May 31, 1932. J. D. CLARKE 1,860,609

AIR BOAT

Filed Jan. 30, 1929 2 Sheets-Sheet 1

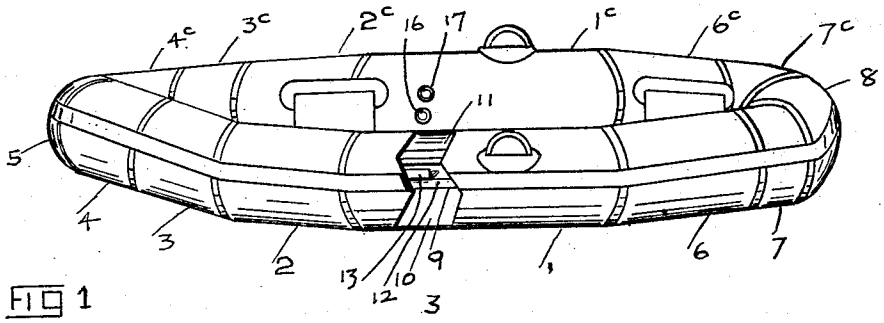

FIG 1

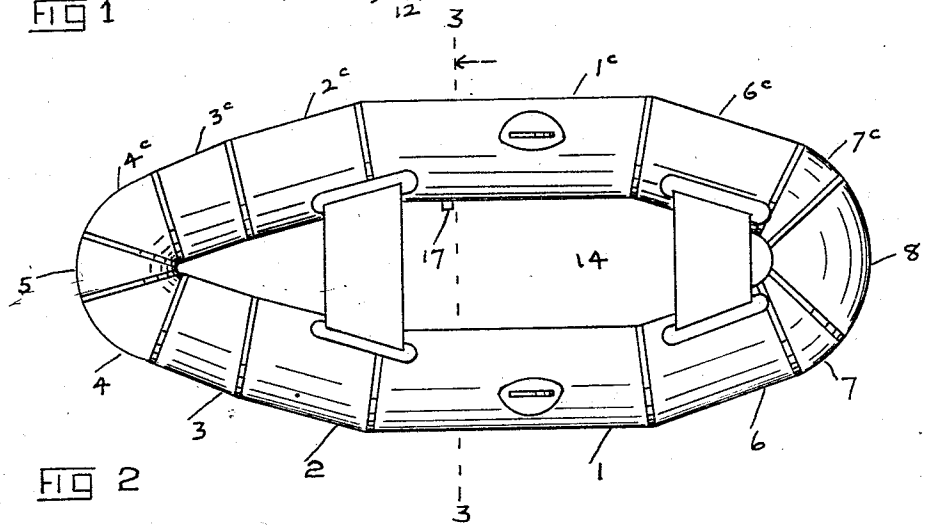

FIG 2

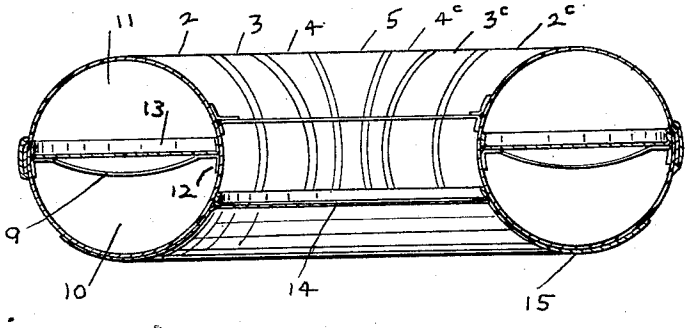

FIG 3

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May 31, 1932. J. D. CLARKE 1,860,609

AIR BOAT

Filed Jan. 30, 1929 2 Sheets-Sheet 2

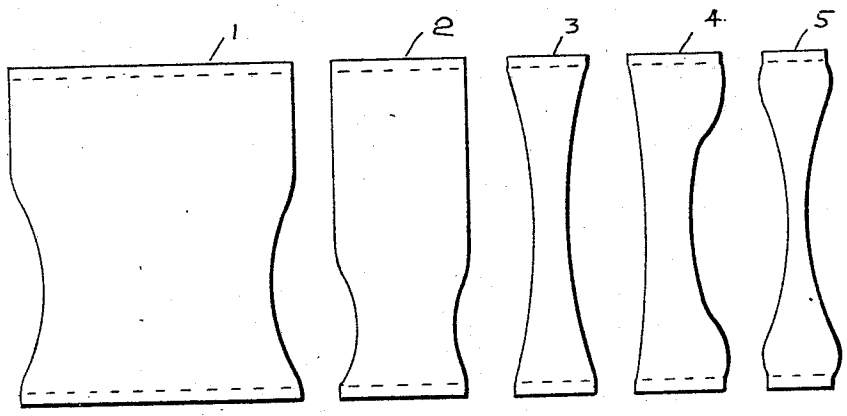

FIG 4.

