Oct. 31, 1950

M. A. HALL

2,527,994

METAL BOAT CONSTRUCTION

Filed April 22, 1946

2 Sheets-Sheet 1

Fig. 1.

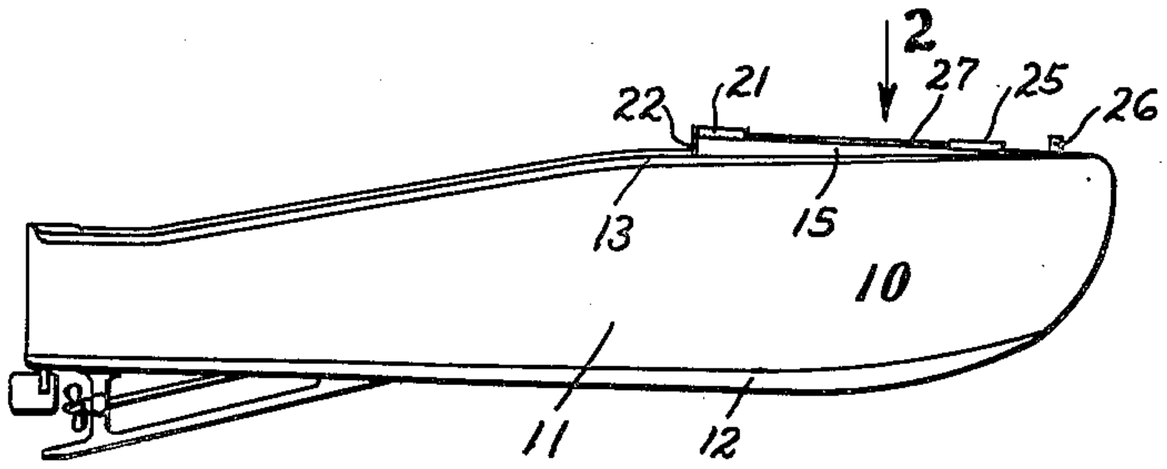

Fig. 2.

