No. 704,362. Patented July 8, 1902.

J. R. OLDHAM.

BULK CARGO VESSEL.

(Application filed Feb. 6, 1902.)

(No Model.) 2 Sheets—Sheet 1.

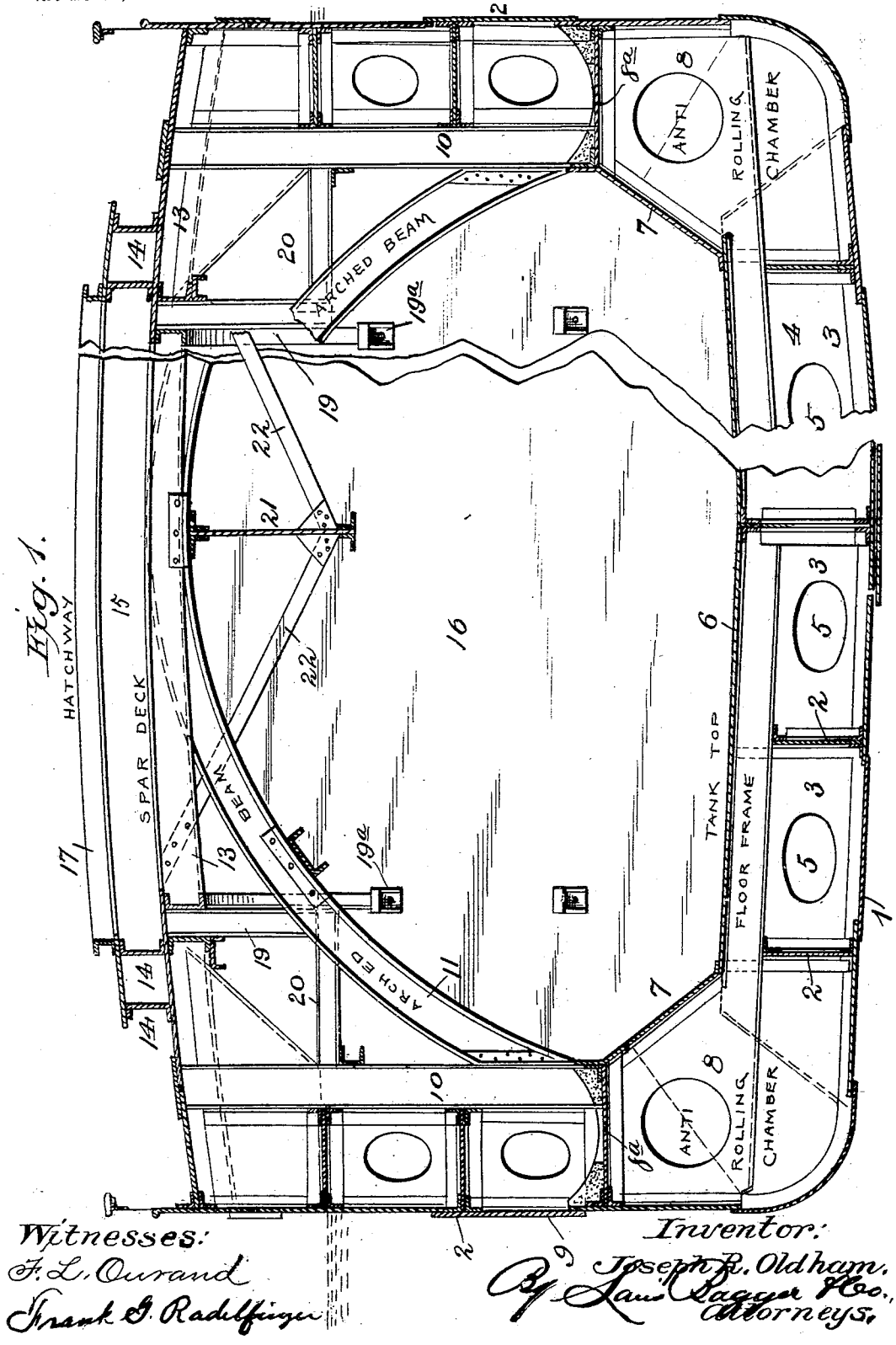


Fig. 1.

