

No. 896,900.

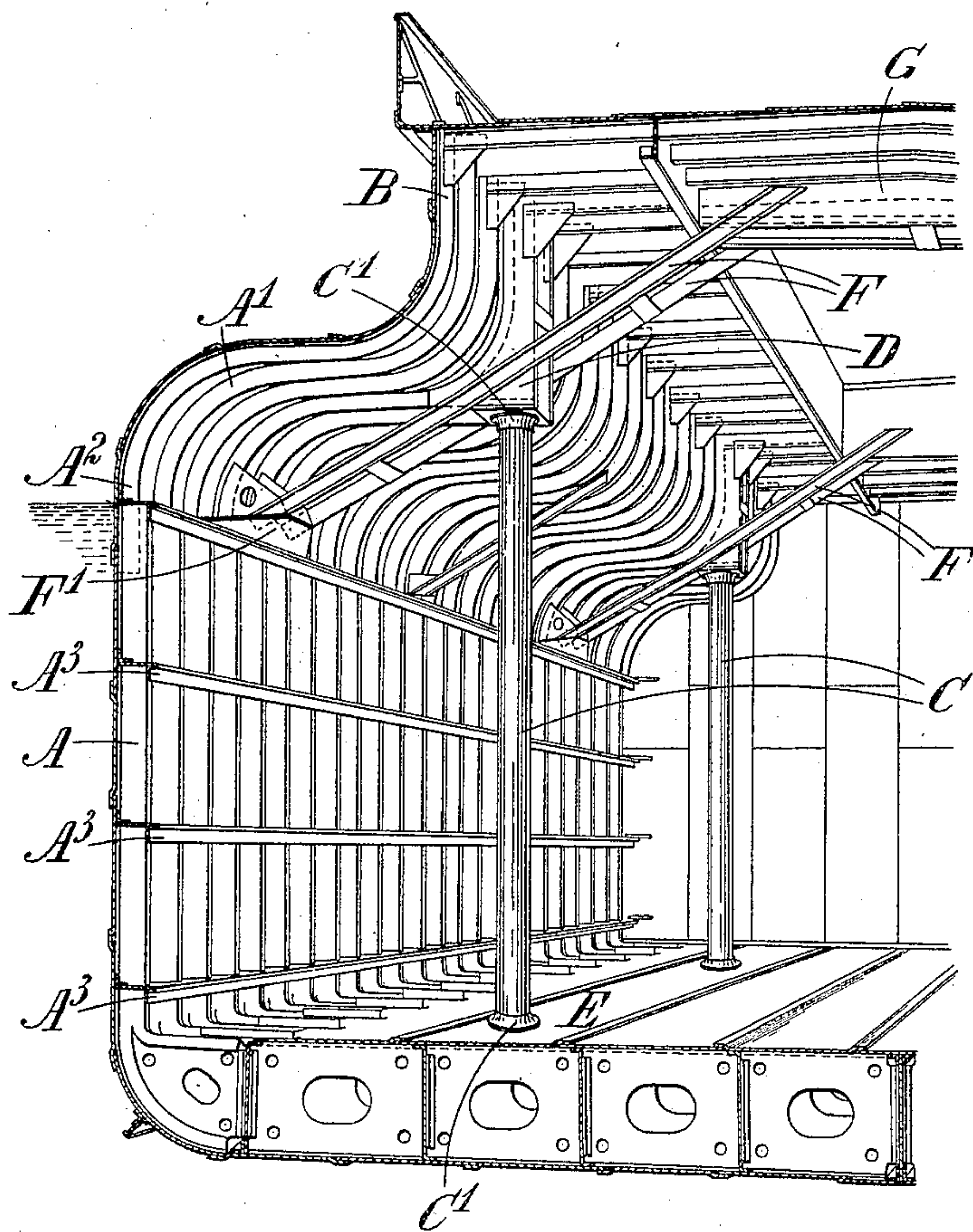
PATENTED AUG. 25, 1908.

C. D. DOXFORD.
TURRET VESSEL.

APPLICATION FILED JUNE 24, 1907.

2 SHEETS—SHEET 1.

Fig. 1.



—Witnesses.—
Brewster Church
Harry C. Bates.