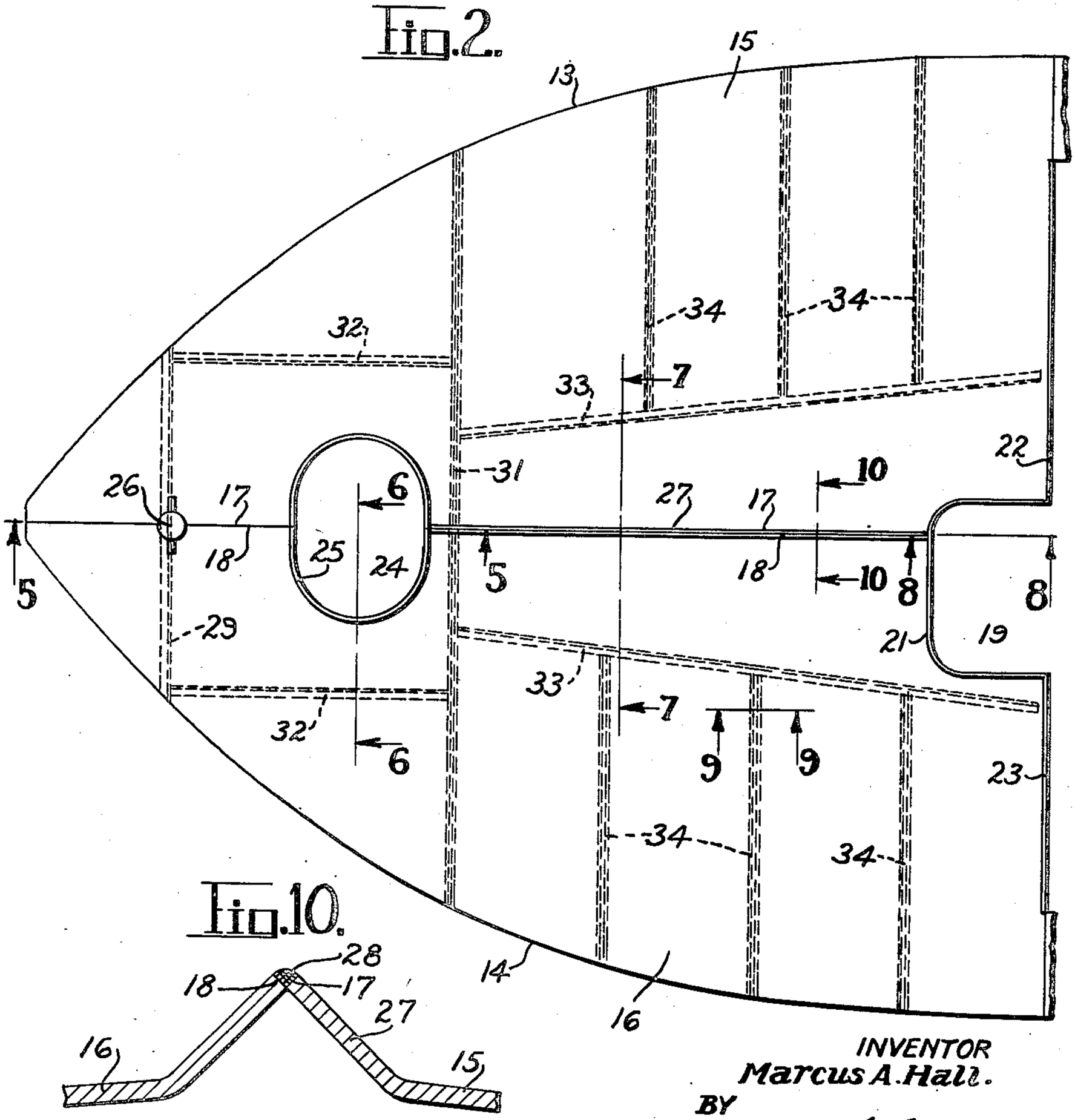

Fig. 10.

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Fig.3.

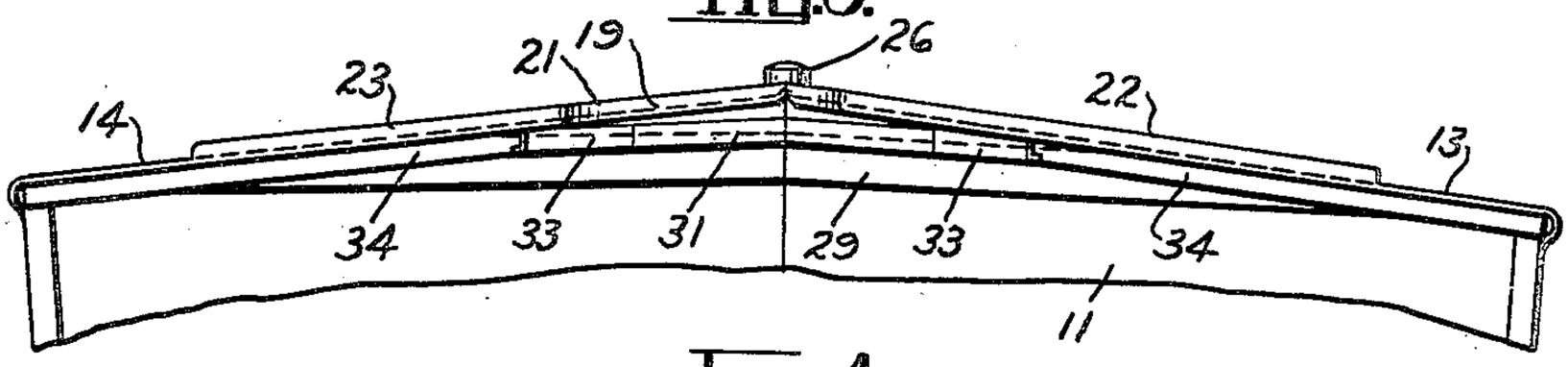


Fig.4.

