May 20, 1924. 1,494,818

T. P. SHEAN

SECTIONAL TANK

Filed March 25, 1918 2 Sheets-Sheet 1

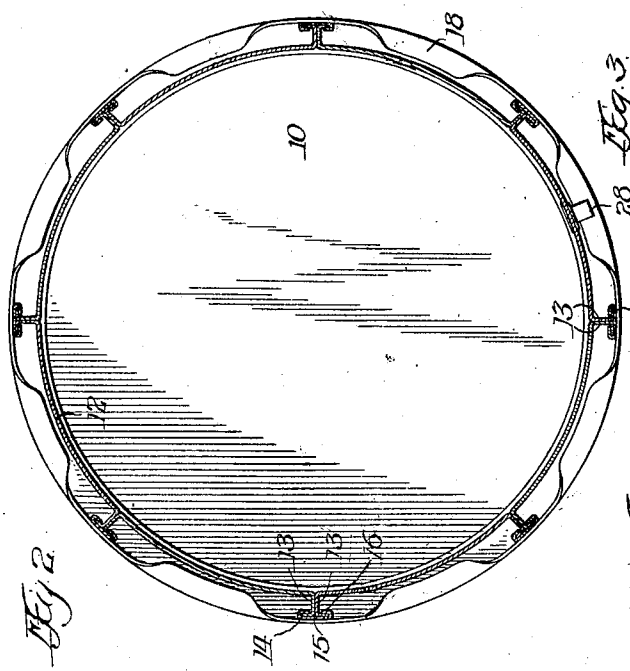

Fig. 2.

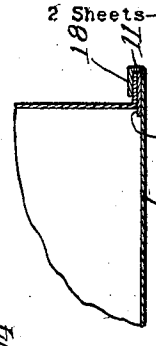

Fig. 3.

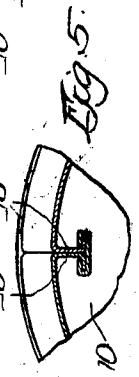

Fig. 5.

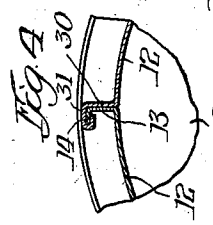

Fig. 4.

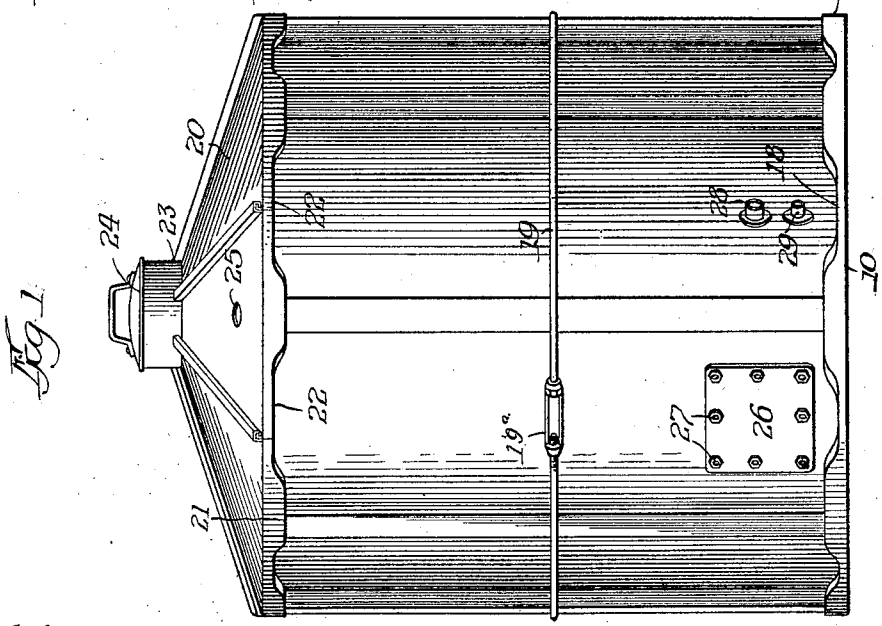

Fig. 1.

