

Oct. 1, 1957

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2,807,811

PLASTIC BOAT

Filed Jan. 10, 1956

Fig. 1

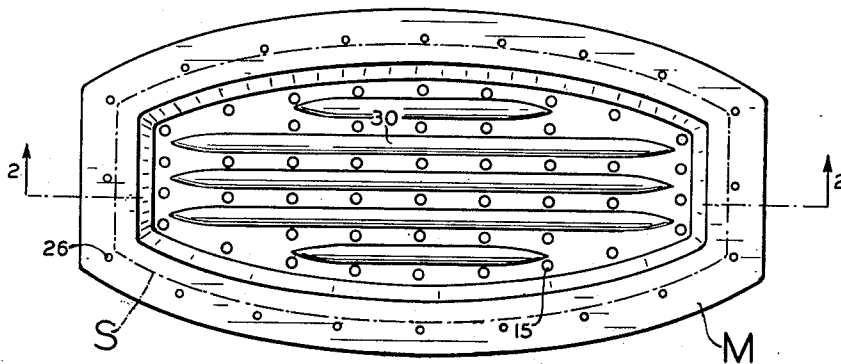
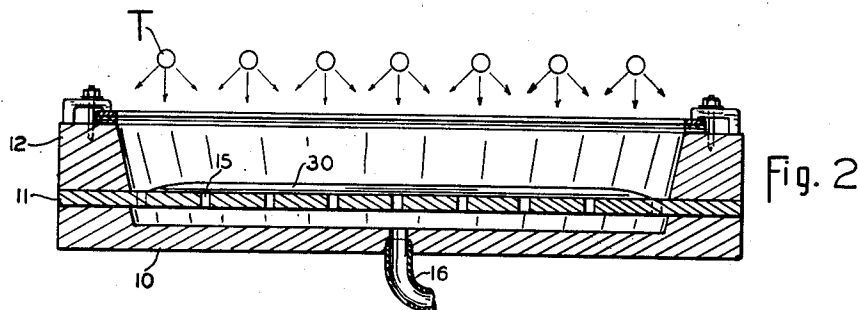


Fig. 2

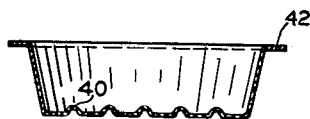


Fig. 3

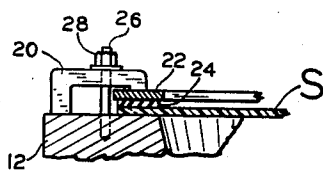


Fig. 4

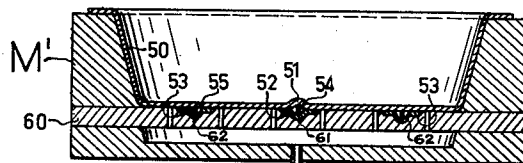


Fig. 5

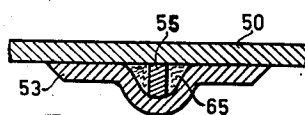


Fig. 6

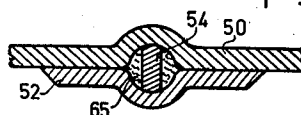


Fig. 7

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1

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PLASTIC BOAT

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Application January 10, 1956, Serial No. 558,250

1 Claim. (Cl. 9—6)

This invention relates to a boat of one-piece or unitary construction, and also to a preferred method and apparatus for making such a boat.

This application is a continuation in part of our original application Serial No. 486,852 filed by us February 8, 1955,

It is the general object of our invention to provide an improved one-piece or unitary type boat which is light in weight, firm and reliable in construction, economical to manufacture, and permanently water-tight. We also provide an improved and simplified method and apparatus for manufacturing such a boat of one-piece type.

Our invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claim.

A preferred form of the invention is shown in the drawings, in which

Fig. 1 is a plan view of a mold used in the construction of our improved boat, but with clamps omitted;

Fig. 2 is a sectional side elevation, taken along the line 2—2 in Fig. 1;

Fig. 3 is a transverse sectional view of our improved boat;

Fig. 4 is an enlarged detail sectional view to be described;

Fig. 5 is a transverse sectional elevation showing a modified construction; and

Figs. 6 and 7 are enlarged sectional views of certain portions of the boat shown in section in Fig. 5.

