F. K. PLUMBLY.
Storing-Tank.

No. 207,301. Patented Aug. 20, 1878.

FIG. 1.

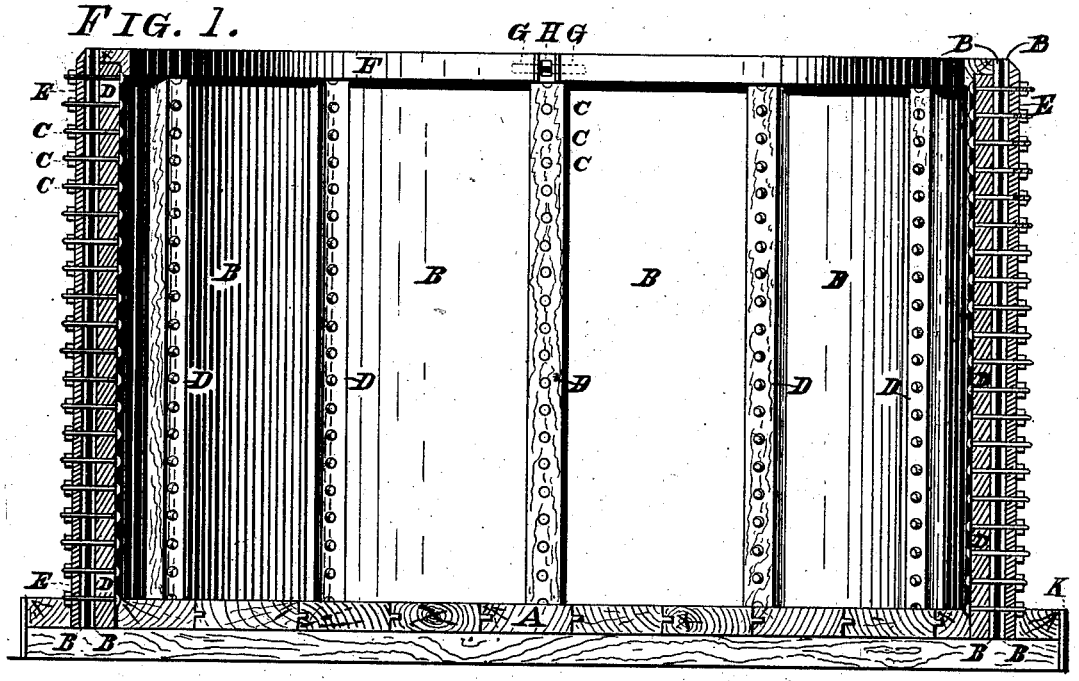
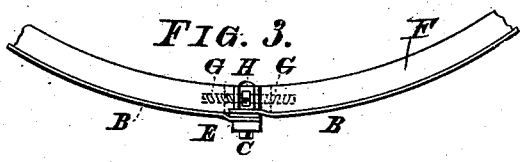


FIG. 3.



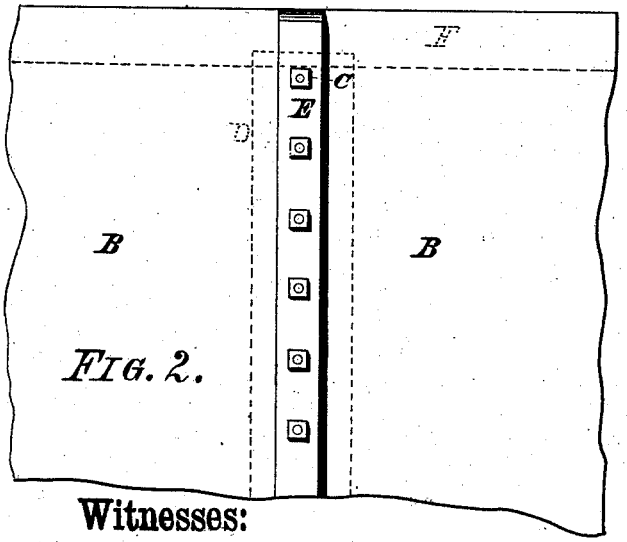


FIG. 2.

