Dec. 15, 1959 B. STAHMER 2,916,748

KNOCK-DOWN PONTOON BOAT

Filed May 10, 1956 2 Sheets-Sheet 1

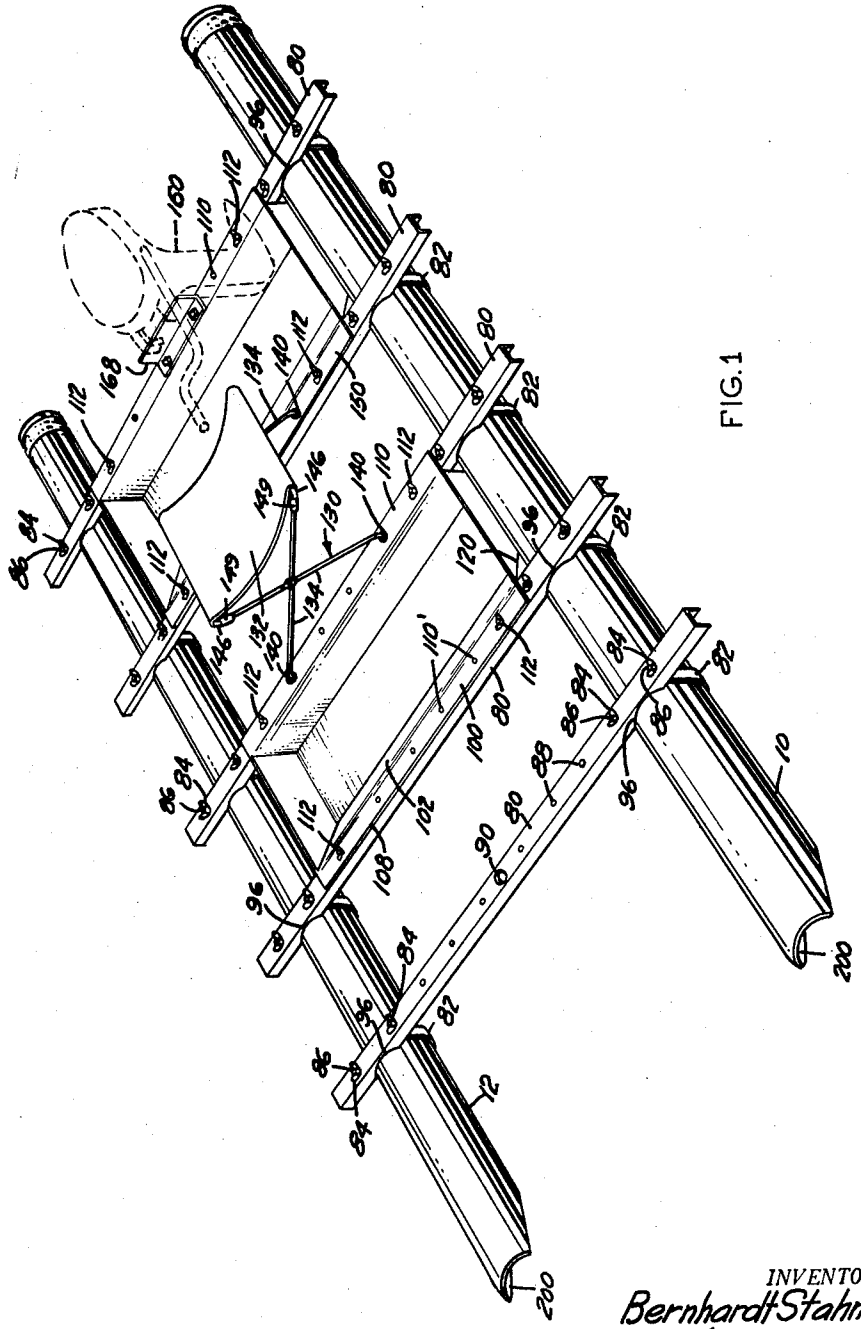

FIG. 1

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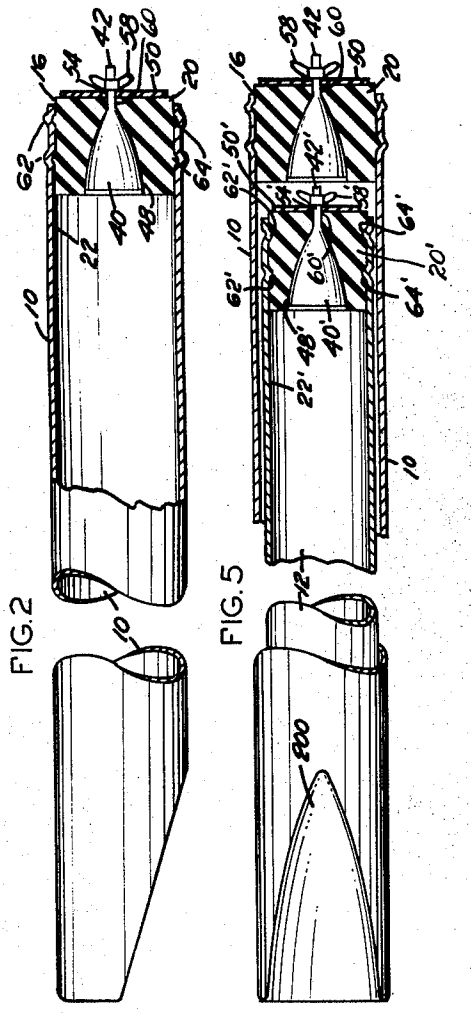

FIG. 2

FIG. 5

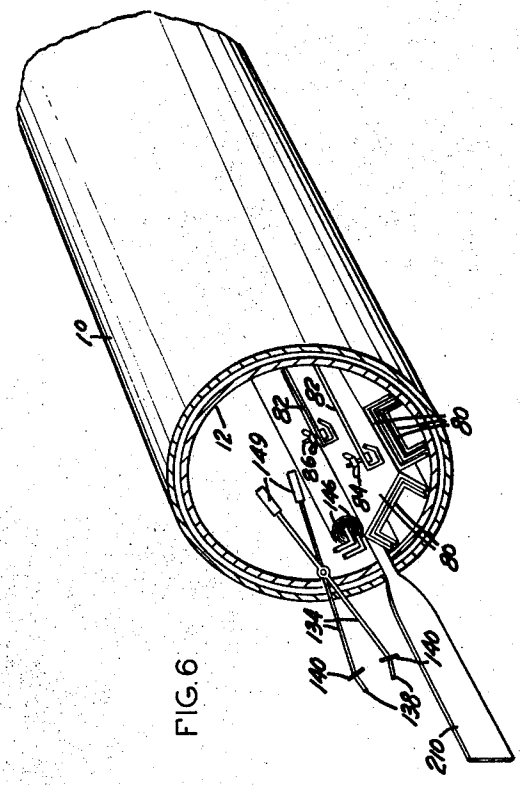

FIG. 6

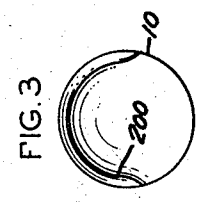

FIG. 3

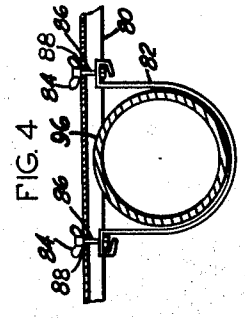

FIG. 4

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2,916,748

KNOCK-DOWN PONTOON BOAT

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Application May 10, 1956, Serial No. 584,005

5 Claims. (Cl. 9—2)

This invention relates to water-craft and in particular it is an object of my invention to provide a boat of simple construction and one which is collapsible for ease of storage.

Another object of my invention is to provide a boat as described having elongated annular float members or pontoons of successively smaller size whereby a smaller one may be received within a larger one for compact storage.

Another object of the collapsible boat of my invention is to provide a frame carried by the pontoons which may be easily and readily dis-assembled and the several parts are adapted to be stored within the smaller one of the pontoons whereby a most compact and easily portable and storable package results.

