Sept. 12, 1961 H. J. NOLDE 2,999,254

BUOYANT BOAT CONSTRUCTION

Filed Feb. 24, 1959

FIG. 1

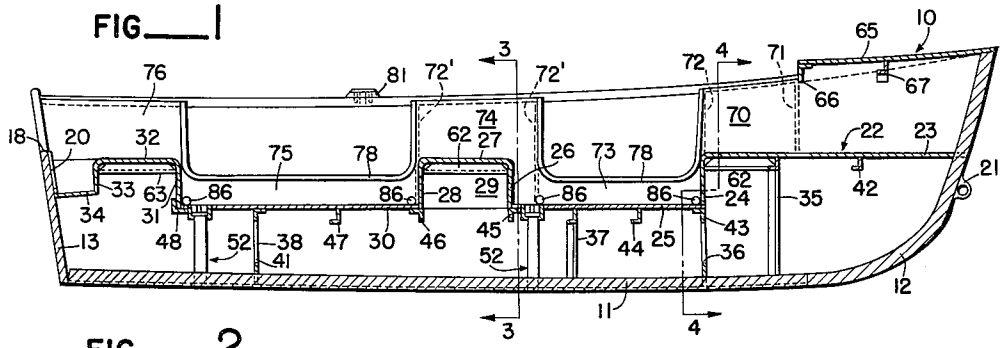
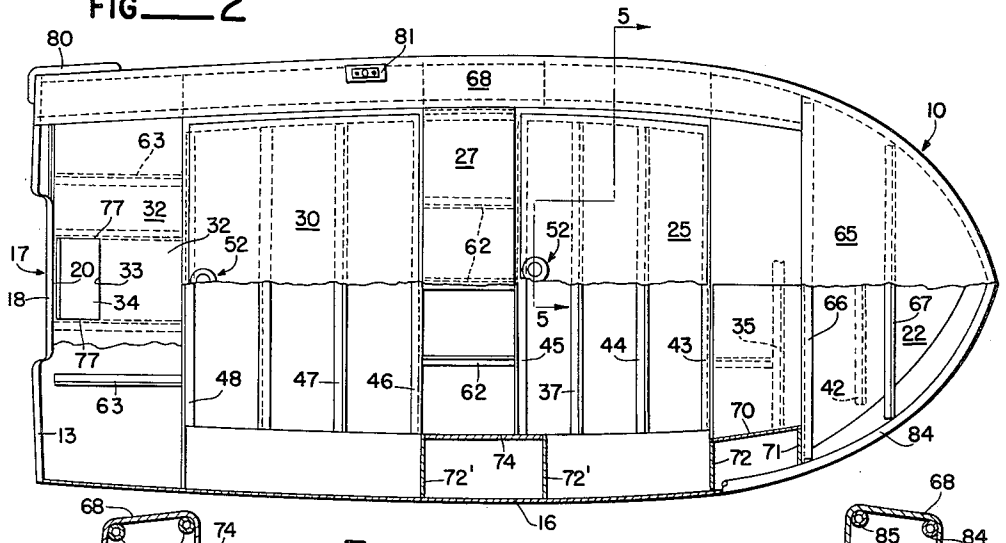


