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(54) **Inflatable boat with outboard bracket**

Schlauchboot mit Aussenbordmotortraggestell

Bateau gonflable avec support d'un motor hors-bord

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EP 0 652 152 B1

Description

This invention relates to inflatable boats with outboard brackets. 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 inflatable boat has an outboard bracket which is a one-piece integral member having a portion adapted to overlie the outer surface of an inflated flotation tube of an inflatable boat, a portion projecting therefrom and adapted to mount an outboard motor thereupon, and securing means in the conforming portion interacting with securing means on the tube, those means being engageable while the tube is in less than fully inflated condition, but being locked in inter-engagement in 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 locking 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 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 Figured 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. An inflatable boat (3) with a bracket (4) for mounting an outboard motor to a flotation tube (1) of the 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 locked in interengagement with securing means (14,15) on an outer surface of the tube (1) when the tube is inflated but releasable when the tube is at least partially deflated.

2. A boat 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 there is an overlap portion (15) on said projection, inflation causing overlap of said overlap portion over an edge of the slot to cause the locking interengagement.

3. A boat 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 boat according to claim 2 or claim 3 wherein said slots (13,16) each have 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 boat according to claim 4 wherein the elongations of said slots adjacent the respective edges are all parallel.

6. A boat 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 boat as claimed in any one of the preceding claims with an outboard motor mounted to said receiving portion.

8. 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 outer surface of an inflatable buoyancy 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.

9. A method according to claim 8 wherein the securing means on the tube are projections (14) with an overlap portion (15) thereon and the securing means on the bracket are slots (13,16) with two portions one being wider than the other, the narrower of the portions of the slot being narrower than the overlap portion (15) of the projection and the wider of the portions of the slot being wider than the overlap portion (15), the overlap portions being passed through the wider portions of the slots when the tube is at least partially deflated, inflating the tube causing the overlap portions to overlie the narrower portions of the slot.

Patentansprüche

1. Schlauchboot (3) mit einem Traggestell (4) zum Montieren eines Außenbordmotors an einem Schwimmschlauch (1) des Schlauchboots (3), wobei das Traggestell folgendes umfaßt:

   einen Abschnitt (6) zur Aufnahme des Motors;
   einen formangepaßten Abschnitt (5), der zum Aufbringen am Schlauch ausgebildet ist;
   Befestigungsmittel (13, 16) auf dem formangepaßten Abschnitt, die in Eingriff mit Befestigungsmitteln (14, 15) auf einer Außenfläche des Schlauchs (1) verriegelt sind, wenn der Schlauch aufgeblasen ist, aber entriegelbar sind, wenn der Schlauch zumindest teilweise entleert ist.

2. Boot nach Anspruch 1, worin das Befestigungsmittel auf dem formangepaßten Abschnitt ein Schlitz (13, 16) und auf dem Schlauch ein davon wegstehender Vorsprung (14) ist und sich auf dem Vorsprung ein Übergreifabschnitt (15) befindet, wobei das Aufblasen das Übergreifen des Übergreifabschnitts über einen Rand des Schlitzes bewirkt, um Verriegelungseingriff herzustellen.

3. Boot nach Anspruch 2, worin der formangepaßte Abschnitt einen oberen und unteren Rand (11, 12) besitzt die zueinander parallel sind, und zu jedem der Ränder benachbart ein Schlitzpaar angeordnet ist.

4. Boot nach Anspruch 2 oder 3, worin die Schlitze (13, 16) jeweils zwei Abschnitte aufweisen, wovon einer breiter als der andere ist, wobei der Übergreifabschnitt (15) ein Kopf eines Ansatzes (14) ist, der den Vorsprung bildet, wobei der Kopf breiter als der weniger breite Abschnitt, jedoch schmäler als der breitere Abschnitt des Schlitzes ist.

5. Boot nach Anspruch 4, worin die Längserstreckungen der zu den jeweiligen Rändern benachbarten Schlitze parallel zueinander sind.

6. Boot nach Anspruch 4, worin die Längserstreckung der zu einem Rand benachbarten Schlitze im rechten Winkel zur Längserstreckung der zum anderen Rand benachbarten Schlitze verläuft.

7. Boot nach einem der vorhergehenden Ansprüche mit einem am Aufnahmeabschnitt montierten Außenbordmotor.

8. Verfahren zum Befestigen eines Traggestells (4) an einem Schlauchboot (3), welches Traggestell zum Montieren eines Außenbordmotors am Boot dient, umfassend das Bereitstellen von Befestigungsmitteln (13-16) an einer Außenfläche eines aufblasbaren Schwimmschlauchs (1) des Boots und an einem Abschnitt (5) des Traggestells, das Zusammenfügen der Befestigungsmittel bei zumindest teilweise entleertem Zustand des Schlauchs und das Aufblasen des Schlauchs, um dadurch einen Verriegelungseingriff der Befestigungsmittel zu bewirken und das Traggestell auf dem Schlauch festzuhalten.

