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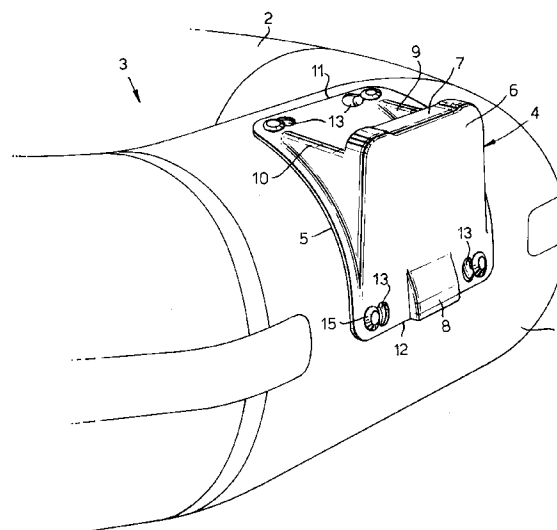
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(54) **Outboard bracket for inflatable boat and inflatable boat incorporating it.**

(57) A bracket (4) for allowing mounting of an outboard motor on the tube (1) of an inflatable boat is secured to the tube by virtue of the inflation of the latter. Studs on the tube have heads (15) which when the tube is deflated can enter wide portions of keyhole slots (13) on the bracket but which when the tube is inflated are held by virtue of that inflation in narrower parts of those slots.

Fig.1.



This invention relates to outboard brackets for inflatable boats. These are per se known objects which are used to enable the attachment of an outboard motor to an inflatable boat which does not have a rigid transom.

Current outboard brackets are fabricated parts which are fitted, by means of projecting rods and hooks, into projecting eyelets on a pre-inflated tube of the boat.

Both the fabrication of these brackets and their fitting to the tube present considerable disadvantages, for example in terms of cost, visual appeal and corrosion resistance.

According to one aspect of the present invention an outboard bracket for an inflatable boat is a one-piece integral member having a portion adapted to overlie the surface of an inflated tube of an inflatable boat, a portion projecting therefrom and adapted to mount an outboard motor thereupon, and securing means in the conforming portion adapted to interact with securing means on the tube, upon inter-engagement of those means while the tube is in less than fully inflated condition, whereby locking inter-engagement of those means is achieved by a fuller inflation of the tube.

In a preferred embodiment the securing means on the conforming portion are keyhole slots arranged at opposite ends of the conforming portion and spaced apart around the arcuate circumference of the conforming portion, adapted to be engaged by studs projecting from the tube and entering through the wider portion of the keyhole slot for forming an engagement, and being urged into a narrower portion of the keyhole slot upon fuller inflation of the tube. In a preferred embodiment there are a pair of such apertures at each of the respective ends, the keyholes of one pair being arranged in orthogonal directions in relation to the keyholes of the other pair. Alternatively, the keyholes of both pairs may be arranged in parallel but opposed.

Preferably, the conforming portion is held a small distance away from the tube by the securing means, to prevent chafing of the tube by the edges of the bracket. Distances of less than 5 mm are preferred, 3 mm being suitable.

In further possibilities, at least one end of the conforming portion may be adapted to inter-engage with a receiving pocket on the tube whereby inflation of the tube assures penetration of the respective end of the receiving portion into the pocket and retention by that pocket.

The invention provides in another aspect a method of fitting an outboard bracket to an inflatable boat which consists of inter-engaging the bracket with a tube of the inflatable boat in a condition when the tube is less than fully inflated, and increasing the inflation of the tube to cause a locking inter-engagement of the tube and the bracket. Preferably this lock-

ing inter-engagement is provided by the inflation of the tube forcing apart projections provided on the tube into keyhole slots provided on the bracket.

Particular embodiments of the invention are described with reference to the accompanying drawings, wherein:

Figure 1 is a perspective view of an outboard bracket embodying the invention mounted on an inflated tube of an inflatable boat, and at the stern thereof;

Figure 2 is a view of the tube in deflated condition;

Figure 3 shows a step in the fitting of the bracket to the tube; and

Figure 4 shows an embodiment of a bracket fitted to the tube.

