F. S. AND F. W. CROSSLEY.
SECTIONAL HULL CONSTRUCTION.
APPLICATION FILED FEB. 3, 1922.

1,418,629. Patented June 6, 1922.

2 SHEETS—SHEET 1.

Fig 1

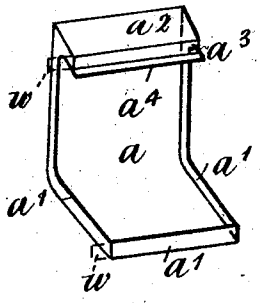


Fig. 2.

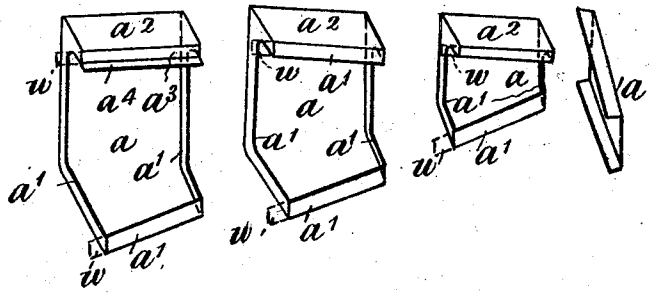


Fig. 3.

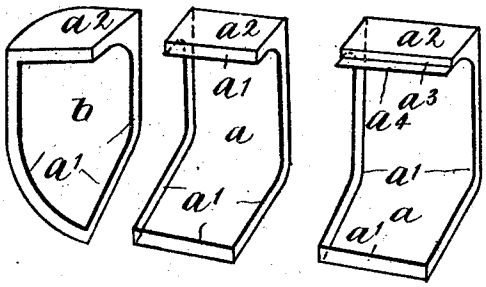


Fig. 4.

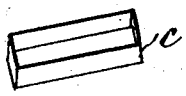


Fig. 5.

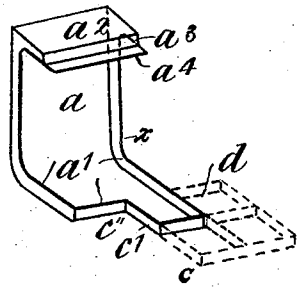
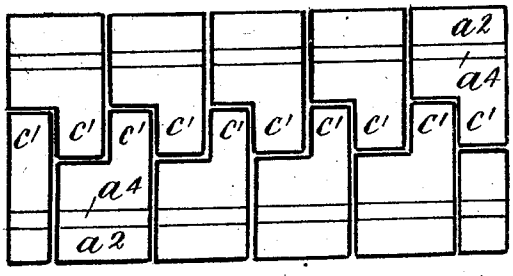


Fig. 6.



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2 SHEETS—SHEET 2.

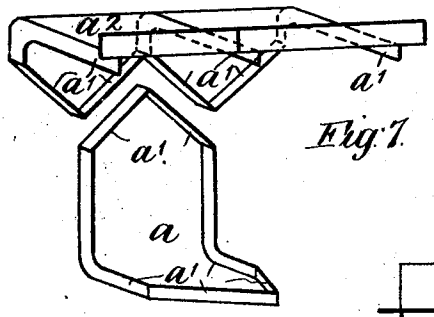


Fig. 7.

Fig. 8.

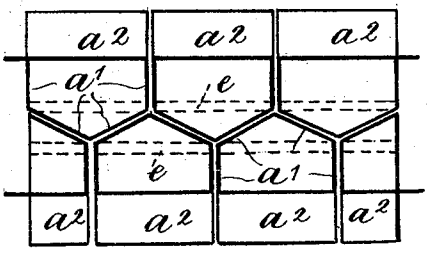


Fig. 9



Fig. 10

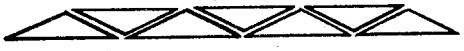


Fig. 11.

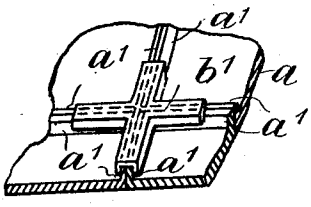
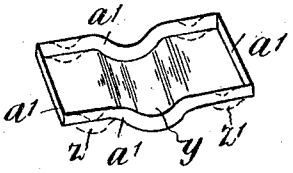


Fig. 12.