9. Verfahren nach Anspruch 8, worin die Befestigungsmittel auf dem Schlauch Vorsprünge (14) mit einem darauf ausgebildeten Übergreifabschnitt (15) sind und die Befestigungsmittel auf dem Traggestell Schlitze (13, 16) mit zwei Abschnitten sind, von denen einer breiter als der andere ist, wobei der schmälere der Abschnitte des Schlitzes schmäler als der Übergreifabschnitt (15) des Vorsprungs ist und der breitere der Abschnitte des Schlitzes breiter als der Überlappungsabschnitt (15) ist, wobei die Übergreifabschnitte durch die breiteren Abschnitte der Schlitze hindurchsteckt werden, wenn das Schlauch zumindest teilweise entleert ist, wobei das Aufblasen des Schlauchs bewirkt, daß die Übergreifabschnitte über den schmäleren Abschnitten des Schlitzes zu liegen kommen.

Revendications

1. Bateau gonflable (3) avec une patte (4) pour monter un moteur hors bord sur un tube de flottaison (1) du bateau gonflable (3), la patte comprenant

   une portion (6) pour recevoir ledit moteur ;
   une portion de conformation (5) adaptée à recouvrir ledit tube ;
   un moyen de fixation (13, 16) sur la portion de conformation bloqué en engagement mutuel avec un moyen de fixation (14, 15) sur une surface externe du tube (1) quand le tube est gonflé mais libérable quand le tube est au moins partiellement dégonflé.

2. Bateau selon la revendication 1, où ledit moyen de fixation sur ladite portion de conformation est une fente (13, 16) et sur ledit tube est une protubérance (14) et il y a une portion de recouvrement (15) sur ladite protubérance, un gonflement provoquant un recouvrement de ladite portion de recouvrement sur un bord de la fente pour provoquer l'engagement de blocage.

3. Bateau selon la revendication 2 où ladite portion de conformation a des bords supérieur et inférieur parallèles (11, 12) et il y a une paire desdites fentes à proximité de chacun desdits bords.

4. Bateau selon la revendication 2 ou la revendication 3 où lesdites fentes (13, 16) ont chacune deux portions, une étant plus large que l'autre et où ladite

portion de recouvrement (15) est une tête d'un téton (14) formant ladite protubérance, ladite tête étant plus large que la portion moins large mais plus étroite que la portion plus large de la fente.

5. Bateau selon la revendication 4, où les allongements desdites fentes à proximité des bords respectifs sont tous parallèles.

6. Bateau selon la revendication 4, où les allongements desdites fentes à proximité dudit bord sont perpendiculaires aux allongements desdites fentes à proximité de l'autre bord.

7. Bateau selon l'une quelconque des revendications précédentes avec un moteur hors bord monté sur ladite portion de réception.

8. Méthode de fixation, à un bateau gonflable (3), d'une patte (4) pour monter un moteur hors bord sur ledit bateau, consistant à prévoir des moyens de fixation (13-16) sur une surface externe d'un tube flottant gonflable (1) dudit bateau et sur une portion (5) de ladite patte, en une condition au moins partiellement dégonflée dudit tube en plaçant lesdits moyens de fixation ensemble, et à gonfler ledit tube pour provoquer un engagement mutuel de blocage dudit moyen de fixation et ainsi retenir ladite patte sur ledit tube.

9. Méthode selon la revendication 8, où les moyens de fixation sur le tube sont des protubérances (14) avec une portion de recouvrement (15) et les moyens de fixation sur la patte sont des fentes (13, 16) avec deux portions, l'une étant plus large que l'autre, la plus étroite des portions de la fente étant plus étroite que la portion de recouvrement (15) de la protubérance et la plus large des portions de la fente étant plus large que la portion de recouvrement (15), les portions de recouvrement passant à travers les portions plus larges des fentes quand le tube est au moins partiellement dégonflé, un gonflement du tube forçant les portions de recouvrement à recouvrir les portions plus étroites de la fente.

Fig.1.