In the drawings, we see the rear tube portion 1 of the flotation tube 2 of an inflatable boat 3. An outboard bracket 4 is fitted to the tube 1. This outboard bracket is a one-piece moulding (made by any suitable technique such as vacuum-forming, hand layup from glass reinforced plastics, or cold or hot pressing of glass reinforced plastics) and has a saddle-like part 5 conforming to the inflated curvature of the tube 1. It also has an upstanding flange part 6 with generally parallel front and rear walls which is for the reception of a fixing clamp of an outboard motor which is destined to propel the inflatable boat. A location recess 7 in a top edge of the flange part helps retain the motor fixing from lateral displacement. A handle 8 is moulded into the lower end of the bracket to assist carrying of the boat with the engine removed. Side walls 9, 10 join the flange to the conforming part and strengthen the assembly.

At each of its ends 11 and 12 which are separated by the curvature of the conforming surface of the part 5, the bracket has securing means 13 which in the embodiment are keyhole slots penetrating the thickness of the conforming portion. These keyhole slots each have a wide and a narrow portion as can best be seen in the lower part of Figure 3. In the embodiment of Figure 1 to 3 onwards, the keyhole slots are in pairs, one pair at each end of the conforming part 5, with the axes of elongation of each pair of slots being collinear and the two axes lying parallel; however, the direction of the slots as best seen again from Figure 3 is opposed in the sense that the narrower ends are mutually apart from each other. It will be understood that the illustrated arrangement of slots is that presently preferred; other orientations can give satisfactory results. For example, in Figure 4, the respective axes of elongation of slots 13 on the one hand and of slots 16 on the other, are perpendicular.

The tube 1 is adapted to receive brackets by the provision of securing means upon it, which in this embodiment are four studs 14 the base of each of which is securely bonded to the tube. The base is then followed by a narrow neck and an enlarged head 15

which is smaller in diameter than the large portion of the slot 13,16 with which it is to engage but larger than the width of the narrower portion of the slot. The spacing apart of the studs on the tube is such that when the tube is fully inflated the narrow stems of each of the studs will be occupying the narrow part of each of the slots 13,16.

To fit the bracket, the tube is deflated so that the surface upon which the studs are borne becomes floppy and their heads may be introduced through the (incorrectly spaced) wider portions of the keyhole slots 13. The tube is then inflated, this imposing rigidity on its fabric and forcing apart the studs to their natural spacing in which their narrow necks are urged into and retained in the narrower part of the keyhole slots. The bracket is thereby inter-engaged and interlocked with the tube until such time as the latter is again deflated.

As has been mentioned, in the embodiment seen in Figure 4, the bracket 4' has slots 13 as before at one end of the conforming portion 5 but at the other end a pair of slots 16 are arranged with their axes parallel to each other and both these axes being orthogonal to the common collinear axis of the slots 13. In this embodiment the effective inflation of the tube is to force the four studs apart but in essentially orthogonal directions as between one pair and the other. In the slightly modified embodiment of Fig 1, the four slots are parallel but opposed. The effect is the same.

It is clear that there are other means by which the same effect may be obtained. For example the engaging means on the tube need not be stud-like as shown here but could be an outwardly directed hook; and the securing means on the bracket need not necessarily be slots. It is also possible to provide protrusions on the surface of the moulding of the bracket, or width restrictions along the length of the keyhole slot which interfere with the motion of the stud, thereby to provide at least some resistance to disengaging of the bracket. For example, at least one end of the conforming part of the bracket could be engageable in a pocket arranged on the outside of the tube, inflation of the tube then rigidifying the tube and maintaining the relative spacing of the pocket or pockets so that there is a positive interlocking engagement. Furthermore, although less advantageously, one end of the bracket could be secured by some conventional means such as a strap or lacing.

