July 4, 1944. W. J. H. DYER 2,353,020

BOAT HULL

Filed Nov. 30, 1943 3 Sheets-Sheet 1

FIG. 6

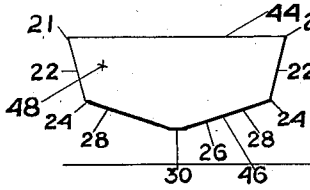


FIG. 5

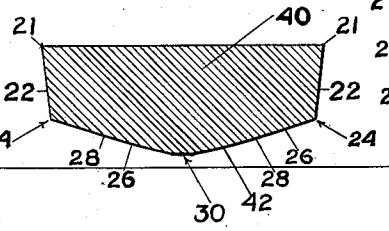


FIG. 4

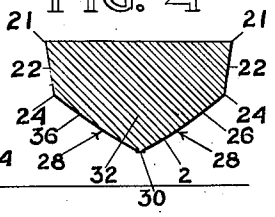


FIG. 1

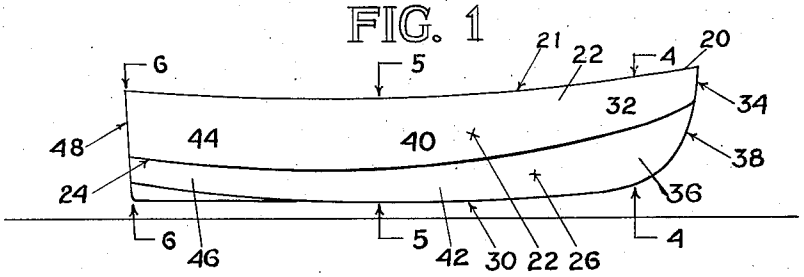


FIG. 2

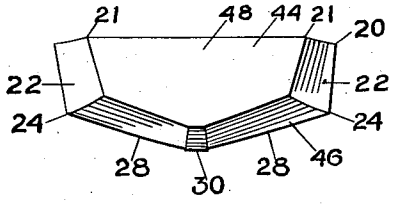
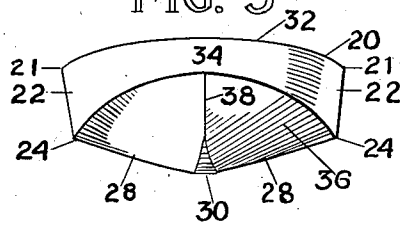


FIG. 3



WILLIAM J. H. DYER

INVENTOR

BY Thomas A. Jenckes

ATTORNEY

July 4, 1944. W. J. H. DYER 2,353,020

BOAT HULL

Filed Nov. 30, 1943 3 Sheets-Sheet 2

FIG. 7

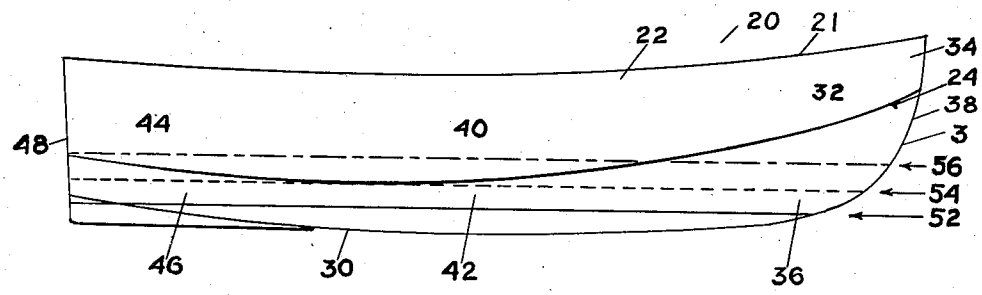
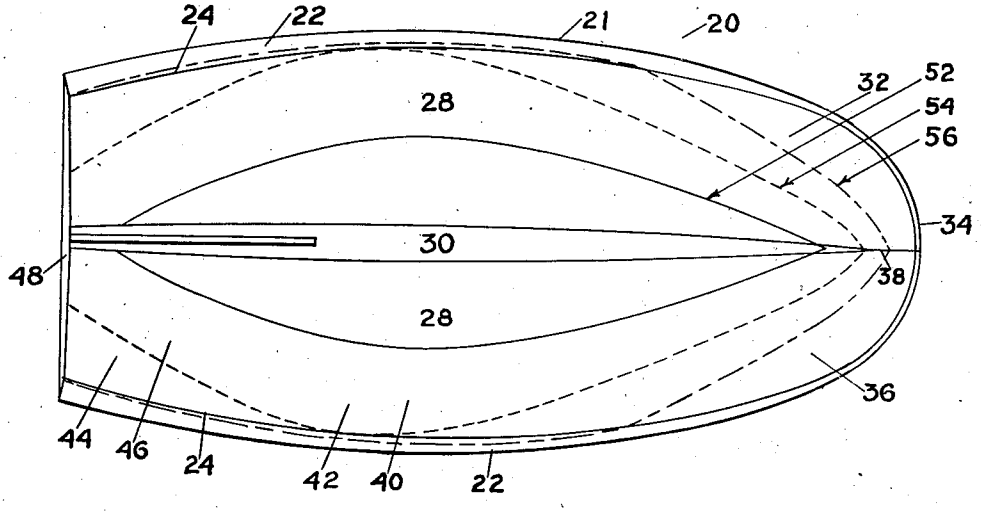


