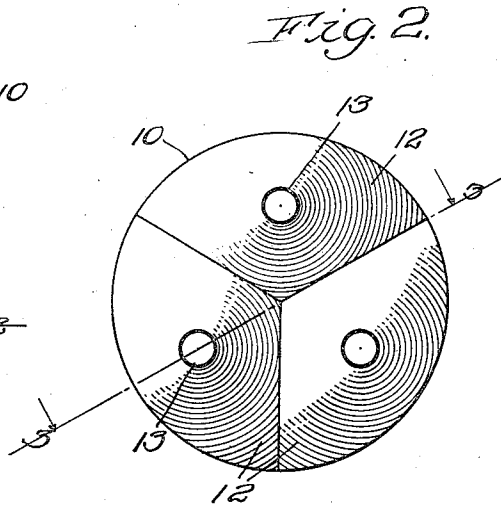
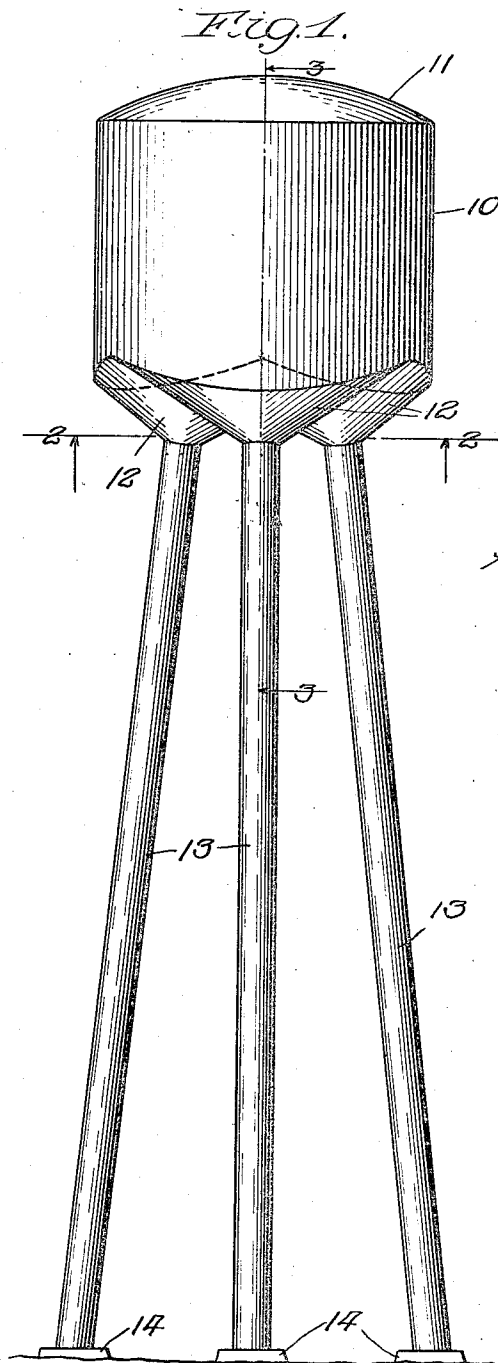
G. T. HORTON

