June 23, 1953 F. HERMANN 2,642,590

BOAT

Filed March 7, 1950

Fig. 1

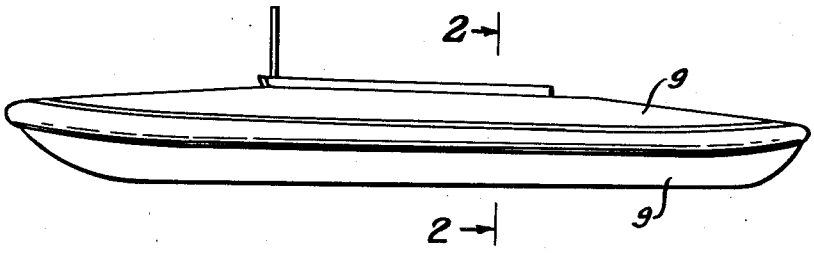
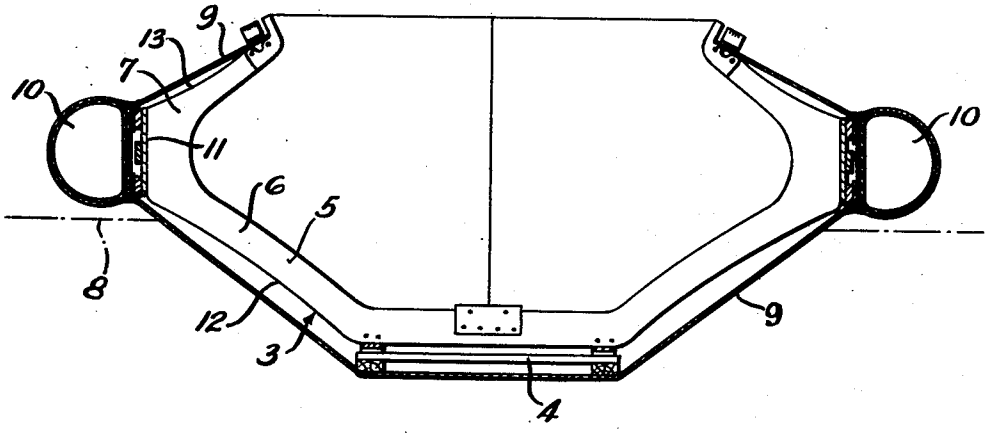


Fig. 2



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Patented June 23, 1953 2,642,590

UNITED STATES PATENT OFFICE

2,642,590

BOAT

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Application March 7, 1950, Serial No. 148,037
In Germany October 1, 1948

1 Claim. (Cl. 9—2)

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This invention relates to boats.

Folding boats provided with loosely mounted air tubes have the drawback that such tubes change their shape as the result of water pressure asserted toward the upper structure of the boat, whereby the tubes are extended in the direction of lesser resistance. This has the serious defect that the boat does not present a stable outline, and its safety is dangerously impaired.

An object of the present invention is the provision of a boat provided with air-carrying tubes wherein this drawback is eliminated and the boat retains its stability throughout its use.

Another drawback of existing folding boats resides in that the air tubes do not maintain their round form when such tubes are loosely mounted in the boat, assuming an oval or flat, pancake-like form in cross-section.

It is, therefore, a further object of the present invention to provide a boat the edges of which will retain their original, substantially round form under all conditions.

To prevent the tubes from being pressed into the interior of the boat it was considered necessary heretofore to provide the boats with an inner wall which considerably reduced the space avalaible within the boat for storage and other purposes.

A still further object of the present invention is to provide a construction wherein the air tubes will be permanently and securely mounted, and wherein the necessity of using an inner, continuous wall is effectively avoided.

It was found that the arrangement of air tubes in existing boats considerably impedes the movements and maneuverability of the boat. Furthermore, such boats lose their stability as soon as one of the air tubes is damaged.

Yet another object of the present invention is the provision of a collapsible boat the air tubes of which are so arranged that the boat is easily maneuverable and remains stable despite damage to the tubes.

Other objects of the present invention will become apparent in the course of the following specification.

The objects of the present invention may be attained through the use of a boat having air tubes which are firmly and immovably held by the boat covering above and substantially close to the water line of the boat. The term "water line" is used herein to indicate an imaginary line separating the keel or the lower part of the boat which is immersed in water when the boat is

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fully loaded from the upper structure of the boat located out of the water at the time when the boat is fully loaded. The lower edges of the air tubes are preferably located at the water line, or either closely above or below the water line, and form the keel outline of the boat jointly with the part thereof which is immersed in water. The air tubes are mounted upon the outer surfaces of side walls which are connected with the frame of the boat mounted upon the bottom thereof. The frame elements are joined to these vertical side walls and are curved inwardly so that there is a space between the frame and the covering which extends over the frame and which is stretched taut by the air tubes. Due to this arrangement the covering cannot be damaged by continuous rubbing against the frame elements.

