



(11) Publication number : **0 583 226 A1**

(12)

EUROPEAN PATENT APPLICATION

(21) Application number : **93830300.5**

(51) Int. Cl.⁵ : **B63B 7/08**

(22) Date of filing : **14.07.93**

(30) Priority : **11.08.92 IT MI921976**

(43) Date of publication of application :
16.02.94 Bulletin 94/07

(84) Designated Contracting States :
BE DE DK ES FR GB GR NL PT

(71) Applicant : **FORMENTI DI FORMENTI PIERO**
Località Vigna della Pace, 2/2
I-20086 Motta Visconti (Milano) (IT)

(72) Inventor : **Formenti, Piero, c/o FORMENTI DI DORMENTI PIERO**
Località Vigna della Pace, 2-2
I-20086 Motta Visconti (Milano) (IT)

(74) Representative : **Cicogna, Franco**
Ufficio Internazionale Brevetti Dott.Prof.
Franco Cicogna Via Visconti di Modrone, 14/A
I-20122 Milano (IT)

(54) **Boat having a construction of pneumatic elements supporting a rigid bottom and provided with an afterpeak accessible through two openable doors which can be partially turned toward the boat stern.**

(57) A boat formed by pneumatic elements associated with a rigid bottom, characterized in that said boat comprises a pair of tubular compartments having a variable cross-section tapering toward the bow of the boat, said boat tubular compartments being associated with contoured sidewall elements connecting the substantially rigid bottom of the boat to a boat floor, which are mutually spaced in order to provide several load spaces.

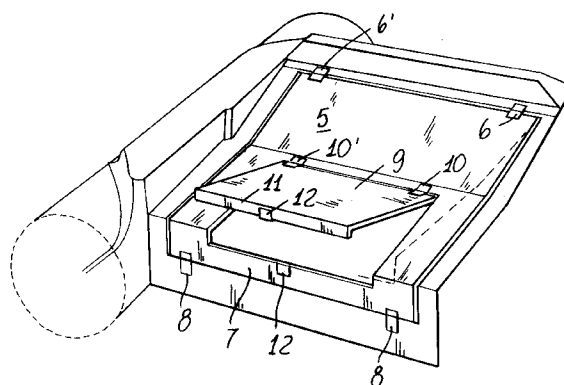


FIG. 2

BACKGROUND OF THE INVENTION

The present invention relates to a boat having a construction of pneumatic elements supporting a rigid bottom and provided with an afterpeak accessible through two openable doors which can be partially turned toward the boat stern.

As is known, there are already available several boats and vessels the hulls of which are made of pneumatic elements.

These prior boats have the main drawback that they define limited inner spaces which can not be properly exploited.

In fact, the greatest portion of this inner space is occupied by the structural members for stiffening the boat hull.

In these prior boats, in fact, is very limited the space for compartments provided for receiving personal use articles or for receiving fittings to be used for operating the boats, such as anchors, oars, life belts and the like. Prior pneumatic type boats, moreover, have a substantially U-shape, whereas the pneumatic compartments extending on the boat side-walls starting from the stern region and meeting at the bow region of the boat, form said bow of the boat.

In the mentioned case of pneumatic element boats, of conventional construction, as it is desired to obtain large size and inner space constructions, it is necessary to perform very complex building operations, in order to stiffen the hull, for allowing the latter to resist against the efforts applied during the sailing.

In this connection it is moreover to be pointed out that this prior boats must be assembled by comparatively complex assembling operations and, moreover, they are not frequently able of assuring the proper sailing stability.

Conventional pneumatic elements, furthermore, do not provide the possibility of properly exploiting the boat inner spaces, since a portion of this space is occupied by several stiffening assemblies.

SUMMARY OF THE INVENTION

The aim of the present invention is to overcome the above mentioned drawbacks, by providing a boat, formed by pneumatic elements associated with a rigid bottom, which can achieve a comparatively large size, thereby associating the advantages of the pneumatic boats and of the rigid hull boats.