Witness:

Inventor
Thomas P. Shean,
By Pennell, Greist & Taylor
Attys

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T. P. SHEAN

SECTIONAL TANK

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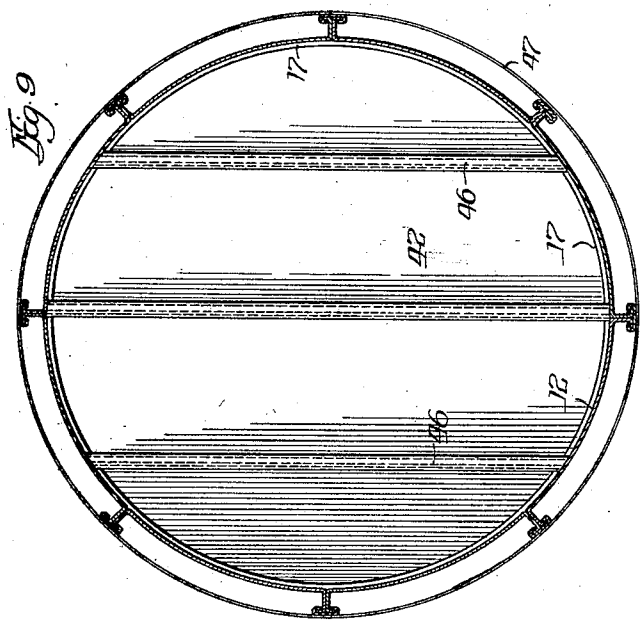

Fig. 9.

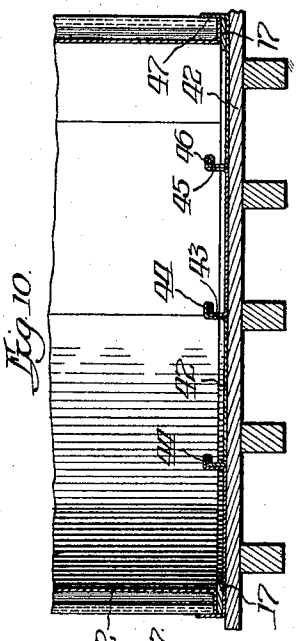

Fig. 10.

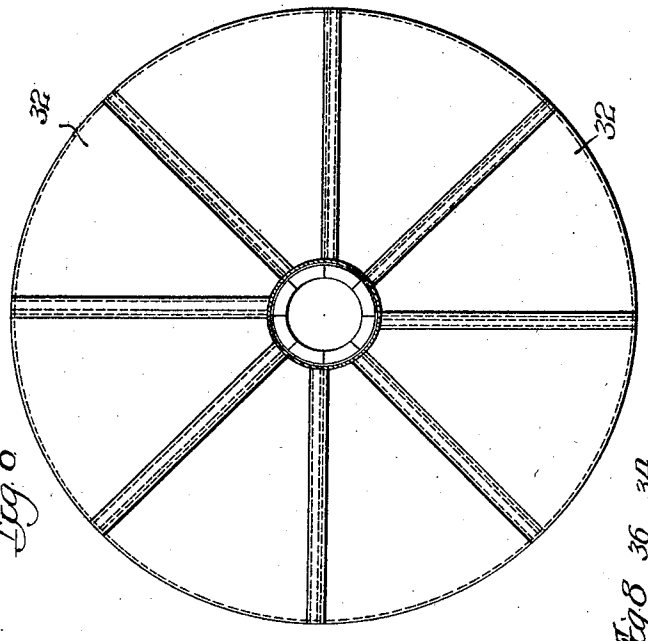

Fig. 6.

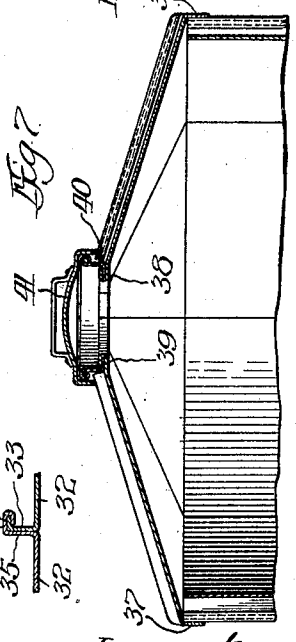

Fig. 7.

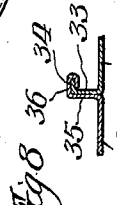

Fig. 8.

Witness:
F. C. Dickson

Inventor
Thomas P. Shean
By Pennell, Greist & Pennell
Attys.

Patented May 20, 1924. 1,494,818

UNITED STATES PATENT OFFICE.

THOMAS P. SHEAN, OF CHICAGO, ILLINOIS.

SECTIONAL TANK.

Application filed March 25, 1918. Serial No. 224,613.

