G. SIMPSON.

BALLAST TANK FOR SHIPS.

APPLICATION FILED APR. 13, 1908.

932,722. Patented Aug. 31, 1909.

Fig. 1.

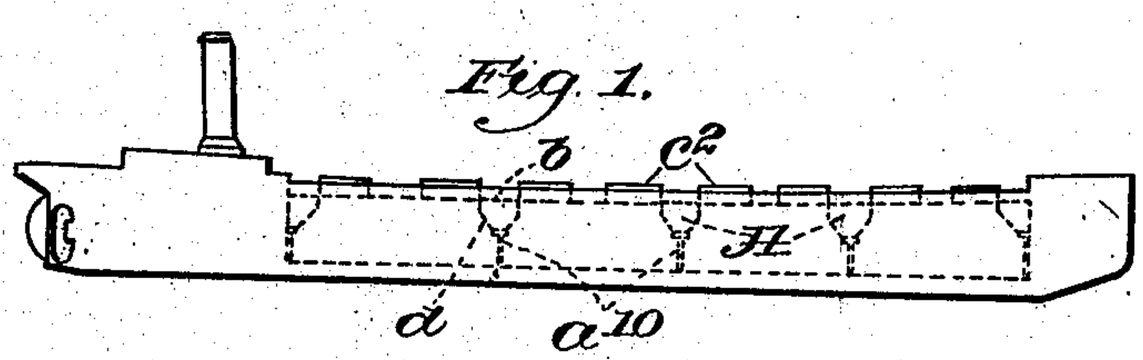


Fig. 2.

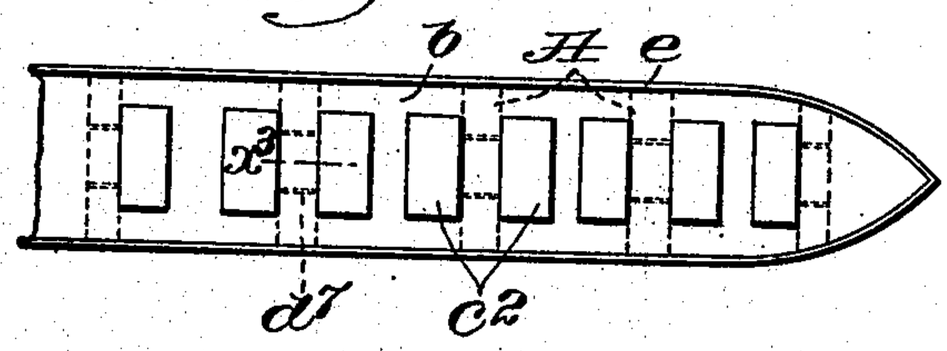


Fig. 3.