Witnesses:
F. L. Ourand
Frank G. Radliffinger

Inventor:
Joseph R. Oldham.
By Laus Dagger & Co.,
Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

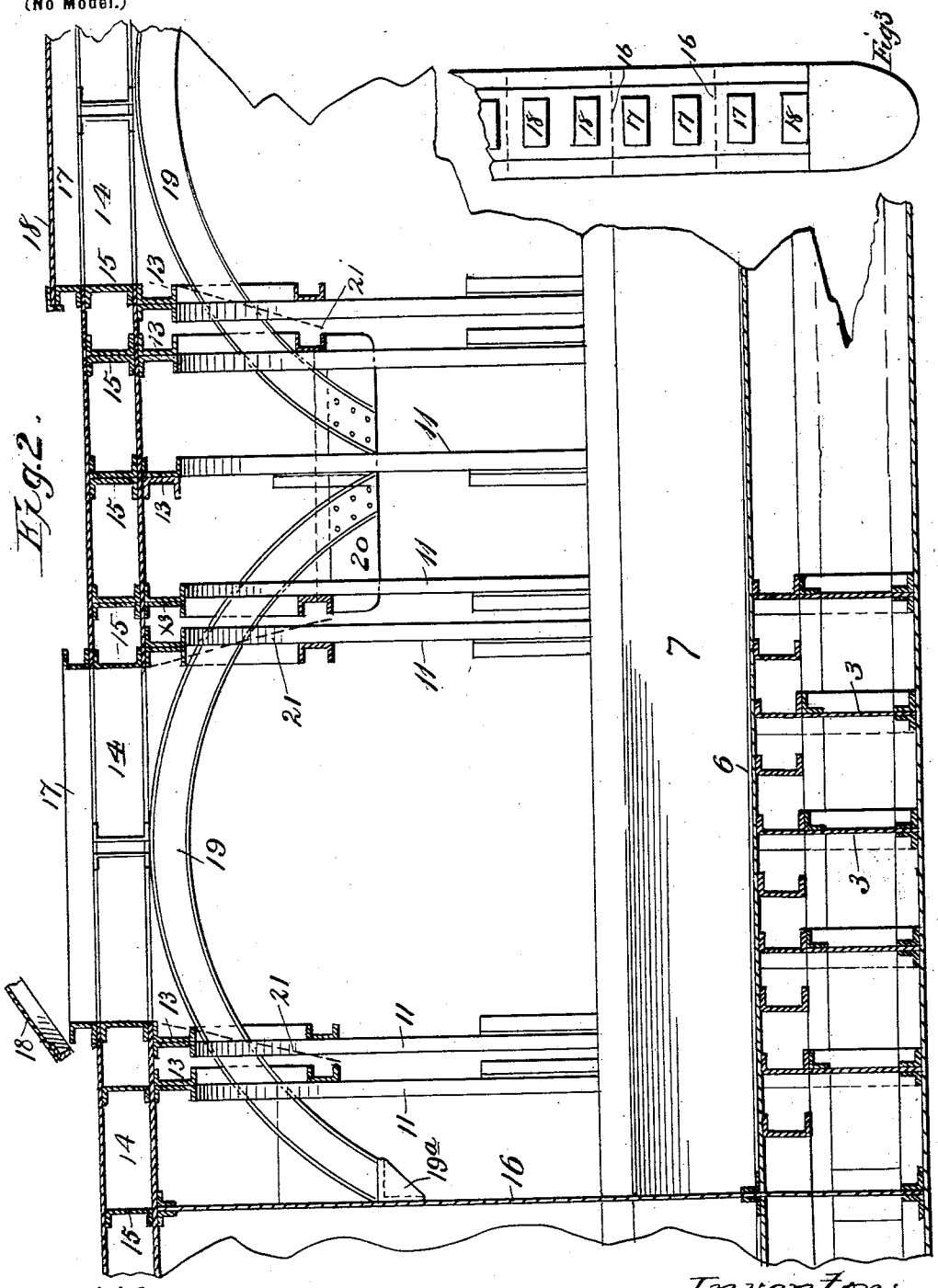
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Witnesses:
F. L. Ourand
Frank G. Radelfinger.