Claims

1. A bracket (4) for mounting an outboard motor to a tube (1) of an inflatable boat (3), the bracket comprising
 - a portion (6) for receiving said motor;
 - a conforming portion (5) adapted to overlie said tube;

securing means (13,16) on the conforming portion positioned to be interengageable with securing means (14,15) on the tube, the securing means (13-16) being positioned so as to be locked in interengagement upon inflation of the tube (1).

2. A bracket according to claim 1 wherein said securing means on said conforming portion is a slot (13,16) and on said tube is a projection therefrom (14) and said interengagement is by an overlap portion (15) on said projection, inflation causing overlap of said overlap portion over an edge of the slot to cause locking interengagement.
3. A bracket according to claim 2 wherein said conforming portion has parallel upper and lower edges (11,12) and there is a pair of said slots adjacent each of said edges.
4. A bracket according to claim 2 or claim 3 wherein said slots (13,16) each having two portions, one being wider than the other and wherein said overlap portion (15) is a head of a stud (14) forming said projection, said head being wider than the less wide portion but narrower than the wider portion of the slot.
5. A bracket according to claim 4 wherein the elongations of said slots adjacent the respective edges are all parallel.
6. A bracket according to claim 4 wherein the elongations of said slots adjacent and said edge are perpendicular to the elongations of said slots adjacent the other said edge.
7. A bracket according to any one of the preceding claims mounted on and in combination with an inflatable boat (3), said securing means (13-16) on the bracket (4) and on a tube (1) of the inflatable boat being held in locking interengagement by virtue of the inflation of said tube.
8. A bracket as claimed in claim 7 with an outboard motor mounted to said receiving portion.
9. A method of securing to an inflatable boat (3) a bracket (4) for mounting an outboard motor to said boat comprising providing securing means (13-16) on an inflatable tube (1) of said boat and on a portion (5) of said bracket, in an at least partially deflated condition of said tube placing said securing means together, and inflating said tube to cause a locking interengagement of said securing means thereby and retain said bracket on said tube.

Fig.1.

