

M. GAERTNER.
 MEANS FOR TRANSPORTING OIL BY WATER.
 APPLICATION FILED MAR. 1, 1920.

1,389,245.

Patented Aug. 30, 1921.

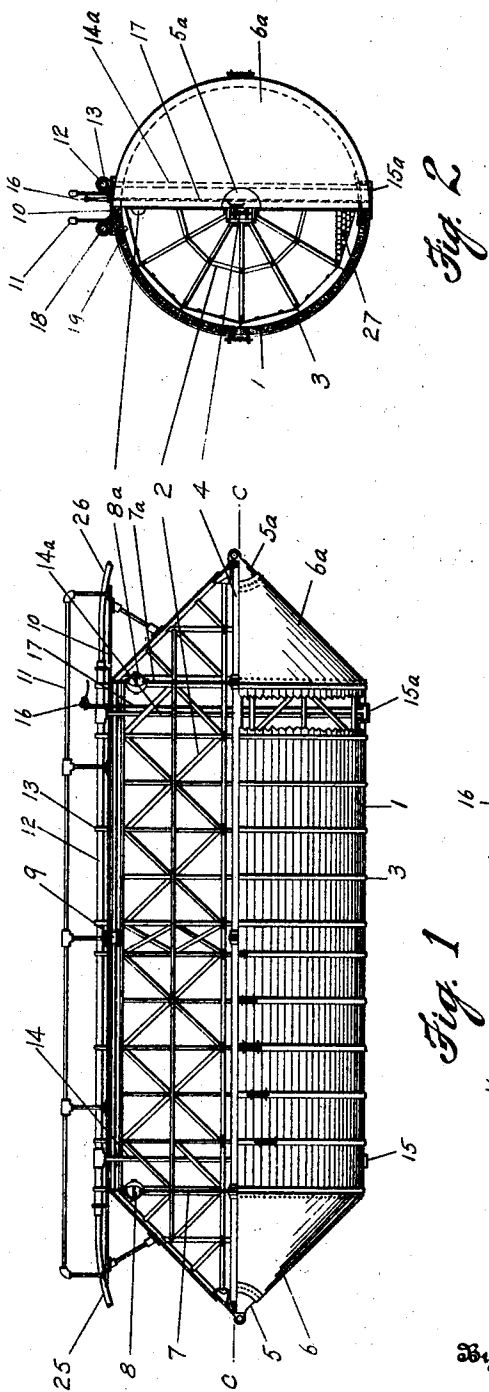


Fig. 2

Fig. 1

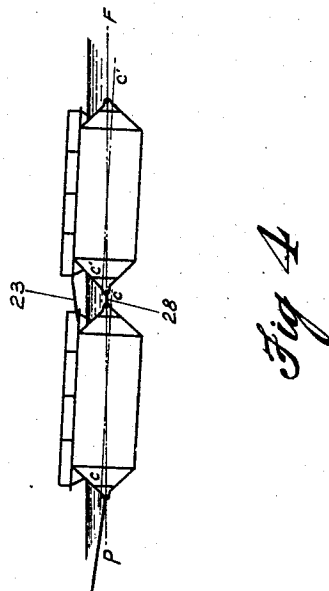


Fig. 4

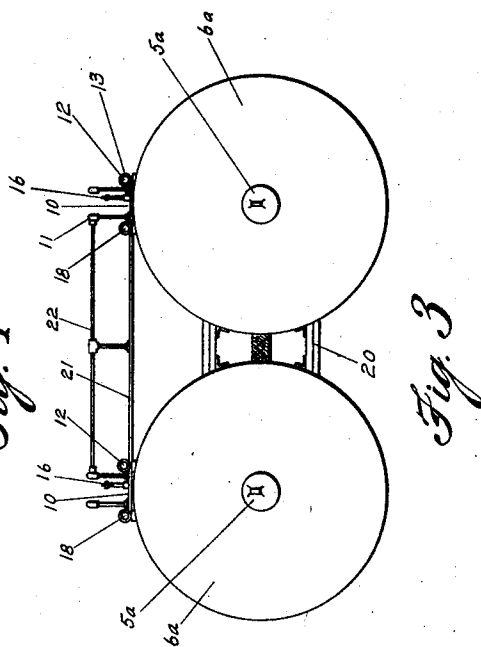


Fig. 3

By

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UNITED STATES PATENT OFFICE.