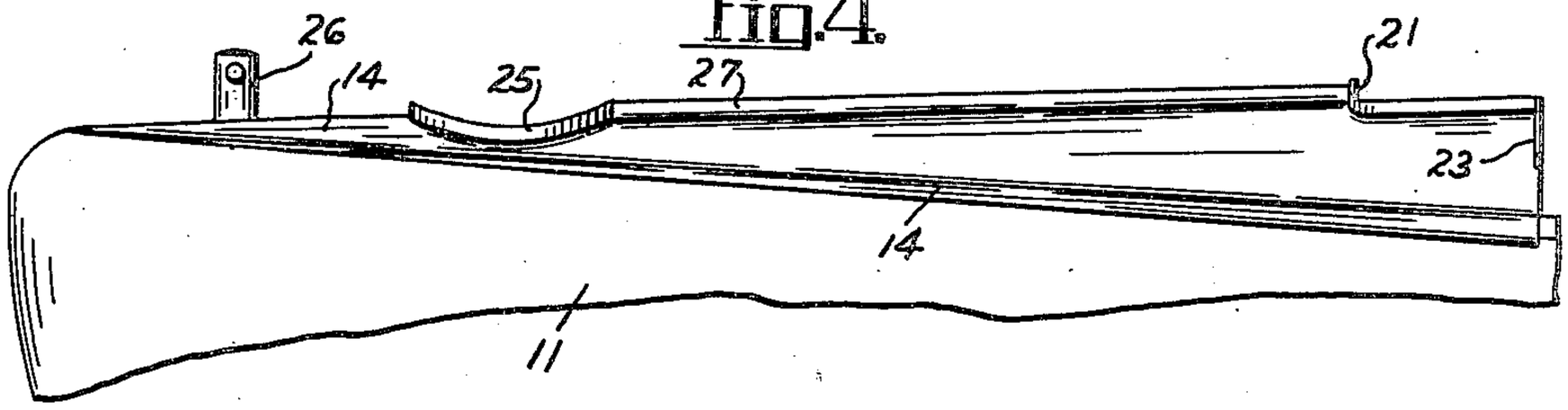


Fig.5.

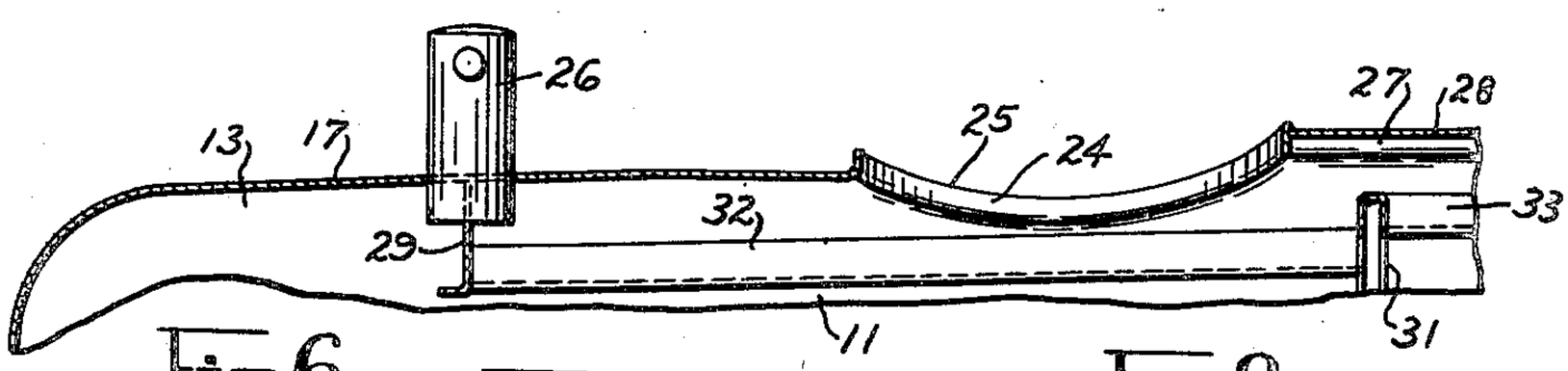


Fig.6.