Another object of my invention is to provide a collapsible boat so designed as to make use of available materials whereby the boat is simple and inexpensive to manufacture.

Another object of the collapsible boat of my invention is to provide novel means for adapting available materials to its construction.

Another object of my invention is to provide a collapsible boat of the type described which is simple in construction, inexpensive in manufacture and safe and simple in operation.

Other and further objects and advantages of the present invention will be apparent from the following detailed description, drawings and claims, the scope of the invention not being limited to the drawings themselves as the drawings are only for the purpose of illustrating a way in which the principles of this invention can be applied.

Other embodiments of the invention utilizing the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawings:

Fig. 1 is a perspective view of the collapsible boat of my invention shown in an assembled operation;

Fig. 2 is an enlarged side elevation of one of the pontoons of the craft partially in cross section for illustrating the plug means used for sealing the open end thereof;

Fig. 3 is a front view of one of the pontoons;

Fig. 4 is a view in cross section taken transversely of one of the pontoons showing band assembly used for securing the pontoons to the frame members;

Fig. 5 is a bottom view of the pontoons partially in cross section showing the storage position of one pontoon with the other; and

Fig. 6 is a cross sectional fragmentary perspective view of the larger one of the pontoons showing the storage position of the several parts of the craft of my invention stored therein.

Referring to Fig. 1 the complete collapsible boat of my invention is shown in an assembled position.

The boat comprises, first and second, an elongated annular hollow tube **10** and **12** disposed in parallelism. The second tube **12** is of a lesser size in cross section than the inner wall of the first tube **10**, as best seen in Fig. 6. Also the second tube **12** is of a lesser size than an opening **16** in the rearward end of the first tube **10** for the storage of a major portion of the second or smaller tube **12** inside the first and larger tube **10**. It is preferable that the entire smaller tube **12** be receivable in the larger tube **10**, as shown in Fig. 5, with the larger tube **10** somewhat longer so as to extend beyond the smaller inner tube **12** sufficiently that the first resilient plug **20** can be received in the open end **16** of the first tube **10**.

The first plug **20** is preferably of sufficient rigidity to hold its shape under normal conditions and has the periphery of a shape complementary to the interior wall **22** of the open end **16** of the first tube **10**.

The first plug **20** is disposed in the open end **16** and is of a lesser size than the interior wall of the first open end under normal conditions so that the plug **20** is removable from the open end **16**.

Means are provided for exerting pressure on the plug **20** and such means can be referred to as the first exerting pressure means, which, as best seen in Fig. 2, comprises a conical inner portion **40** attached to a threaded or outer portion **42**. The conical portion **40** has an inwardly tapered rearward end to which the threaded shank portion **42** is attached.

The first resilient plug **20** has a conical cavity **48** on its forward or inner side, the cavity **48** normally receiving a part or all of the conical portion **40**.

A pressure plate **50** is provided on the rearward or outer side of the first resilient plug **20**. The plate **50** is disposed in a vertical plane parallel with the outer or rearward end of the plug **20** said rearward end being disposed in a plane at a right angle to the axis of the elongated tube **10**.

The plate **50** has an opening **54** therethrough through which the shank **42** extends, the shank **42** normally protruding rearwardly of the plate **50** and having a wing nut **58** threadedly disposed thereon.

The resilient plug **20** has a passage **60** of a shape for snugly receiving the shank **42**, the passage **60** extending from the conical cavity **48** to the rearward end of the plug **20**.

When the wing nut **58** is opened for drawing the conical portion **40** into the plug **20** the outer perimeter of the plug **20** expands exerting sufficient pressure against the inner wall **22** of the bottom **10** as to provide a water-tight seal.

To further insure a water-tight seal it is preferred that the tube **10** be bent outwardly around its perimeter in preferably two places indicated at **62**.

The outwardly bent portions **62** are preferably spaced apart forwardly and rearwardly of each other. The plug **20** can have outwardly protruding raised portions **64** extending around its perimeter at two places disposed forwardly and rearwardly of each other and at positions adapted to engage in the outwardly bent portion **62**. This has the effect of further retaining the plug **20** against moving forwardly or rearwardly out of position.

