

Jan. 20, 1970

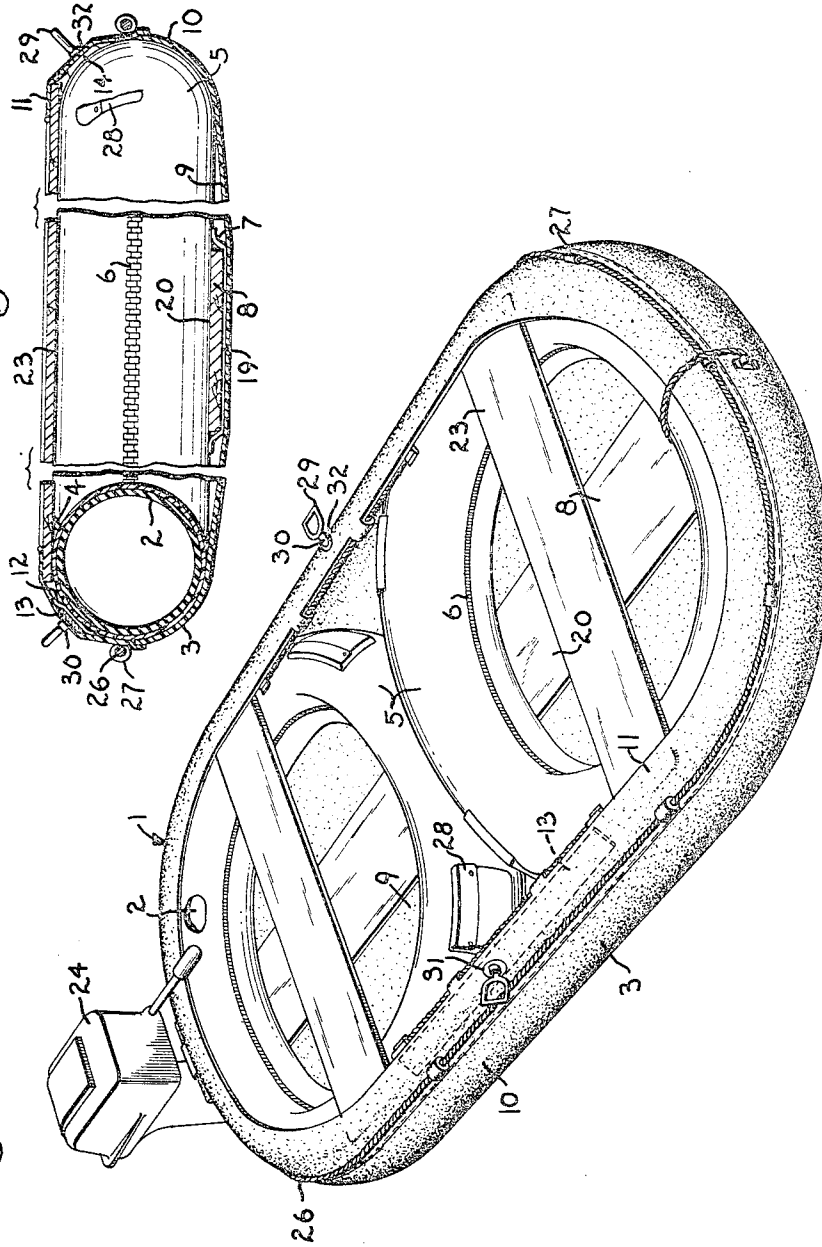
C. T. LEWIS  
INFLATABLE BOAT

3,490,085

Filed June 7, 1968

2 Sheets-Sheet 1

Fig. 1.  
Fig. 4.



