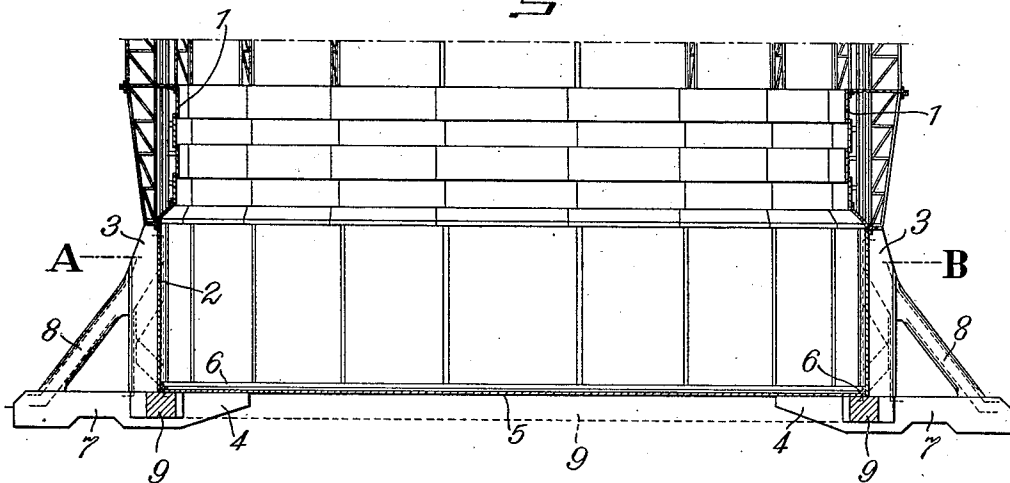


O. FRÖHLICH.  
 RECEPTACLE FOR LIQUIDS.  
 APPLICATION FILED SEPT. 21, 1910.

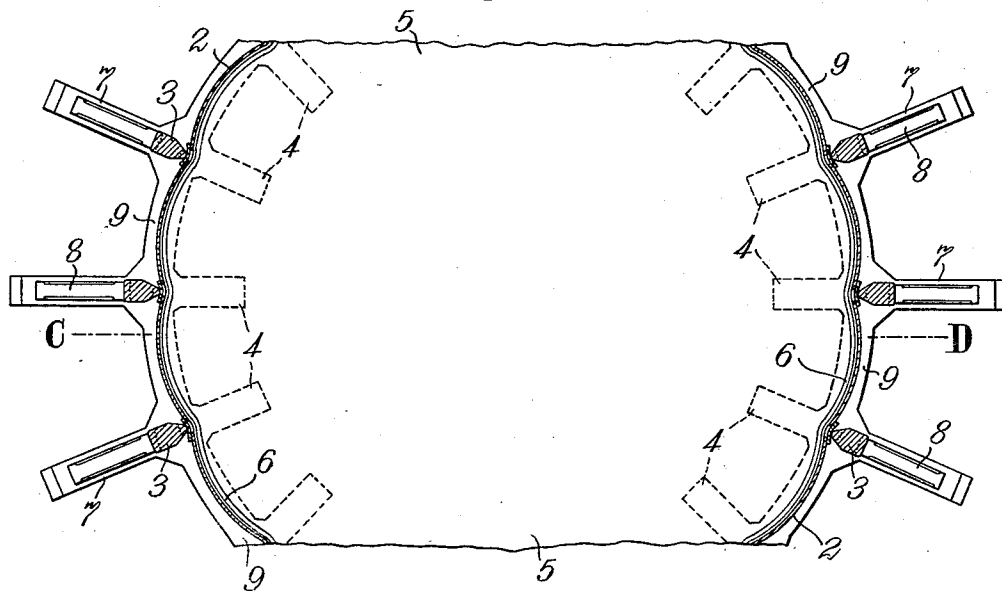
1,005,531.

Patented Oct. 10, 1911.

*Fig. 1.*



*Fig. 2.*



Witnesses:  
 E. Seymour  
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# UNITED STATES PATENT OFFICE.

OTTO FRÖHLICH, OF BERLIN, GERMANY, ASSIGNOR TO BERLIN-ANHALTISCHE MASCHINENBAU-AKTIENGESSELLSCHAFT, OF BERLIN, GERMANY, A CORPORATION OF GERMANY.