Inventor:
Joseph R. Oldham,
By Louis Bagger & Co.
Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH R. OLDHAM, OF CLEVELAND, OHIO.

BULK-CARGO VESSEL.

SPECIFICATION forming part of Letters Patent No. 704,362, dated July 8, 1902.

Application filed February 6, 1902. Serial No. 92,862. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH R. OLDHAM, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Bulk-Cargo Vessels, of which the following is a specification.

My invention relates to vessels for carrying loose ore or other bulk cargoes, and has for its object the construction of a vessel which will offer the minimum amount of obstruction in the hold to the removal of the ore and at the same time be of great strength and rigidity.

In the novel construction employed by me only transverse bulkheads are employed and the requisite strength is given to the decks by means of longitudinal girders and transverse arched girders, all of which is set forth in detail in this specification and claimed, and illustrated in the accompanying drawings, forming a part thereof, in which—

Figure 1 is a transverse section of the hull of a vessel constructed in accordance with my invention. Fig. 2 is a fragmentary longitudinal section of the same. Fig. 3 is a reduced plan of the same.

Like numerals of reference designate like parts in the different views of the drawings.

The numeral 1 designates the outer skin of the hull of my vessel, which is constructed throughout of steel. The bottom of my hull is divided by longitudinally-extending partitions 2 and transversely-extending partitions 3 into a large number of water-tight compartments 4, all communicating by way of apertures 5 in the partitions. These compartments form a water-ballast tank. The top of the tank is designated 6. The top 6 does not extend clear across to the bilges, but is turned up at 7, and thereby forms compartments 8 in the bilges, which I term "antirolling-chambers." The wall or skin 1 above the chambers 8 is almost vertical. Uprights 10 are footed on the roof 8^a of the rolling-chamber 8, which uprights serve as footings for a series of transverse arched girders 11 for supporting the deck of the vessel. The deck is constructed of transversely-extending girders 13, which are headed on the sides of the hull and located on a level with the tops of the arches 11, to which they are bolted. In order to form a hatch-deck above the main deck, longitudinally-extending girders 14 are mounted on the deck-girders 13 and extend the whole length of the holds. The girders 14 are connected by a series of transverse girders 15, located on each side of the hatches. Transverse bulkheads 16 serve as additional supports for the deck as well as adding to the rigidity of the vessel. The bulkheads 16 are spaced about fifty feet apart and two hatchways 17 intervene between every two bulkheads. The hatches 18 are adapted to be folded back or they may be lifted on and off the coamings. To give additional stiffness to the deck of the vessel, a series of longitudinally-extending arched girders 19 are inserted, one on each side of every hatchway 17. These girders 19 are footed at one end on brackets 19^a, attached to the bulkheads 16, and at their other ends on plates 20, riveted to the arched girders 11.

In order to keep the cargo from shifting, vertical plates 21 are mounted intermediate the hatches and braced by truss-rods 22.

I do not wish to be limited as to details of construction, as these may be modified in many particulars without departing from the spirit of my invention.

Having thus described my invention, what I claim as new, and wish to secure by Letters Patent, is—

1. In a vessel the combination of arched girders spanning the hold of the vessel, transverse deck-girders headed on the sides of the vessel and supported centrally by said arched girders, substantially as described.

2. In a hull, the combination with transverse deck-girders, transversely-extending arched girders spanning the hold and supporting said deck-girders, longitudinal girders connected to said transverse girders and designed to form a hatch-deck, and transverse bulkheads supporting said longitudinal girders, substantially as described.

3. In a vessel, the combination with a deck, of deck-girders extending transversely the hold of the vessel and supporting said deck,

and circular arched girders spanning the hold and supporting said deck-girders, substantially as described.

4. In a bulk-cargo vessel, the combination with a hull divided by transverse bulkheads, of longitudinally-extending arched girders supporting said deck and footed on said bulkheads, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOSEPH R. OLDHAM.

Witnesses:
J. WILBERT O'NIELL,
S. W. DILL.