For the manufacture of our improved boat in the form shown in Figs. 1 to 4, we provide a mold M comprising a base 10, an intermediate or partition member 11, and an upper frame member 12. These three parts are permanently secured together in any convenient manner and constitute in effect a one-piece structure. The partition member 11 is provided with a multiplicity of holes or openings 15, and the base 10 is provided with an exhaust pipe or connection 16.

Our improved boat is formed from a single sheet S of plastic material which is substantially larger than the opening in the frame member 12 and which is indicated by a broken line in Fig. 1. This sheet S may be secured against the upper surface of the frame member 12 by a plurality of clamps 20 (Fig. 4) resting on an open frame member or plate 22 which is positioned above a suitable gasket 24 resting on the sheet S. Studs 26 and nuts 28 are provided for tightening the clamps 20.

The upper surface of the partition member 11 is preferably provided with a number of raised ribs 30, and the holes 15 are distributed around the bottom edge of the recess in the frame member 12 and also between the raised ribs 30.

In the manufacture of a boat by use of the described mold, the sheet of plastic S is firmly secured in position by the clamps 20 and is then subjected to radiant or other heat until the plastic material becomes very soft and pliable. Heating tubes are indicated at T in Fig. 2.

Air in the space enclosed by the mold M and the sheet S is then exhausted through the holes 15 and the exhaust connection 16, and the sheet of relatively soft plastic material is drawn down into the mold M and into close contact with the partition member 11 and with the ribs 30.

The sheet S is held in this depressed position by maintaining exhaust conditions below the partition member

2

11 until the plastic material has cooled and rehardened, after which the resultant boat may be removed and will be found to have assumed the sectional outline shown in Fig. 3.

The ribs 30 will have produced longitudinal corrugations 40 which will greatly stiffen the bottom of the boat, and the clamped edge portion of the sheet S will provide a flange 42 around the top of the boat.

The plastic boat thus constructed is then ready for use, after providing seats and removable floorboards as desired. The upper edge of the boat may also be reinforced by a suitable gunwale.

In the modified construction shown in Figs. 5 to 7, the boat 50 has a single raised longitudinal rib or corrugation 51 similar to the corrugations 40 shown in Fig. 3, and also has exterior corrugated reinforcing strips 52 and 53.

The strip 52 underlies the corrugation 51, and a reinforcing bar 54 is positioned in the longitudinally-extending recess formed between the parts 51 and 52.

The strips 53 provide similar lengthwise recesses which receive reinforcing bars 55.

The partition member 60 in the mold M' is similar to the member 11 shown in Fig. 2 but has additional thickness, so that it may be recessed at 61 and 62 to receive and position the longitudinal reinforcing strips 52 and 53.

The upper surfaces of the longitudinal strips 52 and 53 may be treated with a suitable cement or solvent before the plastic sheet to be molded is pressed downward into the mold and against said longitudinal strips.

The reinforcing bars 54 and 55 will be placed in the longitudinal strips 52 and 53 after they have been placed in the partition member 60, and any open spaces at the sides of the bars 54 and 55 may be filled with any suitable filling material 65 (Figs. 6 and 7) before the plastic material to form the bottom of the boat 50 is forced against the longitudinal strips.

With this construction, the inner bottom surface of the boat is left smooth, except for the single middle corrugation 51, but at the same time the boat is substantially stiffened by the longitudinal corrugated strips 61 and 62 and by the reinforcing bars 54 and 55.

Our improved boat thus constructed is of light-weight and satisfactory strength and rigidity, and may be manufactured in quantity at extremely low cost.

Having thus described our invention and the advantages thereof, we do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claim, but what we claim is:

A boat comprising a single piece of plastic material, said boat having an integral side wall and bottom structure, and said bottom having a middle stiffening structure comprising an inner integral raised longitudinal corrugation, a corrugated outer strip coacting therewith and providing a longitudinally-extending recess, a reinforcing bar seated in said recess between said inner corrugation and said outer strip, additional longitudinally-recessed stiffening strips secured to the outer bottom surface of the boat and spaced at each side of said middle reinforcing structure, and additional reinforcing bars positioned and covered by said additional strips.

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