FIG. 2



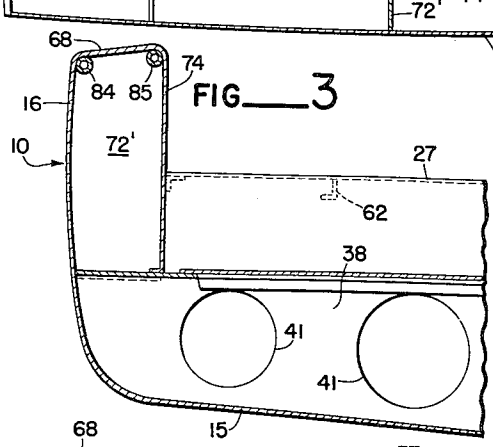


FIG. 3

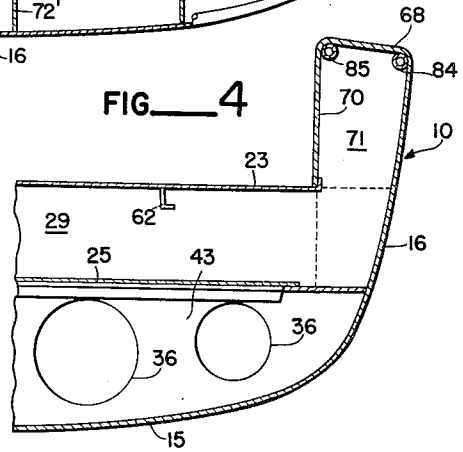


FIG. 4

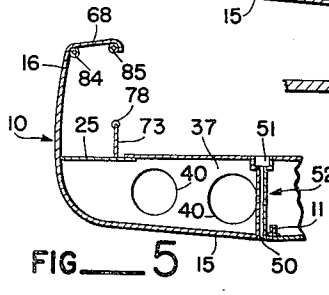


FIG. 5

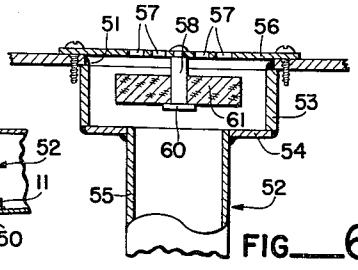


FIG. 6

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BUOYANT BOAT CONSTRUCTION

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2 Claims. (Cl. 9—3)

This invention relates to a boat and more particularly, to a boat having a series of separate buoyancy compartments so that in case of an accident the boat will remain afloat and will not sink.

An object of this invention is a provision of a boat having a number of sealed air compartments running both longitudinally and transversely of the boat so that in case of an accident to one or more air compartments there would still be sufficient buoyancy to keep the boat afloat and to prevent it from sinking.

A further object is a provision of numerous locker compartments in the boat for storage purposes of preservation equipment and also recreational equipment.

A conditional object is a provision of a boat wherein the hull functions as a wall of an air compartment and also wherein the interior walls of the air compartments are structurally utilized to reinforce the hull.

An additional object is a provision of air compartments which function also to provide seating space for passengers in the boat.

Another object is a provision of a boat having a self-bailing means wherein it is possible for liquid in the boat to run out of the boat without the necessity of resorting to hand-bailing.

A still further and important object is a provision of a light-weight boat which can be carried relatively easily by two men.

These and other important objects will be more particularly brought forth in the following specific description and the claims.

In the drawings:

FIGURE 1 is a vertically longitudinal sectional view of a boat of the invention constructed in accordance with the preferred teachings thereof;

FIGURE 2 is a plan view looking down on the boat with parts of the upper sections removed to more clearly show the details of construction;

FIGURE 3, on enlarged scale, is a fragmentary vertical cross-sectional view looking towards the stern of the boat as on line 3—3 of FIGURE 1;

FIGURE 4 is a fragmentary lateral vertical cross-section view looking toward the bow of the boat as on line 4—4 of FIGURE 1;

FIGURE 5, on a reduced scale, is a fragmentary lateral vertical cross-section view looking towards the bow of the boat as on line 5—5 of FIGURE 2; and,

FIGURE 6, on an enlarged scale, is an upright cross-sectional view of self-bailing means used in the boat.

Turning now to the drawings it is seen that the invention comprises a boat 10 having keel 11, bow stem 12, transom 13, and hull skin comprising a bottom 15 and sides 16.

The transom 13 is flat and has a recess 17 in its upper central portion to receive an outboard engine. On the inside of the transom and directly below the lower edge 18 of the recess is a doubler or reinforcing plate 20. Transom 13 may be of solid wood, or plywood, or metallic.

Keel 11 runs along the bottom of the boat from the transom 13 to the bowstem 12 which rises in a curve from the forward end of the keel 11 to the leading edge of the bow. Towing eye 21 is secured in the bowstem 12. This towing eye may be welded to the bow stem if the latter be metallic or it may be attached by other suitable means.

Spaced apart above the bottom 15 is floor, designated as a whole, 22. This floor comprises a number of depressed and raised areas which form seats and wells for the occupants' feet and legs or for gear. Progressing rearward from the bow 12 the bow floor section 23 is substantially flat as it extends from the bow rearwardly approximately ⅕ the length of the boat. Floor 23 bends downwardly at approximately right angles to form wall-section 24 which is approximately ⅕ of the interior height of the boat. The wall-section 24 then bends approximately right angles toward the stern of the boat to form floor-well section 25 which extends rearwardly approximately ⅕ of the length of the boat. This floor-section 25 then bends upwardly at approximately right angles to provide a wall 26 which with seat-section 27 and wall 28 forms raised chamber 29. Wall-section 28 next bends approximately at right angles toward the stern of the boat to form floor-section 30 which is approximately ¼ the length of the boat. From this floor section 30 wall 31 rises upwardly and in turn bends at approximately a right angle toward the stern of the boat to form rear seat-section 32. At the rear of seat-section 32 downwardly directed wall-section 33 extends toward the stern of the boat and merges with floor-section 34 secured thereto.

