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2,497,490

OUTBOARD MOTOR MOUNTING FOR BOATS

Filed Sept. 27, 1945

2 Sheets-Sheet 1

Fig. 1.

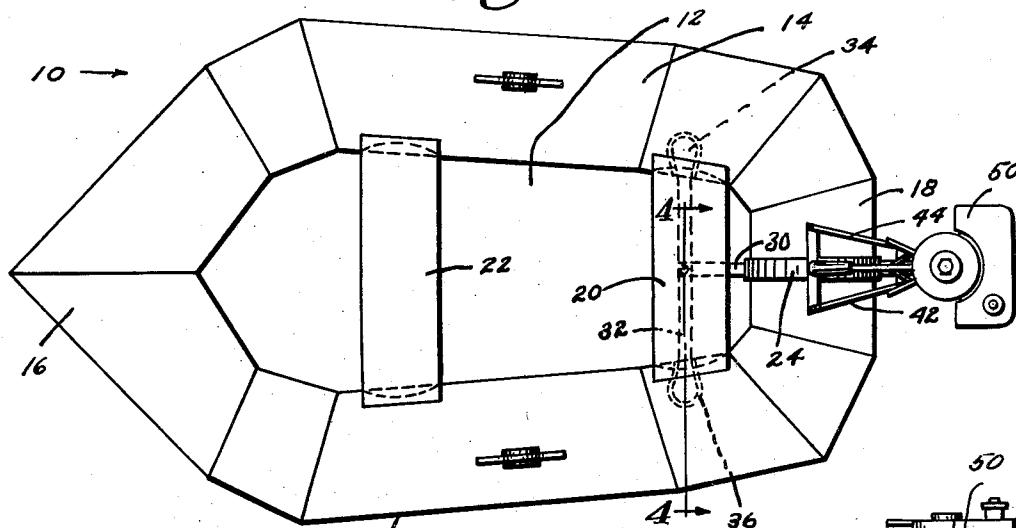


Fig. 2.

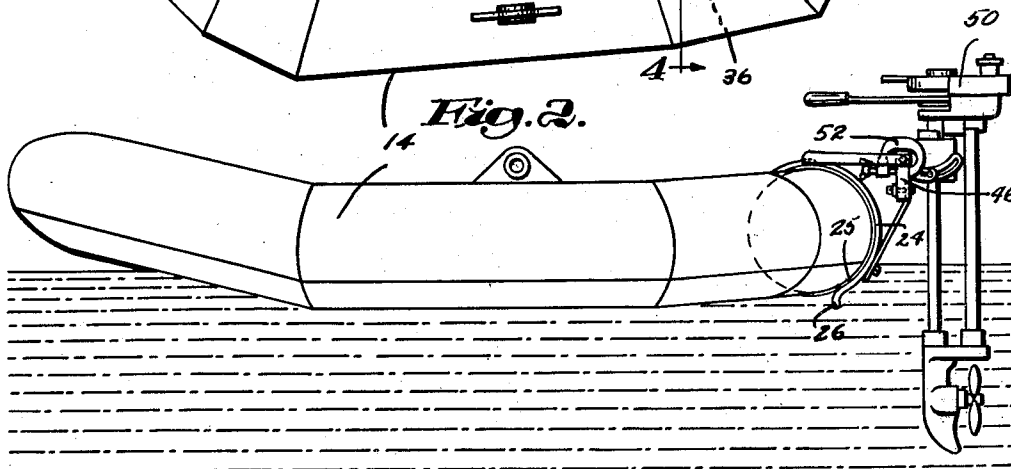


Fig. 3.

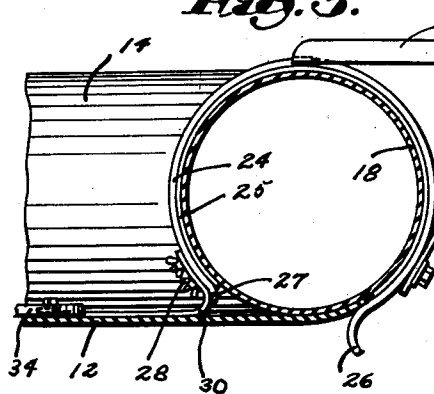
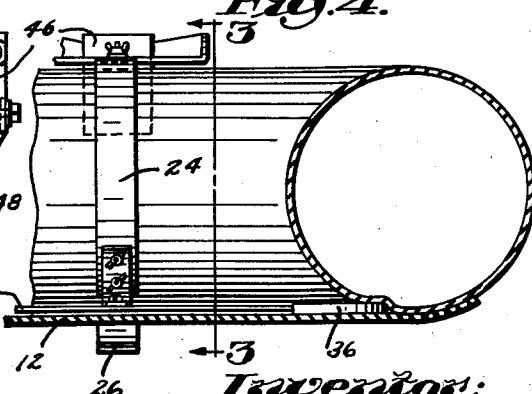


Fig. 4.