—Inventor.—
Charles David Doxford
by Church & Church
his atty

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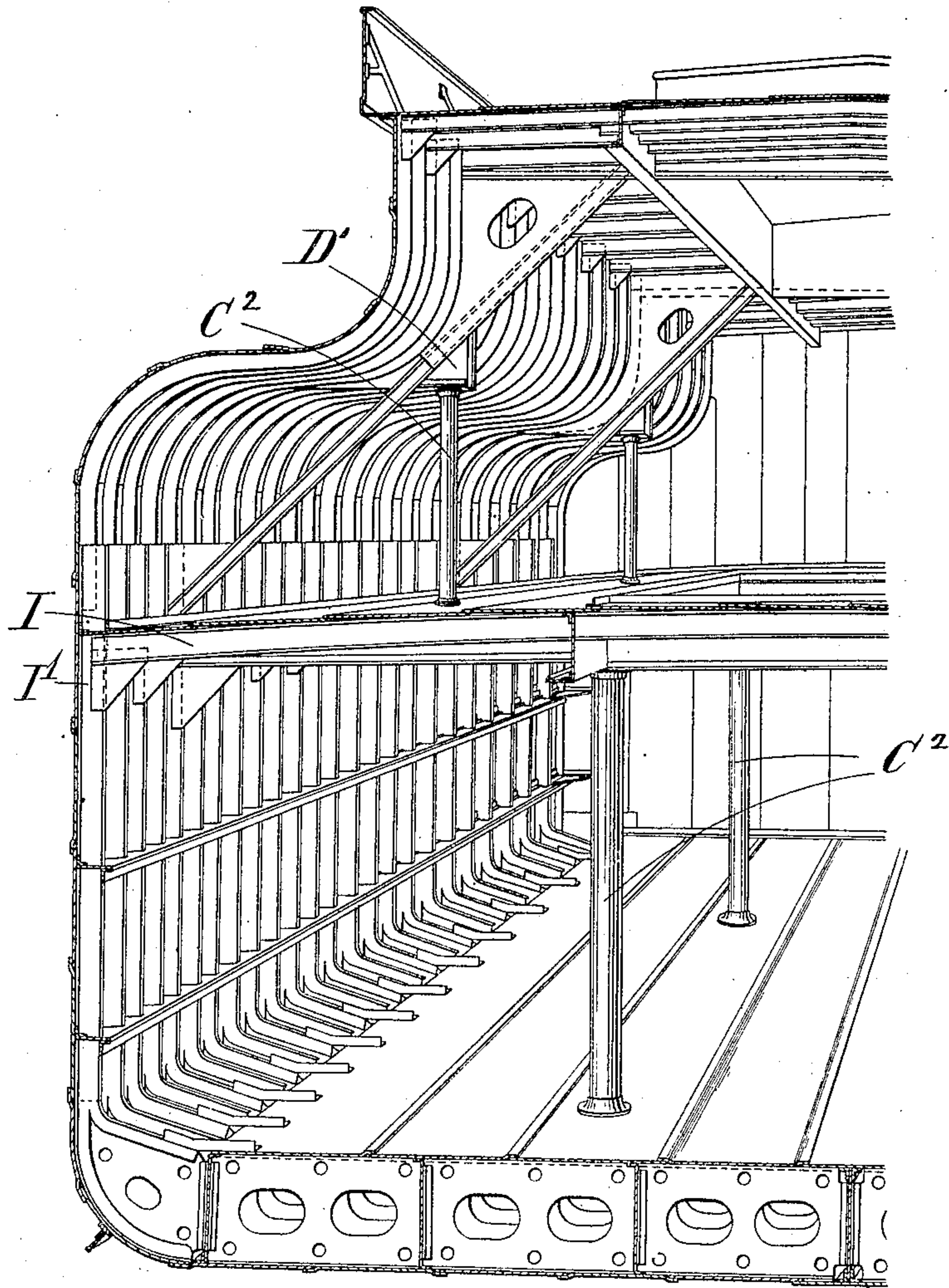
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2 SHEETS—SHEET 2.

Fig. 2.



—Witnesses.—
Seward Church.
Harry C. Bates.

—Inventor.—
Charles David Doxford
by Seward Church & Church
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UNITED STATES PATENT OFFICE.

CHARLES DAVID DOXFORD, OF SUNDERLAND, ENGLAND.

TURRET VESSEL.

No. 896,900.

Specification of Letters Patent.

Patented Aug. 25, 1908.

Application filed June 24, 1907. Serial No. 380,607.