INVENTOR  
CHARLES T. LEWIS

BY  
*Frickborn, Gold & Lottman*  
ATTORNEYS

Jan. 20, 1970

C. T. LEWIS

3,490,085

INFLATABLE BOAT

Filed June 7, 1968

2 Sheets-Sheet 2

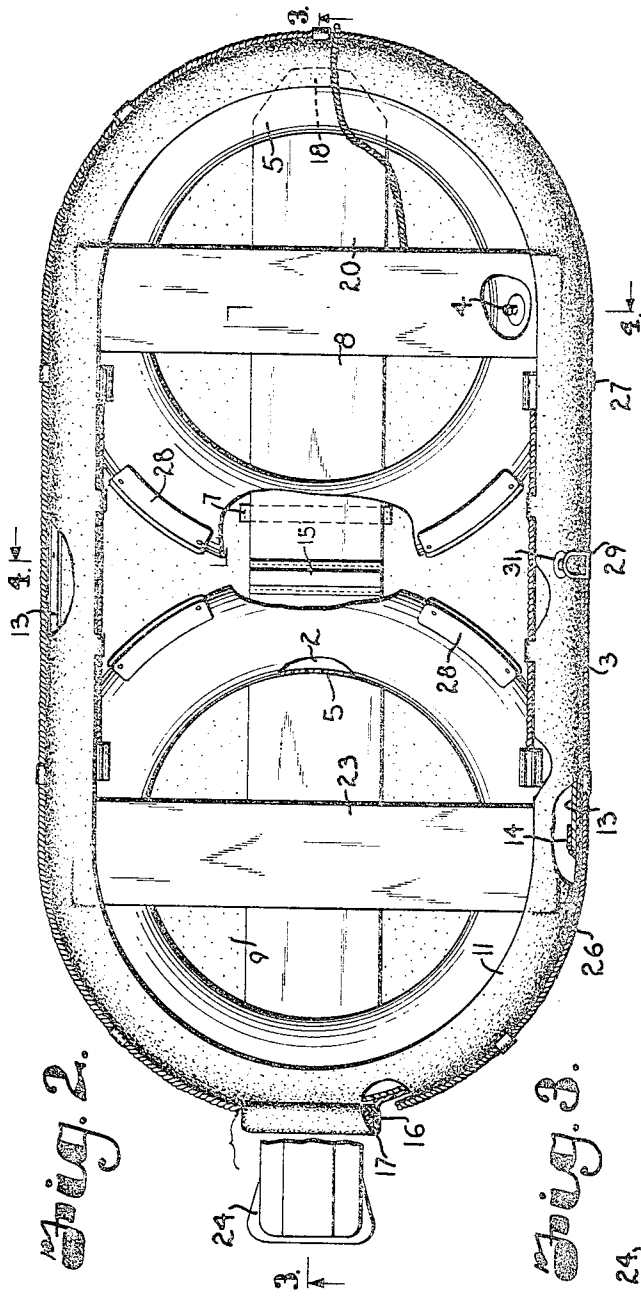


Fig. 2.

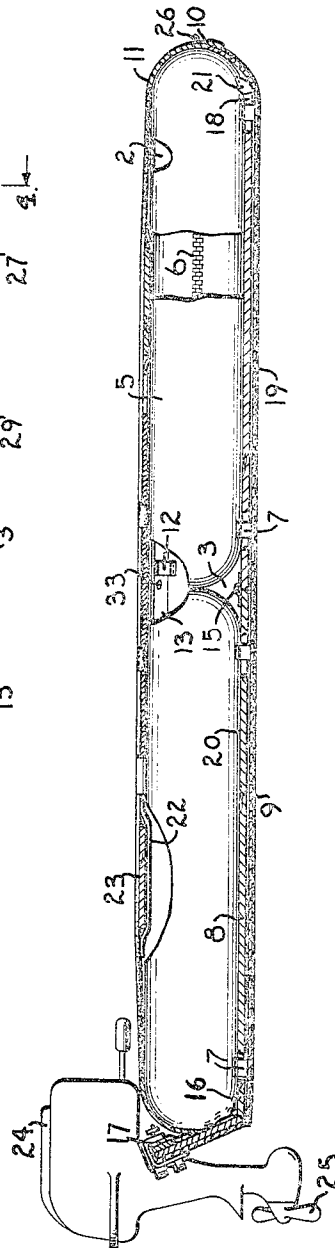


Fig. 3.