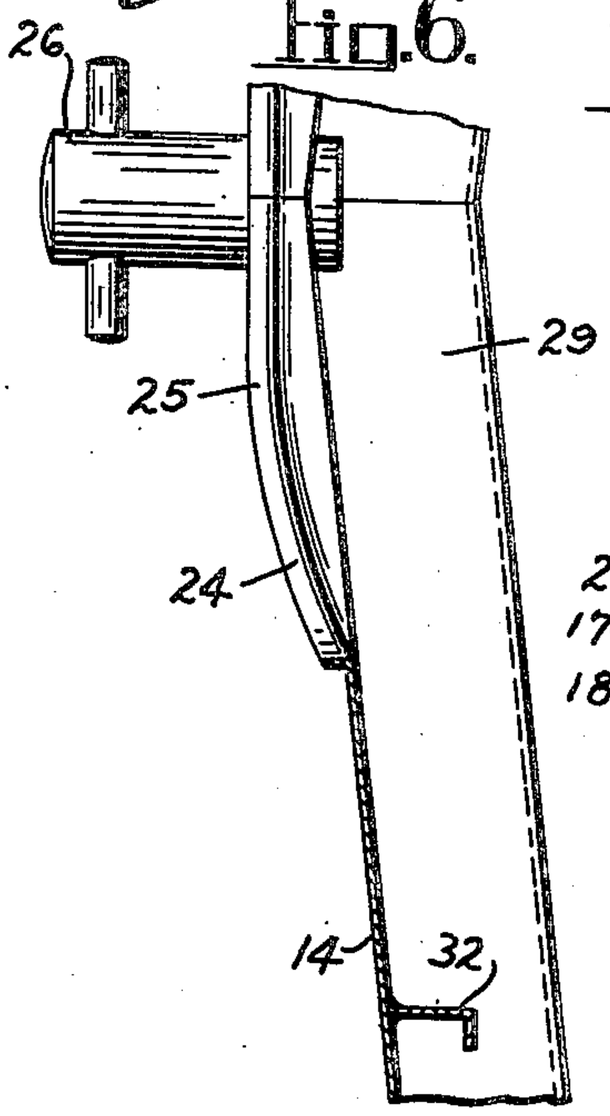


Fig.7.

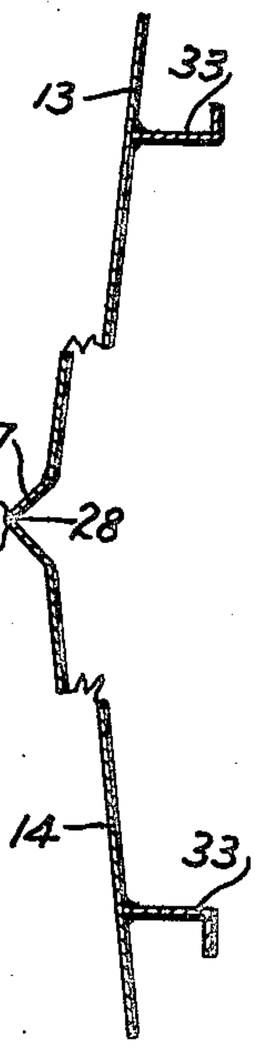


Fig.8.

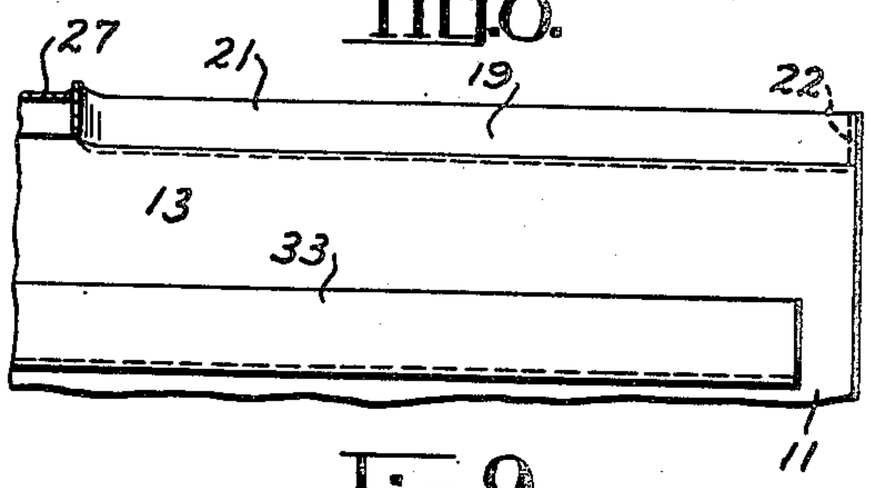
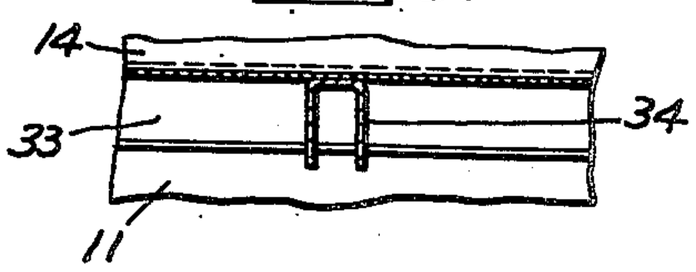


Fig.9.



