

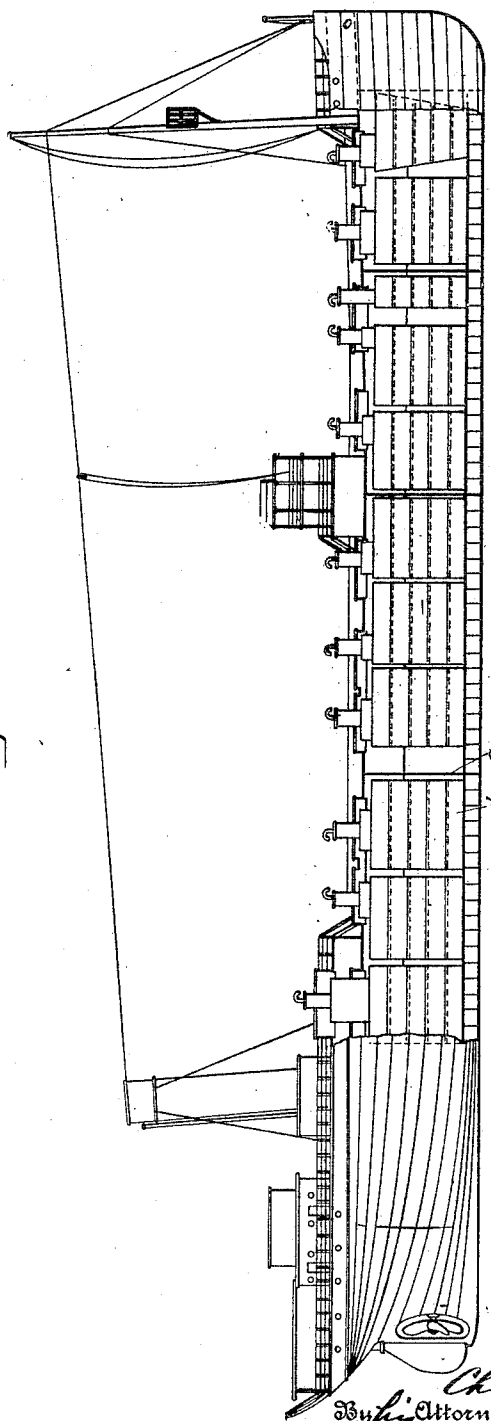
C. P. M. JACK.
" CONVERTIBLE TANK VESSEL.
APPLICATION FILED APR. 9, 1912.

1,049,490.

Patented Jan. 7, 1913.

2 SHEETS—SHEET 1.

Fig 1.



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2 SHEETS—SHEET 2.

Fig 2.

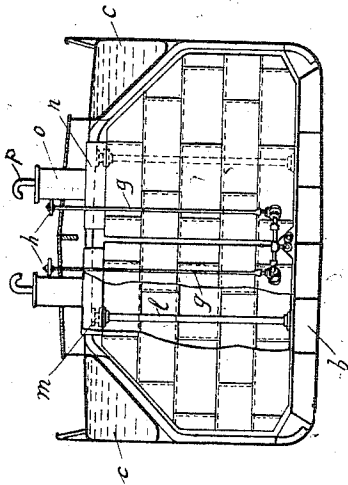


Fig 4.

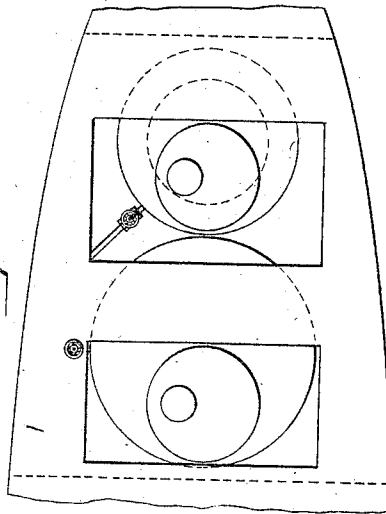


Fig 3.