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UNITED STATES PATENT OFFICE.

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SECTIONAL HULL CONSTRUCTION.

1,418,629. Specification of Letters Patent. **Patented June 6, 1922.**

Application filed February 3, 1922. Serial No. 533,778.

To all whom it may concern:

Be it known that we, FREDERICK SAMUEL CROSSLEY, a subject of the King of Great Britain, residing in Blackrock, Dublin, Ireland, and FREDERICK WILLIAM CROSSLEY, a subject of the King of Great Britain, residing in Blackrock, Dublin, Ireland, have invented certain new and useful Improvements in Sectional Hull Constructions, of which the following is a specification.

This invention relates to the construction of the hulls of boats, barges or other vessels and whilst particularly adapted for boats or vessels of the so-called "welded" type may also be used with boats or vessels in which the plates are bolted or riveted together.

The present invention has for its object certain improvements designed not only to reduce the cost of construction but to enable the construction to be carried out more expeditiously than with the present systems of construction.

Boats or vessels constructed according to this invention, moreover, possess the advantage that a considerably increased carrying capacity may be secured as compared with vessels of the same draught of ordinary construction, together with a greater cubic capacity.

With a vessel constructed according to this invention when the plating has been assembled and welded or otherwise connected the structure so produced is of much greater strength than with ordinary systems of welded construction.

According to this invention instead of the usual frame or ribs, to which the plates are secured, plates are employed which may be of rectangular or other outline having flanges upon all sides said flanges, when the plates are assembled, being welded or otherwise connected, replacing the usual ribs.

In order that the invention may be better understood drawings are appended in which:—

Fig. 1 is a perspective view showing one form of plate according to this invention.

Fig. 2 is a perspective view showing four of the plates for the bow.

Fig. 3 is a similar view showing three of the stern plates.

Fig. 4 is a perspective view showing a form of plate whereby the beam of the vessel may be increased.

Fig. 5 is a perspective view showing an alternative form of plate.

Fig. 6 is a plan showing the arrangement of plates shown in Fig. 5 when assembled.

Fig. 7 is a perspective view showing a modified form of plate to that shown in Fig. 5.

Fig. 8 is a plan showing plates according to Fig. 7 assembled.

Fig. 9 is a perspective view showing a further modification.

Fig. 10 is a plan showing a number of plates such as shown in Fig. 9 assembled.

Fig. 11 is a perspective view showing a means for strengthening the keelson.

Fig. 12 is a view showing a modified form of plate embodying the keelson.

Referring to Figs. 1 to 3 of the accompanying drawings a indicates generally sections formed of sheet metal each of such length as to extend from the keel to the deck and provided upon their sides and bottom with inwardly turned flanges a^1. The upper edge of the plate is turned over as shown at a^2 and then downwardly as at a^3, a horizontal flange being formed at a^4, the flange a^4 when the plates are assembled, being designed to support the deck, or the end of the plate may be turned upwardly with extensions such as those hereafter referred to thereby forming a continuous combing. The upper end of the plate may, however, be bent to any other cross-sectional outline. As applied to the formation of the bows two suitably shaped plates are employed such as shown in Fig. 2 each forming one side of the said bow and provided with flanges a^1 upon all their edges. The stern sections are shaped as shown in Fig. 3 an end plate such as b being provided.

In constructing the barge the various sections are assembled with the flanges a^1 abutting and may be temporarily or permanently connected by means of bolts or when

connected the abutting surfaces may be welded together the flanges forming respectively the ribs, keelson and deck stringers. In order to strengthen the keelson at the point where the ribs meet a hollow cross or T-shaped body such as b^1 Fig. 11, may be provided designed to straddle the flanges and which may be bolted or otherwise secured thereto.

In order to increase the beam without altering the dimensions of the sections rectangular shaped stampings or forgings, such as c, shown in Fig. 4, may be employed and which stampings or forgings are placed between the lower ends of the sections, the flanges thereof being secured to the flanges of the said sections thereby forming a double keelson. The length of the parts c is equal to the width of the sections and said plates or the like have marginal flanges similar to flanges a^1.