INVENTOR.  
CHARLES T. LEWIS

BY

*Fritchburn, Gold and Latham*  
ATTORNEYS

1

2

3,490,085

**INFLATABLE BOAT**

Charles T. Lewis, 3601 S. Beyers, P.O. Box 95089,  
Oklahoma City, Okla. 73109

Filed June 7, 1968, Ser. No. 735,376

Int. Cl. B63h 7/08

U.S. Cl. 9-2

11 Claims

**ABSTRACT OF THE DISCLOSURE**

An inflatable boat has a plurality of inflatable members contained in jackets positioned in a flexible hull. Hull stiffeners are mounted on each side of the hull and extend between adjacent inflatable members thereby maintaining same in a coplanar relation. A substantially rigid longitudinal keel stiffener extends through loops on a bottom surface of the jackets and between a bow end and a stern end of the hull for longitudinally aligning same therein and has an upstanding portion received in a pocket in the hull stern end for supporting power means for driving the boat. A plurality of elongate deck members each have opposite ends received in loops in an upper surface of the hull.

The present invention relates to pneumatically inflatable boats and more particularly to such boats having a plurality of inflatable members contained in a flexible hull and having an elongate keel stiffener in said hull engaging said inflatable members.

The principal objects of the present invention are: to provide a novel light weight pneumatically inflatable boat particularly adapted for pleasure boating and fishing; to provide such a boat which is easily and simply assembled; to provide such a boat which is deflatable and collapsible and easily stored in a minimum space; to provide such a boat which has a plurality of inflatable members longitudinally aligned within a flexible hull and maintained in a substantially coplanar relation by hull stiffeners; to provide such a boat which is flexible and damage resistant and which is simple to repair and easily maintained; to provide such a boat which is economical to manufacture; and to provide such a boat which is extremely buoyant, stable, safe in use, and difficult to capsize.

Other objects and advantages of this invention will become apparent from the following description taken in connection with the accompanying drawings wherein are set forth by way of illustration and example certain embodiments of this invention.

FIG. 1 is a perspective view of an inflatable boat embodying features of the present invention.

FIG. 2 is a plan view of the inflatable boat with portions broken away to show the parts thereof.

FIG. 3 is an elevational view with portions broken away to show the component parts.

FIG. 4 is an enlarged transverse sectional view through the boat taken on line 4-4, FIG. 2.

Referring more in detail to the drawings:

The reference numeral 1 generally designates an inflatable and collapsible boat which is particularly adapted for fishing and other recreational activities. The inflatable boat has a plurality of inflatable members 2 each contained within an elongate flexible hull 3.

The inflatable members 2 are illustrated as annular tubular members each of which is inflated and deflated through a conventional stem 4 with a valve therein, such as tire stems and valves, whereby air or suitable gaseous pressure from a suitable source, such as a pump or portable air compressor (not shown), may be introduced and retained in the inflatable members 2. It is preferable

that the inflatable members 2 be of a suitable resilient and collapsible material, such as rubber, plastic or the like and while it is preferred that they be lighter in weight conventional tractor tire tubes may be used.

It is preferable that the inflatable members 2 be thin walled, light weight members and that they be protected from damage and weathering. In the illustrated structure, each inflatable member 2 is contained within a fabric jacket 5, which when closed is a generally tubular member of the shape of a respective inflatable member 2. Each jacket 5 is of a size for the portion of the boat 1 which it forms, and has a zipper 6 for closing thereof after the respective inflatable member 2 has been placed therein. The jackets 5 are preferably formed of strong wear resistant material and substantially non-stretchable, such as a water resistant nylon fabric. The jackets 5 are illustrated as annular tubular members conforming to the shape of the inflatable members 2 and each has a pair of diametrically opposed loops 7 on a bottom surface thereof for receiving a keel stiffener 8 therethrough, as later described.

The elongate flexible hull 3 closes the opening through the inflatable members 2 and their respective jackets 5 by means of a planar bottom portion 9 and a side portion 10 extending upwardly from a periphery of the keel bottom portion 9. A flange 11 extends inwardly from an upper edge of the side member 10 and is adapted to engage an upper portion of the jackets 5 when same are expanded by the inflatable members 2 therein whereby the air pressure in the inflatable members 2 maintain a firm engagement between the respective jackets 5 and the side portion 10 and flanges 11 of the hull 3. The hull 3 is preferably of a waterproof wear resistant fabric as for example a rubberized or otherwise waterproofed nylon. The hull is made in sections for ease of fabricating, as for example the bottom portion 9 is one piece and the side portion another with adjacent edge sewed or otherwise secured together and the seam waterproofed.