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2 Sheets-Sheet 2

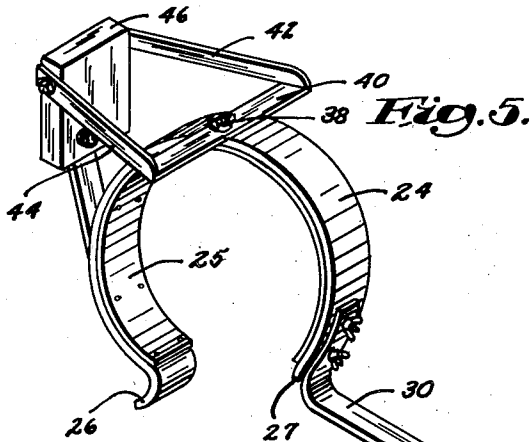


Fig. 5.

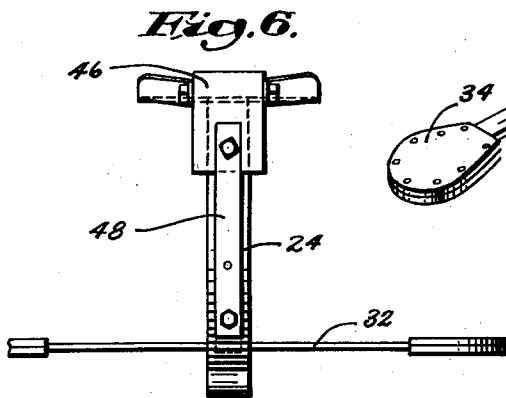


Fig. 6.

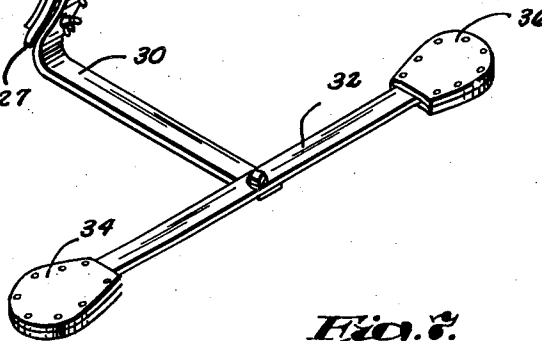


Fig. 6.

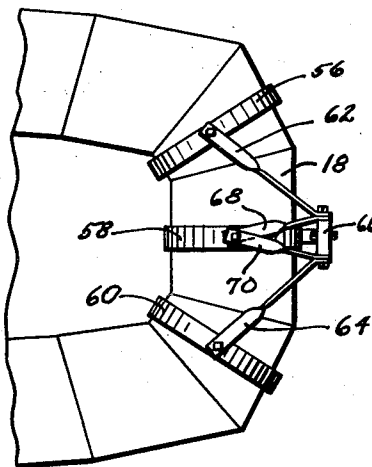
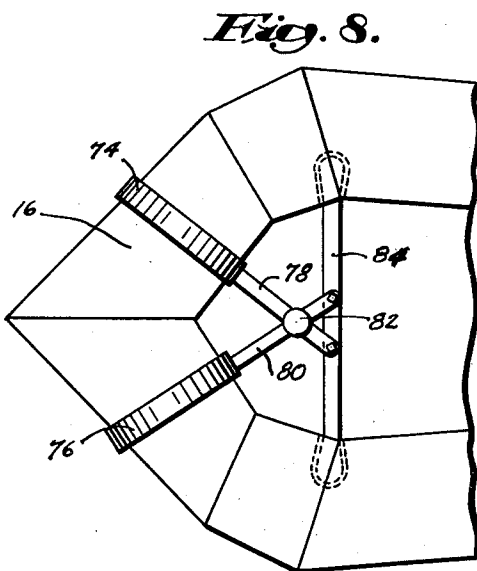


Fig. 8.

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UNITED STATES PATENT OFFICE

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OUTBOARD MOTOR MOUNTING FOR BOATS

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7 Claims. (Cl. 115—17)

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This invention relates to supporting structures for use with inflatable boats. More particularly, the invention deals with a mounting for receiving an outboard motor in an operative position at the stern of an inflatable boat.