In the case of the subject boat, there has been accurately designed a rational distribution of the inner spaces both with respect to a good habitability in the boat, and with respect to the provision of a specific storing afterpeak which can be accessed through suitable doors to be opened by a rotary movement thereof toward the boat stern.

In particular, the present invention provides a boat formed by pneumatic elements associated with a rigid

bottom and provided with a compartment or afterpeak, having a large storing capability, both for personal use articles and for fittings for the operation of the boat and/or the maintenance thereof.

According to one aspect of the present invention, the above mentioned aim and objects as well as yet other objects, which will become more apparent hereinafter, are achieved by a boat having a construction formed by pneumatic elements associated with a rigid bottom, including an afterpeak assembly, said boat being characterized in that it comprises a single afterpeak which can be accessed from different parts of the boat.

BRIEF DESCRIPTION OF THE DRAWINGS

Further characteristics and advantages of the present invention will become more apparent hereinafter from the following detailed disclosure of a preferred, though not exclusive, embodiment of a boat according to the present invention, which is illustrated, by way of an indicative, but not limitative example, in the accompanying drawings, where:

Figure 1 is a partially cross-sectioned side view of the boat according to the present invention and of its afterpeak;

Figure 2 is a perspective view of the stern or after-body region of the boat, where there is provided the afterpeak, which can be accessed through a front door, in order to store either personal articles or boat fittings;

Figure 3 is a perspective view of the stern of the boat, clearly showing the afterpeak and the rear door, the afterpeak being provided for storing the anchors, oars or other fittings for the boat;

Figure 4 is a partially cross-sectioned plane view of the boat, and showing specifically a half of this boat;

Figure 5 is a side elevation view illustrating the tubular compartments;

Figure 6 is a cross-sectional view substantially taken along the line II-II of Figure 1;

Figure 7 is a further cross-sectional view substantially taken along the line III-III of Figure 1;

Figure 8 is a further cross-sectional view substantially taken along the line IV-IV of Figure 1;

Figure 9 illustrates, on an enlarged scale, the detail indicated at the reference letter C in Figure 6; and

Figure 10 illustrates, on an enlarged scale, the boat detail indicated at the reference letter D in Figure 6.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference to the number references of the drawing figures, the subject boat 1 is formed by pneu-

matic elements 17, associated with a rigid bottom 26 and includes a pair of tubular compartments 17 which have a substantially circular cross-section and are upwardly tapered at their bow region.

More specifically, the tubular compartments 17 are advantageously constituted by a plurality of chambers 18, which are separated from one another by separating walls 19 and which, accordingly, can be separately inflated through any known types of inflating valves.

As the boat is assembled, the tubular elements 17 are mounted by glueing them to contoured sidewall elements 25, which connect mutually a substantially rigid bottom, made preferably of a plastic material, indicated at the reference number 26, to a boat floor, indicated at the reference number 27.

The sidewall elements 25 are provided with an aerodynamic tunnel 25', designed for increasing the floating characteristics of the boat and for improving the stability thereof.

The connection between the shell forming the bottom 26 and the element forming the boat floor 27 is performed by using specifically designed connecting elements made of a plastic material reinforced by fiber glass.

As shown in Figures 9 and 10, in the middle region of the bottom 26, there is provided a first cloth cap 40, glued between the side leg of the bottom 26 and the bottom portion of the contoured sidewall element 25.

The tubular element 17 is affixed, by glueing it, between these rigid portions.

As shown in Figure 10, at the bow region, there is provided a U-bent cloth cap 45, encompassing the edges of the sidewall contoured element 25 and the top element 51, supporting the floor panel 27.

The boat according to the present invention is moreover provided with a cloth cap 50, of Z-shape, which connects, by glueing, the superimposition zone between the edges of the contoured element 25 and the element 51 supporting the floor panel 27 and the tubular elements 17.

The rigid elements connecting to one another the bottom 26 and the element supporting the boat floor 27, are firmly connected through the interposition of a glue material 51.