The sections may either be arranged in alignment upon the opposite sides of the vessel or they may be arranged so that they are staggered.

According to the modification shown in Figs. 5 and 6 the end of each plate is cut away as shown at c'' leaving an extension c^1 extending from one side of the plate to the centre of said plate or thereabouts. The plates are provided with flanges a^1 and when assembled the projections of the plates upon one side engage the cut away portions of the plates upon the other side as shown in Fig. 6. The plates may be in two parts the meeting ends of the plates being cut away and flanged as just described.

Preferably the side flanges are increased in width for the purpose of increasing the strength of the ribs at the point x.

In order to increase the beam, plates may be employed as shown by the dotted lines d in Fig. 5 said plates being shaped as shown and being inserted between the ends of the plates.

Instead of being rectangular the ends of the plates may be of V-shaped outline, as shown in Figs. 7 and 8, said plates having all round them flanges a^1.

In order to increase the beam, quadrilateral or triangular plates, as shown in Fig. 9, flanged upon all sides may be employed said plates being arranged as shown in Fig. 10. Angle or other bars, such as shown by the dotted lines e may be employed.

A similar arrangement may be employed where the plates are made in two parts, as shown in Fig. 7.

In Fig. 12 there is shown a plate designed to be used as part of the structure or for increasing the beam of the vessel.

This plate, which is of any suitable width, has a corrugation or depression y running longitudinally (when assembled) through its centre. The width of the corrugation may be approximately half the length of the side of the plate and it may be of any suitable depth.

This plate, when assembled, forms, by means of its corrugation, a scupper running throughout the entire length of the hull, greatly facilitating drainage. This corrugation or depression forms, when the plates are assembled, a keelson which gives rigidity and strength to the structure.

Other and smaller corrugations may be provided for strengthening purposes as shown by the dotted lines z, z^1.

In order to secure greater strength the plates may be provided with tongues adapted to overlap the adjacent surface of the adjoining plate or engage recesses or indentations in the flanges. Tongues such as those just referred to are shown by dotted lines u in Fig. 1.

It is obvious that various modifications may be made both in the shape of the ends of the plates and in the manner in which they are assembled. The upper ends of the plates may, moreover, be so bent as to form scuppers.

Claims.

1. A ship hull section consisting of a metal plate shaped to form a side section and having its lower end directed inwardly to form a bottom portion and its upper end directed inwardly to form a deck supporting portion, said plate having a continuous peripheral flange extending inwardly of the hull.

2. A ship hull section consisting of a metal plate shaped to form a side section and having its lower end directed inwardly to form a bottom portion and its upper end directed inwardly to form a deck supporting portion, said plate having a continuous peripheral flange extending inwardly of the hull, the flange at the inner end of the deck supporting portion being provided with a lip extending inwardly of the ship whereon the side edge portion of the deck may rest.

3. A ship hull section consisting of a metal plate shaped to form a side section and having its lower end directed inwardly to form a bottom portion and its upper end directed inwardly to form a deck supporting portion, said plate having a continuous peripheral flange extending inwardly of the hull, said bottom portion having its inner end shaped to provide a tongue extending adjacent a similar tongue on the opposite plate.

4. A ship hull section consisting of a metal plate shaped to form a side section and having its lower end directed inwardly to form a bottom portion and its upper end directed inwardly to form a deck supporting portion, said plate having a continuous peripheral flange extending inwardly of the hull, said

bottom portion having its inner end shaped to provide a tongue extending adjacent a similar tongue on the opposite plate, the flange at the inner end of the deck supporting portion being provided with a lip extending inwardly of the ship whereon the side edge portion of the deck may rest.

5. In ship hull construction including a set of plates having peripheral flanges grouped with an angle of each plate at a common point, and a securing member having channelled arms radiating from said point and engaging the flanges of adjacent plates.

In testimony whereof we have hereunto set our hands and affixed our seals in the presence of two witnesses.

FRED. S. CROSSLEY.
F. W. CROSSLEY.

Witnesses:
PATRICK J. CRUMP,
MARY C. TULLY.