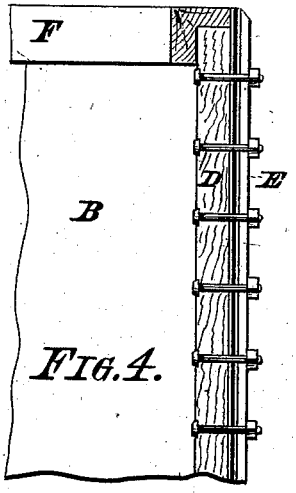


FIG. 4.

Witnesses:

Frank. Hirsch

A. P. Ripley Jr.

Inventor:

Fred. K. Plumbly,
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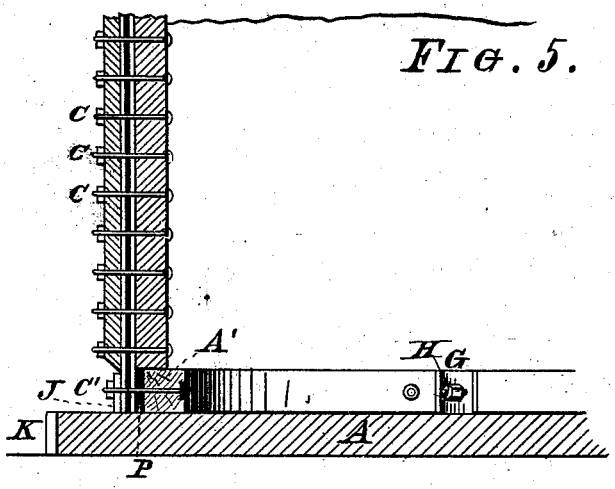
FIG. 5.



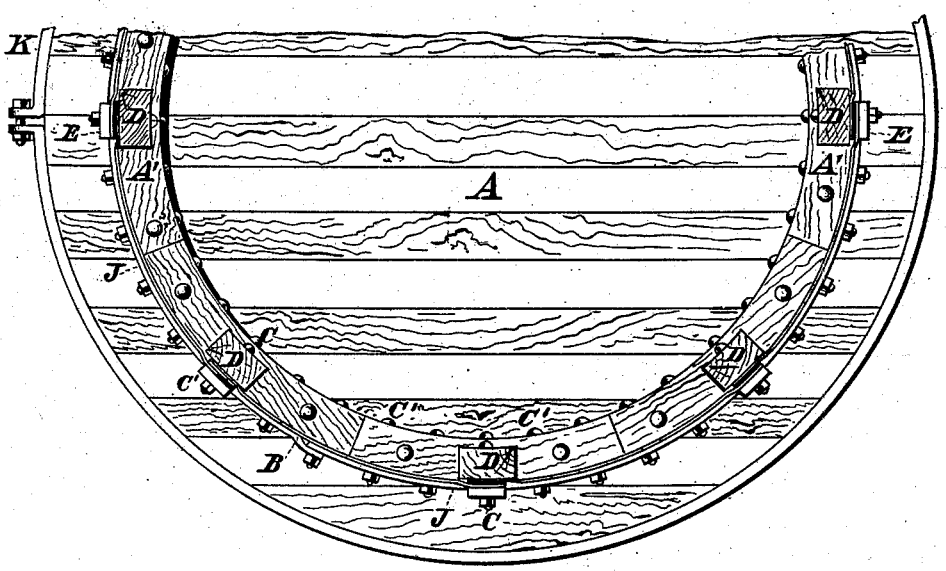


FIG. 6.

Witnesses:

Frank Hirsch.

Chas. Bevsart

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UNITED STATES PATENT OFFICE.

FREDERIC K. PLUMBLY, OF BUFFALO, NEW YORK.

IMPROVEMENT IN STORING-TANKS.