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2,527,994

UNITED STATES PATENT OFFICE

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METAL BOAT CONSTRUCTION

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Application April 22, 1946, Serial No. 664,016

9 Claims. (Cl. 114—79)

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This invention relates to improved metal boat construction and more particularly to the novel deck structure of a metal power boat and its supporting frame-work.

It is particularly desired in the construction of metal boats that they will be of minimum weight and of maximum strength. To obtain these desirable features in the structure of metal boats it is contemplated as one object of this invention to provide a novel form of deck whereby this portion of the boat will be of minimum weight and of maximum strength.

Another object of this invention is to provide a novel supporting frame-work for a boat deck of the above nature which, in combination with the deck floor structure, will embody the desirable features required.

A further object of this invention is to provide an improved form of boat construction which will be relatively inexpensive to manufacture, simple in construction, readily assembled, practical, of pleasing appearance, and very efficient and durable in use.

With these and other objects in view which will appear as the description proceeds, there has been illustrated in the accompanying drawings one form in which the invention may be embodied in practice.

In the drawings:

Figure 1 is a side view of a metal power boat embodying the features and principles of this invention;

Figure 2 is a top plan view of the deck of the boat shown in Figure 1 looking in the direction of arrow 2 of Figure 1;

Figure 3 is an end view of the deck structure shown in Figures 1 and 2 looking forward;

Figure 4 is a side view of the same;

Figure 5 is an enlarged broken longitudinal sectional view taken on the line 5—5 of Figure 2;

Figure 6 is an enlarged broken cross-sectional view taken on the line 6—6 of Figure 2;

Figure 7 is an enlarged broken cross-sectional view taken on the line 7—7 of Figure 2;

Figure 8 is an enlarged broken longitudinal sectional view taken on the line 8—8 of Figure 2;

Figure 9 is an enlarged longitudinal sectional view taken on the line 9—9 of Figure 2; and

Figure 10 is a greatly enlarged cross-sectional view taken on the line 10—10 of Figure 2.

Referring now to the drawings wherein like reference numerals designate like parts throughout the several views the numeral 10 denotes a metal power boat hull having a bottom 12. The hull 10 is constructed of metal sheets 11 which

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extend upwardly at its sides and from the bottom 12 and which are suitably secured, as by welding, to the side edges 13 and 14 of the deck structure of this invention. The deck side edges 13 and 14 are, in this instance, the outer rim edges of deck plates 15 and 16 respectively which extend toward the longitudinal center of the boat and have their inner edges 17 and 18 in abutting relation and suitably secured together, as by welding, to form an integral deck structure. A single plate may be used for the deck of boats of smaller beam dimension than that of the boat illustrated.

The rear end of the deck is cut away at a portion thereof to form a hatchway opening 19 and the material about the edges of the opening 19 is bent upwardly to form a flange 21. The material along the rear edge of the deck at each side of an opening 19 is also bent upwardly to form flanges 22 and 23. Another opening 24 is formed in the deck adjacent the forward end of the deck to form an oval shaped hatch and the edges of the material about this opening 24 are bent upwardly to form a flange 25. Between the forward end of the deck and the hatch opening 24 a mooring bitt 26 is inserted through the deck and secured thereto, as by welding. Outlining the hatch opening 24 by a flange 25 integral with the material of the deck, the hatchway opening 19 by a flange 21 integral with the material of the deck, and forming the flanges 22 and 23 along the rear edge of the deck with the material of the deck reinforces the deck against warping and bending under strains.

To further reinforce and strengthen the deck the abutting edges 17 and 18 of the plates 15 and 16 between the flanges 21 and 25 at the opposing edges of the respective hatch openings 19 and 24 are bent upwardly to jointly form a rib, 27, inverted V-shaped in cross-section (Figure 10). The edge surfaces of the plates 15 and 16 at the apex of the V-shape are disposed at an angle to each other and the intervening space between these edge surfaces is filled with metal when the edges 17 and 18 are welded together at this point as indicated at 28 in Figure 10 making an integral structure along this inverted V rib.