On the inner surface of the boat bottom 26, there are provided longitudinal beams 55, which operate as stiffening ribs, and as supporting elements for the strut elements 56 supporting the boat floor 27, connected to the supporting elements in turn connected to the side tubular elements.

This construction allows to provide the subject boat with a good structural stiffness and, moreover, allows to provide, between the boat floor 27 and the boat bottom, several interspaces, indicated at the reference number 65, which can be used for providing afterpeaks, as well as bilge regions, which can be va-

riously exploited.

The main feature of the afterpeak 2 is that it is provided with a high load capability and, moreover, that it is easily accessed from different parts of the boat, i.e. a front part and a rear part, as it is clearly shown in Figure 1.

The front portion of the afterpeak 2 is accessed by opening a door 5 articulated at two or more points 10 and 6.

More specifically, this door 5 is provided, at its front portion 8, with two hook members 12 for closing the door. Said door can be opened by causing it to partially turn toward the rear or after part.

Said door 5 has the feature that it allows the afterpeak 2 to be easily accessed from the front of the boat.

As shown, the boat according to the present invention is moreover provided with a further door 13, of less size, and which can be also separately opened, that is independently from the opening of the front door 5, of larger size, as already disclosed.

This second door 13 is articulated about the pivot pins 14 and is provided, at its front portion, with a closure hook member 13'.

If desired, the rear door 13 can be individually opened in order to store therein personal use articles, for example, frequently used articles occupying a comparatively small space.

On the other hand, as it is necessary to store large size articles, then the front door 5 will be opened (which has a larger size), so as to provide a comparatively large size access port.

In particular, the front door 5 can also be used as it is desired to control the inner bottom of the boat, for example for monitoring a possible presence of water in the boat hull.

The rear portion 4 of the afterpeak 2 is accessed, on the other hand, by opening the door 13 pivoted at the pivot point indicated at the reference number 14.

In particular, this door 13 is opened in order to store into the afterpeak 2 the fittings or fixtures necessary for the operation of the boat such as, for example, the stern anchor, the emergency oars or the portable tanks which can be used as spare supplying tanks.

Another important aspect of the present invention is that the boat 1 has a very functional construction and that the pneumatic compartments 17 practically exclusively operate as floating elements, and they do not have any stiffening functions, which is substantially met by the rigid portion 26 of the boat 1.

Moreover, there is provided a boat 1 which, while having a comparatively large width, can be easily transported on the ground, since, by deflating the tubular compartments 17, the boat will assume a size allowing it to be easily transported on a road.

The provision of tubular compartments 17 affecting exclusively the side walls of the boat and having

a variable cross-section, tapering toward the bow region and upwardly, to meet with the rigid bottom 26, allows to make a boat having very good mechanical characteristics and good sailing properties.

In fact, in this boat, the tubular elements 17 mainly operate as sailing stabilizing elements.

The subject boat, moreover, is provided with a large load capability afterpeak 2, which can be accessed through two different accessing doors. Of the latter, the front door is usually covered or is associated with a seat or small bed allowing the users to rest during the sailing.

From the above disclosure it should be apparent that the invention fully achieves the intended aim and objects.

The invention, as disclosed, is susceptible to several modifications and variations, all of which will come within the scope of the inventive idea.

Moreover, all the constructional details can be replaced by other technically equivalent elements.

In practicing the invention, the used material, provided that they are compatible to the intended use, as well as the steps of the method for making the subject boat can be any, according to the requirements and the size of the boat.

It is specifically intended as coming within the scope of the present invention a constructional configuration of the boat, as disclosed, having at the bow thereof the two side tubular elements, even if they are connected by a further inner tubular element, the diameter of which is less than $\frac{2}{3}$ the maximum diameter of the tubular elements used for the overall boat.