Specification forming part of Letters Patent No. **207,301**, dated August 20, 1878; application filed June 8, 1878.

To all whom it may concern:

Be it known that I, FREDERIC K. PLUMBLY, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements on a Storing-Tank for Petroleum, &c.; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheet of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has special reference to storing-tanks for petroleum, water, &c.; and its object is the production of a tank capable of being completely built in a shop, then taken apart and shipped to its place of destination, and there finally erected by unskilled labor, as hereinafter first fully set forth and described, and then pointed out in the claims.

Storing-tanks for petroleum, &c., being usually of large dimensions, cannot well be completely built in a shop and then shipped to the places they are intended to occupy, owing to the great bulk thereof, and it is therefore necessary to make them in such a manner as to allow them being taken to pieces for shipment and again put together after reaching their designated place.

To this end I construct my shell for the tank in sections, screwed together, so as to be readily bisected, and make the bottom of the tanks of plank, in the manner hereinafter described, using posts or pillars in said tank to support the said sheathing and the usual roof, and an expansion-rim to finally stiffen the sheathing, the joints in said sections being made water-tight in the peculiar manner hereinafter set forth.

In the drawings, Figure 1 is a vertical sectional elevation of a storing-tank constructed in accordance with my invention. Fig. 2 is a fragmental elevation of the same. Fig. 3 is a plan of a portion of the stiffening ring or rim. Fig. 4 is a sectional elevation of the upper part of my tank. Fig. 5 is a similar view of the lower part thereof. Fig. 6 is a plan.

Like letters of reference indicate corresponding parts in all the figures.

A is the bottom of my tank, which may be of any desired construction, but which I prefer to arrange as specified in Letters Patent granted to me May 14, 1878, or in the following manner: I construct the bottom A of planks in circular form. Upon this bottom I fasten a circular segmental ring, A′, of an external diameter corresponding to the internal diameter of the sheathing B and place this shell over said ring. The lower edges of the sheathing B are perforated, and the segmental ring A′ correspondingly punctured for the passage of bolts C′. On the exterior of the shell I provide a band, J, encircling the lower extremity of the same, said band being perforated to pass the said bolts C′. The space between the shell B and segmental rim A′, I shall calk with oakum or similar material previous to drawing the bolt C′ taut, so that when these are finally drawn the shell will form a perfectly-tight joint with said segmental rim, and thus prevent leakage of the tank. To expand this ring A′, and thereby to stiffen the lower end of the tank, I shall use the wedges described in the before-mentioned Letters Patent, or an expanding device, as hereinafter described with reference to the upper rim, F.

To draw the bottom joints tight, I shall place a band, K, around the periphery thereof, using tightening-screws, as shown in Fig. 6, for this purpose. The segmental rim A′ may be spiked or screwed to the bottom A, as I shall find best adapted for the purpose.

The shell or sheathing B is composed of sections of sheet metal, punched or perforated along their edges for the passage of screw-bolt C. These sheets I prefer to bend to the proper curvature corresponding to the diameter of the tank to be produced, and then secure them together by means of said bolts C, placing a perforated strip of canvas, saturated with any suitable substance to preserve it from decay and assist in making a tight joint, between the overlapping ends of said sections. Within this shell I place pillars or posts D, one on every vertical joint or seam, while on the exterior of these seams I place metallic slats E, said pillars and slats being perforated to correspond with the perforations in the sheathing, and then pass the bolts C through all the respective parts and screwing them up on the exterior of the sheathing.

To expand and stiffen the upper end of this

sheathing I use a rim, F, having between two abutting ends an expansioning device, consisting of the right-and-left threaded screw-bolt G, Figs. 3 and 5, provided centrally with a wrench-section, H, for applying a wrench, said screw fitting correspondingly-constructed nut-plates placed on the opposite ends of said rim F. By turning this screw in the proper direction the rim F is forced apart in the joint, and thus increased in diameter sufficiently to expand the sheathing to the required size and tension.