2,358,805

ELEVATED TANK

Filed Nov. 4, 1942

2 Sheets-Sheet 1



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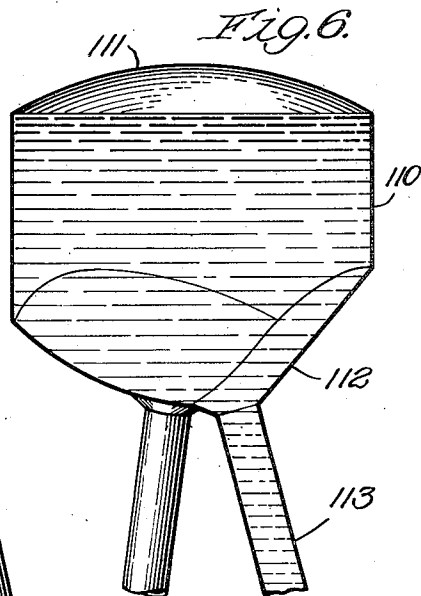
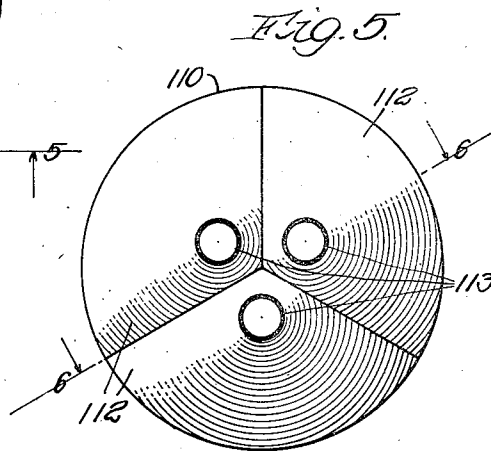
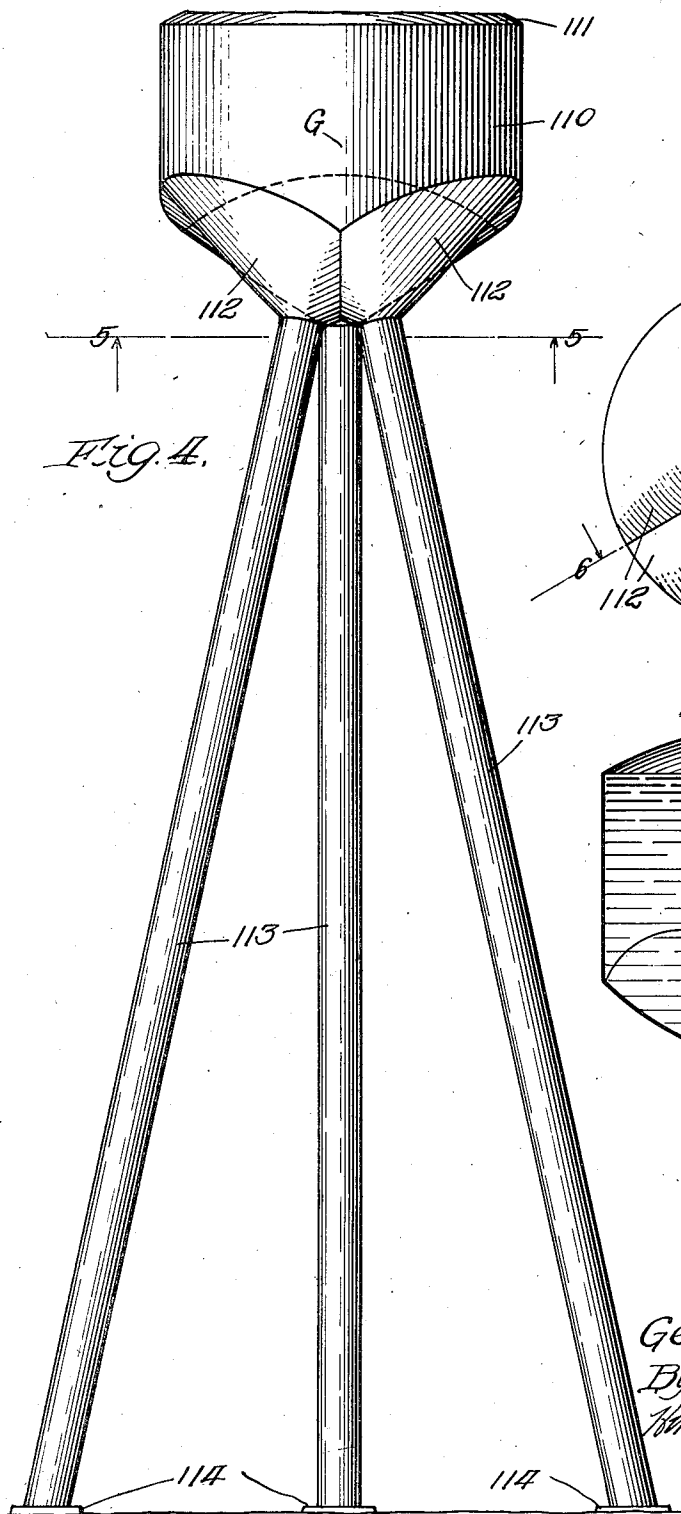
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ELEVATED TANK

Filed Nov. 4, 1942

2 Sheets-Sheet 2



Inventor:
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UNITED STATES PATENT OFFICE

2,358,805

ELEVATED TANK

George T. Horton, Chicago, Ill., assignor to Chicago Bridge & Iron Company, Chicago, Ill., a corporation of Illinois

Application November 4, 1942, Serial No. 464,457

8 Claims. (Cl. 220-69)

This invention relates to improvements in elevated steel tanks such as are used for storage of water and other liquids and also may be utilized for storage of liquids or gases under pressure.

