March 31, 1964 J. H. STEVENS 3,126,557

BOAT CONSTRUCTION

Filed Sept. 5, 1961 2 Sheets-Sheet 1

FIG. 1

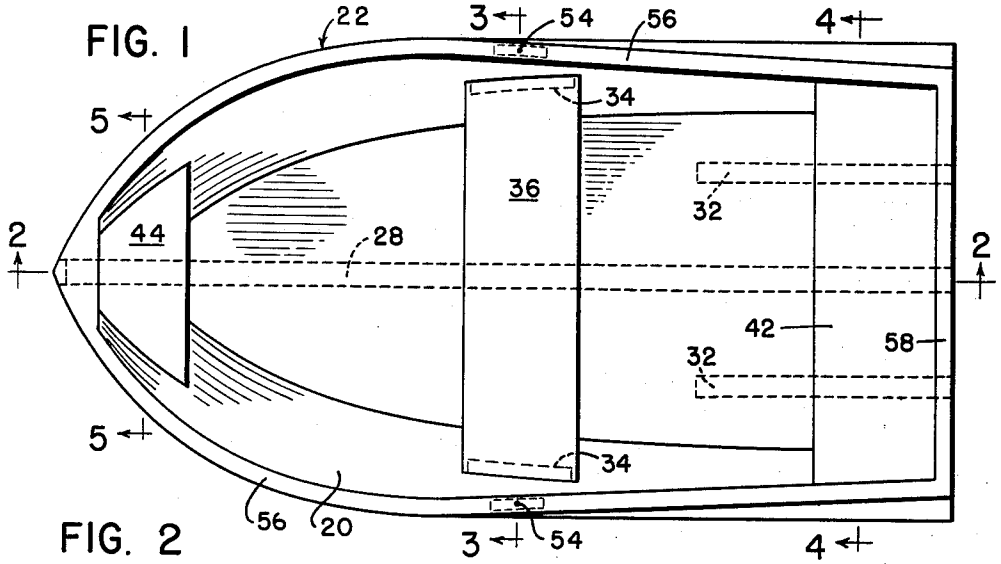
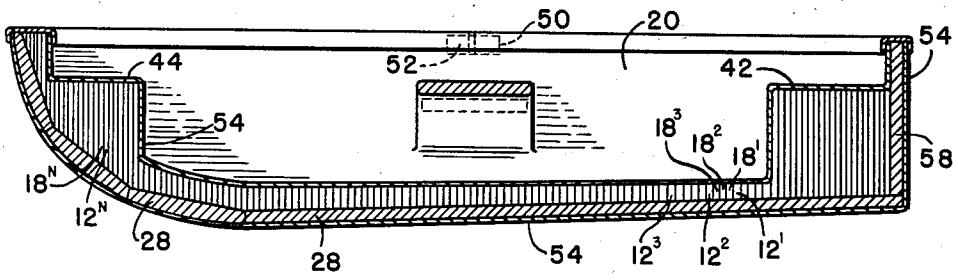


