

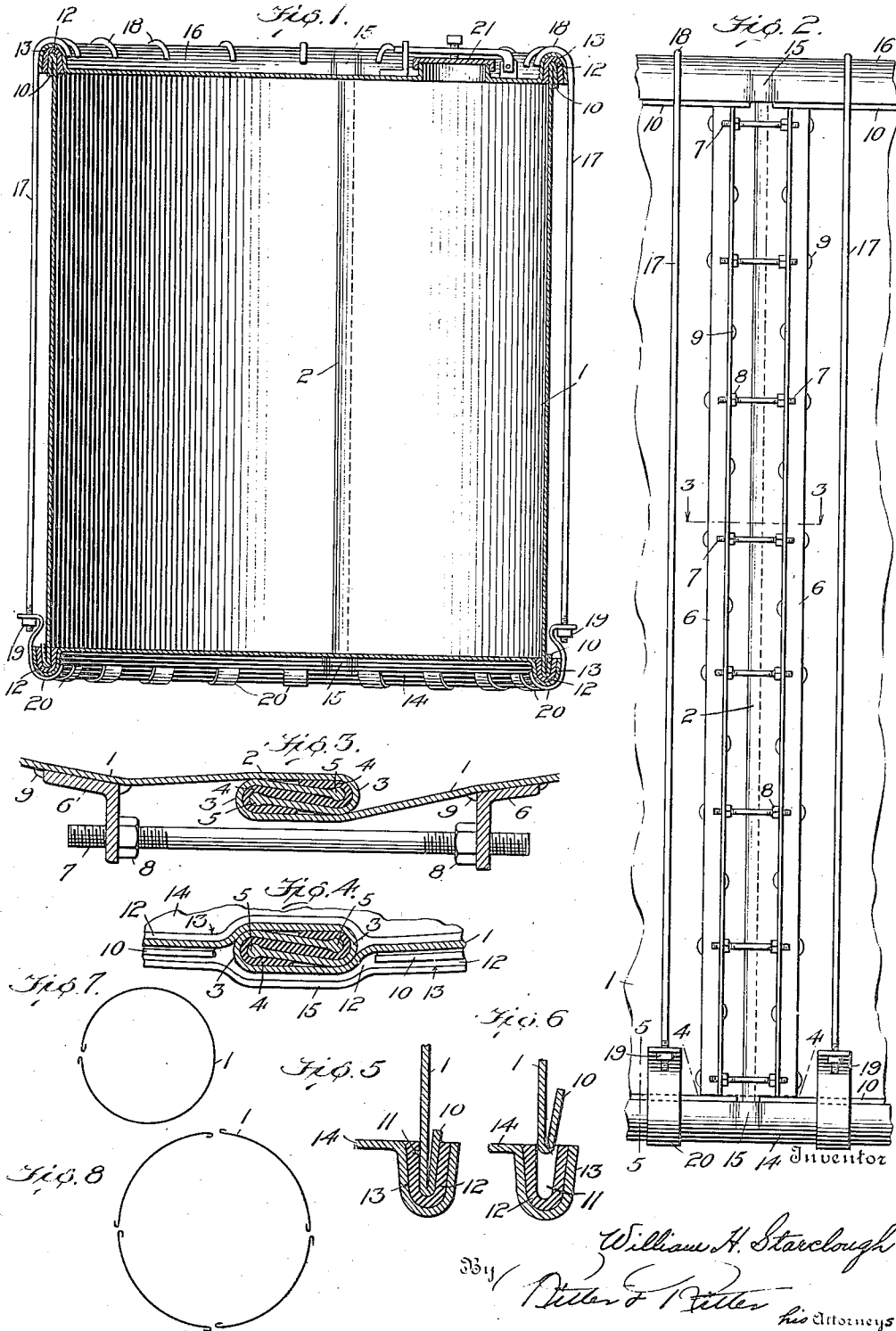
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TANK

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UNITED STATES PATENT OFFICE.

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TANK.