Underlying the floor 22 are a number of lateral supporting bulkheads extending between the bottom of the boat and the floor 22. More particularly, in the bow of the boat is bulkhead 43 provided with a number of holes 36 therein to lighten the boat and permit intercommunication between chambers. Near the center of the boat a lateral frame 37 extends between the keel 11 and the floor-section 25. At the stern of the boat is bulkhead 38 which rises from boat bottom and keel 11 to floor-section 30.

In addition to the supporting bulkheads 38 and 43, there are numerous transverse reinforcing beam members comprising metal angle bars. More particularly, in the bow and underlying floor 23 is transverse angle beam 42. At the juncture of wall 24 and floor-section 25 is transverse bulkhead 43 and underlying floor-section 25 is transverse angle beam 44. At the junction of floor-section 25 and wall 26 is transverse angle beam 45. At the junction of wall-section 28 and floor section 30 is transverse angle beam 46 and underlying floor-section 30 is transverse angle beam 47. At the junction of floor-section 30 and wall section 31 is transverse angle beam 48. All angle beams are supported at their ends and are attached to the overlying floor plate sections to stiffen the same.

In this boat are self-bailing means making it possible for water which gets into the boat to run out of the floor and downward back into the main body of water. Two similar self-bailing means are used so that their position in the boat varies. Only one will be described with particularity. In the bottom of the boat and near the keel 11 is opening 50 (FIGURE 5) and positioned there above in the floor of the boat is opening 51. Opening 51 is approximately twice the diameter of the opening 50. Running between these two openings is a tubular drain means 52 having a relatively large circular cup-like member 53 with vertical side walls and bottom 54 which is connected with pipe 55. Preferably the members 53, 54 and 55 are welded into an integral unit. Cup member 53 is also welded to the floor section at opening 51 to form a sealed unit. Pipe 55 is welded to

the bottom 15 of the boat at opening 50 to form a sealed unit. Overlying the opening 51 is a strainer plate 56 having a series of openings 57 therein. Depending from the underneath side of this plate is a stem 58 having an enlarged head or flange 60 on its lower end. Positioned between flange 60 and the bottom of disc 56 is a toroidal-shaped float 61 which may be of cork or other similar buoyant material. Upon the rise of water into tube 55 and cup 53, float 61 moves upward and seals the apertures 57 and prevents water passing through these apertures into the boat. Conversely, with the level of the water relatively low, float 61 rests on flange 60 and water on or above the floor 22 flows through the apertures 57 down tube 55 and out. In effect, the combination defined is a one-way valve. The disc 56 and the float-means associated with it are attached to the floor by metal screws.

Underlying each of seat sections 27 and 28 is a stiffener and supporting plate. More particularly, under seat 27 and running between the wall sections 26 and 28 is metal brace 62. Underlying the seat 32 and running between wall-sections 31 and 33 is metal brace 63.

Extending between the sides 16 of the boat at the bow and attached to the upper edges of hull sides 16 is deck 65. An angle beam 66, at the junction of the bulkheads 64 and the deck 65, stiffens the boat at the bow. Under deck 65 and running transversely from side to side is an angle beam 67 also for bracing purposes. The floor-section 23, bulkhead 64, deck 65, and the side 16 of the boat define a transverse air-chamber.

The sides 16 swell upwardly from bottom 15 and then bend somewhat at less than a right angle to form gunwales 68 along the upper sides. Near the bow of the boat, from gunwale 68 downwardly is interior wall 70 which extends to the floor section 23. Transverse wall 71 extends between each side 16 and the adjacent interior wall 70. At the rear end of wall 70 is transverse wall 72 between a side 16, the floor section 23 and wall 70. In this particular instance, wall 70, the gunwale 68, side 16, and the two transverse end walls 71 and 72 define the forward gunwale chamber.

Gunwale 68 at the end of transverse wall 72 bends at about a right angle downwardly toward the floor but extends only a short distance. Extending upward from floor section 25 is an interior wall section 73 which is positioned substantially in line below the gunwale 68. In this instance, the side 16, the gunwale 68, the floor section 25 and the interior wall section 73 define a locker or bin.

Approximately at the mid-section of the boat the gunwale again bends downward to form interior wall 74 which joins floor section 25, floor section 30, and the seat 27. In this particular instance the gunwale 68, side 16, interior wall 74 and the floor sections 25, 30, and the seat sections 27, with end walls 72 define a mid-section air compartment.