Boats of the inflatable type referred to are customarily constructed of fabric material preferably employed in a number of impregnated layers mounted one upon another. There is thus afforded an exceedingly lightweight craft which when inflated is of relatively sturdy construction. The sides and stern portions of the boat are usually made in the form of tubular members. To these tubular members it has been proposed to apply tabs which are utilized to secure an outboard motor. A principal objection to such an arrangement has been found to be that a great deal of stress is exerted upon the thin fibre material at localized areas tending to cause breaking, which of course results in collapsing of the boat. Moreover the motor is not as firmly held by tabs as is desirable and its position relative to the under side of the boat is faulty.

An object of the invention therefore is to provide improved supporting structures for inflatable boats and especially to devise an outboard motor mounting which may be secured to the thin fabric walls without injuring them and which at the same time is effective in rigidly supporting the motor in a proper operative position.

To carry out these objectives, I have conceived of the idea of utilizing the change in shape which results from inflating the tubular sections of an inflatable boat to obtain a novel engagement of a motor mounting adjacent to the tubular sections. An important feature of the invention therefore consists in a motor mounting which includes split ring means for engaging around the stern tubular section of an inflatable boat when in a fully inflated position. The ring member is constructed with a diameter of a size slightly smaller than the overall diameter of the stern tubular section, thus providing for a firm grip on the tubular member when inflated.

Another feature consists in a forward stabilizing element which is adapted to be engaged under opposite tubular sides of the inflatable boat and which also depends for its engagement upon the position assumed by the tubular sides when in an inflated condition. This stabilizing element takes up a part of the thrust resulting from the torque of the motor and cooperates with the ring member to prevent rotative displacement of the motor relative to the stern tubular sec-

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tion, as well as imparting supporting action in directions laterally of the boat.

Another feature of the invention is a light weight demountable unit which may be easily and quickly assembled and attached to an inflatable boat while in a deflated condition. Other novel features will appear from the following description of the drawings and discussion relating thereto.

10 In the accompanying drawings:

Fig. 1 is a plan view of an inflatable boat illustrating my improved mounting attached thereto and supporting an outboard motor;

Fig. 2 is a side elevation;

15 Fig. 3 is a cross section taken on the line 3—3 of Fig. 4;

Fig. 4 is a cross section taken on the line 4—4 of Fig. 1;

20 Fig. 5 is a perspective view of the mounting of the invention;

Fig. 6 is a rear elevational view;

Fig. 7 is a plan view illustrating a modification of the invention; and

25 Fig. 8 is another plan view illustrating still another modification.

The structures illustrated by the drawings illustrate several embodiments of the invention. It should be understood, however, that the invention is not limited to these forms and may be embodied in various other forms in keeping with the spirit of the invention as defined by the appended claims.

Referring more in detail to the drawings, and to the preferred embodiment of the invention illustrated in Figs. 1-6 inclusive, arrow 10 denotes a conventional inflatable boat which is constructed of some suitable material such as rubber-like layers of fabric arranged to provide a flooring 12, upon which are mounted tubular sides 14, bow 16, and stern 18. The sections may be inflated in the usual manner by the use of a bicycle pump. Valve means for receiving and releasing air is customarily provided at some protected point along the tubular section. 40 Numerals 20 and 22 denote seats or thwarts which may be separately inflated.

The motor mounting of the invention in general includes a rigid enclosure element or a split ring member (Fig. 5), to which is secured a frame carrying a block on which may be clamped an outboard motor. At the front of the ring member is secured the forward stabilizing element already noted. The ring member as well as the stabilizing element depend upon the inflation pressure for engagement with the boat.

The ring member is denoted by the numeral 24 and consists of a relatively wide band of a light metal such as for example aluminum. Magnesium, steel, plastics, plywood and various other substances may also be employed. An opening is provided at one side of the ring 24 of sufficient width to permit easy insertion of loose fabric material comprising the stern tubular section 18, in a deflated condition. At the inner periphery of the ring member I have solidly secured a friction lining 25 which may for example be composed of a rough fabric fastened to the ring by means of rivets or other type of fastening. The function of the lining is to grip firmly the inflated stern section and prevent rotation of the ring.

One extremity of the split ring 24 is bent back upon itself in the manner shown in the drawings to provide a curved end 26. The curved formation of the bent end 26 avoids any possibility of gouging the fabric and breaking through the side walls of the boat either during assembly or actual use of the mounting. The other extremity 27 of the ring member is also bent away from the fabric in an opposite direction for a similar purpose, as may be more clearly seen in Fig. 3.