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To all whom it may concern:

Be it known that I, WILLIAM H. STARCLOUGH, a citizen of the United States, residing at Parkersburg, in the county of Wood and State of West Virginia, have invented certain new and useful Improvements in Tanks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the construction of tanks, and has for its object to provide a container for the storage of oil, water, gasoline or other liquid. The principal object of the invention is to provide a tank which may be easily set up and knocked down or disassembled, and in which the parts are so combined as to minimize the possibility of leakage.

The primary feature of the invention, generally stated, consists in forming the side wall of a tank with a seam or seams involving overlapping interlocked portions, the said interlocked portions being adapted, upon an increase in the diameter of the said wall portion of the tank, to be forced in a direction to produce the tightening of said seam or seams.

A further feature of the invention consists in constructing the tank with a bottom and with a side wall formed with one or more seams comprising overlapping interlocked portions and in providing means for expanding the said wall to tighten the interlocking relation of the said overlapping portions.

Another feature of the invention consists in constructing a tank with a bottom having a marginal groove within which a packing is located, and in providing the side wall with a fold at its lower edge which extends into said groove and engages said packing, means being provided for maintaining said bottom, packing and side wall in assembled relation.

A still further feature of the invention consists in the combination of a tank bottom having a marginal groove therein, an imperforate channelled packing located within said groove, a tank side wall extending into the channel of the packing, and means for causing the packing to be clamped between the bottom member of the tank and the lower edge of the tank side wall, the said means

involving a plurality of clamps engaging the exterior of the tank bottom, and strain rods respectively connected to the clamps and operatively interposed between said clamps and the side wall of the tank.

In the drawings chosen for the purpose of illustrating the invention, the scope whereof is pointed out in the claims,—

Figure 1 is a vertical sectional view of a tank embodying the invention.

Figure 2 is an enlarged detail view in side elevation of the side seam portion of the tank.

Figure 3 is an enlarged horizontal section on the line 3—3, Fig. 2.

Figure 4 is a detail sectional view on the line 4—4, Fig. 2.

Figure 5 is a detail vertical section on the line 5—5, Fig. 2.

Figure 6 is a view corresponding to Fig. 5 but illustrating the manner in which the flange at the bottom edge of the side portion of the tank is pressed inwardly as the side wall and bottom member of the tank are drawn together in assembled relation.

Figure 7 is a diagrammatic view illustrating the construction of the side wall of the tank as a continuous sheet of metal having but a single side seam.

Figure 8 is a diagrammatic view illustrating the side wall of the tank as composed of a series of interlocked sheets or sections.

The tank may be made of any size desired. Comparatively small tanks, say of the capacity of thirty barrels, may, as indicated in Fig. 7, have their side walls formed from a single sheet of metal. For tanks of large capacity it is preferred to construct the side wall thereof from a suitable number of interlocked sheets, as indicated diagrammatically in Fig. 8.

The side wall 1 of the tank is fashioned from sheet metal, preferably steel, and, depending upon the number of separate sheets employed in its construction, is provided with one or more side seams or joints 2. Each of these side seams comprises folded hook like portions 3 which are adapted to overlap in interlocking relation and between which a suitable packing 4, such as sheet lead, may be interposed. The edges of the sheets of the side wall may be rolled to form a bead 5 which is adapted to bear firmly against the packing 4 without cutting the latter, but if the steel be under 12 gauge

the bead for bearing against the packing may be formed by merely bending the edges of the said sheets.

The means for retaining the folds or hooked portions 3 of the side wall of the tank in assembled relation preferably consist of a plurality of perforated angle irons 6 which are rigidly secured to the exterior of the side wall on opposite sides of each seam, a plurality of threaded rods 7 being passed through the perforations in the angle irons and nuts 8 located between and bearing against the angle irons being employed to force the said angle irons apart so as to expand the side wall of the tank and thereby force the interlocked hooks or folded portions 3 thereof firmly against the interposed packing 4. The angle irons 6 may be conveniently secured to the side wall of the tank by spot welding, as indicated at 9, since such a form of construction affords no opportunity for leakage such as would be present in case bolts or rivets were employed to retain the angle irons in place. It will be observed that the seam 2 constituted by the overlapping interlocked portions 3 of the side wall of the tank is so formed that the pressure caused by the liquid within the tank tends to increase the tightness of the seam, thereby ensuring against leakage.