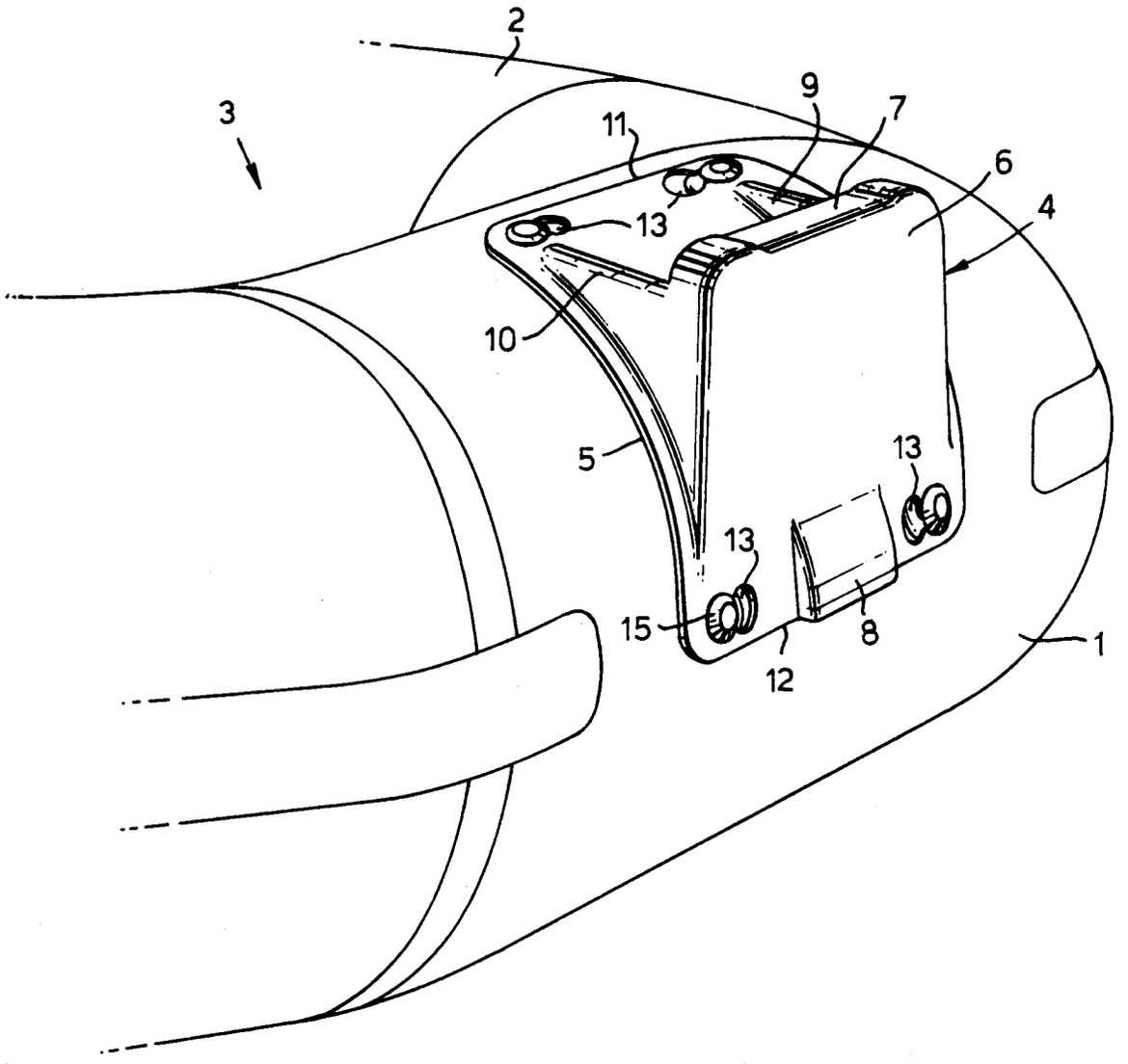


Fig.2.