The deck is seated on and secured to, as by welding, a framework of metal beams including a forward L-shaped cross beam 29 secured at each end to the boat hull sides 11, or side frames (not shown), and in this instance comprising two sections joined together, to the underside of the deck, and to the mooring bitt 26, as by welding. Another cross beam 31, of inverted U-shaped

cross-section, extends across the deck from one side of the boat hull to the other and spaced slightly to the rear of the hatch opening 24 and is secured as by welding, to the undersurface of the deck plates 15 and 16. An L-shaped beam 32 extends lengthwise between the beams 29 and 31 at each side of the hatch opening 24 and substantially intermediate between it and the respective hull side 11. The beams 32 are secured to the beams 29 and 31 and to the undersurface of the deck as by welding.

An L-shaped beam 33 extends from the beam 31 rearwardly to adjacent the rear edge of the deck at each side of the deck center. The beams 33 flare outwardly from each other as they extend rearwardly, to straddle the hatchway opening 19 and to be spaced outwardly from the sides thereof. The beams 33 are secured to the beam 31 and to the undersurface of the deck, as by welding. A plurality of inverted U-shaped cross beams 34 spaced apart lengthwise of the deck extend from each beam 33 to the respective adjacent side of the hull where they are secured to the hull sides 11, or to the hull framework, as by welding. The beams 34 are secured to the beams 33 and to the undersurface of the deck, as by welding.

Due to the reinforcing structure constituted by the flanges 21 and 25 about the openings 19 and 24 and especially due to the inverted V-shaped rib 27 extending lengthwise of the deck along its longitudinal center line, a particularly strong deck structure is provided whereby warping, or other mutilation, or distortion, due to strains during the use of the boat will be substantially entirely avoided and the material used may be of lighter weight thus maintaining total weight of the boat structure at a minimum. The novel arrangement of the deck supporting beams as above described forms a frame-work whereby all downward pressure on the deck is transmitted to the hull sides 11, as well as reinforcing the deck, permits the use of comparatively light weight beam structure thus further maintaining the weight of the boat structure at a minimum without a reduction in the maximum strength required. The arrangement of the flaring beams 33 which straddle the hatchway opening 19 with the laterally disposed cross beams 34 form a frame-work whereby headroom is provided in under the deck substantially along the center of the boat which is clear of any downwardly extending projections. The provision of the inverted V-shaped rib 27 obviates the necessity of providing full length cross beams in place of the beams 34.

While there has been shown and described herein a preferred form of the invention it will be understood that the novel features and principles of this invention may be embodied in other specific forms without departing from the spirit and essential attributes thereof, and it is therefore desired that the present embodiment be considered in all respects as illustrative, and not restrictive, reference being had to the claims rather than to the foregoing description to indicate the scope of the invention.

Having thus fully disclosed the invention, what is claimed as new and for which it is desired to secure Letters Patent, is:

1. In a metal boat construction, a deck constituted by two plates of metal with an edge of each abutting intermediate the outer side edges of the deck and lengthwise of the boat, hatch openings formed partly in one plate and partly in the other plate and spaced apart lengthwise of the deck, upstanding flanges about the edges of each hatch opening, the part of each plate edge between the hatch opening flanges and along the abutting edges, being turned upwardly and secured together to jointly form a rib inverted V-shaped in cross-section.

2. In a metal boat construction, a deck constituted by two lengthwise extending plates of metal with an edge of each abutting intermediate the sides of the boat and welded together, a lengthwise extending beam, spaced toward the boat side from the jointure of said plates, welded to each plate, and laterally extending beams welded to each plate and extending from the lengthwise beam to the side of the boat.

3. In a metal boat construction, a deck constituted by two lengthwise extending plates of metal with an edge of each abutting intermediate the sides of the boat and welded together, a lengthwise extending beam, spaced toward the boat side from the jointure of said plates, welded to each plate, and laterally extending beams welded to each plate and extending from the lengthwise beam to the side of the boat, a portion of the length of each of said abutting edges turned upwardly at the jointure thereof to form a rib inverted V-shaped in cross-section.