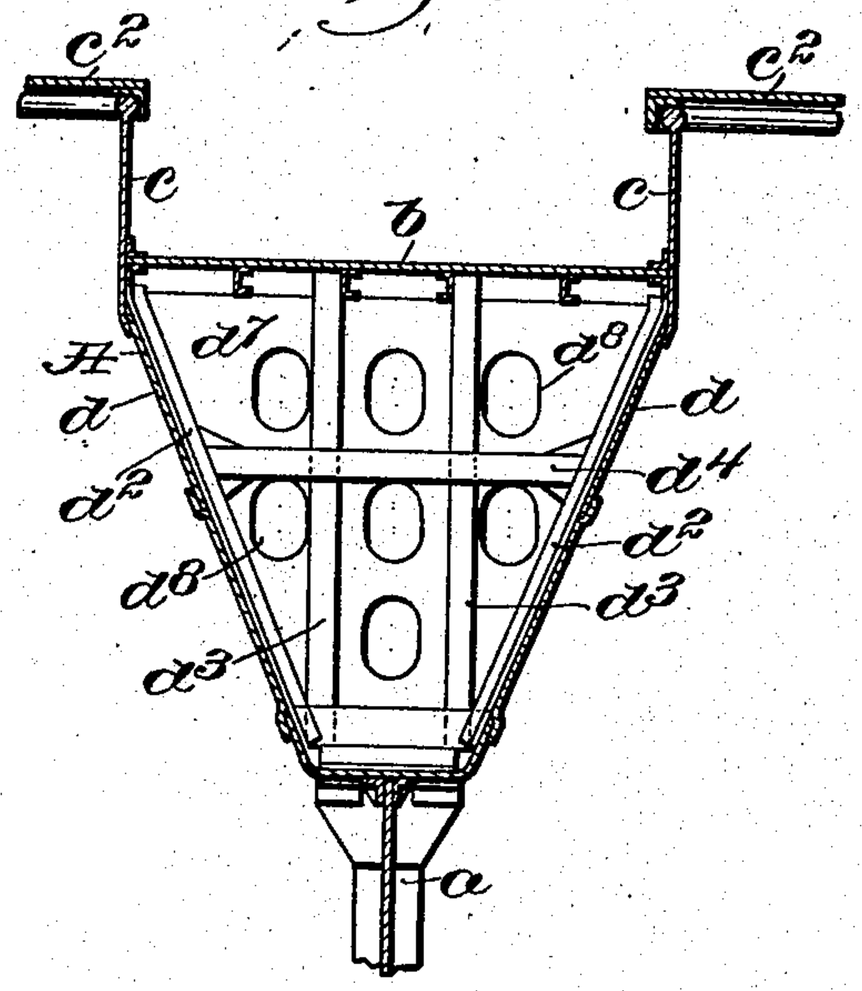
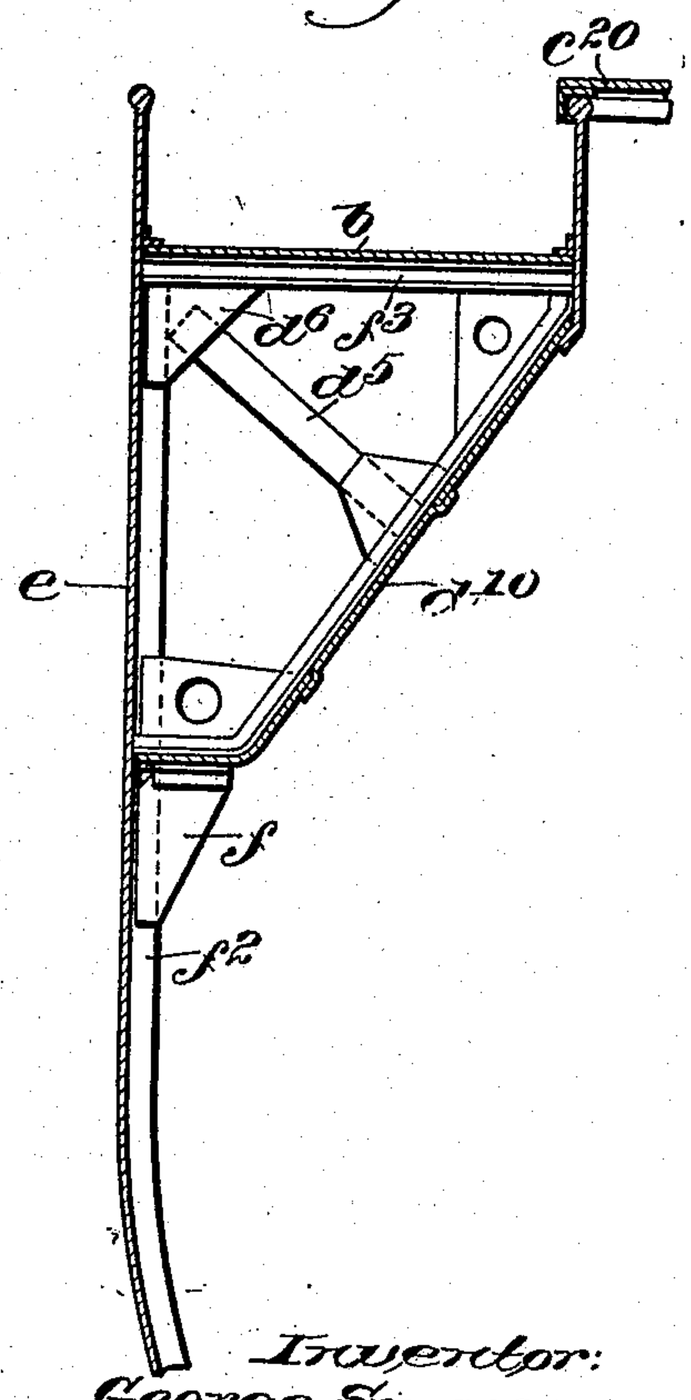


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

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BALLAST-TANK FOR SHIPS.

932,722. Specification of Letters Patent. Patented Aug. 31, 1909.