Secured to ring 24 at points adjacent to the bent ends 27 by means of wing nuts 28 is a forward stabilizing element 30 which is so arranged relative to the periphery of the ring member that it extends along in a plane just above and parallel to the flooring 12 of the boat and rests upon the flooring. At its outer extremity the stabilizing element 30 is further provided with a cross bar 32 which is adjustably secured by a nut or other suitable fastening.

The cross bar is constructed from a relatively flat strip of metal or other suitable material which is of a length generally corresponding to or slightly less than the width or beam of the boat measured between the points of engagement of the tubular ends 14 with the flooring 12. By this arrangement the ends of the cross bar 32 are caused to assume a position closely adjacent to the points of engagement referred to and when the side walls are inflated they overlie the ends of the cross bar, tightly jamming the end against the flooring 12. To avoid possible injury to the fabric and to furnish an even firmer grip, I may desire to cover the outer ends of the cross bar with pads 34 and 36. If desired the cross bar may be modified in various respects to increase its contacting surface on the side walls. For example, the ends may be of much greater width or curved to conform to the arc of curvature of the side tubes in an inflated position, or modified in various other respects. Similarly, the forwardly extending portion of the stabilizer may be of varying lengths and width and may carry additional cross bars if desired.

At the top of the ring member 24 is adjustably secured by wing nut 38 a frame piece 40, supporting two other rearwardly extending arms 42 and 44 which preferably are constructed integral with the frame piece 40, but may if desired be detachable. The arms 42 and 44 converge to support between their extremities, as shown in the drawings, a block member 46, preferably composed of a hard wood such as maple or oak, of the type commonly employed as a clamping block for outboard motors.

At the lower rear side of the block 46 is attached another frame element 48 which extends angularly downwardly to contact the ring 24, being adjustably secured thereto by means of a

nut or other suitable fastening. The arrangement of a frame member having two diverging arms and a downwardly extending element cooperates with the ring member 24 to develop a maximum of stiffness which is especially designed to overcome vibration of an outboard motor when clamped to the block member 46. Moreover, the combination of the several frame members, the split ring and the forward stabilizing element in the manner described, tends to produce a distribution of stress so that there is no concentrated pull at any one localized area. There is thus obtained a smooth, firm supporting action by the mounting which is completely independent of the strength of the fabric material utilized in the boat, and which nevertheless cooperates with the inflated fabric portions and is held by them in an adequate manner.

In operation, an outboard motor 50 is secured in the usual manner by means of a clamp member 52 which is tightly engaged over the block member 46, as has been illustrated in Figs. 1 and 2. When the outboard motor has been properly positioned and the motor is started, its vibratory effects tend to set up forces in the ring member 24 such as would rotate this member or would cause it to move laterally with respect to the stern tubular section. Such displacement is completely avoided by the joint action of the friction lining, tightly gripped against the stern tubular section and also by the supporting action of the cross bar wedged under the sides of the side tubular sections. This affords a positive brake against rotating movement of the ring member on the tubular stern section. At the same time, lateral displacement is prevented by the stabilizing effect of the cross bar wedged beneath the side walls. Another important point to note is that by arranging the frame member and block in the particular manner described, a desirable positioning of the outboard motor relative to the stern of the boat is obtained, with proper operating conditions being provided for so that the propeller is not easily caused to rise out of the water during passage of the boat in rough seas.

Supporting structures based upon inflation pressure, may take other forms. For example, in Fig. 7, I have shown a modification of outboard motor mounting in which I employ a plurality of split rings 56, 58, 60, similar to ring 24, with each of the rings being arranged in spaced-apart relation as shown, and with stiffening arms 62 and 64 being securely fastened between the two outside rings and the block member 66. Frame pieces 68 and 70 may also be secured between the block and the central ring member 58 as shown.

The supporting structures of the invention are not limited to serving as a mounting for outboard motors, but may on the contrary be employed for other purposes such as that illustrated in Fig. 8, consisting of a step for receiving a mast to be utilized in carrying a sail. In this arrangement, two ring members of the class described, 74 and 76, are secured to the bow of the inflated boat. Extending inwardly in crossed relation are two strap members 78 and 80 which are united to form an opening 82 in which the foot of a mast may be engaged. Lateral stabilization may also be provided for by means of a cross bar 84 generally corresponding to the cross bar 32 already described. Various other arrangements may be desired.