Claims

1. A boat formed by pneumatic elements associated with a rigid bottom, characterized in that said boat comprises a pair of tubular compartments having a variable cross-section tapering toward the bow of the boat, said boat tubular compartments being associated with contoured sidewall elements connecting the substantially rigid bottom of the boat to a boat floor, which are mutually spaced in order to provide several load spaces.
2. A boat, according to Claim 1, characterized in that said boat comprises a single afterpeak, which can be accessed from different parts of said boats.
3. A boat, according to Claims 1 and 2, characterized in that said boat comprises a front door and a rear door adapted to allow said afterpeak to be accessed, and respectively provided at the front portion and rear portion of said afterpeak.
4. A boat, according to one or more of the preceding

claims, characterized in that the front door of the afterpeak has a size larger than that of the rear door of said afterpeak.

5. A boat, according to one or more of the preceding claims, characterized in that said front door comprises a plurality of pivoted portions which can be opened either partially or fully.
6. A boat, according to one or more of the preceding claims, characterized in that the front door, of larger size, as well as the rear door are provided with hinge assemblies and latching means for the closure thereof.
7. A boat according to one or more of the preceding claims, characterized in that said boat comprises an afterpeak arranged at the stern region of said boat and in that said front door is formed into two portions, connected to one another by a middle connecting hinge assembly, and being adapted to allow said afterpeak to be accessed as one of said portions of said door is turned with respect to the other portion thereof.
8. A boat, according to one or more of the preceding claims, characterized in that said front door and rear door of said afterpeak can be opened by partially turning said doors toward the rear portion of the boat hull.
9. A boat, according to one or more of the preceding claims, characterized in that said front door is adapted to support a mattress or a seat.
10. A boat, according to one or more of the preceding claims, characterized in that said tubular compartments have a substantially circular cross-section.
11. A boat, according to one or more of the preceding claims, characterized in that said tubular compartments, at the tapering portion thereof, upwardly project so as to meet with the bottom of said boat.
12. A boat, according to one or more of the preceding claims, characterized in that said boat comprises connecting elements connecting said tubular compartments and said sidewall contoured elements, and comprising cloth elements adapted to connect edge portions of said sidewall contoured elements and supporting means for said boat floor.
13. A boat, according to one or more of the preceding claims, characterized in that said boat further comprises Z-shape cloth elements which are par-

tially superimposed on the support means of the boat floor and the tubular elements.

- 14.** A boat, according to one or more of the preceding claims, characterized in that said boat further comprises glue material layers arranged between said sidewall contoured elements and supporting means of said boat floor. 5
- 15.** A boat, according to one or more of the preceding claims, characterized in that said boat further comprises longitudinal beam elements longitudinally extending on the inner surface of said bottom of said boat and adapted to operate as stiffening elements therefor. 10 15
- 16.** A boat, according to one or more of the preceding claims, characterized in that to at least one of said longitudinal beam elements there are connected strut elements for supporting said floor of said boat. 20