The lower ring, A, as heretofore described, may be expanded in the same manner as the upper ring, F.

By constructing a storing-tank in the manner described I obtain, in addition to the advantages described, results which cannot be obtained by any other method of construction, prominent among which are the following: By securing the seams of the various sections with screw-bolts passing through the pillars, sheathing, and exterior slats, I produce a tank of superior stiffness, notwithstanding the fact that I can and shall use such light iron for the said sheathing as would, under ordinary circumstances, be scarcely capable of sustaining itself in a tank, which lightness of the sheets, not being objectionable, it being prevented from oxidation by the preserving qualities of the petroleum, considerably reduces the expenses of such a tank and enables me to furnish an oil-tank at a far lower price than could heretofore be produced.

Furthermore, it is a well-known fact that light iron in sheets cannot be riveted together without puckering, owing to the expansion of the metal caused by the expansion of the rivets in upsetting, and my method of securing the seams overcomes this objection and produces a tank having a very smooth, neat, and attractive appearance, while, as far as the expense of screwing, as compared with that of riveting, is concerned, the balance is considerable in favor of the screwing, because I can, by placing the pillars in the interior and the metallic slats on the exterior of every seam, place the screws about five or six times as far apart as I could the rivets. I have therefore but one-fifth or one-sixth the number of holes to punch in the sheathing, and the screwing up of the bolts not requiring more time than riveting an equal number of rivets, and the expense of the bolts not being more than three or four times that of the same number of rivets, it will be readily seen that by my improved method of construction I can supply the market with a tank of considerable proportions at a very moderate cost, and at the same time enable the buyer to put it up with unskilled labor, which latter is at the present time an impossibility, because the sheathing must be riveted together at the spot where the tank is to be finally erected, (the shell, when of large proportions, not being capable of being transported by any of the present railway or other shipping facilities,) which riveting can only be done by skilled labor, and is more or less costly, depending upon the nearness or remoteness of the place where the tank is to be erected from places of habitation and shop facilities.

Having thus fully described my invention, I claim as new and desire to secure to me by Letters Patent—

1. A storing-tank consisting, essentially, of a metallic sheathing composed of sections, an interior wooden framing constructed of pillars and an upper rim, and a suitable bottom, the sections in the sheathing being arranged to overlap each other and being secured together individually and to the framing by means of bolts passing through the pillars, the sheathing and slats placed on the exterior of the sheathing, all as hereinbefore set forth and described, for the purpose stated.

2. In storing-tanks, an overlapping seam in the sheathing, having slats D E arranged as described, and the bolts passed through the sheathing and slats, a strip of elastic material being interposed between the overlapping ends of said sheathing, as and for the object stated.

3. A storing-tank having a bottom, A, provided with a segmetal rim, A′, placed in the interior of the shell B, and the clamping-band K on the exterior thereof, said parts being united by bolts C′ passing through the rim A′, shell B, and a band, J, around the lower exterior extremity of said sheathing B, as and for the object specified.

4. In storing-tanks, the bottom A, secured together by the band K, and having the segmental rim A′ secured to its face, in combination with the sheathing B, fastened to said rim by screws passing through the rim, the sheathing, and a band, J, on the exterior of said sheathing, the segmental rim A′ being rendered expansible, substantially in the manner as and for the purpose stated.

5. The storing-tank hereinbefore described, consisting of the bottom A, the sheathing B, pillars D, rim F, and exterior slats E, said sheathing B being secured to the posts, as described, and the rim F provided with an expanding device consisting of the right and left hand screw-bolt, engaging suitable nut-plates on the abutting ends of said rim, as and for the use and purpose specified.

In testimony that I claim the foregoing as my invention I have hereto set my hand and affixed my seal in the presence of two subscribing witnesses.

FREDERIC K. PLUMBLY. [L. S.]

Attest:

MICHAEL J. STARK,

FRANK HIRSCH.