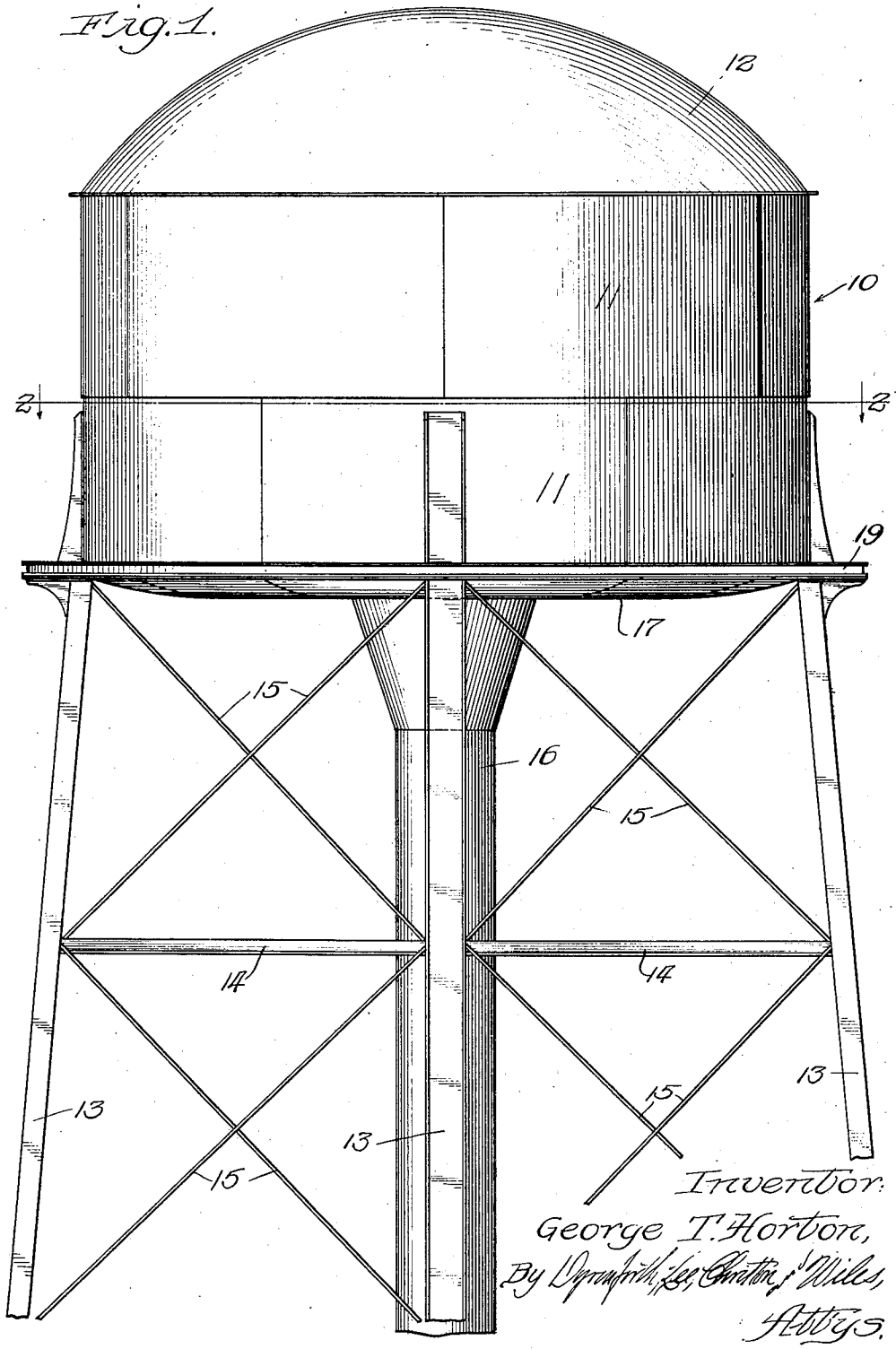
Feb. 13, 1934. G. T. HORTON 1,946,493

TANK

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Fig. 1.



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Fig. 2.