It will therefore be seen that the mounting of the invention affords a cheap, efficient, and easily

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attached device for inflatable boats, well adapted to supporting an outboard motor. The weight of the mounting is small and therefore the unit can easily be carried with the boat when inflated. The several parts of the mounting may be disassembled if so desired to form a compact unit which occupies little space.

I claim:

1. The combination with an inflatable boat having an inflatable tubular section forming side walls of the boat and a floor extending between the side walls and being secured at their under sides, of a rigid enclosure element mounted around the outer circumferential surface of a stern side wall of the tubular section, said enclosure element being adapted to tightly grip the tubular section when the latter is in its normally inflated operating condition, one extremity of the enclosure element being located inside the boat at a point adjacent to the inner junction of the flooring with its respective tubular section, the other extremity of the enclosure element extending around the tubular section and terminating at the under side thereof at a point adjacent to the outer junction of the flooring with its respective tubular section, a stabilizing element fixed to the inside extremity of the enclosure element and extending forwardly in contact with the floor of the boat and means on the enclosure element for supporting an outboard motor.

2. The combination with an inflatable boat having an inflatable tubular section forming side walls of the boat and a bottom extending between the side walls and being secured at their under side, of a rigid split ring element mounted around the outer circumferential surface of a stern side wall of the tubular section, said ring element being adapted to tightly grip the tubular section when the latter is in a normally inflated operating condition, said ring element cooperating with the inflated tubular section to provide a rigid support which extends from a point adjacent the inner junction of the bottom with the side walls of the tubular section to the outer junction of the bottom with its respective tubular section, and stabilizing means connected to the ring element and projecting forwardly therefrom in contact with the upper surface of the bottom of the boat.

3. The combination with an inflatable boat having an inflatable tubular section forming side walls of the boat and a bottom extending between the side walls and being secured at their under sides, of a rigid strap element mounted around the outer circumferential surface of a stern side wall of the tubular section, said strap element being adapted to tightly grip the tubular section when the latter is in a normally inflated operating condition, said strap element cooperating with the inflated tubular section to provide a rigid support which extends from a point adjacent the inner junction of the bottom with the side walls of the tubular section to the outer junction of the bottom with its respective tubular section, a support member for an outboard motor mounted on the ring element, and a brace member arranged to extend transversely between the sides of the boat and being solidly secured to the strap element.

4. The combination with an inflatable boat having an inflatable tubular section forming side walls of the boat and a floor element extending between the side walls and being secured at their

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under sides, of a rigid split ring element mounted around the outer circumferential surface of a stern side wall of the tubular section, said ring element being adapted to tightly grip the tubular section when the latter is in a normally inflated operating condition, the ring member being arranged in such relative position with respect to the tubular section that it provides a rigid support which extends from a point adjacent the inner conjunction of the floor element with the side walls of the tubular section to a point adjacent to the outer conjunction of the floor element with its respective tubular section, a support for an outboard motor mounted on the ring element, said support including two rearwardly extending arms, a block solidly secured between the extremities of the arms, and a downwardly extending frame element attached between the lower side of the block and the under side of the said ring element.

5. In combination with an inflatable boat having an inflatable tubular section, rigid enclosure means adapted to tightly grip the tubular section when the latter is in an inflated condition, supporting means for an outboard motor mounted at the rear of the enclosure means, a stabilizing element connected to the enclosure means and lying in contact with the upper surface of the floor of the boat, said stabilizing element cooperating with the enclosure means to transmit stress from an outboard motor mounted on the enclosure means through the flooring to distribute the stress uniformly throughout all points along the tubular section.

6. In combination a boat having a flooring and an inflatable tubular section, split ring means for gripping the tubular section when the latter is inflated, a rigid member connected to a forward extremity of the split ring means and lying in contact with the flooring of the boat, a transversely extending element secured to the rigid member and having its extremities engaged between the flooring and two opposite sides of the tubular section, and a support for receiving an outboard motor adjacent the split ring means.

7. In combination an inflatable boat having a bottom surface and an inflatable tubular section, split ring means adapted to firmly engage the tubular section when in an inflated condition, a frame for supporting an outboard motor extending rearwardly from one side of the split ring means, a rigid member secured at an opposite side of the ring means and lying in contact with the bottom surface of the boat throughout its length, a second rigid supporting member extending transversely of the first supporting member and secured thereto, the second rigid supporting member having its extremities wedged between the tubular section and the said bottom surface of the boat.

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