To all whom it may concern:

Be it known that I, THOMAS P. SHEAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sectional Tanks, of which the following is a specification.

This invention relates to improvements in storage receptacles, and while susceptible to general employment it is primarily designed for the storage of oil and similar viscous substances.

The storage of crude oil as it is pumped from the wells presents serious difficulties in those sections where the wells are remote from transportation facilities. The usual type of tank commonly employed is a wooden cask of considerable capacity, and these must be built at the oil fields or conveyed thereto in erected form. The latter condition entails difficulty and heavy expense in transportation because of the bulk of the casks, while the former requires skilled labor in the erection of the casks. Furthermore, if the material for the construction of the casks is not available at the oil fields it must be transported to the same with attendant expense in addition to the cost of erection after its arrival.

The primary object of the present invention is to provide a tank which will overcome the objections noted, to which end it contemplates a sectional or knock-down structure of such form that the component elements thereof may be formed at a distant point; packed or crated within small compass as compared to the space of a set-up cask, and conveyed to the oil field at comparatively small expense. The structural elements of the tank are so interrelated that they may be set up with facility and ease by unskilled workmen, thus effecting a material saving in the cost of labor, with the added advantage that, if so required, the tank may be quickly and easily taken apart and conveyed to any other point where its use may be desired.

The invention also aims to provide a structure of the character noted in which provision is made for securely anchoring the several parts in rigid relation to each other, thereby imparting to the assembled parts the maximum strength for resistance against strain, both external and internal, imposed thereon when in use.

Having these general objects in view, and others which will appear as the nature of the improvements is better understood, the invention consists substantially in the novel construction, combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and finally pointed out in the appended claims, it being obvious that the form of the invention herein disclosed is but an illustrative embodiment of one form thereof and, therefore, is not to be taken in a limiting sense.

In the drawings—

Fig. 1 is a side elevation of a tank constructed in accordance with the present invention;

Fig. 2 is a top plan view thereof, the top of the structure being removed;

Fig. 3 is a detail sectional view illustrating the joint between the bottom of the tank and the side walls thereof;

Figs. 4 and 5 are detail sectional views illustrating additional forms of joint between the side wall members;

Fig. 6 is a top plan view of a sectional form of cover or top for the tank;

Fig. 7 is a transverse sectional view of the construction illustrated in Fig. 6;

Fig. 8 is a detail sectional view illustrating the form of joint which unites the sections of the top illustrated in Figs. 6 and 7;

Fig. 9 is a top plan view of another form of the tank in which the bottom is formed of sections; and

Fig. 10 is a transverse sectional view of the structure illustrated in Fig. 9.

Referring now in detail to the accompanying drawings, and more particularly to Figs. 1 and 2 and 3 thereof, the numeral 10 designates the bottom of the hereindescribed tank the diameter of which will vary in accordance with the varying capacities of the tank to be constructed, and said bottom 10 has an upstanding annular marginal flange 11 against which the side wall members are designed to fit. These members, designated by the numeral 12, are in the form of segments, the edges of each section 12 being provided with outstanding radial flanges 13 which terminate in latterally disposed flanges 14. In the assembled relation of the wall members 12 the flanges 13 at adjacent edges of said members abut against each other, as clearly illustrated in Fig. 2, and in this position the peripheral flanges 14 of the abutting radial flanges 13 are substan-

tially aligned and extend in opposite directions to each other. In order that the abutting flanges 13 may be held in this relation clamping slides 15 are employed, said slides 15 having overlapping flanges 16 which embrace the peripheral flanges 14 and likewise the abutting flanges 13. When the clamping slides 15 are thus applied, the flanges 13 fitting closely between the overlapping flanges 16, the contiguous edges of the wall members 12 are firmly held together, so that a substantial joint is formed between these abutting flanges.

That a tight joint may be provided between the flanged lower ends of the wall members 12 and the bottom 10 a packing 17, of felt or other suitable material, is interposed between the lower ends of the wall members 12 and the bottom 10 at the edge portions of the latter, and those portions of the flange 11 which lie between the edges of the respective wall members 12 are crimped down upon the flanges at the lower ends of said members 12 and the packing 17, as at 18, this crimping of the flange 11 causing those portions of the latter which lie between the crimps 18 to fit snugly against the clamping slides 15 and the flanges 13 with which they are engaged.