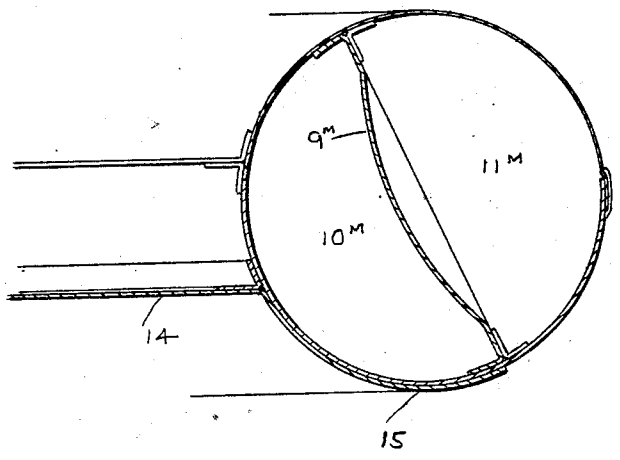

FIG 5

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UNITED STATES PATENT OFFICE

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AIR BOAT

Application filed January 30, 1929. Serial No. 336,165.

The invention relates to improvements in air boats, and the objects of the invention are to provide an inflatable boat with upwardly inclined forward and after ends of the usual bow and stern construction, respectively; to provide an endless inflatable and flexible rim constructed in geometrically formed sections fixedly assembled in tailor-fitted fashion to adapt the rim while floating to be supported by its intermediate portion, its ends being upwardly inclined from the water level; to provide for an inflatable boat a flexible floor or bottom the marginal portion of which is secured to the inwardly facing wall portion of the rim and extends under and partially around the rim as a protecting cover therefor; and to provide within an endless, inflatable, and flexible rim an endless longitudinally extending partition lying in a plane parallel with, or at any angle to, the boat bottom and dividing the rim interior into two distinct compartments of which the cross-section of each is substantially semi-circular.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain features of novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings and particularly pointed out wherein patentable novelty is claimed for certain features of the device, it being understood that within the scope of what hereinafter thus is claimed, various changes in form, proportion, size, and minor details of the construction can be made without departing from the spirit or modifying any of the advantages of the invention.

The following is the description of an embodiment of the invention, reference being had to the accompanying drawings (two sheets) in which the Figure 1 is a side elevation in perspective of the boat with a wall portion broken to expose an interior construction; the Figure 2 is a plan view of the boat; the Figure 3 is a cross-sectional view of the boat on the line "3—3" in Figure 2 with certain parts omitted; the Figure 4 is a group of pattern views of certain sections of the inflatable rim; and the Figure 5 is an enlarged fragmentary view of modification involving the relative positions of the floor and the partition.

Referring more particularly to the drawings in which similar numbers refer to similar parts the invention is an improvement more especially upon the air boat illustrated and described in the Letters Patent issued January 19, 1926, to W. P. Fritsche et al., Patent Number 1,570,470, and in connection with which the present applicant is co-patentee. The present invention introduces an inflatable rim with longitudinally divided compartments, the endless partition of which, as illustrated by the Figure 3, is in a plane parallel to, but separate and distinct from, the boat bottom or floor the marginal portion of which, being secured to the inwardly facing wall portion of the inflated rim, is continued downwardly around the lower portion of the rim, as also illustrated by the Figure 3, to provide a chafing cover adapted to protect the rim against wear and puncture. The present invention also introduces an inflatable flexible rim novelly made up of straight cylindrical sections of such pattern that when angularly connected in overlapped relation the inflated rim, without other cooperating means, assumes the form of a normally shaped boat having a pointed bow, as illustrated by the Figure 2, and upwardly inclined boat-ends, as illustrated by the Figure 1. In providing for instance for the sections 1, 2, 3, 4, and 5, of the inflatable rim the flexible material is geometrically marked and cut into pieces approximately as illustrated by the Figure 4, the several pieces having a common width but of different lengths having curved edges which, when overlapped and secured together and certain of them reproduced for a companion rim portion made up of sections 1^c, 2^c, 3^c, and 4^c, produce a rim portion for the forward end of the boat which, when inflated, determines not only the converging lines and nose of the bow but also the upward incline of the bow above the water level. The pattern for the sections 6, 7, and 8, is somewhat similarly provided and, when the pieces cut therefor are secured in overlapped relation and certain of them reproduced for a com-