The annular tubular inflatable members 2 expand until restricted by the respective jacket 5 which when properly positioned within the flexible hull 3 engage the inside surfaces of the hull and at least one adjacent jacket 5 thereby tending to elongate the hull 3 so that the upper flange 11 is placed in tension and is drawn inwardly toward the longitudinal center or axis of the boat 1. The tension in the flange 11 resists in a curved surface around the annular inflatable members 2 and their respective jackets 5 and a recess or depression in the side member 10 of the hull 3 at a position adjacent the point where the inflatable members 2 engage each other.

It is desirable to maintain adjacent inflatable members 2 in a coplanar relation thereby providing a greater surface area in contact with the water surface whereby the stability of the boat and the resistance to capsizing is substantially increased. In the illustrated structure, the side member 10 has a plurality of longitudinally spaced loops 12 adapted to receive elongate hull stiffeners 13 and each jacket 5 has pocket-like members 14 in opposed relation which receive ends of the stiffeners 13 so the inflated tubes and jackets 5 thereon cooperate with the stiffeners 13 to hold the upper side portions of the hull in line and said sides curved inwardly to maintain substantially coplanar relation of the inflatable members 2.

The keel bottom member 9 is sufficiently strong to support the weight of passengers within the boat 1, however, it is flexible and deforms under their weight, therefore, it is desirable to provide a substantially rigid member, such as the keel stiffener 8, which will give confidence to the passenger and distribute the applied load over an enlarged surface area of the keel bottom member 9. The keel stiffener 8 engages the lower surfaces of the jackets 5 and is illustrated as an elongate substantially rigid

3

member extending longitudinally of the inflatable boat 1 and passing through the loops 7 that are at front and rear of the lower portion of the jackets 5. The keel stiffener 8 may be one piece, however for conserving of space in storage and transportation it is preferably foldable and in the illustrated structure has at least one hinge 15 intermediate the ends thereof. The hinge 15 is illustrated as being positioned to allow the keel stiffener 8 to bend between adjacent jackets 5 thereby providing a flexibility to the boat 1 when engaging an obstacle (not shown) in the water, but also utilizing the stiffener 13 to resist any such bending or hinge action in the keel stiffener 8.

The stern end 16 of the keel stiffener 8 is hingedly connected thereto and adapted to be moved from a folded position to a position substantially perpendicular to the plane of the adjacent keel stiffener portion and is received in a pocket 17 in the stern end of the hull 3. The bow end 18 of the keel stiffener 8 is rounded and pointed and is beveled from a lower surface 19 toward an upper surface 20 thereof thereby conforming the bow end 18 to the general shape of the bow end of the hull 3. It is also preferable that the keel stiffener 8 in addition to being a substantially rigid member also be buoyant in water, such as an elongate wooden plank.

It is also preferable that the hull 3 be of a suitable waterproof flexible fabric, such as nylon fabric and that the bow end of the hull 3 contain suitable reinforcing in a pocket 21 such as additional layers of fabric to protect the bow end 18 of the keel stiffener 8 and prevent same from rupturing the hull 3.

The upper surfaces of the jackets 5 are sufficiently strong to support the weight of passengers or equipment, however, it is desirable to provide a substantially firm surface to thereby avoid the deformation which occurs in flexible members. A plurality of longitudinally spaced loops 22 are therefore mounted on a lower surface of the flange 11 in longitudinally aligned opposed pairs for receiving opposite ends of deck members 23 whereby the deck members 23 when resting on the jackets of the inflated members are securely held in position and are adapted for passenger seats or for supporting various equipment.

The boat 1 may be propelled by manual means, such as paddling with suitable paddles (not shown). The boat 1 may also be propelled by suitable power means, such as an outboard motor 24 having a conventional propeller 25, which is mounted on the stern end 16 of the keel stiffener 8 with the motor 24 being mounted on the exterior surface of the pocket 17.

It is desirable to have a rope 26 which extends around the periphery of the hull 3 and through a plurality of loops or keepers 27 mounted thereon whereby the rope 26 may be used to pull the boat 1 and to tie same to a suitable mooring member, such as a dock (not shown). The rope 26 is also available for lifting the boat 1 out of the water and for a person in the water to hold on to if they should fall overboard.