25

30

35

40

45

50

55

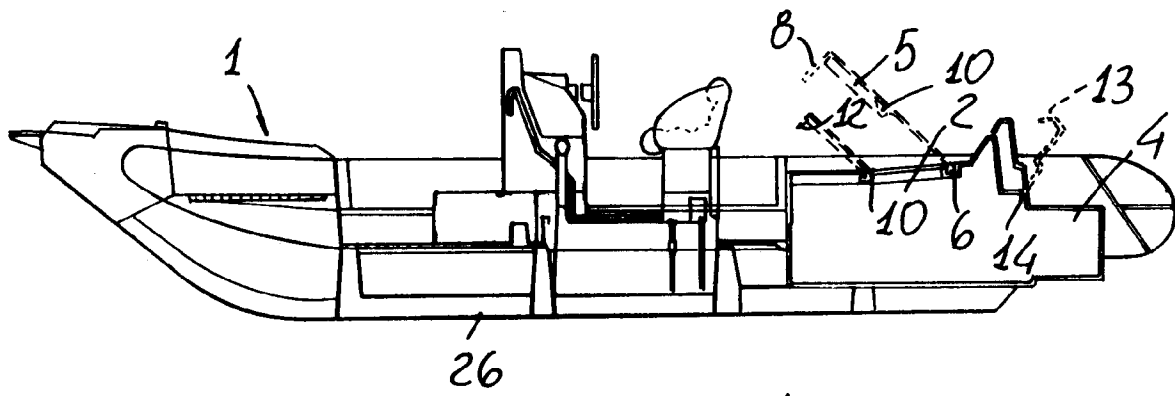


FIG. 1

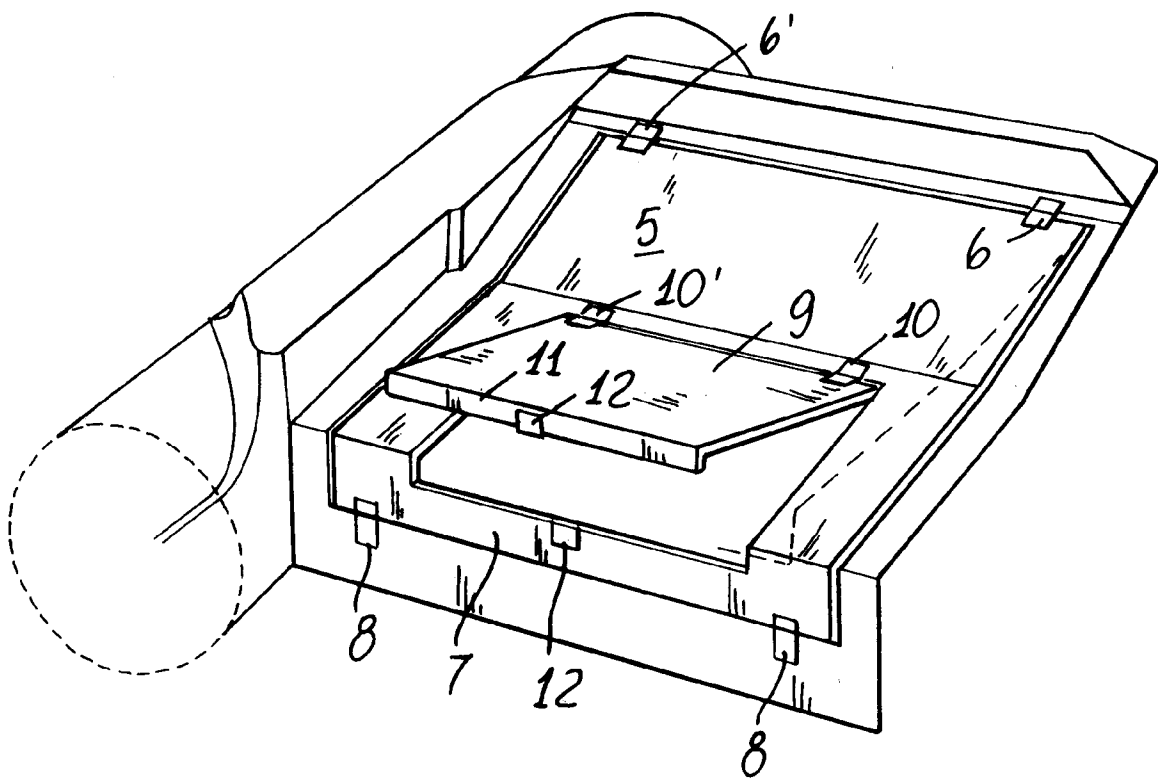
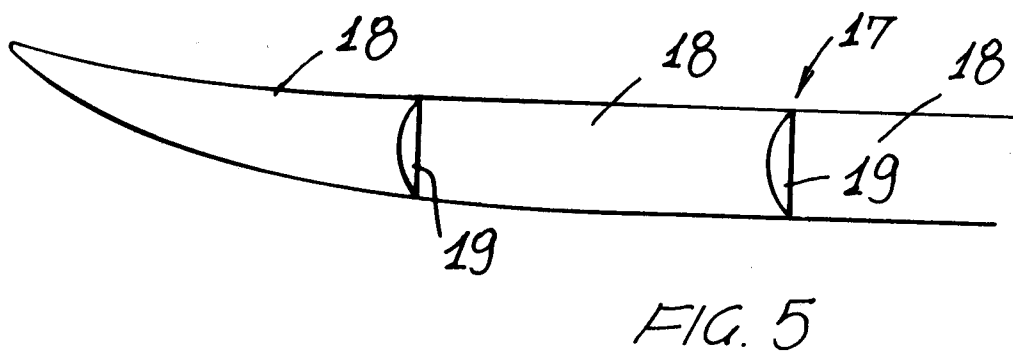
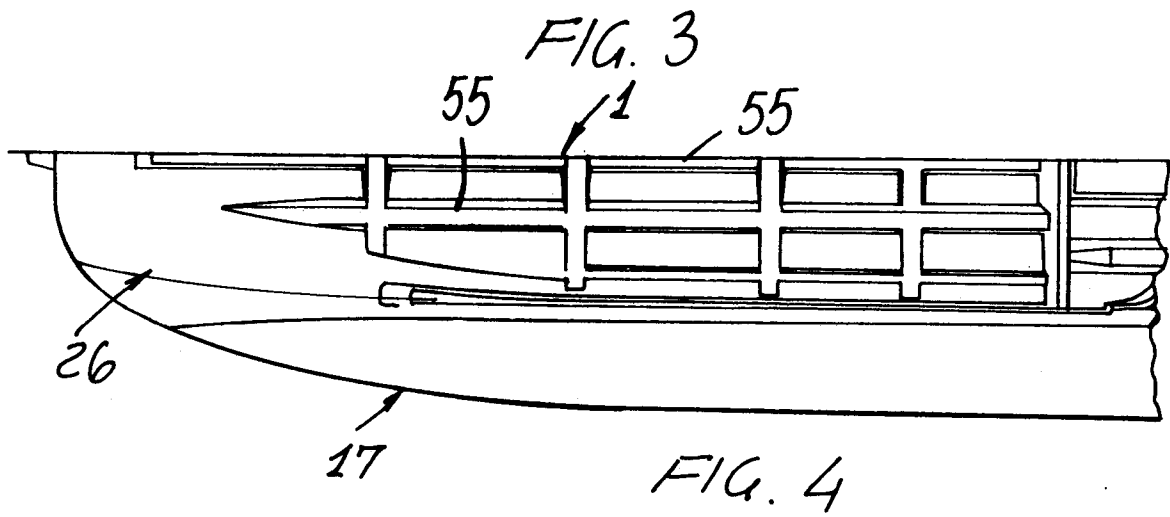
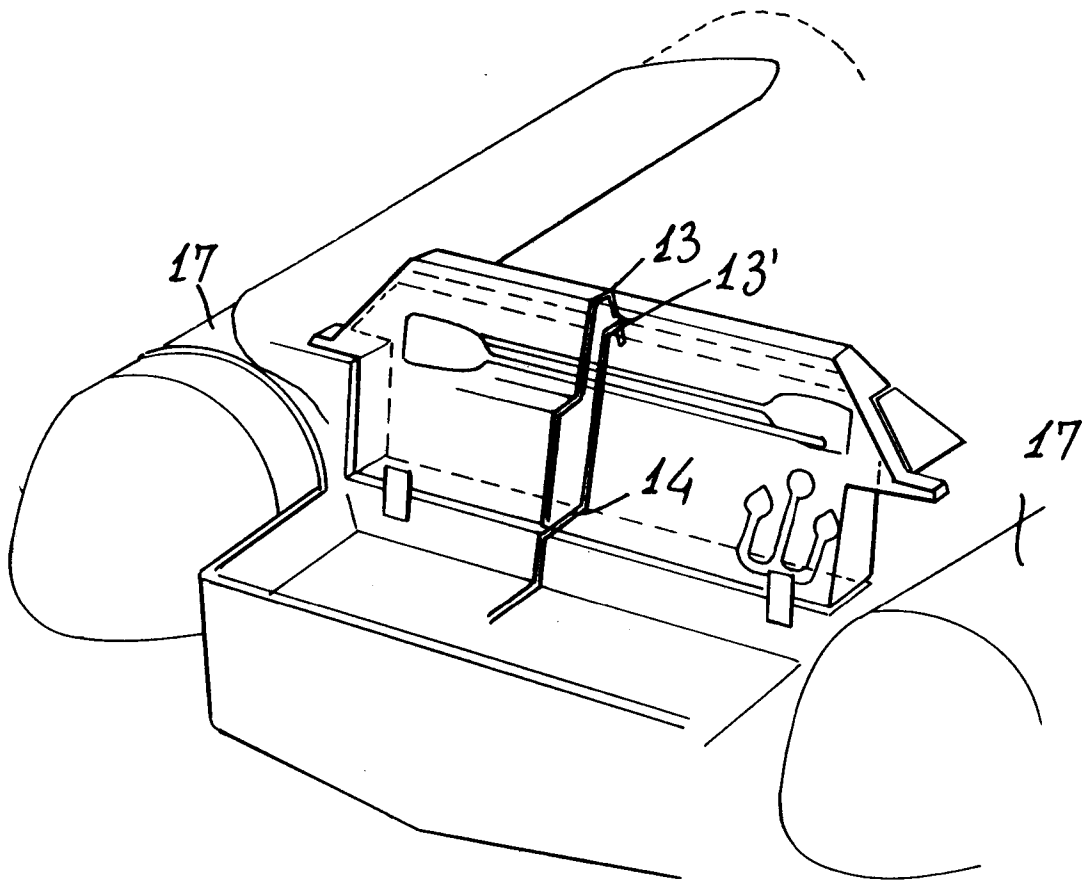
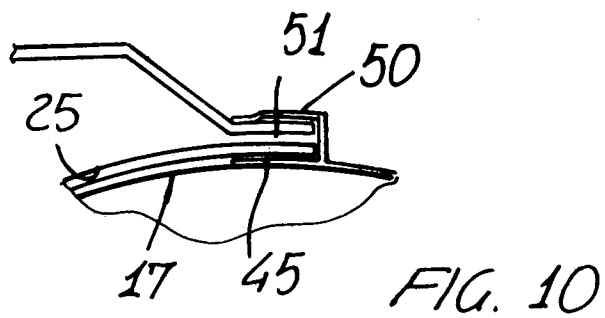
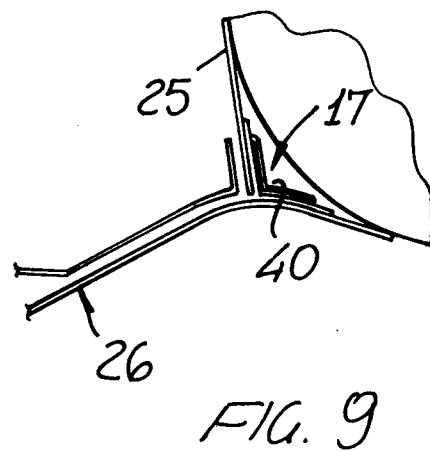