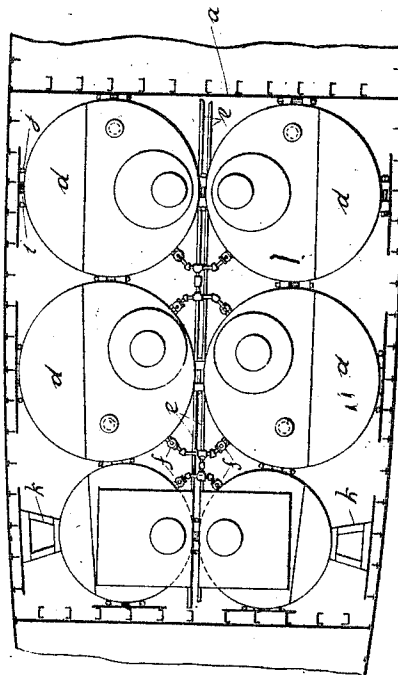


Fig 5.

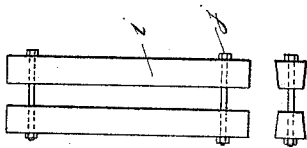


Fig 6.

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UNITED STATES PATENT OFFICE.

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CONVERTIBLE TANK VESSEL.

1,049,490.

Specification of Letters Patent.

Patented Jan. 7, 1913.

Application filed April 9, 1912. Serial No. 689,465.

To all whom it may concern:

Be it known that I, CHARLES PETER MITCHELL JACK, a subject of King George V, and resident of the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Convertible Tank Vessels, of which the following is a specification. This invention relates to oil carrying steamships, and my improvements have for their object certain novel features of construction, adaptation and arrangement, permitting the performance of the following functions, to wit: First. Whereby a ship's hold may be equally available for carrying either ordinary freight or oil in bulk and can be converted from one to the other with little delay and little or no structural alterations. Second. Whereby the oil tanks will in no way form part of the vessel's structure, and will in no way be submitted to the strains and stresses of the working of the vessel in a sea-way or elsewhere; and the tightness of the oil tanks will in no way depend on the strength of the vessel; that in short the oil storage compartments will be entirely separate and the vessel may work and move as ordinary vessels, and need not require to have the great extra strength necessary to stop this working, which is found necessary in vessels in which the structure forms the oil container tanks. Further, tank ships as fitted at present cannot be used as ordinary freighters unless their entire internal structure be cut out and re-improved.

While this invention has special reference to vessels of clear holds, provision is made for the fitting of these removable oil carrying tanks in vessels which may have hold beams or obstructions of a similar nature. By this arrangement, a freight steamer may be converted into a bulk oil carrier in a few days or may be converted back from an oil carrier to an ordinary freighter in similar time.

The principal advantage of this invention is that the tanks so fitted and supported will be under no greater strain than were the tanks erected on shore, and the distribution of weights in the vessel will be such as is customary under ordinary freighting conditions.

Arrangement for the storage of oil is made by fitting a number of cylindrical tanks or drums of such vertical size and de-

sign that they may be easily loaded in or removed from the hold compartments of the vessel, and they are further so designed that the least possible stiffening is required. The tanks are further arranged with expansion heads so that they may at all times be kept without slack fluid acting on the walls of the tanks. The tanks are of such dimensions that they will provide such capacity as will be sufficient to allow the vessel to carry her total deadweight of oil, but it may also be arranged to carry part of the oil in the existing ballast tanks of any such vessel.

The method of securing the tanks is by wedge shaped pieces running vertically between the tanks or between each tank and ship side or bulkhead. Each pair of upright pieces is connected by bolts, the screwing up of any set of which acting both as support to the tanks' sides and securing the two tanks thus connected together, and also securing the tanks to the ship's side or bulkhead; in short, making a combination between all tanks and the ship's side and bulkhead, but the connection being only frictional and not permanently binding any of the parts.

In the drawings: Figure 1 is a side elevation of a vessel partly in section, showing my improved, removable tank system; Fig. 2 is a mid-ship sectional view, also showing the water ballast tanks; Fig. 3 is a partial plan view in section showing a hold compartment with means for wedging the tanks therein; Fig. 4 is a partial plan view of the deck with hatches removed; Fig. 5 is an elevation of a pair of wedges, with bolts, and Fig. 6 is a top plan view of Fig. 5.

As an example of the application of my invention I have illustrated in the drawings a type of freighter having the engine in the stern, the hold divided into water tight compartments by bulkheads *a*, a cellular double bottom *b*, and water ballast tanks *c*.