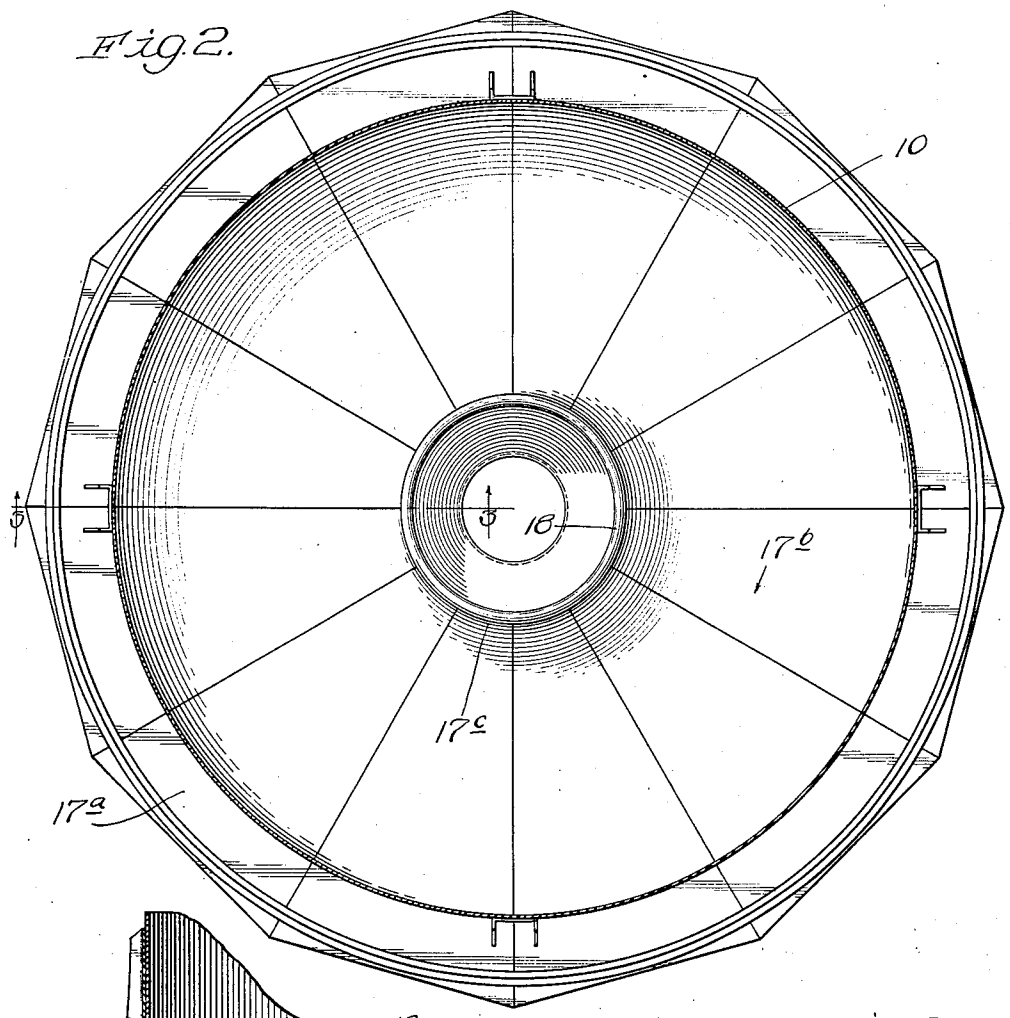
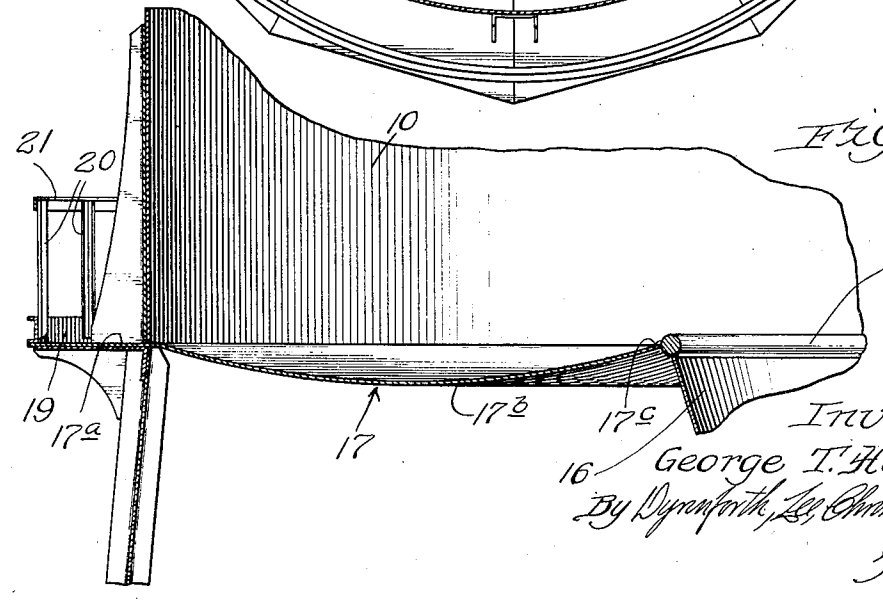


Fig. 3.



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Fig. 4.