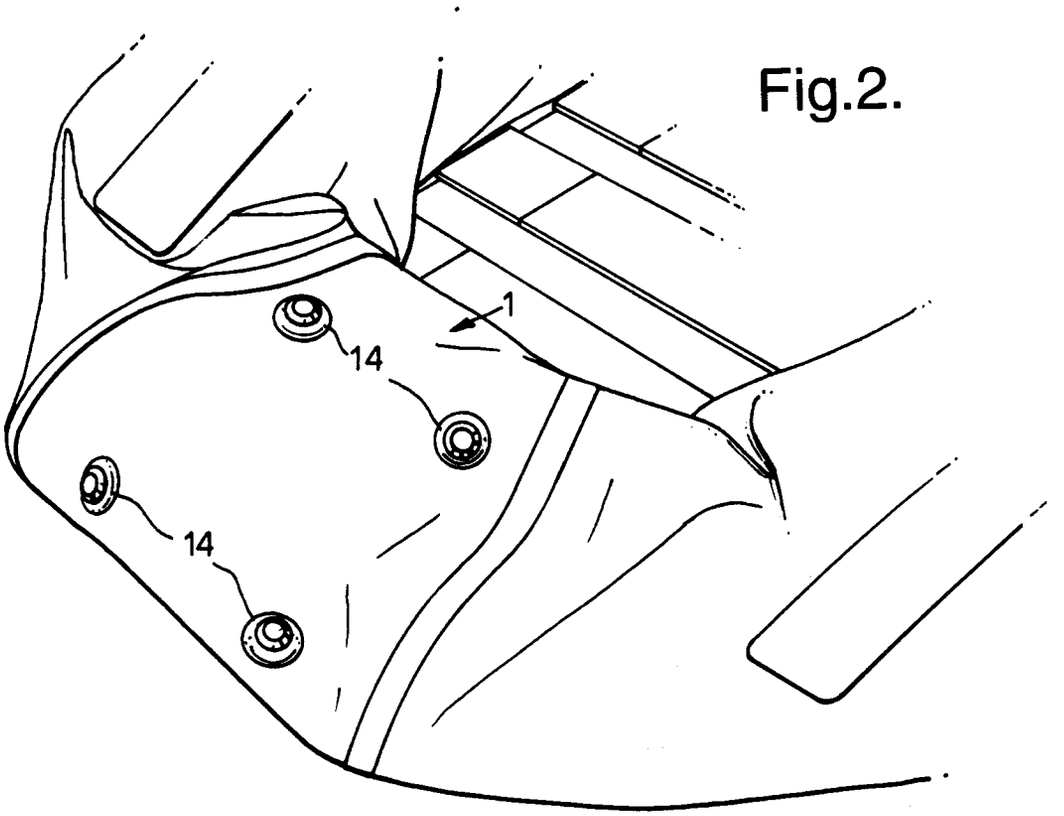


Fig.3.

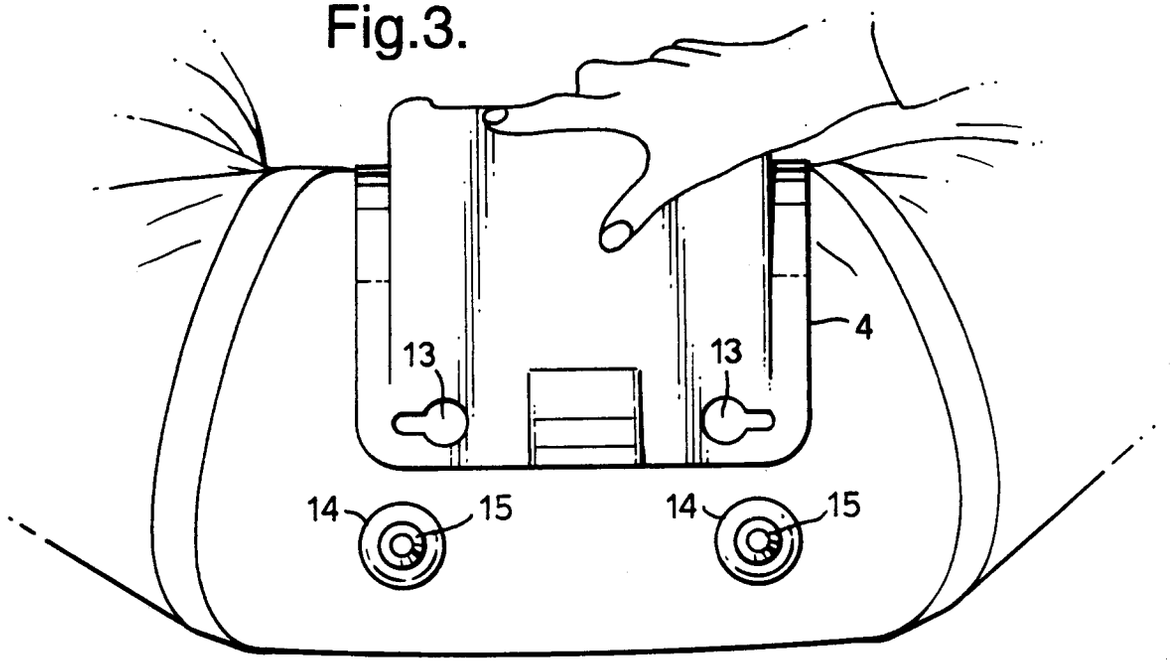


Fig.4.