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MEANS FOR TRANSPORTING OIL BY WATER.

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Specification of Letters Patent. Patented Aug. 30, 1921.

Application filed March 1, 1920. Serial No. 362,386.

To all whom it may concern:

Be it known that I, MORITZ GAERTNER, a citizen of the United States, and resident of the borough of Manhattan, in the county of New York and State of New York, have invented certain new and useful Improvements in Means for Transporting Oil by Water, of which the following is a specification.

The object of my invention is to transport oil in a simple and economical manner by water.

My object is carried into effect by means of cylindrical wooden tanks designed to be coupled or linked together to form a chain of any desired length. In the preferred form I arrange the tanks in pairs secured together, and the tanks of each pair being provided with a connecting means for securing or linking them to a similar pair, any desired number of such pairs of tanks comprising a chain.

My invention is illustrated in the accompanying drawings, in which:

Figure 1 is a longitudinal elevation of my tank in part section, showing the interior and exterior construction.

Fig. 2 is an end view of Fig. 1 in part section,

Fig. 3 shows two tanks secured together in the preferred form; and

Fig. 4 shows two tanks or pairs of tanks coupled together and being towed.

Referring to the drawings, 1 is the wooden body or hull of my tank, which consists of planks preferably pine, which are held together around the wooden frame 2 by means of the metal bands 3 having means for drawing them taut, the joints between said planking being calked to prevent leakage. The wooden frame 2 is built around the pipe 4 which may be of any desired number of sections in proportion to the length of the tank, but never less than three, for reasons more fully described herein. Said pipe 4 may be either screwed or bolted into the draw heads 5 and 5^a and then welded. My reason for doing this is to make the pipe 4 and the draw heads 5 and 5^a act as a draw-bar when two or more tanks or pairs of tanks are coupled together, thus relieving the framework or hull of the pulling strain.

The conical steel end pieces 6 and 6^a are riveted to the draw heads 5 and 5^a and bolted to the wooden body or hull 1. The steel partitions 7 and 7^a are riveted to the

conical end pieces 6 and 6^a and bolted or riveted between the flanges of the sectional pipe 4 at this point, thus forming a steel watertight compartment on both ends. The partitions 7 and 7^a have the watertight man-holes 8 and 8^a which afford access to the watertight compartments for making repairs. Access into the body, or hull 1 is gained by means of the watertight man-hole 9.

Along the top of the tank is built the deck or runway 10 which has fastened to it the side or hand rails 11 to facilitate walking on the tank. The pipe 12, fastened to the deck or runway 10 by means of the clamps 13, has attached to it the smaller pipes 14 and 14^a by means of suitable fittings, said pipes 14 and 14^a being long enough to reach the bottom of the tank and extend into the metal sumps 15 and 15^a. At the stern end is fastened the hand suction pump 16 with the pipe 17 extending down through the tank and into the sump 15^a. The sumps 15 and 15^a are designed in such a manner to allow for their being set off center, so that the pipes 14, 14^a and 17 can pass the pipe 4 without having to bend them.

The pipe 18 seen more clearly in Figs. 2 and 3 is fastened to the deck or runway 10 by means of clamps similar to clamps 13, and has attached thereto the pieces of pipe 19, which are of such a length to allow them to extend through the body or hull 1. The purpose of the pipes 12, 14, 14^a, 18 and 19, the pump 16 and pipe 17 is more fully described herein.

In the preferred form, as shown in Fig. 3, I fasten two tanks together by means of any suitable fastenings 20. From the deck 10, of one tank, to the deck 10 of the other, is built the stationary gang-plank 21, with the side or hand rails 22 fastened thereto. This gang-plank 21 may be placed at any desired point along the deck 10 but I prefer to place it aft of the pump 16.

At the bow end of the deck 10 I desire to have a gang-plank 23, preferably hinged thereto and without side or hand rails so that it may be swung back flat upon the deck or swung outward to bridge the distance between the decks of two tanks or pairs of tanks when linked or coupled together by means of the coupling 28 as shown in Fig. 4, said gang-way to be of such a length to allow for a sliding movement due to the wave motion.

The weights 27 shown in the bottom of the tank in Fig. 2 are used for ballast to prevent it from turning over when not used in pairs.