The floor section 30 a short rising wall section 75 which extends between the transverse wall section 28 and the transverse wall section 31. The boat side 16, gunwale 68, floor 30, and the wall section 75 define a locker or bin for storage of life-preserving equipment or recreational equipment such as fishing gear, and the like. In the stern of the boat the gunwale 68 joins wall 76 which extends downwardly to floor section 32 and also joins with transverse wall section 31 and transom 13 and, in conjunction with the side 16, defines a stern air compartment at each rear corner of the boat hull.

In the stern of the boat, seat section 32, as previously stated, merges downwardly with transverse wall section 33 and floor section 34. The transverse wall 33 does not run from side to side of the hull but extends only in short distances and then joins lateral side walls 77 at each end which in turn junction with stern transom 13. In this manner is formed a recess for the clamps of an outboard motor when engage over lip 18.

As fairing and protective means for the exposed edges of the wall sections 70, 73, 74 and 75, partly forming the lockers, there may be applied a strip of rubber or other suitable plastic 78. The stern of the boat at the edge of the transom and running around to the sides there may be a bumper of guard-rail 80. On the gunwale 68 are mounted oarlocks 81 for manual manipulation of the boat.

In the manufacture of this boat hull there may be employed numerous reinforcing means such as longitudinal angle bars 62 underlying the seat section 27 and angle bars 63 underlying seat section or floor section 32. As shown in FIGURES 3 and 4, at the junctions at both the inner and outer edges of the gunwale 68 may be longitudinal tubes 84 and 85. These tubes are for structural purposes and, by being exposed, smooth the inner and outer edges of the gunwales at both sides of the hull. They also reinforce the metal sheet forming the sides of the boat and the interior walls of the boat. Preferably these tubes extend between the bow of the boat and the transom 13.

In the lower interior side walls of the lockers are weep or drain holes 86 which permit water or other liquids which may get into the lockers or bins to escape the boat floor to run off through the bailing means.

Having presented my invention, I claim:

1. A metal boat, comprising: a hull having a bottom with integral sides, a stern and a bow; a floor spaced apart above said bottom and on its periphery integrally joined with the hull to form a bottom buoyancy chamber; said floor near the stern of the boat rising to form a stern-transverse wall, said stern-transverse wall bending in the direction of the stern to form a stern-transverse seat; said floor near the bow rising to form a bow-transverse wall and said bow-transverse wall bending toward the bow to form a bow-transverse seat, a transverse bulkhead in the bow integrally joined with the upper surface of the floor integrally joined with the hull sides; a deck in the bow peripherally integral with the hull and the transverse bulkhead to form a bow buoyancy chamber; each of the sides of the hull bending interiorly over into a gunwale overlying the sides of said floor, a section of the gunwale bending over into an interior wall spaced from the hull side and extending to and joining with the floor; a pair of transverse walls integral with each said interior wall and the related hull side to form a gunwale buoyancy chamber at each side of the hull above an edge portion of said bottom buoyancy chamber; an interior wall extending beyond said transverse walls at the floor to form a lower interior wall and with the floor, the adjacent side, the transverse wall, and the gunwale defining a locker above the floor; said boat having a notched transom to receive an outboard motor; and wall means associated with said stern-transverse seat beneath and to the rear thereof to define an outboard motor compartment forward of the transom.

2. A metal boat, comprising: a hull having a bottom with integral sides, and a bow and stern; a floor spaced apart above said bottom and on its periphery integrally joined with the hull to form a bottom buoyancy chamber; said floor having an intermediate raised section to provide a thwart amidships of the hull; a transverse bulkhead at the bow integrally joined with the upper surface of the floor; a deck on the bow having its periphery integrally joined with the hull and with the transverse bulkhead to form a bow buoyancy chamber, each side of said hull bending interiorly over into a gunwale overlying the sides of said floor, a depending wall from said gunwale extending to the floor in spaced relation to the adjacent side and sealed at its ends to the adjacent side to form a gunwale buoyancy chamber above an edge portion of said bottom buoyancy chamber; said depending wall extending beyond said chamber to form in conjunction with the side of the hull, the gunwale and the floor, a locker; a bailing means, comprising formed in the hull bottom, and in the floor aligned openings, a tube extending between the opening in the bottom and the opening in the floor, said tube being

integrally joined with the bottom and with the floor, a valve in said tube, and comprising a float and a wall overlying said float having an aperture therein, said float being adapted to drop when not buoyed to permit liquid to run through the floor aperture, past the float but preventing water to rise above the float and through the aperture into the hull.

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