FIG. 2



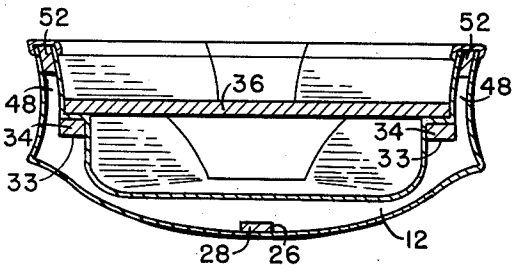


FIG. 3

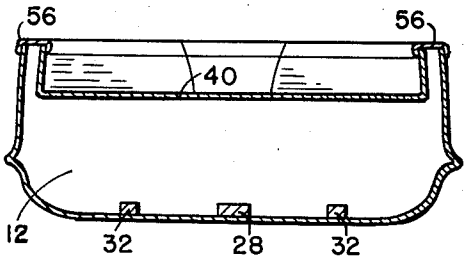


FIG. 4

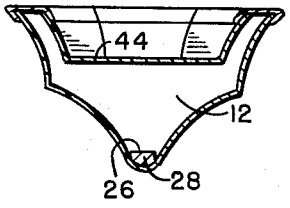


FIG. 5

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BOAT CONSTRUCTION

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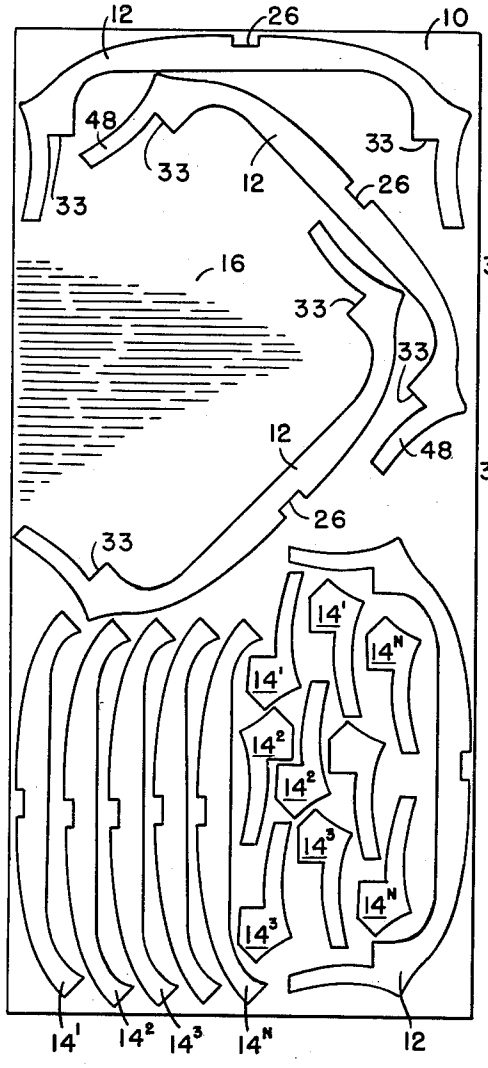


FIG. 6

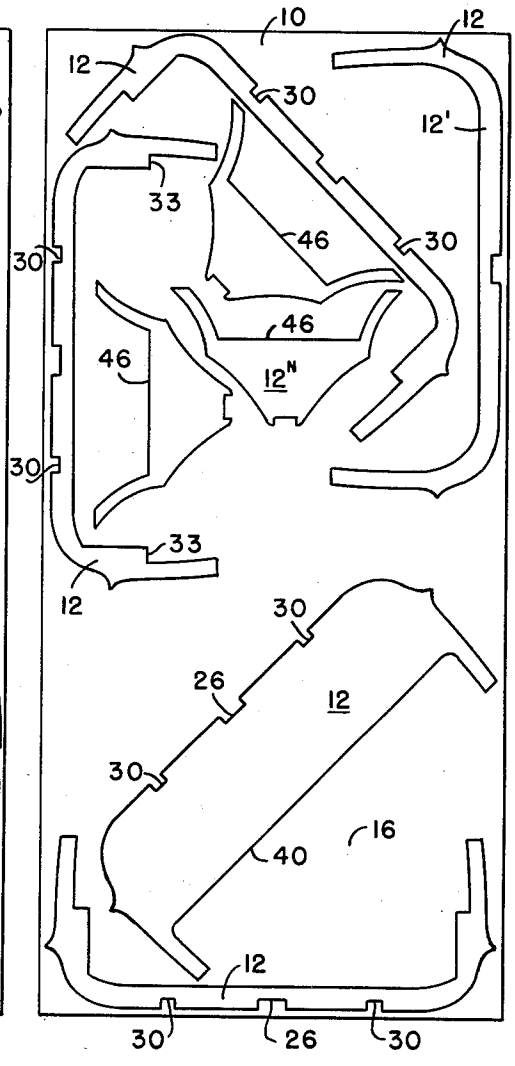


FIG. 7

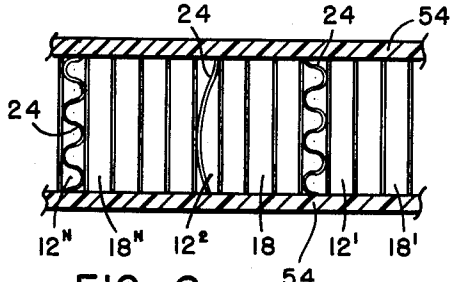


FIG. 8

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3,126,557

BOAT CONSTRUCTION

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Filed Sept. 5, 1961, Ser. No. 135,839
4 Claims. (Cl. 9—6)

My invention relates generally to boat building and more particularly to boat hulls formed of corrugated board sections and resin impregnated fabric.

My invention provides for an arrangement of hull sections stamped in corrugated sheets and separable therefrom for joining together, shaped, sealed and fitted in the manner particularly set forth in detail hereinbelow, to form a hull structure which is light in weight, easy and economical to manufacture and simple to maintain.

A further object of my invention is to provide a hull structure which is very strong for its weight.

A still further object of my invention is to provide a hull structure which may be constructed with no special tools, molds or equipment not ordinarily possessed by the ordinary householder.