FIG. 8



WILLIAM J. H. DYER

INVENTOR

BY Thomas A. Jenckes

ATTORNEY

July 4, 1944. W. J. H. DYER 2,353,020

BOAT HULL

Filed Nov. 30, 1943 3 Sheets-Sheet 3

FIG. 15

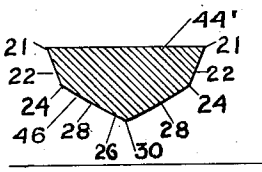


FIG. 14

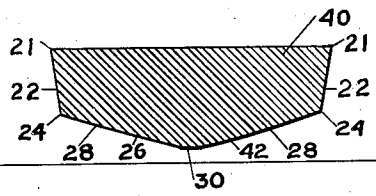


FIG. 13

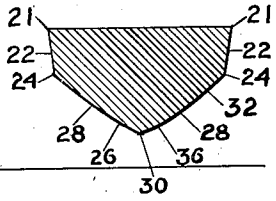


FIG. 9

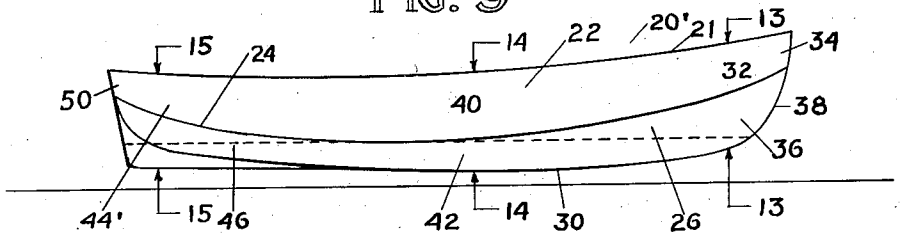


FIG. 10

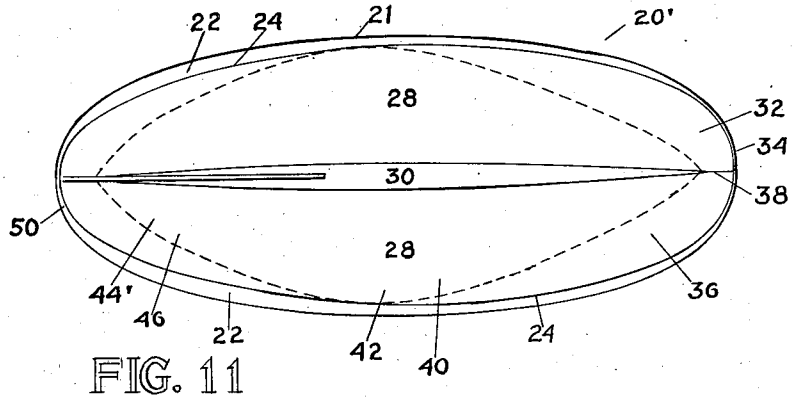


FIG. 11

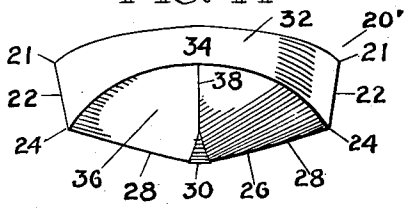
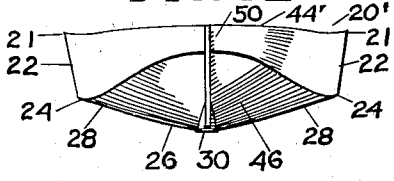