The invention will appear more clearly from the following detailed description, when taken in connection with the accompanying drawings showing a preferred embodiment of the inventive idea.

In the drawings:

Figure 1 is a side view of the boat constructed in accordance with the present invention;

Figure 2 is a transverse section through the boat along the line 2—2 of Figure 1 on an enlarged scale.

The boat shown in the drawing comprises a boat frame 3 which includes the usual bottom 4 and frame elements or ribs 5, which include lower members 6 immersed in water, and upper members 7 located above the water line or water level 8. As already stated, the water level 8 is determined by the position of the boat in water when it is fully loaded.

Boat skin or covering 9 is stretched over the frame of the boat and extends over air tubes 10 which extend along the vertical side walls 11 forming a part of the frame work of the boat. The air tubes 10 enclose the boat completely and are so mounted upon the walls 11 that they connot change their form or be shifted. Preferably there are two tubes extending on opposite sides of the boat, although, obviously, the number of the tubes may be varied at will. The covering 9 encloses the tubes 10 in their entirety and protect them. When the tubes 10 are filled with compressed air and when the boat is fully loaded, their lower edges will extend close to the water surface 8.

As already stated, the air tubes 10 lie against the outer surfaces of the vertical side walls 11 and may be held thereon by the cover 9, or by any other suitable means.

Frame elements 6 and 7 extending downwardly and upwardly in relation to the side walls 11 are curved inwardly as indicated at 12 and 13, respectively, so that the covering 9, when stretched taut, extends at a distance from the frame elements. Due to this arrangement the covering 9 cannot be damaged by continuous rubbing against the frame elements.

The arrangement of the lower edges of the tubes 10 upon the water surface 8 or closely above or below that surface at full load of the boat has the advantage that the rolling of the boat and the danger of capsizing in rough water are diminished to a minimum. Since the part of the boat located under water, which does not include the air tubes 10, is the part responsible for resistance against capsizing, any leaks in one or both tubes 10, or the sudden blowing up of one or both tubes, will not endanger the stability of the boat. This is a considerable advantage over prior art constructions wherein, in the event of the escape of air, the boat tipped and/or was in danger of capsizing.

It is apparent that the air-filled tubes 10 located essentially above water combine with the part of the boat located below the water line to form a keel outline.

Thus, the boat constructed in accordance with the present invention can attain considerable speed while remaining stable to a remarkable extent.

The arrangement of the air tubes 10 above water has a further advantage that they are not cooled by contact with the water. The sections of the covering 9 which extend over the air tubes 10, and above them, remain taut and well stretched since they are not laden with water. Air within the air tubes 10 may further expand under the influence of sunshine and warm air with the result that the casing 9 will be stretched still further.

Another important advantage of the present construction is that the covering 9 may be easily mounted over the boat frame while they both are completely wet. Heretofore the shrinkage of the covering material made it necessary to exert considerable force during assembly. Even when the covering material was quite dry the contraction thereof had to be overcome by stretching it over

the frame. In the present construction, however, the extent of contraction can be compensated at the time of the manufacture by suitably dimensioning the covering 9 since the stretching of the covering 9 takes place at the time the tubes 10 are filled with compressed air. The amount of compressed air supplied to the tubes 10 can be regulated to furnish the desired amount of stretching to the covering 9.

In prior art the services of at least two persons were required to take the boat apart, since one of the users had to hold the bow of the boat while the other gradually removed the frame work by continuous shaking. In accordance with the present invention, however, the removal of the air from the tubes 10 will collapse the stretched covering 9 so that the frame work can be easily removed from the covering by a single person.

It is apparent that the example shown above is subject to wide variations and modifications without departing from the scope or intent of the present invention. All such variations and modifications are to be included within the scope of the present invention.

What is claimed is:

A boat, comprising a boat frame having ribs and substantially vertical side walls carried by said ribs and located entirely above the water line of the boat, collapsible and inflatable air tubes extending outside of and along said side walls in contact therewith, and a covering tightly enclosing said boat frame and said air tubes and being tightly stretched both above and below said air tubes when the air tubes are filled with air.

FRANZ HERMANN.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,049,205	Butow	Dec. 31, 1912
1,301,523	Talbot	Apr. 22, 1919
1,333,109	Ford	Mar. 9, 1920
1,605,970	Murfay	Nov. 9, 1926
2,338,976	Schutte	Jan. 11, 1944

FOREIGN PATENTS

Number	Country	Date
9,315	Great Britain	of 1892