Another important advantage of my invention results from the fact that boat hulls of different designs may easily be obtained by providing hull sections stamped in different shapes.

These and other objects of my invention will appear from a study of the following detailed description and drawings wherein:

FIGURE 1 is a plan elevation of a boat constructed according to the principles of my invention,

FIGURE 2 is a central longitudinal sectional view taken along line 2—2 of FIGURE 1,

FIGURE 3 is a transverse sectional view taken along line 3—3 of FIGURE 1,

FIGURE 4 is a transverse sectional view taken along line 4—4 of FIGURE 1,

FIGURE 5 is a transverse sectional view of the hull taken along line 5—5 of FIGURE 1,

FIGURE 6 is a plan elevation of a sheet of corrugated cardboard showing some of the hull sections stamped therein,

FIGURE 7 is a plan elevation of another sheet of corrugated cardboard showing more hull sections stamped therein, and

FIGURE 8 is a sectional view of a fragmentary portion of a constructed hull section particularly showing the ridges of the several corrugated members angularly displaced with respect to one another.

Referring now to the drawings, the material of my invention comprises a plurality of corrugated cardboard sheets designated generally by the numeral **10** and which have stamped or cut therein for ready manual separation therefrom hull sections and parts of hull sections designated generally by numerals **12** and **14** respectively. The corrugated cardboard sheets **10** are preferably impregnated with waterproofing compound. The hull sections **12** are compactly and unsymmetrically arranged in the corrugated cardboard sheets **10** so that a maximum number of hull sections **12** are obtained from each sheet **10**. To obtain an even greater number of hull sections from each sheet **10**, I prefer to provide, in spaces such as at **16** on each sheet **10** which are not sufficiently expansive to accommodate integral hull sections **12**, hull section parts 14^1, 14^2, 14^3, . . . 14^n, which are joined to form hull sections 18^1, 18^2, 18^3, . . . 18^n, at a ratio of approximately four divided hull sections **18** to each integral hull section **12**. The unsymmetrical arrangement of hull sections 12^1, 12^2, 12^3, . . . 12^n, and hull section parts 14^1, 14^2, 14^3, . . . 14^n, in corrugated cardboard sheets **10**, will provide an exceedingly strong structure when said hull sections **12** and **18** are adjacently posited

and bonded or glued together to form the hull **20** of boat **22**. This results from that fact that the parallel furrows and ridges of the corrugated members **24** of adjacent hull sections **12** and hull sections parts **14** which comprise hull sections **18**, are angularly displaced with respect to one another thereby providing a stress resisting area in hull **20** at each angular displacement thereof. Each hull section **12** and the hull section parts **14** which comprise each hull section **18** are shaped so that when adjacently posited in consecutive series and bonded in place, the longitudinal and lateral contour of boat hull **20** is formed.

By way of example, to illustrate a specific arrangement, I bond or glue approximately four sets of hull section parts **14**, each set thereof forming a hull section **18**, between integral hull sections **12**. The hull section parts **14** may be arranged on each sheet **10** so that when the hull section parts **14** are placed in position forming hull sections **18**, the parallel furrows and ridges of the corrugated panel member **24** of the hull section parts **14** are normal or approximately normal to the surface of the boat hull **20**. This specific arrangement will provide a very strong hull from the standpoint of crush resistance. It should be understood of course that various arrangements may be planned both in number, position and angular displacements of the corrugated member **24** of the hull section parts **14** forming hull sections **18** and hull sections **12**.

In providing hull sections 12^1, 12^2, 12^3, . . . 12^n, and hull section parts 14^1, 14^2, 14^3, . . . 14^n, to construct the hull **20** of boat **22**, I provide hull sections **12** and hull section parts **14** with notches **26** centrally of the bottom edge of said hull sections and parts thereof for receiving keel member **28**. Certain of the hull sections **12** and **18**, particularly the hull sections **12** and **18** which comprise the stern portion of boat **22**, are provided with notches **30** bilaterally arranged in the bottom edges of said hull sections for receiving reinforcing ribs **32**. Several of the hull sections **12** and **18**, particularly the hull sections which comprise the seating section of the boat **22**, are shaped with ledges **33** which project inwardly from the sides thereof on which are bonded rectangular wood block members **34** and to which a seat board **36** may be secured. If desired, in place of a seat board **36**, or in addition thereto, a seat platform **42** may be provided by shaping several of the hull sections **12** and **18** with a raised upper edge **40** so that when said hull sections **12** and **18** are united together in the hull **20**, a seating platform **42** is provided as shown in FIGURES 1 and 2. Platform **44** is similarly provided by shaping several of the hull sections **12** and **18** particularly the hull sections designated for the bow portion of the hull, with a raised upper edge **46**. Though I do not show a deck, it is apparent from the forgoing that deck sections may be shaped for uniting together to provide a deck which extends between the sides of the hull **20**. Several of the hull sections **12** and **18**, particularly said hull sections which form the central portion of the boat **22**, are shaped with short sides **48**. Said hull sections **12** and **18** having short sides **48** are united together and sandwiched between the hull sections **12** with longer sides so that combined therewith, notches **50** are provided in the sides of hull **20**. Said notches **50** are provided for receiving wood blocks **52** therein. Said blocks **52** are glued or bonded in said notches **50** and are provided with holes **54** to receive therein oar pins.