panion portion made up of sections 6c, and 7c, the combined rear rim portion, when inflated, determines both the general shape and the upward incline above the water level of the stern of the boat. The several sections, including the companion portions, angularly connected form an endless inflatable rim supported by its intermediate base portion when floating as best illustrated by the Figure 1. Within the endless rim of substantially circular cross-section is provided an endless flexible partition 9 dividing the rim interior into two separate compartments 10 and 11 of which each is substantially semi-circular in cross-section, the marginal portion of the partition 9 being folded at right angles to the partition and secured to the interior wall portions of the inflatable rim as illustrated at 12 by the Figures 1 and 3, the reinforcing strip 13 being likewise folded and secured, exteriorly of the partition fold, to both the partition and the wall interior and cooperating with the partition fold to provide a double flange extending in opposite directions as an attaching means. The middle portion of the partition 9 is made full and slack adapting it for a reciprocating movement as a means tending to equalize the pressure within both compartments. The flexible bottom or floor 14 of the boat is secured to the inwardly facing exterior wall portions of the inflatable rim in the same manner as the partition 9 is secured to the interior wall portions except that the marginal portion of the flexible bottom extends partially around the lower portion of the inflatable rim, to provide the chafing cover 15 integral with the bottom 12. The compartments 10 and 11 are provided with any desired type of valves 16 and 17, respectively, as separate and independent means for inflating and deflating the separate compartments.

The Figure 5 illustrates a slightly modified form of construction in connection with the predetermined angle of the plane of the partition 9^m to that of the bottom 14 in providing the compartment 10^m, and 11^m. Certain advantages might be obtained in providing the partition 9^m at the relative angle illustrated by the Figure 5, or at any other desired angle which promises the best distribution of the hazardous exposures of the inflated rim between the two compartments.

What I claim is:—

1. An inflatable and collapsible air boat structure comprising a float member composed of impervious material cut in sections of similar width but of varied curved-edged lengths interfitted overlappingly and forming a shaped endless inflatable rim having an intermediate base portion and upwardly inclined below and stern portions thus supported by the base portion, a flexible endless partition secured within the rim and providing throughout the rim interior separate lower and upper air compartments, means through which the compartments are separately and independently inflated and deflated, and a flexible floor having its marginal portion secured to the inwardly facing exterior wall of the rim, an extending marginal portion partially surrounding the lower exterior of the rim as a protecting cover.

2. An inflatable and collapsible air boat structure comprising a float member composed of impervious flexible material cut into sections of similar width but of varied curved-edged lengths adhesively assembled by overlapping seams exteriorly reinforced by adhesive strips and forming a shaped endless inflatable rim of angularly connected straight cylindrical sections, the rim having an intermediate base portion and an upwardly inclined bow portion, the rim converging to form the nose of the bow, and an upwardly inclined stern portion, the bow and the stern portions being thus supported by the base portion, a flexible endless partition secured marginally within the rim providing throughout the rim interior separate lower and upper air compartments, means through which the compartments are separately and independently inflated and deflated, and a flexible floor secured to the inwardly facing exterior wall of the rim, an extending marginal portion of the floor partially surrounding the lower exterior of the rim as a protecting cover, both the partition and the floor being reinforcingly secured to the respective inner and outer wall surfaces of the rim by means of angle strips cooperating with the marginally folded portions to provide double flanged attaching edges extending in opposite directions.

3. An inflatable and collapsible air boat structure having a door and comprising a float member having an intermediate base portion supporting upwardly inclined bow and stern portions; a flexible endless partition secured within the rim interior and providing throughout said interior, and independent of said floor, lower and upper air compartments; means through which the compartments are separately and independently inflated and deflated; and the marginal portion of said floor secured to the inwardly facing exterior wall of the rim, an extending marginal portion thereof partially surrounding the lower exterior of the rim as a protecting cover.

JOHN D. CLARKE.