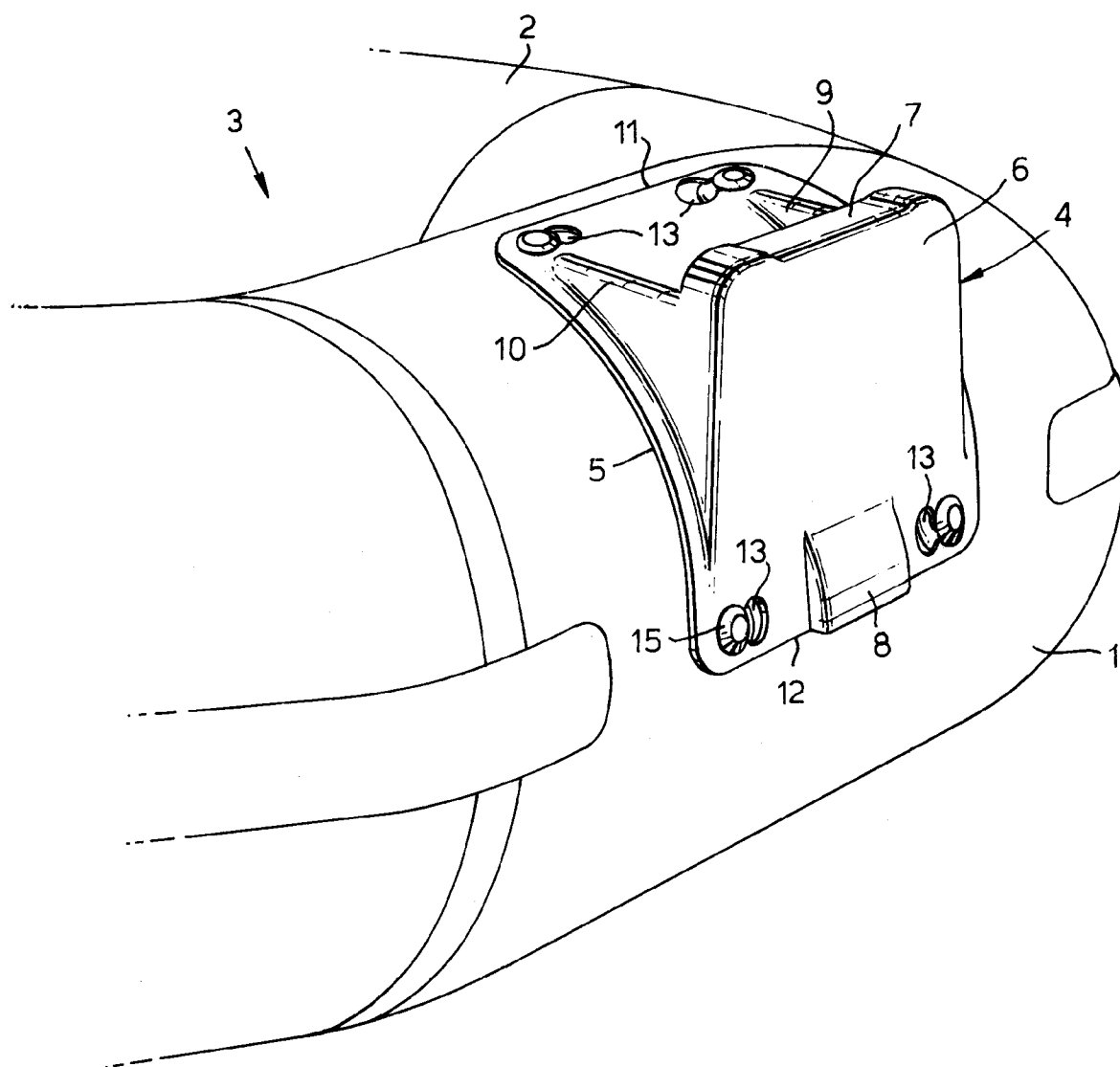


Fig.2.