An accessory for containing miscellaneous equipment, such as fishing lures, sun glasses, and the like is illustrated as a pouch 28 mounted on the packets 5. The pouches 28 are preferably positioned for easy access and in the illustrated structure are positioned at the center of the boat 1 and between adjacent jackets 5.

It is noted that two inflatable members 2 and jackets 5 have been illustrated, however, it is to be understood that any number from one up may be used and that the inflatable member 2 may be of a shape other than annular tubular members as illustrated. Also all pocket members, loops and the like are secured to the respective jacket or hull by suitable means such as adhesive or sewing. If sewed the seams are waterproofed.

In order for the boat to be propelled by oars, oar locks 29 are mounted in sockets 30 on each side of the hull. The flanges 11 are provided with reinforced portions 31 or grommets forming openings 32 which align with open-

4

ings 33 in the respective stiffener 13 thereunder. It is preferred that the sockets be arranged at a position of one of the loops 12 on each side that hold the stiffeners 13 in place.

Preparing the inflatable boat 1 for use includes opening the flexible hull 3 and positioning same to receive the inflatable members 2 and their respective jackets 5. The keel stiffener 8 is passed through the jacket loops 7 and the stern end 16 is inserted in the pocket 17 and the bow end 18 is positioned within the bow pocket 21 of the hull 3. The hull stiffeners 13 are inserted in the loops 12 and the inflating device (not shown) is connected to the stem 4 of the respective inflatable members 2 which are then expanded to the predetermined pressure effective to maintain a firm engagement between each jacket 5 and the side member 10 and flange 11. The outboard motor 24 is then mounted on the stern end 16 of the keel stiffener 8 by engaging the upper portion of the pocket 17. It is preferable to place the deck members 23 in the loops 22 prior to inflating the inflatable members 2.

It is to be understood that while one form of this invention has been illustrated and described it is not to be limited to the specific form or arrangement of parts herein described and shown.

What I claim and desire to secure by Letters Patent is:

1. An inflatable boat comprising:

- (a) a plurality of inflatable annular tubular members,
- (b) an elongate flexible hull having a bottom with side, prow and stern portions extending therefrom to define an open top with said inflatable members contained within said hull,
- (c) a longitudinal keel stiffener within said hull and underlying said inflatable member, said keel stiffener having ends engaging the prow and stern portions of the hull,
- (d) an elongate planar keel bottom member,
- (e) the side, prow and stern portions being connected to form a continuous member extending upwardly from the periphery of said keel bottom member,
- (f) an inwardly directed flange from an upper edge of said side member for overlying and engaging side portions of said inflatable members, and
- (g) said inflatable members are expandible into engagement with said side member and flange of said hull by gaseous pressure whereby said gaseous pressure maintains said inflated members within said hull flange.

2. The inflatable boat as set forth in claim 1 including:

- (a) a plurality of jackets each having one of said inflatable members contained therein, and
- (b) a plurality of loops on each of said jackets with certain of said loops being at lower front and rear portions of said jackets and having said keel stiffener extending therethrough.

3. The inflatable boat as set forth in claim 2 wherein:

- (a) said keel stiffener is sectional with hinges intermediate its ends whereby said keel stiffener is foldable, and
- (b) said hull is a flexible waterproof fabric member whereby the boat is collapsible.

4. The inflatable boat as set forth in claim 3 including:

- (a) an upstanding portion on said keel stiffener, said upstanding portion being at a stern end of said keel stiffener;
- (b) a pocket in said hull at a stern end thereof, said hull pocket receiving said upstanding portion of said keel stiffener therein; and
- (c) power means for moving the boat and mounted on said upstanding portion.