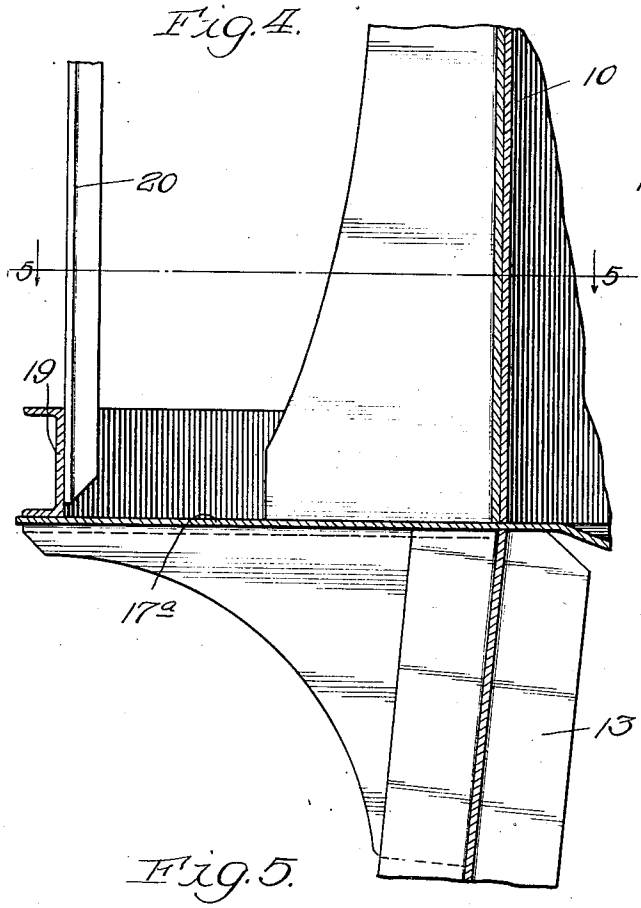


Fig. 6.

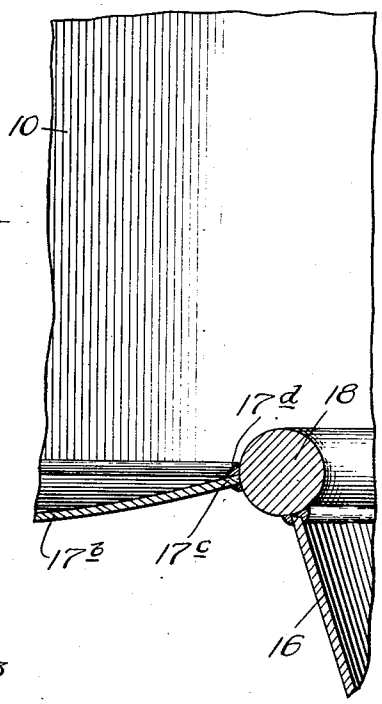


Fig. 5.

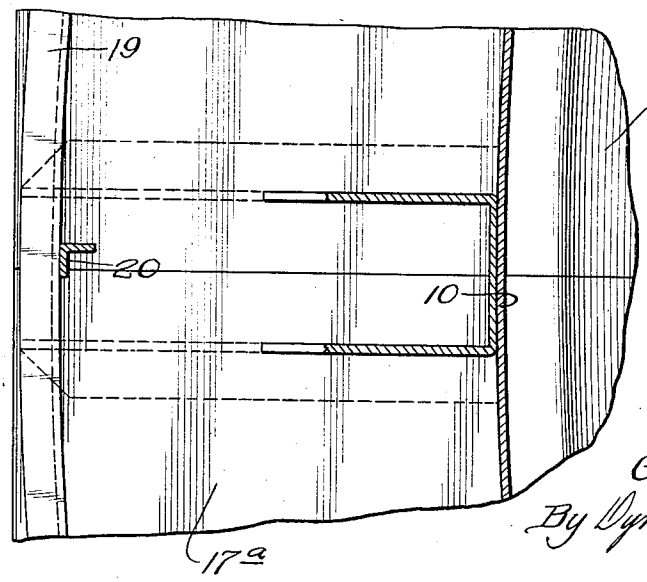
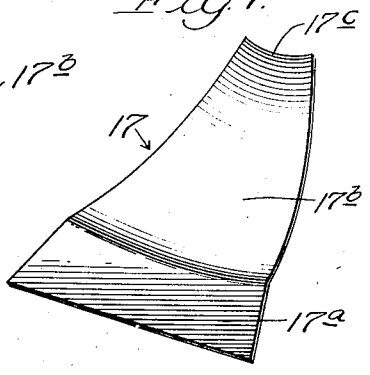


Fig. 7.



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Patented Feb. 13, 1934 1,946,493

UNITED STATES PATENT OFFICE

1,946,493

TANK

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

Application June 2, 1932. Serial No. 614,999

5 Claims. (Cl. 220—3)

This invention relates to improvements in tanks and, more especially, elevated steel tanks.