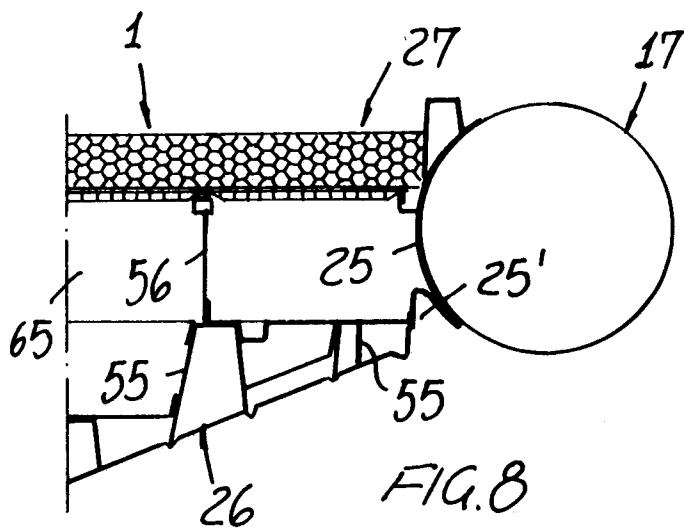
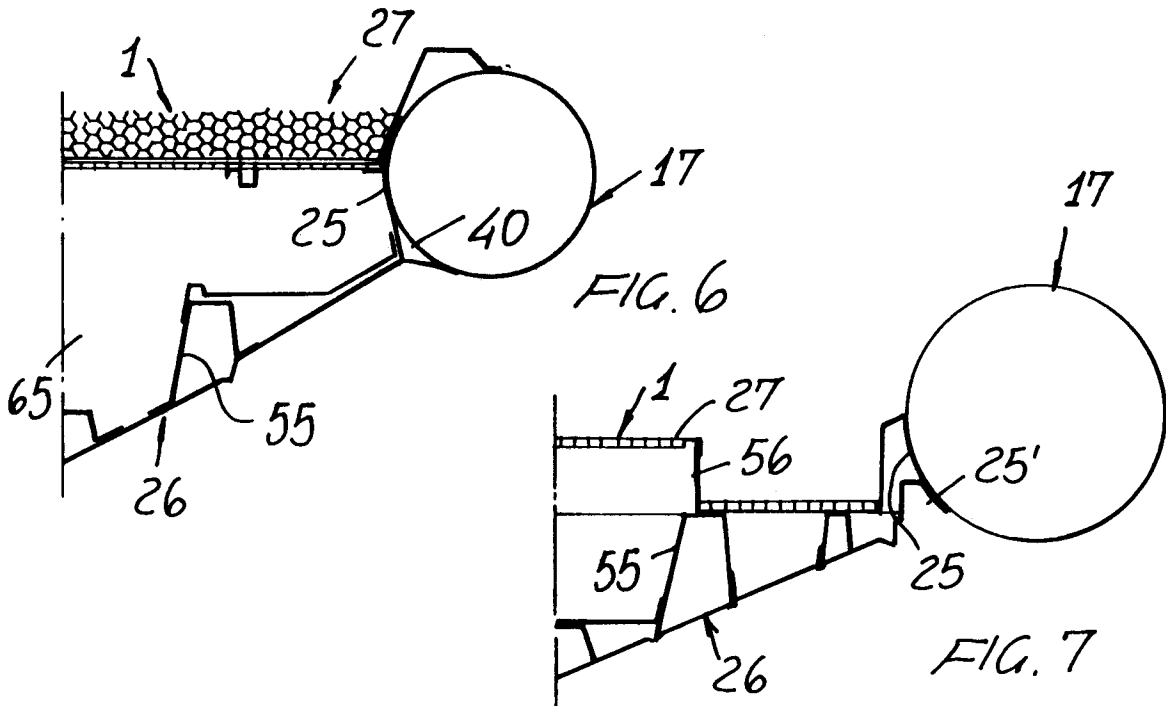


FIG. 2







European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 93 83 0300

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.5)
X Y	EP-A-0 236 279 (PENNATI) * figure 1 *	1,10,11 2-9, 12-16	B63B7/08
Y A	US-A-5 131 348 (ROY) * column 3, line 45 - line 49; figures 1,2 *	2-6,8 1,9,10	
Y A	US-A-4 942 838 (BOYER ET AL) * figures 1-7 *	6,9 1,2,10, 11	
Y A	EP-A-0 181 682 (KIRBY) * column 3, line 33 - line 39; figure 1 *	7,15 10	
Y	FR-A-1 511 743 (EDWARDS) * the whole document *	12-14,16	
A	US-A-4 290 156 (RAWSON) * column 3, line 9 - line 26; figures 1-3 *	1,2,10	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.5)
			B63B
Place of search		Date of completion of the search	Examiner
THE HAGUE		19 November 1993	DE SENA, A
CATEGORY OF CITED DOCUMENTS 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 I : 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			

EPO FORM 1503 03.82 (P04C01)