The lower edge of the side wall 1 is preferably formed with a short fold 10 providing a slight V or resilient wedge which is adapted to enter the groove or channel 11 of a packing ring 12 located within a groove 13 with which the bottom member 14 of the tank is provided at its periphery. Such a construction makes a very effective joint between the bottom and the side wall of the tank, for when the folded lower edge of the side wall is forced into the channel of the packing 12 the resiliency of the fold or flange 10 causes the side wall 1 to press tightly against the opposed interior faces of the channeled packing.

When the lower edge of the side wall of the tank is formed with a fold 10 it is preferred, as illustrated in Fig. 4, to cut away or omit said fold at the point where each side seam 2 of the tank occurs, thus leaving the portion of the side seam which enters the groove 11 of the bottom packing 12 composed of but four thicknesses of the side wall plate. The lower end of each side seam 2 may, if desired, be scarfed to form a wedge for entering the channel of the packing.

The marginal groove 13 in the bottom 14 of the tank is enlarged or offset, as at 15, to provide for the extra thickness of metal at the lower end of each side seam 2 of the tank, and the channel 11 of the packing ring 12 is also correspondingly enlarged. This packing ring, which is preferably of lead,

may be cast in place in the groove 13 of the tank bottom by employing a V-shaped ring or mold which is properly spaced in said groove and around which the molten lead is poured. If necessary, the lead of the packing ring 12 may be hammered into close contact with the lower end of the side seam 2 when the tank is set up, or a small ladleful of lead may be poured in at the junction of each side seam with the bottom of the tank.

If the tank is to be provided with a top 16 said top may be constructed in the same manner as the bottom 14 and may be combined with the side wall 1 in the same manner as the bottom is combined therewith. Accordingly corresponding reference numerals have been applied to the features forming the joint between the top 16 and the side wall 1 of the tank.

The packing rings 12 are preferably clamped between the side wall 1 and the bottom and top, 14 and 16, respectively, of the tank by means of a plurality of strain rods 17. These rods may be provided at their upper ends with hooks 18 which overlappingly engage the top 16 and may be threaded at their lower ends to receive nuts 19. The threaded ends of the respective strain rods 17 pass through suitable apertures in corresponding hook like clamp members 20 which pass beneath and engage the lower side of the bottom of the tank. By screwing the nuts 19 upon the strain rods the bottom 14 and top 16 of the tank will be drawn toward each other to force the edges of the side wall of the tank firmly into the channeled packing rings 12.

All pipe openings into the tank may be located to suit the particular purpose for which the tank is employed, and the top of the tank may be provided with a man hole 21.

While my invention has been illustrated as embodied in a tank of cylindrical form, it will be appreciated that its shape may be varied without departing from the spirit of the invention or from the scope of the claims.

I claim:—

1. A tank having a bottom, a side wall formed with a seam comprising overlapping interlocked portions, and means for expanding said side wall to tighten the interlocking relation of said overlapping portions.

2. A tank having a bottom, a side wall formed with a seam comprising interlocked folded portions of said side wall, and means for retaining said folded portions in interlocked relation, said means being adapted to effect a spreading or separating movement of portions of said wall lying adjacent to and on opposite sides of said seam.

3. A tank having a bottom, a side wall formed with a seam involving interlocked folded portions of said side wall, packing means interposed between said folded por-

tions, and means for expanding said side walls to force said folded portions into operative engagement with said packing means.

4. A tank having a bottom, a side wall 5 formed with a seam involving interlocked folded portions of said side wall, packing means interposed between said folded portions, means for expanding said side wall to force said folded portions into operative 10 engagement with said packing means, and means for securing said bottom to said side wall.

5. A tank comprising a bottom having a marginal groove therein, a channeled packing 15 arranged in said groove, a side wall having a wedge-form lower edge extending into the channel of said packing, and means for forcing said side wall toward the bottom of said groove and into wedging engagement 20 with said packing.