## RECEPTACLE FOR LIQUIDS.

1,005,531.

Specification of Letters Patent.

Patented Oct. 10, 1911.

Application filed September 21, 1910. Serial No. 582,992.

*To all whom it may concern:*

Be it known that I, OTTO FRÖHLICH, a subject of the Austro-Hungarian Emperor, and resident of Berlin, Germany, have invented certain new and useful Improvements in Receptacles for Liquids, of which the following is a specification.

My invention relates to tanks or receptacles adapted to contain water or other liquids. Large-sized receptacles of this character have often been made with lower portions having posts or uprights and sheet metal walls extending from one post to the next and secured thereto, such walls being generally bulged or bent outwardly. This construction enables the receptacles to be constructed of a very large diameter without employing sheet metal of excessive thickness, in view of the fact that the walls stretched between adjacent posts can be made comparatively thin. In tanks of this type as constructed hitherto strong hoops had to be placed at different levels in order to take the radial strains due to the pressure of the contained liquid.

My present invention has for its object to dispense with such hoops and thus to simplify and cheapen the construction.

According to my invention the posts are made with braces adapted to receive outward strains and to transfer them in the manner described hereinafter in detail.

The novel features of my invention are pointed out in the appended claims.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a partial vertical section of a tank embodying my invention, taken on line C—D of Fig. 2, and Fig. 2 is a partial horizontal section, taken on line A—B of Fig. 1.

The upper portion 1 of the tank's side wall is preferably made of cylindrical sections of sheet metal since the pressure to which they are exposed is comparatively light. The lower portion of the side wall, which is subjected to heavy pressure, is constructed of curved plates or sheets, for instance bulged sheets 2, secured between the upright members 3 of the radially disposed angular supports 4. The connection of the lower wall portion formed by the sheets 2 with the bottom 5 of the tank is made in any suitable manner, for instance by an angular joint-ring 6.

The angular supports 4 are placed radially with reference to the axis of the tank, at suitable distances apart, and form together an annular series of angular supports or brackets whose horizontal members engage the bottom of the tank and receive the downward pressure of the liquid, thus tending to press the vertical members inward against the wall 2 of the tank and thereby counteracting the horizontal outward strain exerted against said wall by the liquid. As shown in the drawings, the horizontal members of the supports 4 are extended outwardly beyond the apex of the angle, these extensions 7 being formed or combined with inclined braces 8 connected with the upper ends of the vertical members 3. These braces or buttresses receive the outward (radial) push exerted on the upper ends of the upright members 3 and transfer such push or stress to the horizontal extensions 7 and through them to the foundation on which the supports and the tank rest. The provision of one or more hoops to receive such outward strains is thus avoided. Preferably the horizontal members of the several angular supports 4 are connected with each other, to form a strong unitary structure, by means of a ring 9 extending below the bottom 5 in engagement therewith and embedded in the foundation.

The angular supports, and the braces 8 as well, are preferably made of reinforced concrete, as indicated in Fig. 2 for the upright members 3.

It will be understood that I have shown and described but one type of the various forms in which my invention may be carried out, and that other constructions may be used without departing from the nature of my invention as set forth in the appended claims.

I claim as my invention:

1. A tank for liquids, comprising a bottom and a side wall having bulged portions, in combination with spaced angular supports having horizontal members in engagement with said bottom and upright members in engagement with the side wall between its bulges, and a ring connecting the horizontal members of said angular supports.

2. A tank for liquids, comprising a bottom and a side wall having bulged portions, in combination with spaced angular sup-

ports having horizontal members in engagement with said bottom and upright members in engagement with the side wall between its bulges, and a ring connecting said angular supports and extending below the bottom of the tank.

3. A tank for liquids, comprising a bottom and a side wall having bulged portions, in combination with spaced angular supports having horizontal members in engagement with said bottom and upright members in engagement with the side wall between its

bulges, said horizontal members having outward extensions, braces extending upward and inward from said extensions to the upright members, and a ring connecting the supports.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

OTTO FRÖHLICH.

Witnesses:

HENRY HASPER,  
WOLDEMAR HAUPT.

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