It is my purpose to provide unit containers for oil and other fluid freight, these being preferably of cylindrical form, as the drums *d*, and of suitable dimensions. These drums, to contain fluid freight are loaded into the vessel's hold, being entered through the hatches, or by partly removing the deck, and stowed endwise, as in rows. In the example given the drums *d* are seen to be arranged in two rows, their diameters being such that they loosely fit, in opposed pairs, between the opposite sides of the vessel.

Said drums are all connected with pipe lines, as *e e*, by valved connections *f*, operated as through vertical stems *g* and handles *h*, extending above the deck, whereby fluid may be pumped to or from any one or all of said drums.

In order to secure the tanks or drums *d* in their relative set positions within the hold or compartments, I provide the wedge shaped pieces *i*, in pairs, placed respectively between the adjacent surface portions of contiguous drums, between the drums and the ship's sides, and between the drums and the bulkheads. Bolts, as *j*, unite each pair of wedges, and on being tightened up, thereby drawing the wedges together, serve to frictionally connect the drums one with another and to the ship's sides and bulkheads; whereby said drums become positively stabilized within the compartments of the hold. When it happens that the diameter of the drums fails to sufficiently fill out the spaces left therefor I provide bridges or chairs, as *k*, adapted to fit as between the ship's side and drum, to form a seat for the latter. Another contingency to be provided against is that of the interference of hold stanchions, deck beams, or other obstructions which would prevent the placing of the tanks or drums. To this end I may, for example, place a vertical post as *l* within a drum between the head and bottom thereof and in position therein when said drum is adjusted in place, to be in alinement with the vertical line of said interfering stanchion. The lower portion of said stanchion is removed to make way for the drum, and its upper portion, as *m*, the drum being in place, then bears against the upper surface of the drum head, in axial alinement with said post *l*, thus taking up the vertical strain which it was the function of the displaced stanchion to support. In this manner, through the character of reinforcement indicated, the removable tanks may be caused to replace the usual hold strengthening means, and to supply the requisite reinforcement and rigidity of the braces, beams or stanchions which they displace.

In Fig. 2 it is seen that the vessel illustrated is provided with water ballast tanks, as *c*, along its upper sides. The conventional form of these tanks, occupying a triangular space along the upper sides of the vessel, restricts the upper interior area of the hold. In the same view I have shown that my removable tanks or drums *d* may be shaped at their upper portions to conform

to the vessel configuration aforesaid. The drum heads are provided with the expansion trunks *n* and trunkways *o*, with goose necks *p* for the escape of gases.

Obviously under the arrangement described my improved system of removable tanks for steamships, or other vessels, for the shipment of oil and other fluid in bulk, is applicable either to vessels of ordinary construction, in which case the oil tanks will be designed to be of suitable dimensions to occupy the hold or compartment space afforded, or both vessel and removable oil tanks may be especially designed to serve the purpose of economizing space. Withal, the main factors prevailing are those of the convertibility, of an ordinary freighter into an oil tank vessel and back into an ordinary freighter; the vessel maintaining its normal strength and stability under both conditions, and, as a tank ship, where the oil retaining parts are not subjected to strain due to working of vessel.

I claim:

1. In a convertible freighter and tank vessel, a ship's hold, a number of removable cylindrical tanks vertically placed therein; and adjustable means connecting said tanks together and to the sides of the hold.

2. In a convertible freighter and tank vessel, having water tight compartments, with bulkheads, a number of vertical cylindrical tanks removably placed therein, and pairs of wedges fitting between adjacent surfaces of said tanks, compartment sides and bulkheads, together with bolts to tighten said wedges and thus unite said tanks, compartment sides and bulkheads.

3. In a convertible freighter and tank vessel, a ship's hold, a number of vertical cylindrical tanks removably fitted therein, means positioning said tanks, and reinforce means in a tank enabling it to serve as a stanchion support.

4. In a convertible freighter and tank vessel, a ship's hold, a number of cylindrical tanks vertically and removably fitted therein, a tank occupying the position of a displaced stanchion, and a post within said tank to support the stanchion strains.

Signed at the borough of Manhattan in the city, county, and State of New York this 8th day of April A. D. 1912.

CHARLES P. M. JACK.

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