Application filed April 13, 1908. Serial No. 426,762.

To all whom it may concern:

Be it known that I, GEORGE SIMPSON, a citizen of the United States, residing in Quincy, in the county of Norfolk and State of Massachusetts, have invented an Improvement in Ballast-Tanks for Ships, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The present invention relates to ballast tanks for ships, and is embodied in a novel construction and arrangement of the tanks, whereby the supports for the tank walls are wholly internally arranged, and the tanks so disposed as to interfere to the least possible extent with the disposal of the cargo.

The tanks may be arranged, in accordance with the invention, either longitudinally along the inner sides of the ship, or transversely, in the latter case each tank preferably resting upon the top of one of the transverse bulkheads. In either construction, the framing for the walls of the tank is wholly internal, and the tanks are preferably arranged with sloping walls presenting a smooth surface to the hold which does not interfere with the stowage of the cargo, and in shipping coal, for example, is of use in distributing coal in the hold and obviating the necessity of trimming.

Figure 1 is a side elevation of a cargo boat showing the location of the tanks; Fig. 2 is a plan view of the same; Fig. 3 is a longitudinal section, on line x^3 of Fig. 2, on an enlarged scale; and Fig. 4 is a transverse section, showing the construction of a tank arranged along the side of the ship.

In the preferred construction, the tanks A are triangular in cross section, as indicated in Figs. 1 and 3, each tank being preferably supported upon a bulk-head, the frame of which is indicated at a in Fig. 3, while the location of the bulk-heads is indicated by the reference letters a^{10} in Fig. 1. The tanks may be located below the deck b, the deck thus forming the top of the tank which preferably extends across the ship between adjacent hatch combings c. The outer walls d of the tanks are inclined inwardly from top to bottom, as indicated, and the entire supporting frame work for the tank walls is located within the tank so that the tanks which are located between adjacent hatches c^2 do not in any way interfere with the loading or removal of the cargo.

In the construction shown, the side plates or walls d of the tanks are supported by internal ribs d^2 strengthened by vertical and horizontal braces d^3 and d^4, and the weight of the tank, as shown, is mainly supported by the bulk-head frame work a. In the modification shown in Fig. 4, the tanks are built lengthwise of the vessel, the side plates e of the hull forming one wall of the tank, while the other wall d^{10} slopes downward toward the side plates e, thus bearing a relation to the cargo space similar to that described in connection with the transverse tanks. In this construction, the tanks are supported upon brackets f secured to ribs f^2 which extend vertically along the inner side of the hull plate e; and the structure is strengthened by means of inclined braces d^5 which extend from the ribs adjacent to the wall plate d^{10} to brackets d^6 located near the top of the tank and secured to the ribs f^2 and the transverse deck-supporting members f^3. The tanks constructed in this way may extend the entire length of the cargo space, being located between the sides of the hatches c^{20} and the gunwale of the ship. If desired, tanks of this description located lengthwise of the ship may be combined with transverse tanks, or either may be used separately.

As indicated in Figs. 2 and 3, the tanks may be provided with internal walls or swash-plates d^7, these walls consisting of plates extending across the tank and provided with openings d^8 for lightening and access, the plates, however, preventing material displacement of the water due to the motion of the ship.

Claims.

1. A ballast tank for ships, located near the top of the cargo space of the ship and within the hull and having its inner wall which is exposed in said cargo space smooth and obstructionless, said wall being hung from the hatch combing, and provided with a framing all of which is located wholly in the interior of the tank, said framing including braces fixed to said wall and adapted to be connected with the framing of the ship.

2. A ship, having prism-shaped or triangular-shaped ballast tanks, located lengthwise of the ship and having suitable framing

or stiffening all of which is arranged wholly within the tank, whereby the surface of the inner wall of the tank exposed in the cargo space is smooth, said inner wall being hung from the hatch combing, and said framing including supporting braces connected at one end with said wall and at the opposite end with the framing of the ship.

3. Ballast tanks for ships, having a top-side fore and aft arrangement and provided with framing or stiffening members all located wholly inside of the tanks, the inner walls of the tanks presenting smooth exteriors to the vessel's hold, said inner walls being hung from the hatch combing, and said framing including supporting braces rigidly fixed to said walls and adapted to be connected with the framing of the ship.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE SIMPSON.

Witnesses:
JAS. J. MALONEY,
HENRY J. LIVERMORE.