It is to be noted that with the flanges 13 of adjacent sections abutting against each other, and the clamping slides 15 engaging these abutting flanges, a plurality of vertically disposed strengthening ribs is provided at spaced intervals around the side walls, thus imparting a high degree of rigidity to the side walls, and enabling the latter to withstand both internal and external strain which may be imposed upon the walls.

As a further means for strengthening the side wall members 12 in their assembled relation, one or more clamping rings 19 may be positioned at the exterior of the tank, as clearly illustrated in Fig. 1, the ends of said ring 19 being screw threaded in opposite directions and having applied thereto a turn-buckle 19^a of suitable construction, whereby the ring 19 may be drawn into engagement with the vertically extending ribs to the required extent.

A top 20 is arranged at the upper ends of the side wall members 12, said top having a depending flange 21 which is designed to embrace the upper ends of said members in a manner corresponding to the engagement of the flange 11 of the bottom 10 with the lower ends of said members, and said flange 21 is crimped into engagement, as at 22, with the upper ends of the side wall members, thereby holding the top firmly in position.

The top 20 is provided with a centrally disposed opening 23 to which a removable cover 24 is applied, thereby permitting access to be had to the interior of the tank, and said tank 20 may also be provided with an inlet opening 25 through which the oil may be introduced to the interior of the tank from a suitable pipe.

For the purpose of cleaning the interior of the tank, one of the side wall members 12 is provided with a manhole cover 26, held in position in the usual manner, as by a plurality of bolts and nuts 27, and for the purpose of withdrawing the oil from the tank an outlet pipe 28 is employed. The outlet pipe, or nipple for the connection of the pipe, is carried by any one of the side wall members 12, and has associated therewith, and arranged at a point below the same, a water outlet 29 through which any water that may accumulate in the tank may be removed.

In Figure 4 is illustrated another form of joint for connecting the contiguous flanges of adjacent wall sections. As there illustrated, it will be observed that only one edge of each section 12 is provided with the radial flange 13 and the peripheral flange 14, the other edge of the section having a radial flange 30 which terminates in an overlapping member 31 that embraces the peripheral flange 14 of the adjacent flange 13. It will be understood from the disclosure of Figure 4 that this alternative arrangement may be provided with each of the members 12.

In Fig. 5 the form of joint is identical with that disclosed in Figs. 1, 2 and 3, but the radial flanges 13 extend inwardly and not outwardly, as in Figs. 1, 2 and 3, the clamping slides embracing the flanges 13 at the interior of the tank. In this construction the exterior of the tank is free from projecting ribs, but the walls possess the same degree of strength and rigidity as characterizes the structure of Figs. 1, 2 and 3.

Referring now to Figs. 6, 7 and 8, it will be noted that the top of the tank may be made of sectional form, being constructed of a plurality of members 32 each of which has at one of its edges an upstanding flange 33 terminating in a horizontal flange 34. The other edge of the member 32 has an upstanding flange 35 which terminates in an overlapping member 36, and the latter is designed to embrace the horizontal flange 34 of the contiguous flange 33 carried by the adjacent top member 32. The outer edges of the several members 32 are provided with depending flanges 37, designed to embrace the upper ends of the wall members 12, and each of said members 32, at its inner end, is provided with a clamping flange 38 which embraces a base flange 39 formed on an annular curbing 40. This curbing surrounds the inner ends of the sections 32, and thus provides an opening

through which access may be had to the interior of the tank, a detachable closure 41 being mounted on the curbing 40.

In Figs. 9 and 10 is disclosed a sectional construction of bottom for the tank, said bottom being formed of a plurality of members 42. Each of said members 42 has at one of its edges an upstanding flange 43 which terminates in a horizontal flange 44, while its other edge is provided with an upstanding flange 45 terminating in an overlapping portion 46 designed to embrace the horizontal flange 44 of the adjacent member 42 in the assembled relation of the bottom sections. By referring to Fig. 9 it will be noted that the intermediate members 42 have their ends so shaped as to conform to the peripheral configuration of the bottom when the sections are all assembled, while the terminal members 42 have their outer edges also curved to conform to such configuration. The flanges 43 and 45 of each member also terminate short of the extremities of the respective sections, said extremities being provided with upstanding flanges 47 which are adapted to be crimped into engagement with the lower ends of the wall members 12, in the same manner as illustrated in Figs. 1, 2 and 3. The lower ends of the wall members 12, therefore, occupy the space between the ends of the ribs 43 and 45 and the flanges 47, and after the side wall members are assembled on the bottom the flanges 47 are bent down thereon, at points intermediate of the abutting side flanges of the wall members, for anchoring the side wall members to the bottom 10.