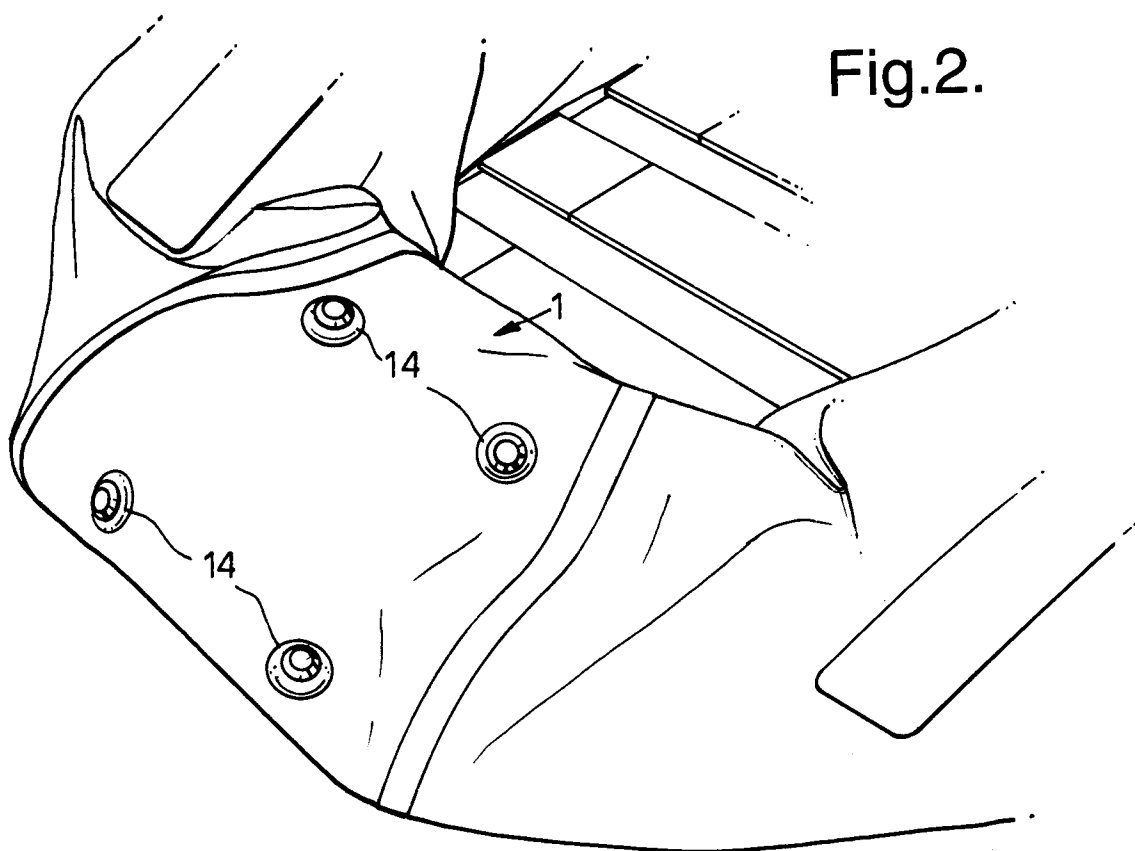


Fig.3.