Among the features of my invention is the provision of means for making such a structure principally of sheet metal at a relatively low cost. My improved device will be found to provide an efficient structure for the storage of fluids under pressure or not under pressure.

In those forms of devices embodying the features of my invention shown in the accompanying drawings, Fig. 1 is a view in side elevation; Fig. 2 is a view taken as indicated by the line 2 of Fig. 1; Fig. 3 is a view taken as indicated by the line 3 of Fig. 1; Fig. 4 is a view similar to Fig. 1 showing a modified form; Fig. 5 is a view taken as indicated by the line 5 of Fig. 4; and Fig. 6 is a view taken as indicated by the line 6 of Fig. 5.

As shown in the drawings, the device includes a cylindrical body 10 made of sheet metal with a suitable top such as the convex cover 11. The bottom is formed of three intersecting inverted cones 12, 12 here shown as right cones. The axes of these cones diverge downwardly. Extending downwardly from the apex of each cone in line with the axis thereof is a tubular supporting leg 13. The bottoms of the legs are adapted to rest upon any suitable support such as the concrete foundations 14. The axes of the cones 12 of the device of Figs. 1 to 3, if extended upwardly, intersect at a point a considerable distance above the structure.

The device of Figs. 4-6 is substantially the same as the one just described except that the axes of the cones 12 diverge downwardly at a larger angle and the apices of the cones from which the legs 13 spring are somewhat closer together than in the other device.

In the device of Figs. 1-3 the axes of the cones, if produced, intersect the vertical axis of the tank several feet above the center of gravity of the water in the tank when full. In the device of Figs. 4-6 these axes intersect the vertical axis of the tank substantially at the center of gravity G of the water in the full tank. This second construction eliminates bending in the columns or supporting posts when earthquake forces are active. In the first construction, bending would be induced in such case. In locations where earthquakes are uncommon it might be advisable to have the axes of the posts intersect the tank axis at the level of the resultant of the wind forces on the tank.

One or more of the supporting posts may be hollow and communicate with the interior of the body as desired; and one of the posts obviously may be used as an inlet pipe and another as an outlet pipe as desired. Also, if desired, liquid may be admitted to all three posts and the bottoms

may be connected to a common inlet and common outlet pipe (not shown).

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom.

What I claim as new, and desire to secure by Letters Patent, is:

1. An elevated steel tank, including: a substantially cylindrical body; a top; a bottom formed of at least 3 intersecting inverted cones; and supporting members extending downwardly from the apices of said cones substantially in alignment with the axes thereof, axes of said supporting members, when extended, intersecting at or above the center of gravity of the contents of the tank when full.

2. An elevated steel tank, including: a substantially cylindrical body; a top; a bottom formed of intersecting inverted cones; and tubular supporting members extending downwardly from the apices of said cones substantially in alignment with the axes thereof, the axes of said supporting members intersecting, when projected, at the level of the resultant of natural forces against which the tank is designed.

3. A device as claimed in claim 1, in which the axes of the bottom cones produced upwardly intersect the vertical axis of the body substantially at the center of gravity of said body when full of stored liquid.

4. A device as claimed in claim 2, in which the axes of the bottom cones produced upwardly intersect the vertical axis of the body substantially at the center of gravity of said body when full of stored liquid.

5. A device as claimed in claim 1, in which the axes of the bottom cones produced upwardly intersect the vertical axis of the body substantially at the level of the resultant of the wind forces on the body.

6. A device as claimed in claim 2, in which the axes of the bottom cones produced upwardly intersect the vertical axis of the body substantially at the level of the resultant of the wind forces on the body.

7. An elevated steel tank including a substantially cylindrical body; a top; and a bottom formed of at least three intersecting inverted cones with downwardly diverging axes, which axes when produced upwardly intersect the vertical axis of the body substantially at the center of gravity of said body when full of stored liquid.

8. An elevated steel tank including a substantially cylindrical body; a top; and a bottom formed of at least three intersecting inverted cones with downwardly diverging axes, which axes when produced upwardly intersect the vertical axis of the body substantially at the level of the resultant of the wind forces on the body.

GEORGE T. HORTON.