In accordance with the principles of my invention, I provide a plurality of cardboard sheets **10** having stamped therein a plurality of hull sections 12^1, 12^2, 12^3, . . . 12^n, and hull section parts 14^1, 14^2, 14^3, . . . 14^n, of varied shapes and which are best designated with symbols to

indicate the order of consecutive placement when uniting said hull sections **12** and parts **14** to construct hull **20** of boat **22**. The hull sections 12^1, 12^2, 12^3, . . . 12^n, and parts 14^1, 14^2, 14^3, . . . 14^n, are manually separable from sheets **10** in which they are stamped and glued or bonded together face to face in the consecutive order designated by the symbols differentiating the hull sections **12** and parts **14** of hull sections **18** to form the hull **20**. Keel member **26** and reinforcing ribs **32** are inserted and glued in aligned notches **26** and notches **30** respectively of hull sections **12** and **18**. I also secure to ledges **33**, rectangular wood block members **34** to which I secure seat board **36**. I further secure oar pin blocks **52** in notches **50** provided in the hull sides. I then work the exterior and interior surface of hull **20** with a shaving or an abrasive tool to obtain a smooth contour after which I cover the entire hull structure **20**, including the kneel member **28**, reinforcing members **32** and block members **34** and **52**, with a plastic skin **54**. I prefer to form this plastic skin **54** by applying to the hull structure **20** a coat of any of the waterproof plastic resins such as polyester or epoxy compounds. I then apply to the resin coated hull surface, a layer of matting which I saturate with said plastic resin compound and to which I apply with a layer of fiberglass fibers or cloth. The fiberglass layer is covered with several applications of plastic resin. If desired, additional layers of fiberglass material and plastic resin may be applied to build up the protective skin **54**. To provide the boat **22** with a finished appearance, I bond to the top edge of the hull **20** a plastic railing **56**.

Any section of the hull **20** which may be subject to severe stress such as by supporting an outboard motor on the stern portion may be substituted with a wood section **58**.

It should be understood that the novel means of providing hull sections and the boat constructed therefrom as shown and described herein are intended to exemplify the principles of my invention and that various modifications and arrangements of its component parts may be made within the scope of the appended claims.

I claim:

1. A boat hull comprising a plurality of corrugated cardboard hull sections, each of said corrugated cardboard hull sections comprising at least one planar panel member bonded to at least one corrugated panel member having parallel ridges and furrows, all of said hull sections being consecutively bonded together in contiguous face-to-face alignment forming the longitudinal contour of said boat hull, the shape of each of said hull sections being a transverse section of said boat hull, the parallel ridges and furrows of the corrugated panel member of each hull section being angularly displaced with respect to the parallel ridges and furrows of the corrugated panel member of an adjacent hull section, the collective edges of said consecutively and contiguously bonded hull sections forming the exterior and interior surfaces of said boat hull, and a water-seal covering adhering to said collective edges of said hull sections.

2. The boat hull of claim 1 wherein said hull sections include hull sections divided in segments and integral hull sections, said parallel ridges and furrows of the corrugated panel member of each of said hull section segments in each of said divided hull sections being angularly displaced with respect to one another, and said divided hull sections being sandwiched between said integral hull sections.

3. The boat hull of claim 2 wherein the number of hull sections divided in segments compared to the number of integral hull sections between which said divided hull sections are sandwiched, bears an approximate ratio of four to one.

4. A method of making a boat hull which comprises the steps of; providing a plurality of hull sections, each thereof corresponding to a cross section of said boat hull; bonding all of said hull sections consecutively together in contiguous face-to-face alignment in a hull contour forming sequence so that the collective edges of said consecutively and contiguously bonded hull sections form the exterior and interior surfaces of said boat, applying layers of plastic compound solution and a fibrous mating to the collective edges of said hull sections; and allowing said plastic compound to dry to form a water impervious covering to said boat.

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