5. The inflatable boat as set forth in claim 2 including:

- (a) longitudinally spaced loops on said hull side member flange,
- (b) a plurality of elongate hull stiffeners each received in said loops,

5

6

- (c) said jackets having pockets at upper sides thereof, and
- (d) each of said hull stiffeners having opposite ends received in adjacent jacket pockets when said respective inflatable members are expanded whereby said adjacent jackets are maintained in a substantially coplanar relation.
6. The inflatable boat as set forth in claim 2 including:
- (a) a plurality of longitudinally spaced pairs of opposed loops on said hull flange, and
- (b) a plurality of elongate planar deck members each having opposite ends received in said opposed hull flange loops.
7. The inflatable boat as set forth in claim 4 including:
- (a) a rounded and pointed bow end on said keel stiffener, and
- (b) a pocket in said hull at a bow end thereof, said bow pocket receiving said bow end of said keel stiffener therein.
8. An inflatable boat as set forth in claim 5 including:
- (a) said hull side flanges each having an opening,
- (b) an opening in each side stiffener aligned with the opening in the hull side flanges and cooperating therewith to form oar lock receiving sockets, and
- (c) reinforcing means on said hull side flange surrounding said opening therein.
9. An inflatable boat comprising:
- (a) a plurality of annular tubular pneumatically inflatable members;
- (b) an elongate substantially rigid keel stiffener extending longitudinally of the boat, said keel stiffener being foldable and having an upstanding stern end and a rounded and pointed bow end;
- (c) a plurality of jackets each having one of said inflatable members contained therein, each of said jackets having a plurality of opposed loops on a bottom surface thereof for engaging said keel stiffener;
- (d) an elongate flexible hull having an elongate planar keel bottom member and a side member extending upwardly from a periphery of said keel bottom member, said side member having a flange extending inwardly from an upper edge thereof, said hull having longitudinally spaced loops on said hull side member, said hull having a pocket in a stern end thereof for receiving said upstanding portion of said keel stiffener; and
- (e) a plurality of elongate hull stiffeners each having opposite ends received in said hull side member loops, each of said hull stiffener opposite ends being engaged by adjacent jackets when said respective inflatable members are expanded whereby said adjacent jackets are maintained in a substantially coplanar relation.
10. An inflatable boat comprising:
- (a) a plurality of inflatable members,
- (b) an elongate flexible hull having a bottom with side, prow and stern portions extending therefrom to define an open top with said inflatable members contained within said hull,

- (c) a longitudinal keel stiffener within said hull and underlying said inflatable member, said keel stiffener having ends engaging the prow and stern portions of the hull,
- (d) an elongate planar keel bottom member,
- (e) the side, prow and stern portions being connected to form a continuous member extending upwardly from the periphery of said keel bottom member,
- (f) an inwardly directed flange from an upper edge of said side member for overlying and engaging side portions of said inflatable members,
- (g) said inflatable members are expandible into engagement with said side member and flange of said hull by gaseous pressure whereby said gaseous pressure maintains said inflated members within said hull flange,
- (h) a plurality of longitudinally spaced pairs of opposed loops on said hull flange,
- (i) a plurality of elongate planar deck members each having opposite ends received in said opposed hull flange loops.
11. An inflatable boat comprising:
- (a) a plurality of inflatable members,
- (b) an elongate flexible hull having a bottom with side, prow and stern portions extending therefrom to define an open top with said inflatable members contained within said hull,
- (c) a longitudinal keel stiffener within said hull and underlying said inflatable member, said keel stiffener having ends engaging the prow and stern portions of the hull,
- (d) an elongate planar keel bottom member,
- (e) the side, prow and stern portions being connected to form a continuous member extending upwardly from the periphery of said keel bottom member,
- (f) an inwardly directed flange from an upper edge of said side member for overlying and engaging side portions of said inflatable members,
- (g) said inflatable members are expandible into engagement with said side member and flange of said hull by gaseous pressure whereby said gaseous pressure maintains said inflated members within said hull flange,
- (h) an upstanding portion on said keel stiffener at a stern end of said keel stiffener for mounting a power means for moving the boat,
- (i) a pocket in said hull at a stern end thereof, said hull pocket receiving said upstanding portion of said keel stiffener therein.

## References Cited

## UNITED STATES PATENTS

2,216,871	10/1940	Banks et al. ....	9—11
2,377,963	6/1945	Rabjohn .....	9—2
3,261,038	7/1966	Klepper .....	9—2

TRYGVE M. BLIX, Primary Examiner

U.S. Cl. X.R.