FIG. 12



WILLIAM J. H. DYER

INVENTOR

BY Thomas A. Jenkes

ATTORNEY

Patented July 4, 1944 2,353,020

UNITED STATES PATENT OFFICE

2,353,020

BOAT HULL

William J. H. Dyer, Providence, R. I.

Application November 30, 1943, Serial No. 512,401

9 Claims. (Cl. 9—6)

My invention relates to improvements in hull constructions and forms for boats.

An object of my invention is to form a boat hull, particularly the bottom thereof, comprised entirely of simple curves or surfaces permitting the use of flat sheets of any desirable material to be bent or otherwise shaped to the contours of the hull lines. These sheets may also be molded to the hull contours without compound curves. This feature reduces labor costs and permits easy repair in the field if the hull is damaged. If desired, the hull may be molded, cast or otherwise shaped to its desired form.

A further object of my invention is to produce a hull having a minimum wetted surface when unloaded, thereby permitting the hull to be moved through the water with the least possible resistance, and when fully loaded having exceptional stability and carrying capacity.

A further object of my invention is to produce a hull having unusual buoyancy at the bow or forward portion and which is of such a shape as to prevent burying or tripping under even the most severe conditions of operation.

A further object of my invention is to produce a hull having a bow or forward portion of such shape as to force the waves downward upon impact, thereby increasing the buoyancy by said force of impact and preventing spray or solid water from being blown into the bow and a stern portion providing a similar effect.

A further object of my invention is to provide a hull of harmonious contours with both bow and stern portions of approximate sectional similarity obtaining thereby a hull having an easy motion in a seaway and perfect balance of helm under all conditions.

A further object of my invention is to provide a hull having great strength for its weight obtained by the scientific design of the hull contours.

With these and other objects the embodiments of my invention employing the same or equivalent principles may be used and structural changes made as desired by those skilled in the art without departing from the present invention or the appended claims.

These and such other objects of my invention as may hereinafter appear will be best understood from a description of the accompanying drawings which illustrate embodiments thereof.

In the drawings,

Fig. 1 is a side elevational view of one embodiment of a boat hull constructed in accordance with my invention.

Fig. 2 is a rear elevational view looking towards the stern portion thereof.

Fig. 3 is a front elevational view looking towards the bow portion thereof.

Fig. 4 is a diagrammatic vertical sectional view taken through the bow portion along the line 4—4 of Fig. 1.

Fig. 5 is a diagrammatic vertical sectional view taken through the midship portion along the line 5—5 of Fig. 1.

Fig. 6 is a diagrammatic face view of the transom taken along the line 6—6 of Fig. 1.

Fig. 7 is an enlarged side elevational view of the embodiment of boat hull shown in Figs. 1–6, illustrating the displacement of the hull under varying conditions of load.

Fig. 8 is an enlarged reverse plan view of the embodiment of hull shown in Figs. 1–7 also illustrating the displacement of the hull under the same varying conditions of load as shown in Fig. 7.

Fig. 9 is a side elevational view of a modified form of my invention.

Fig. 10 is a reverse plan view of the embodiment of hull shown in Fig. 9.

Fig. 11 is a front elevational view looking towards the bow portion of the embodiment of my improved boat hull shown in Figs. 9 and 10.

Fig. 12 is a rear elevational view looking towards the stern portion of the embodiment of my invention shown in Figs. 9–11.

Fig. 13 is a diagrammatic vertical sectional view taken through the bow portion of the embodiment of my invention shown in Fig. 9 along the line 13—13 thereof.

Fig. 14 is a diagrammatic vertical sectional view taken through the midship portion of the embodiment of my invention shown in Fig. 9 along the line 14—14 thereof.