5 In order to fill the tank the rubber hose connections 25 and 26 are screwed on the ends of the pipe 18 and the ends of the pipe 12 closed by means of caps for the purpose which will be similar to fire hydrant caps, 10 attached to the pipes 12 and 18 by means of chains to prevent their being lost overboard. The one end of the hose 25 is attached to an oil pipe line and the hose 26 to the bow end of the pipe 18 of the tank coupled to it if 15 such should be the case. If the tank is used singly, the stern end of the pipe 18 is closed by means of the cap, and should several tanks be coupled together to form a chain, the stern end of the pipe 18 of the last tank 20 is to be closed in a similar manner. This will allow for filling the chain of tanks simultaneously, or each may be filled separately as already described. If the tanks are being used in pairs, and single unit, 25 the pipes 18 on both tanks constituting the pair, are hooked up similar to two separate tanks and should the pairs be used in a chain, the tanks should be hooked up similar to two separate chains of tanks with the exception 30 of the hose connections 25 which may lead into a forked connection on an oil pipe line, and thus filling both lines of tanks in the chain simultaneously.

When the tanks are being filled, the cover 35 of the manhole 9 is removed. This allows the air inside the tanks to escape so that it will not be compressed and prevent filling the tanks completely. This also makes it possible for the deck hands to see when the tanks are filled. 40

In order to empty the tanks or pairs of tanks, whether they are used as a single unit or in a chain, the hose connections 25 and 26 are shifted to the pipe 12. All connections being similar to that of the filling operation with the exception of the hose 25 which is hooked up to a suction pump. The oil is drawn up through the pipes 14 and 14^a from the sumps 15 and 15^a. 45

The ends of pipes 12 and 18 are capped when the tanks are being towed, and the hose connections 25 and 26 may be left at the filling or receiving station, or carried aboard the tanks or pairs of tanks, being 50 fastened to the deck 10 or the hand rails 11 by any suitable means.

When a tank or pair of tanks is being towed singly and not in chain fashion, the stern must be weighed down slightly in 55 order to make the bow sump 15 ride higher than the stern sump 15^a. When being towed

in the preferred fashion, as shown in Fig. 4, it will not be necessary to weigh down the stern as the tanks or pairs of tanks will take the tilted position as shown in Fig. 4, due 65 to the coupling eyes in the draw heads 5 and 5^a being eccentric; as may be seen in Fig. 1, the coupling eye of the bow draw head 5 is below the center line C—C, and the coupling eye of the stern draw head 5^a 70 is above it, and when a pulling force is applied to them, the pull is in a straight line, as shown by line P—F in Fig. 4, thus causing the centers of the draw head coupling eyes to take this line P—F as a center, 75 and causing the actual center lines C—C and C'—C' to be tilted upward at the bow, as illustrated in Fig. 4.

When the tanks or pairs of tanks are in this tilted position, less power will be required to tow them; but my main reason for tilting them is to drain any water leakage toward the stern sump 15^a, from which it may be easily pumped by means of the hand suction pump 16 and the pipe 17. 80

It will be manifest, however, that the invention described in this application may be embodied in various forms and modifications without departing from the spirit or scope of my invention. 85

What I claim is:

1. As a means for transporting oil by water, a series of tanks, means for coupling the tanks end to end, and means for tilting the tanks downward at the stern. 90

2. As a means for transporting oil by water, a series of tanks, means for coupling the tanks end to end whereby each tank will be caused to tilt downward at the stern. 95

3. As a means for transporting oil by water, a series of tanks coupled end to end by means of eccentric coupling eyes to tilt the tanks downward at the stern. 100

4. As a means for transporting oil by water, a series of pairs of tanks, means for coupling the pairs of tanks end to end, and means for tilting the pairs of tanks downward at the stern. 105

5. As a means for transporting oil by water, a series of pairs of tanks, means for coupling the pairs of tanks end to end whereby each pair of tanks will be caused to tilt downward at the stern. 110

6. As a means for transporting oil by water, a series of pairs of tanks coupled end to end by means of eccentric coupling eyes to tilt the pairs of tanks downward at the stern. 115

Signed at New York city, in the county of New York and State of New York, this 120 27th day of February, A. D. 1920.

MORITZ GAERTNER.