4. In a metal boat construction, a deck constituted by two lengthwise extending plates of metal with an edge of each abutting intermediate the sides of the boat and welded together, a lengthwise extending beam, spaced toward the boat side from the jointure of said plates, welded to each plate, and laterally extending beams welded to each plate and extending from the lengthwise beam to the side of the boat, a hatch opening formed partly in one plate and partly in the other and spaced rearwardly from the forward end of the boat, a cross beam extending from one side of the boat to the other forward of the said opening, a cross beam extending from one side of the boat to the other at the rear of the said opening, and a lengthwise beam on each side of the said opening extending from one of said cross beams to the other, a portion of the length of each of said abutting edges of said plates being turned upwardly at the jointure thereof to form a rib inverted V-shaped in cross-section and extending from the said opening rearwardly.

5. In a metal boat construction, a deck constituted by two lengthwise extending plates of metal with an edge of each abutting intermediate the sides of the boat and welded together, a hatch opening formed partly in one plate and partly in the other and extending from the rear edges of the plates toward the front ends thereof, an upstanding flange about said opening and along the rear edges of said plates, a hatch opening formed partly in one plate and partly in the other plate and spaced rearwardly from the front ends of the plates and forwardly from the first hatch opening, an upstanding flange about said second hatch opening, the abutting edges of said plates between the flanges about said hatch openings being upturned to form an inverted V-shaped rib and welded together.

6. In a metal boat construction, a deck constituted by two lengthwise extending plates of metal with an edge of each abutting intermediate the sides of the boat and welded together, a hatch opening formed partly in one plate and partly in the other and extending from the rear edges of the plates toward the front ends thereof, an upstanding flange about said opening and along

the rear edges of said plates, a hatch opening formed partly in one plate and partly in the other plate and spaced rearwardly from the front ends of the plates and forwardly from the first hatch opening, an upstanding flange about said second hatch opening, the abutting edges of said plates between the flanges about said hatch openings being upturned to form an inverted V-shaped rib and welded together, a first beam extending from side to side of the deck forward of the second hatch opening, a second beam extending from side to side of the deck at the rear of the second hatch opening, and lengthwise beams extending from the second cross beam rearwardly to the rear edge of each of the deck plates, one on each side of the first hatch opening.

7. In a metal boat construction, a deck constituted by two lengthwise extending plates of metal with an edge of each abutting intermediate the sides of the boat and welded together, a hatch opening formed partly in one plate and partly in the other and extending from the rear edges of the plates toward the front ends thereof, an upstanding flange about said opening and along the rear edges of said plates, a hatch opening formed partly in one plate and partly in the other plate and spaced rearwardly from the front ends of the plates and forwardly from the first hatch opening, the abutting edges of said plates between the flanges about said hatch openings being upturned to form an inverted V-shaped rib and welded together, a first beam extending from side to side of the deck forward of the second hatch opening, a second beam extending from side to side of the deck at the rear of the second hatch opening, and lengthwise beams extending from the second cross beam rearwardly to the rear edge of each of the deck plates, one on each side of the first hatch opening, lengthwise beams extending between the first and second cross beams, one on each plate and at one side of the second hatch opening, and cross beams extending laterally from each of the first mentioned lengthwise beams to the side of the deck.

8. In a metal boat construction, a deck constituted by two lengthwise extending plates of metal with an edge of each abutting intermediate the sides of the boat and welded together, a lengthwise extending beam, spaced toward the boat side from the jointure of said plates, welded to each plate, and laterally extending beams welded to each plate and extending from the lengthwise beam to the side of the boat, a portion of the length of each of said abutting edges turned upwardly at the jointure thereof to form a hollow rib.

9. In a metal boat construction, a deck constituted by two lengthwise extending plates of metal with an edge of each abutting intermediate the sides of the boat and welded together, a hatch opening formed partly in one plate and partly in the other and extending from the rear edges of the plates toward the front ends thereof, an upstanding flange about said opening and along the rear edges of said plates, a hatch opening formed partly in one plate and partly in the other plate and spaced rearwardly from the front ends of the plates and forwardly from the first hatch opening, an upstanding flange about said second hatch opening, the abutting edges of said plates between the flanges about said hatch openings being upturned to form a hollow rib and welded together.

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