Fig. 15 is a diagrammatic vertical sectional view taken through the stern portion of the embodiment of my invention shown in Fig. 9 along the line 15—15 thereof.

In the drawings, wherein like characters of reference generally indicate like parts throughout, 20 and 20' illustrate different embodiments of boat hulls constructed in accordance with my invention, the preferred embodiment 20 being shown in Figs. 1–8 and a modified form 20' being shown in Figs. 9–15.

As stated hitherto, a main feature of my invention is that each portion of the boat hull is shaped entirely in the form of simple curves or surfaces, particularly the bottom portion thereof, permitting the use of flat sheets of any desirable material, such as wood, plywood, metal, plastic,

or other suitable material to be bent or otherwise shaped to the contour of the hull lines. As stated hitherto, if desired, the entire hull may be molded, cast, or otherwise made with the simple curves or developable surfaces without compound curves. This feature provides an ease of manufacture reducing labor costs and permits easy and quick repair in the field if a hull is damaged. My improved hull is preferably provided with the usual topside portions 22 terminating in the usual sheer 21 at its upper edges and in the usual chines 24 at its lower edges and the usual bottom 26 having portions 28 extending from each chine 24 and terminating in a central keel 30, said portions 28 extending from chine 24 to the opposite chine 24 in developable surfaces of varying angles of deadrise, varying from stem to stern in the manner to be described, to provide the desired characteristics, the hull 20 being generally shaped to provide a minimum of wetted surface when unloaded and having exceptional stability and carrying capacity when loaded. While I have shown the chine 24 as comprising an angle so as to provide as wide a bottom as possible to increase the carrying capacity and dryness, the bottom portion may substantially merge with the topside, if desired, to provide a chine of some width or degree of curvature. It is apparent that with this shape of chine a maximum bottom surface is provided to achieve the advantages above set forth.

An important feature of both embodiments of my invention comprises the shape of the bow portion 32. Said improved bow portion 32 has a topside 34 of approximately semi-circular shape and a bottom portion 36 terminating at an angle to the stem 38 and being substantially V shaped in cross-section as shown in Figs. 4 and 13 with the sectional angles of deadrise of the bottom portions 28 thereof with the keel 30 decreasing sharply from forward aft from the stem. It is apparent that this construction provides a great buoyancy of the bow portion, slight displacement of the bow portion when unloaded, prevents burying or tripping of the bow portion even under the most severe conditions of operation and of great dryness as the bow is so shaped as to force the waves downward upon impact thereby increasing the buoyancy by said force of impact and preventing spray or solid water from being blown into the boat from the bow.

Both embodiments of my improved hull also include a midship portion 40 in which the topsides 22 thereof are of relatively slight flare and each contain the lowest point of each respective chine 24 at approximately midsection and the bottom 42 is V-shaped in cross-section with the sectional angles of deadrise decreasing to a minimum at approximately midsection as shown in Figs. 5 and 14 and increasing at a less rate from there aft. This shape, particularly the extreme width of the bottom portion 26 at midship increases the buoyancy, stability and carrying capacity at midsection.

Both embodiments of my improved hull shown have a stern portion 44 in which the topsides 22 increase in flare from chine 24 to sheer 21 from forward aft, this increasing angle of flare between the topside and bottom at the chine 24 being diagrammatically illustrated by a comparison of Figs. 5 and 6, and 14 and 15. Said stern portion 44 also has a bottom 46 V-shaped in cross-section with the sectional angles of deadrise increasing substantially from forward aft. This shape of the stern portion, therefore, also increases the buoyancy, dryness and carrying capacity thereof and ease of travel over the water.

I have shown two embodiments of my invention, namely the hull 20 shown in Figs. 1–8 and the hull 20′ shown in Figs. 9–15, these only differing from each other in the shape of the stern portion. In the embodiment shown in Figs. 1–8 the stern portion terminates in a flat transom 48. In the embodiment shown in Figs. 9–15, however, the stern portion 44′ thereof has the angles of deadrise of the bottom portion 46 thereof increasing sharply from forward aft in substantially a similar manner as they do at the bottom portion 36 of the bow portion 32 thereof and said stern portion also has a topside 50 of approximately semi-circular shape. It is thus apparent that while the stern portion 44′ of the embodiment of hull 20′, shown in Figs. 9–15, retains the advantages of the stern portion 44 of the embodiment shown in Figs. 1 and 8, it also has the additional advantages of the bow portion 32 shown in each embodiment.