6. A tank comprising a bottom having a marginal groove therein, an imperforate channeled packing arranged in said groove, 25 a side wall having a wedge portion extending into said groove and into the channel in said packing, and means for causing said packing to be clamped between said bottom and said side wall.

7. A tank comprising a bottom having a marginal groove therein, a packing arranged 30 in said groove, a side wall having a fold forming a wedge extending into said groove and engaging said packing, and means for maintaining said bottom, packing and side 35 wall in assembled relation.

8. A tank comprising a bottom having a marginal groove therein, a packing arranged 40 in said groove, a side wall having at its lower edge a resilient fold extending into said groove and engaging said packing, and means for causing said packing to be clamped 45 between said bottom and said side wall.

9. A tank comprising a bottom having a marginal groove therein, a channeled packing 50 arranged in said groove, a side wall having a thickened lower edge entering said channel and forming a rounded bearing surface engaging said packing, and means for forcing said side wall toward the bottom 55 of said groove to cause said packing to be clamped between said bottom and said rounded bearing surface.

10. A tank having a bottom, a side wall 60 comprised of a plurality of sections each provided with a plurality of folded portions, each of said folded portions being adapted to interlock with an adjacent folded portion of another of said sections, and means for expanding said side wall to 65 tighten the interlocking relation of said folded portions.

11. A tank having a bottom, a side wall 70 formed with a seam comprising interlocked folded portions of said side wall, and means for retaining said folded portions in inter-

locked relation, said means involving a plurality of members rigidly secured to said side wall on opposite sides of said seam, and means for forcing said members apart.

12. A tank having a bottom, a side wall 75 formed with a seam comprising interlocked folded portions of said side wall, and means for retaining said folded portions in interlocked relation, said means involving a plurality of perforated members rigidly secured 80 to said side wall on opposite sides of said seam, threaded rods extending through corresponding perforations of said perforated members, and nuts having threaded engagement with said rods and located between 85 and bearing against said perforated members.

13. A tank having a bottom, a side wall 90 formed with a seam comprising interlocked folded portions of said side wall, and means for retaining said folded portions in interlocked relation, said means involving a plurality of perforated angle irons rigidly secured to the exterior of said side wall on opposite sides of said seam, a plurality of 95 threaded rods extending through said perforations, and nuts cooperating with said rods and said angle irons for causing a separating movement of the latter.

14. A tank comprising a bottom having a marginal groove therein, a packing arranged 100 in said groove, a side wall formed with a seam comprising interlocked folded portions, means for expanding said side wall to tighten the interlocked relation of said folded portions, and means for causing said packing to be clamped between said bottom and the lower edge of said side wall, said last named means involving a plurality of 105 clamps engaging the exterior of said bottom, and strain rods respectively connected to said clamps and operatively interposed between said clamps and said side wall.

15. A tank comprising a bottom having a marginal groove therein, a packing arranged 110 in said groove, a top having a marginal groove therein, a side wall extending into said grooves and formed with a seam comprising interlocked folded portions, means for expanding said side wall to 115 tighten the interlocked relation of said folded portions, and means for causing said side wall to be clamped between said top and the said packing, said last named means comprising a plurality of clamps engaging the 120 exterior of said bottom, and strain rods respectively connected to said clamps and operating to draw said top and said bottom toward each other.

16. A tank comprising a bottom having a marginal groove therein, a packing arranged 125 in said groove, a side wall extending into said grooves and formed with a seam involving interlocked folded portions of said side wall, packing means interposed between 130

said folded portions, means for expanding
said side wall to force said folded portions
into operative engagement with said pack-
ing means, and means for drawing said top
5 and said bottom toward said side wall to re-
tain said parts in assembled relation, said
last named means involving a plurality of
clamps and a plurality of strain rods oper-
atively connecting said top and bottom.

17. A tank having a bottom and a side 10
wall, said side wall having a seam involving
overlapping interlocked portions, and said
interlocked portions being adapted upon an
increase in the diameter of said side wall to
be forced in a direction to effect the tighten- 15
ing of said seam.

In testimony whereof I affix my signature.
WILLIAM H. STARCLOUGH.