From the foregoing the advantages and manner of use of the herein described sectional tank will be apparent. If the bottom and top be of the sectional form illustrated in Figs. 6 to 10, inclusive, the respective sections of these parts may be nested for convenient crating in transportation, the sections of the side wall members being likewise nested for this purpose. A complete tank, therefore, may be packed for shipment and occupy but minimum space, with a corresponding reduction in the transportation charges. When the point of use of the tank has been reached the sections of the top and bottom are assembled in an obvious manner, and with the bottom positioned in the location where the tank is to be erected the side walls are mounted thereon with their side flanges in abutting relation, whereupon these flanges are locked into engagement with each other, either by the means illustrated in Fig. 2, wherein the clamping slides 15 are employed, or by the means illustrated in Figs. 4 and 5. After the side wall members completely surround the edge of the bottom 10 the top is applied thereto, and the flange 11 bent down between the abutting side flanges of the wall sections, thus locking the lower ends of the wall members into engagement with the bottom. The flange 21 of the top 20 is likewise crimped into engagement with the upper ends of the wall members to unite the top therewith. If required, one or more of the clamping rings 19 may be applied to the wall members, in which event the turnbuckle 19^a of each ring is adjusted to impart the required tension to the ring.

While the form illustrated in Figs. 1, 2 and 3 accomplishes the primary object of the invention in the provision of a sectional tank which may be conveniently packed and shipped in a minimum space and at minimum cost of transportation, the employment of the sectional construction of top and bottom shown in Figs. 6 to 10 inclusive promotes the packing and shipping in even less space, and thus reduces transportation charges to a still greater extent.

I claim:

1. In a tank of the class described, the combination with a bottom having a circumferential upstanding marginal flange, of a plurality of wall members mounted on said bottom in proximity to said marginal flange and provided at their vertical edges with abutting flanges, means for holding said abutting flanges in abutting relation, said abutting flanges constituting strengthening ribs, the marginal flange of the bottom embracing said abutting flanges and overlapping portions of the wall members at points between said abutting flanges to lock the wall members into engagement with the bottom, and a top arranged at the upper ends of the wall members and provided with a depending flange embracing the upper ends of said members, said depending flange also engaging the wall members to hold the top in position thereon.

2. In a tank of the class described, the combination with a bottom, of a plurality of wall members mounted on said bottom and each provided with vertically disposed edge flanges and a flange at its lower end, the adjacent edge flanges of contiguous sections abutting each other to form vertically disposed ribs, means for locking the abutting flanges together, and a marginal flange carried by the bottom and embracing said ribs, the portions of the marginal flange between said ribs being folded over into engagement with the flanged lower ends of said wall members, whereby to lock said wall members into engagement with the bottom.

3. In a tank of the class described, the combination with a bottom having a circumferentially upstanding marginal flange, of a plurality of vertically disposed wall members mounted on said bottom and each provided with vertically disposed edge flanges and also at its ends with terminal outstanding flanges, the adjacent edge flanges of contiguous sections abutting each other to form

vertically disposed ribs, said ribs being coextensive with the wall members, means for locking the abutting flanges together, the circumferential marginal flange of the bottom surrounding and embracing the wall members and having its portions intermediate said ribs folded down into engagement with the outstanding terminal flanges at the bottom of said wall members, whereby to lock said wall members into engagement with the bottom, and a top arranged at the upper ends of said wall members and provided with a downwardly extending circumferential flange, the portions of said downwardly extending flange intermediate said ribs being folded into engagement with the upper terminal flanges of said wall members, whereby to lock the top into engagement with said members.

4. A top for collapsible tanks, comprising a plurality of sections arranged in abutting relation, means for locking together the abutting edges of said sections, the inner ends of said members forming an opening, a curbing surrounding said opening, means for locking said curbing into engagement with said members, and a closure associated with said curbing.

5. A top for collapsible tanks, comprising a plurality of members arranged in abutting relation, means for locking together the abutting edges of said members, the inner ends of said members forming an opening, each of said members at its inner end being provided with an inwardly extending flange, a curbing surrounding said opening and also provided with an inwardly extending flange, the inwardly extending flanges of said members being interlocked with the inwardly extending flange of said curbing, whereby to hold the curbing in position about said opening, and a closure associated with said curbing.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

THOMAS P. SHEAN.

Witnesses:
WM. NEVARRE CROMWELL,
EBBA F. NYDEN.