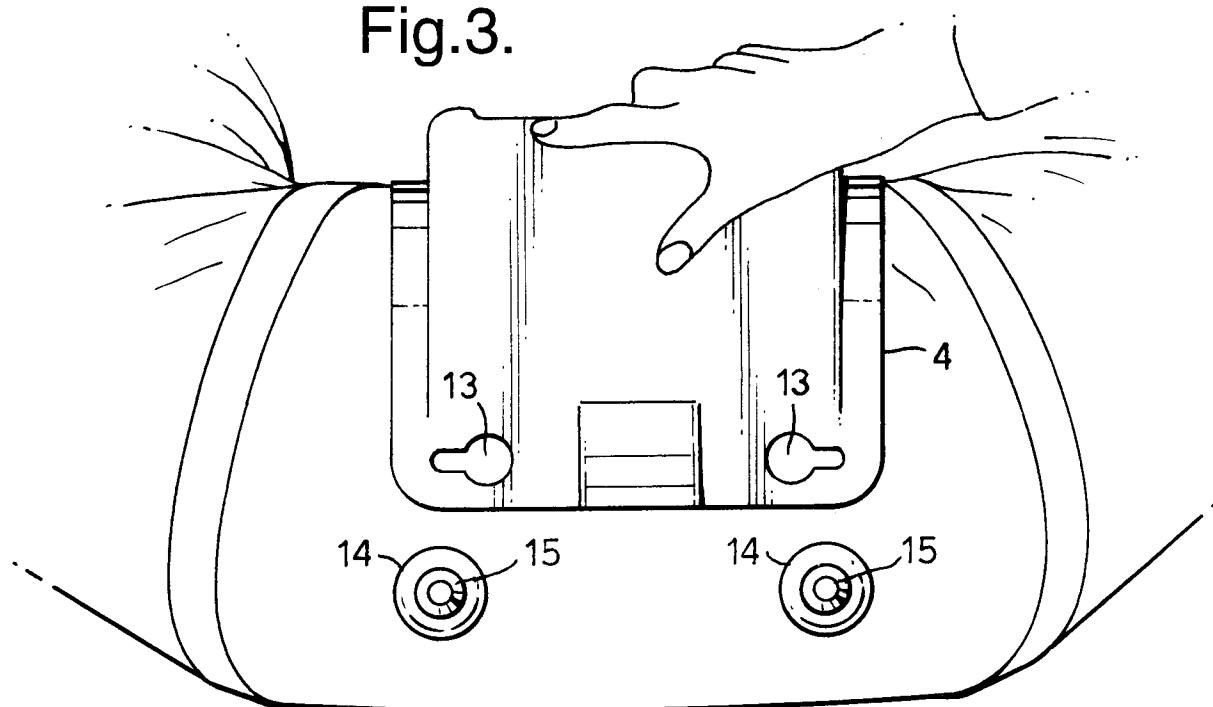
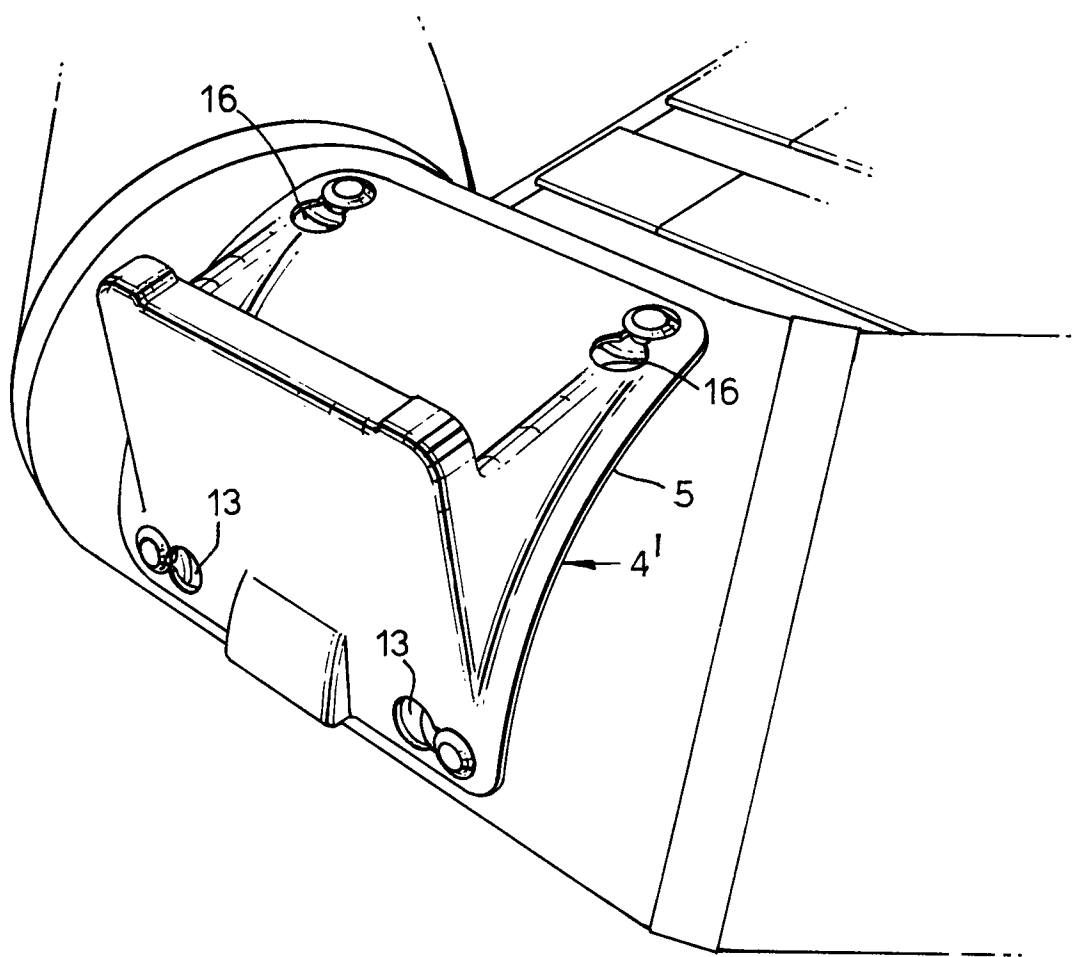


Fig.4.





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 94 30 8100

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	GB-A-1 031 293 (AVON RUBBER COMPANY LTD.) * page 2, line 4 - line 7; figures * ---	1,9	B63B7/08
A	FR-A-2 088 801 (SOCIÉTÉ INDUSTRIELLE L'ANGEVINIERE ET JOUELES-TOURS "ANGEVINIERE") * page 2, line 21 - line 28; figures * ---	1,9	
A	FR-A-1 010 973 (G.CANTON) * page 2 - page 3; figures 12,13 * ---	2-7	
A	DE-C-429 312 (DEUTSCHE FLOSSBOOTSWERKE) * the whole document * -----	1,9	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B63B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 1 February 1995	Examiner Stierman, E
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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