It is apparent, therefore, that by looking at the water lines in the manner to be described, that I have provided a novel type of boat hull of harmonious contour throughout, the contour of the stern and its desirable characterics approximating that of the bow and cooperating with the midship portion in similar manner thereby obtaining a hull having an easy motion in the seaway and perfect balance of hull under all conditions and a hull having great strength for its weight and other advantages explained above. In order that these features may be more clearly brought out, I have illustrated diagrammatically various water lines in Figs. 7 and 8 for the embodiment shown in Figs. 1–8, the same water lines being present although not illustrated in the embodiment shown in Figs. 9–15.

While my improved boat hull may be constructed of any size, the following figures are given for those of a 9 ft. hull. The water line 52, shown in full lines in Figs. 7 and 8, shows the small wetted surface of the hull, namely the arrangement disclosed by said full lines 52, when resting in the water without load or burden showing its displacement with its own weight of 65 lbs. The water line 54, shown in dotted lines, shows the hull displacement under a weight of 765 lbs. or equal to the weight of five 140 lb. men plus the weight of the boat. It will be seen that under this load and consequent displacement the maximum width of the boat is utilized giving great stability. The water line 56, shown in dash dot lines, illustrates the hull's displacement with a load of seven 140 lb. men or a total load of 1045 lbs. illustrating the hull's large carrying capacity and extreme stability when fully loaded.

It is apparent, therefore, that I have provided a novel type of boat hull with the advantages described above and that the embodiments shown are merely typical embodiments illustrating the principles of my invention.

It is understood that my invention is not limited to the specific embodiments shown and that various deviations may be made therefrom without departing from the spirit and scope of the appended claims.

What I claim is:

1. A boat hull having topsides each terminating in a chine curving from stem to stern downwardly to a low point substantially at the midship section, thence upwardly to the stern, and a bottom extending from each chine and terminating in a keel and extending from chine to chine in

developable surfaces of varying angles of deadrise to provide a structure continuously V-shaped in section at all points throughout its length, comprising, in combination, a bow portion having a topside portion of approximately semi-circular shape, and a bottom terminating at an angle to the stem and substantially V-shaped in cross section with the sectional angles of deadrise decreasing sharply from forward aft, a midship portion having topsides of slight flare each containing the lowest point of its respective chine at approximately mid-section and a bottom V-shaped in cross section with the sectional angles of deadrise decreasing to a substantial minimum at approximately midsection and increasing at a less rate from there aft, and a stern portion having topsides increasing in flare from chine to sheer from forward aft, and a bottom V-shaped in cross section with the sectional angles of deadrise increasing substantially from forward aft.

2. A boat hull having topsides each terminating in a chine curving from stem to stern downwardly to a low point substantially at the midship section, thence upwardly to the stern, and a bottom extending from each chine and terminating in a keel and extending from chine to chine in developable surfaces of varying angles of deadrise to provide a structure continuously V-shaped in section at all points throughout its length, comprising, in combination, a bow portion having a topside portion of approximately semi-circular shape, and a bottom terminating at an angle to the stem and substantially V-shaped in cross section with the sectional angles of deadrise decreasing sharply from forward aft, a midship portion having topsides of slight flare each containing the lowest point of its respective chine at approximately midsection and a bottom V-shaped in cross section with the sectional angles of deadrise decreasing to a substantial minimum at approximately midsection and increasing at a less rate from there aft, and a stern portion having topsides increasing in flare from chine to sheer from forward aft, and a bottom V-shaped in cross section with the sectional angles of deadrise increasing substantially from forward aft, said stern portion also having a topside portion terminating in a flat transom.