To all whom it may concern:

Be it known that I, CHARLES DAVID DOXFORD, a subject of the King of England, and residing at Sunderland, in England, have invented certain new and useful Improvements in Turret Vessels, of which the following is a specification.

This invention relates to turret vessels of the type now well known.

In some of my previous patents I have by the special constructions indicated in the specifications of those patents been able to dispense with internal columns or similar supports. By my present invention I am enabled while adopting some of the features of construction contained in the specification of my said former patents, to build a much lighter and cheaper vessel in which strength and rigidity of structure is obtained by the combined use of light vertical columns and light diagonal struts which while giving the necessary strength to the vessel do not substantially interfere with the cargo space and obviate the use of the horizontal transverse beams generally adopted.

My invention is applicable to vessels with and without "tween decks".

In the accompanying drawings, Figure 1 is a perspective cross-sectional view of part of a vessel constructed according to this invention; Fig. 2 is a similar view where 'tween decks are employed.

Like letters represent like parts in both figures.

In carrying out my present invention I make the main and external portions of the hull substantially as described in my previous specifications—that is, with the frames A in-swept towards the top so that the deck-portion or turret B of the vessel is not so wide as the hull. At appropriate distances apart and upon the line where the in-swept frames A' turn upwards to form the turret, I place vertical columns or supports C, preferably in the form of tubes secured at the top to the frames by appropriate bracket-plates or equivalent D, and at their lower ends to the hollow bottom, to the keelson or other appropriate frame-members E. Conveniently the plain parallel tube C fits into a flanged socket C¹ at each end, the socket being secured in place as by riveting.

In conjunction with the previously mentioned columns I employ light diagonal struts F extending from the outer frames A at or about the point A² where they first be-

gin to sweep inwardly up to beams G arranged transversely under the central portion of the turret deck; these struts are preferably arranged in pairs, one on each side of each column, and are secured at their upper ends to the beams, and at their lower ends to appropriate brackets F¹, or directly to the frames; they may also be riveted or otherwise secured to the columns or the column-brackets and to large bracket- or gusset-plates at the junction of the frames and deck.

The side walls of the vessel are preferably made with deep frames A tied together at intervals by horizontal angle frames A³, as this produces a strong and satisfactory structure; however, so long as the columns and struts are employed as indicated, and the side frames are sufficiently strong, I do not bind myself solely to using the particular deep frames indicated.

The longitudinal distance between any two of the columns may vary with circumstances, but in order not to interfere with loading or discharging cargo, I prefer to space them so as to clear the length of the hatch where short hatches are employed. Where one long longitudinal hatch is employed, the spacing of the columns would be arranged as found most convenient for the purposes for which the vessel is intended to be employed.

Where it is desired to apply a similar construction to the 'tween decks, the upper portion may be arranged as previously described, the columns, however, terminating at the 'tween decks I, Fig. 2; I prefer, however, in this case to commence the diagonal struts at the point I¹ where the 'tween decks join the outer wall of the vessel letting them terminate at the bracket D' or support which carries the top of the column C³. In this case also the bracket D' itself may be extended so as to form a gusset plate or equivalent at the junction of the turret with the deck.

Columns C approximately similar to those previously described are placed under the 'tween deck frames or girders I in a manner similar to that described above, but these columns are preferably nearer together and farther from the side walls of the vessel; they may, in fact, as shown in Fig. 2 of the drawings, be placed in line with the sides of the 'tween decks hatchway.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a turret vessel, the combination of a

hull, a turret portion at the upper part thereof, curved main frames within the hull and turret, deck beams extending across the top of the turret brackets secured at the bottom
5 of the turret, columns upon which said brackets rest, diagonal struts arranged in pairs, one on each side of each column, secured at their upper ends to the deck beams and at their lower ends to the main frames
10 below their upper curved portions.

2. In a turret vessel, the combination with the hull, a turret portion at the upper part thereof, curved main frames within the hull and turret, deck beams extending across the
15 top of the turret, deep side frames tied together by horizontal angle frames and extending from the bottom of the curved frame

to the bottom of the vessel, brackets secured at the bottom of the turret, columns extending from the bottom to the brackets, diagonal struts arranged in pairs one on each side
20 of each column, secured at their upper ends to the deck beams, and brackets secured to the main frame below their upper curved portions, to which the lower ends of the diagonal
25 struts are secured.

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

CHARLES DAVID DOXFORD.

Witnesses:

WILLIAM CLARK,
JOHN HALEY.