If desired the outwardly protruding portion **64** of the plug **20** can be omitted inasmuch as the plug will force itself into the circular recesses on the inner side of the protrusions **62** from the pressure exerted on the plug by the conical portion **40**.

The cone **40** can be of a strictly conical shape but is preferably provided with a slight curvature, on its outer side and extending from its forward to its rearward end, as best seen in Fig. 2.

Referring to Fig. 5 the second and smaller tube **12** is shown inside the larger tube **10**. The smaller tube

12 has a similar resilient plug which shall be given the numeral 20' because of its similarity to the plug 20.

However the plug 20' differs from the plug 20 if peripheral indentations are provided in the plug 20, then these are numbered 64' and take the place of the peripheral protrusions 64. The peripheral indentations 64' are correlated and disposed complementary to protrusions 62' which extend around the periphery of the inner wall 22' of the tube 12 to the rearward end of the latter. The purpose of the indentation 64' and protrusion 62' is the same as the purpose of their counterparts, the protrusion 64 and the outwardly bent portion 62 of the pontoon 10.

Parts of the pressure exerting means of the plug 20' are substantially identical to their counterparts used with the pontoon 10 and are given equivalent numerals except that the numerals are primed.

The tubes 10 and 12 are maintained in spaced apart parallelism, as seen in Figure 1, by a collapsible frame comprising a plurality of frame members 80 which are disposed transverse to the tubes 10 and 12 and which are secured to the tubes by straps 82 of U-shape and wing nuts 84.

The threaded bolts 86 are attached to and extend upwardly from the ends of attaching straps 82 and receive the wing nuts 84. The threaded bolts 86 are disposed through suitable apertures 88 in the respective frame members 80. As best seen in Fig. 6, it is preferable that the straps 82 be formed of a resilient material, the normal shape of the straps 82 being straight for compact storage.

As best seen in Figure 1, the transverse frame members 80 are preferably of a channel shape in cross section, having an upper horizontally disposed center portion and downwardly extending vertical portions which latter have concave recesses 96 therein entering from the undersides thereof. The recesses 96 are disposed one in each downwardly extending side portion of each end of a channel and are of shapes complemental to the outer contour of the tubes 10 and 12 for snugly receiving the tubes therein.

The channel members 80 are preferably of various cross sectional sizes so that certain of the channels 80 will nest in others of channels 80 to make possible compact storage as shown in Fig. 6.

Referring to Fig. 6, one or more nested groups of channel frame members 80 are shown disposed inside the smaller or second tube 12.

The forwardmost one of the channels 80 is preferably provided with a large opening 90 at the center thereof. This opening can be used for many purposes. For example a mooring line could be attached to this opening or the opening could be used as part of an anchor point for a mast in the event it should be desired to sail the pontoon boat.

Referring to Fig. 1, a cargo carrying portion 100 is provided and has a concave upper side 102 in which cargo can be placed.

The cargo carrying member is elongated and is adapted to be disposed between two of the frame members 80 and the cargo carrying member 100 has horizontally protruding forward and rearward lips 108 and 110 which are adapted to extend above to adjacent ones of the frame members 80 for supporting the cargo carrying member 100.

The cargo carrying member 100 can be provided with apertures 110' along the edges of the horizontal lip portions thereof and bolts with wing nuts can be used as seen at 112 for attaching the cargo carrying member 100 to the frame members 80.

Referring to Fig. 1, it will be seen that the downwardly extending portion of a cargo carrying member 100 can be provided with a rearwardly and downwardly inclined outward surface 120 on its outward side for placing a better surface to water splashing and for less water resistance.

The cloth upper portion 132 of the chair 130 has looped ends which are disposed about transverse frame member portions 146 of the chair which latter are straight in their center portions with downwardly extending terminal ends, which latter are adapted to be received in sleeves 149 which are in turn fixed to the upper ends of the legs 134.

As thus described it will be seen that the transverse members 146 support the cover 132 of the chair when their ends are in the sleeve 149 and as best seen in Fig. 1.