One of the features of my invention is the provision of such a tank, cylindrical in form, with a central riser pipe and sheet metal bottom. By the use of my invention, such a bottom, if permitted to bend or bow downwardly slightly, can be suspended entirely by its outer marginal edge and its inner marginal edge surrounding the riser pipe without the use of any cross braces or supports. I accomplish this by providing a circular tension member supported by the riser pipe to which the inner edge of the bottom is attached, and an outer circular compression member to which the outer edge of the member is attached. As here shown, the outer compression member comprises an extension of the bottom sheets forming a balcony. It is to be understood, however, that any other suitable means may be employed for forming such compression member. For example, if the lower portion of the tank shell plates is heavy enough, this may be relied upon to take the compression. Also, if desired, the bottom plates or the outer edges thereof may be of sufficient strength to take the compression referred to. If desired, any suitable reinforcement may be introduced at the junction of the bottom plates and the tank shell to take the compression at this point. There may be, therefore, great flexibility in the manner in which the outer compression member is provided, depending upon the diameter and size of the tank, the amount of curvature in the bottom plates, the thickness and size of the shell plates and bottom plates, and the like. As stated above, however, I prefer to extend the bottom plates to form a balcony and such balcony then serves as such outer compression member.

Other features and advantages of my invention will appear more fully as I proceed with my specification.

In that form of device embodying the features of my invention shown in the accompanying drawings—

Figure 1 is a view in side elevation with the balcony rail removed; 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. 2; Fig. 4 is a fragmentary enlarged view similar to Fig. 3; Fig. 5 is a view taken as indicated by the line 5 of Fig. 4; Fig. 6 is a fragmentary enlarged view similar to Fig. 3; and Fig. 7 is a view of one of the bottom plates.

As shown in the drawings, the tank includes a cylindrical body portion 10 formed of plates 11, 11 covered by a dome roof 12. The tank is supported on the usual posts 13 connected by struts 14 and tension rods 15. 16 indicates a central riser pipe.

The bottom of the tank includes one or more sheet metal plates suitably welded or otherwise fastened together. As here shown, the bottom is formed of twelve sector-shaped bottom plates, each being indicated by 17. One of these plates is shown in Fig. 7. As here shown, each of the plates 17 is provided at its outer edge with an integral marginal portion 17^a forming a segment of the balcony surrounding the tank. The portion 17^b of each plate inside of the balcony portion 17^a is curved or rounded downwardly, as shown. The inner edge 17^c of each bottom plate is attached, as by welding 17^d, to a circular tension member 18 supported on the upper edge of the riser pipe 16. As here shown, the tension member 18 is a rod with a circular cross-section.

Numeral 19 indicates a channel member supported on top of the outer edge of the balcony. If desired, posts 20 may be attached to this channel member to carry the rail 21. The channel member 19 imparts additional rigidity and strength to the balcony.

It is to be understood that the plates forming the bottom are all fastened together in the completed structure as by welding, riveting, or other suitable means, so that the entire bottom forms substantially one sheet when completed. The balcony segments or sections are likewise fastened together so that there is a continuous balcony surrounding the bottom when the structure is complete. This balcony forms an integral extension of the bottom and serves as a circular compression member to assist in taking the load on the bottom. It will be seen, therefore, that the balcony, serving as a compression member, and the ring 18, serving as a tension member, assist in supporting the bottom.

While I have shown and described certain embodiments of my invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as disclosed in the appended claims, in which it is my intention to claim all novelty inherent in the invention as broadly as permissible, in view of the prior art.

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

1. An elevated steel tank, including; a cylindrical body portion supported on posts with a

sheet metal bottom having a relatively slight downward curvature and having a central opening; a central riser pipe connected to the opening in the bottom; and a circular tension member supported by the riser pipe with the inner edge of the bottom attached thereto.

2. A device as claimed in claim 1, in which the outer edge of the bottom is attached to a circular compression member.

3. An elevated steel tank, including; a cylindrical body portion supported on posts with a bottom having a central opening, said bottom extending outwardly beyond the body portion to form a balcony; a central riser pipe connected to the opening in the bottom; and a circular tension member carried by the riser pipe with the inner edge of the bottom attached thereto.

4. A device as claimed in claim 3, in which the balcony serves as a compression member to assist in supporting the bottom.

5. An elevated steel tank, including; a cylindrical body portion supported on posts with a bottom formed of sheet metal plates, said plates being provided with extensions projecting outwardly beyond the body portion to form a balcony and the bottom having a central opening; a central riser pipe connected to the opening in the bottom; and a tension member carried by the riser pipe with the inner edge of the bottom attached thereto.

GEORGE T. HORTON.