3. A boat hull having topsides each terminating in a chine curving from stem to stern downwardly to a low point substantially at the midship section, thence upwardly to the stern, and a bottom extending from each chine and terminating in a keel and extending from chine to chine in developable surfaces of varying angles of deadrise to provide a structure continuously V-shaped in section at all points throughout its length, comprising, in combination, a bow portion having a topside of approximately semi-circular shape, and a bottom terminating at an angle to the stem and substantially V-shaped in cross section with the sectional angles of deadrise decreasing sharply from forward aft, a midship portion having topsides of slight flare each containing the lowest point of its respective chine at approximately midsection and a bottom V-shaped in cross section with the sectional angles of deadrise decreasing to a substantial minimum at approximately midsection and increasing at a less rate from there aft, and a stern portion having topsides increasing in flare from chine to sheer from forward aft, and a bottom V-shaped in cross section with the sectional angles of deadrise increasing sharply from forward aft, said stern portion also having a topside portion of approximately semi-circular shape.

4. A boat hull having topsides each terminating in a chine curving from stem to stern downwardly to a low point substantially at the midship section, thence upwardly to the stern, and a bottom extending from each chine and terminating in a keel and extending from chine to chine in developable surfaces of varying angles of deadrise to provide a structure continuously V-shaped in section at all points throughout its length, comprising, in combination, a bow section having a topside portion of approximately semi-circular shape, and a bottom terminating at an angle to the stem and substantially V-shaped in cross section with the sectional angles of deadrise decreasing sharply from forward aft, and a stern portion having topsides increasing in flare from chine to sheer from forward aft, and a bottom V-shaped in cross section with the sectional angles of deadrise increasing substantially from forward aft.

5. A boat hull having topsides each terminating in a chine curving from stem to stern downwardly to a low point substantially at the midship section, thence upwardly to the stern, and a bottom extending from each chine and terminating in a keel and extending from chine to chine in developable surfaces of varying angles of deadrise to provide a structure continuously V-shaped in section at all points throughout its length, comprising, in combination, a bow portion having a topside portion of approximately semi-circular shape, and a bottom terminating at an angle to the stem and substantially V-shaped in cross section with the sectional angles of deadrise decreasing sharply from forward aft, and a stern portion having topside portions increasing in flare from chine to sheer from forward aft, and a bottom V-shaped in cross section with the sectional angles of deadrise increasing substantially from forward aft, said stern portion having a top-side portion terminating in a flat transom.

6. A boat hull having topsides, each terminating in a chine curving from stem to stern downwardly to a low point substantially at the midship section, thence upwardly to the stern, and a bottom extending from each chine and terminating in a keel and extending from chine to chine in developable surfaces of varying angles of deadrise to provide a structure continuously V-shaped in section at all points throughout its length, comprising, in combination, a bow portion having a topside portion of approximately semi-circular shape, and a bottom terminating at an angle to the stem and substantially V-shaped in cross section with the sectional angles of deadrise decreasing sharply from forward aft, and a stern portion having topsides increasing in flare from chine to sheer from forward aft, and a bottom V-shaped in cross section with the sectional angles of deadrise increasing sharply from forward aft, said stern portion also having a topside portion of approximately semi-circular shape.

7. A boat hull having topsides, each terminating in a chine curving from stem to stern downwardly to a low point substantially at the midship section, and a bottom extending from each chine and terminating in a keel extending from chine to chine in developable surfaces of varying angles of deadrise to provide a structure continuously V-shaped in section at all points throughout its length, comprising a bow portion having a topside portion of approximately semi-circular shape

and a stern portion having a chine substantially higher than that of the midship portion.

8. A boat hull having topsides, each terminating in a chine curving from stem to stern downwardly to a low point substantially at the midship section, and a bottom extending from each chine and terminating in a keel extending from chine to chine in developable surfaces of varying angles of deadrise to provide a structure continuously V-shaped in section at all points throughout its length, comprising a bow portion having a topside portion of approximately semi-circular shape and a stern portion having a chine substantially higher than that of the midship portion, said stern portion having a topside portion terminating in a flat transom.

9. A boat hull having topsides, each terminating in a chine curving from stem to stern downwardly to a low point substantially at the midship section, and a bottom extending from each chine and terminating in a keel extending from chine to chine in developable surfaces of varying angles of deadrise to provide a structure continuously V-shaped in section at all points throughout its length, comprising a bow portion having a topside portion of approximately semi-circular shape and a stern portion having a topside portion of semi-circular shape and a chine substantially higher than that of the midship section.

WILLIAM J. H. DYER.