Referring to Fig. 6 it will be seen that the cover can be rolled up around the chair frame members 146 for compact storage when desired.

Referring again to Fig. 1, a chair is there shown at 130. The latter is preferably of a folding type having a folding canvas top 132 and having legs 134 which latter terminate in vertically disposed end portions 138, best seen in Figure 6. Above the vertical end portions 138, anchor members 140 are fastened to the chair legs 134 whereby the anchor members 140 prevent the remainder of the legs 134 from passing through apertures 88 in the channel frame members 80, thus supporting the chair 130.

Referring to Fig. 1, a second cargo carrying portion 150 can be provided identical in all respects, if desired, to the cargo carrying portion, the portion 150 being disposed between the chair 130 and the rearwardmost frame member 80 to provide a platform on which the operator can stand when working with the outboard motor 160 shown in dotted lines in Fig. 1.

The motor 160 can be mounted upon a motor bracket 168 fastened on the upper side of the rearwardmost frame member 80.

Pontoon boats will float through the water best if their pontoon boats 10 and 12 are bevelled on the undersides of their forward ends.

The way I prefer to do this is to provide underside surfaces of the bevelled portions 200 with a concave shape whereby one might say that they are fluted. This has the effect of providing an uppermost forward end portion which is somewhat more blunt than pointed, but which has a wide area clear up to the forwardmost portion thereof on the top of which a person can stand at times. This construction also provides a greater strength at the forwardmost tips of the pontoon than would be the case if they were completely pointed.

Referring now to Fig. 6, it will be seen that other equipment such as an oar 210 can also be stored in the innermost pontoon 12.

From the foregoing description, it is thought to be obvious that a collapsible pontoon boat constructed in accordance with my invention is particularly well adapted for use, by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that my invention is susceptible of some change and modification without departing from the principles and spirit thereof, and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice, except as claimed.

I claim:

1. A knock-down pontoon boat comprising in combination, first and second alongated annular pontoons disposed in parallelism, said pontoons each comprising an elongated tube having a closed end and an open end, the second of said tubes being of a lesser size in cross section than the interior wall of said first tube and of a lesser size than the opening in said first tube for compact storage of at least a major portion of said second pontoon within said first pontoon, and a first resilient plug disposed in said open end of said first tube, said first plug being of sufficient rigidity to hold its shape under normal conditions, said first plug having a periphery of a shape complementary to the interior of said open end of said first tube, said first plug being disposed

in said open end of said first tube and being of lesser size than said open end of said first tube under normal conditions whereby said first plug is removable from said open end of said first tube, and first pressure exerting means extending through said first plug for exerting pressure inwardly against the opposite ends of said first plug to cause said first plug to expand whereby its periphery is large enough to plug said open end of said first tube to prevent water from entering thereinto, said first pressure exerting means being further characterized by its ability to releasably maintain such pressure, said first pressure exerting means being operable from the outside of said first plug, a second plug of like description to said first plug and disposed in said open end of said second tube, and frame means removably attached to said tubes and connecting and holding said tubes in said spaced parallel positions, said frame means being collapsible and being capable of storage in said second tube.

2. The combination of claim 1 in which said first pressure exerting means includes a conical portion, and in which said first plug has a conical cavity on its inner side normally receiving at least a part of said conical portion, said first pressure exerting means being adapted to force said conical member further into said conical cavity to expand the perimeter of said first plug.

3. The combination of claim 1 in which said frame

comprises a plurality of channel members of progressive size in cross section and disposed in use transversely of and disposed between and attached to said pontoons, said channel members nesting in each other for compact storage in said second pontoon.

4. A pontoon boat comprising two parallel tubes, one of said tubes being smaller and one larger, each of said tubes having one open end, removable expansible means for plugging the open ends of said tubes, frame means disposed between and interconnecting said tubes and maintaining said tubes in parallelism, said frame means being disconnectable from said tubes and being storable in the smaller of said tubes.

5. The combination of claim 4 in which said tubes are provided with concave underside surfaces extending from the forward ends thereof rearwardly substantial distances, said concave surfaces being inclined downwardly from their upper forward ends.

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