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(54) **Watercraft connectable to a sea scooter**

(57) A watercraft (1) comprising a hull (2) and retention means (7, 10, 20, 20a, 20b) to connect a sea scooter

(8) and said hull (2) together in such a manner that said sea scooter can at least contribute to the propulsion of said watercraft.

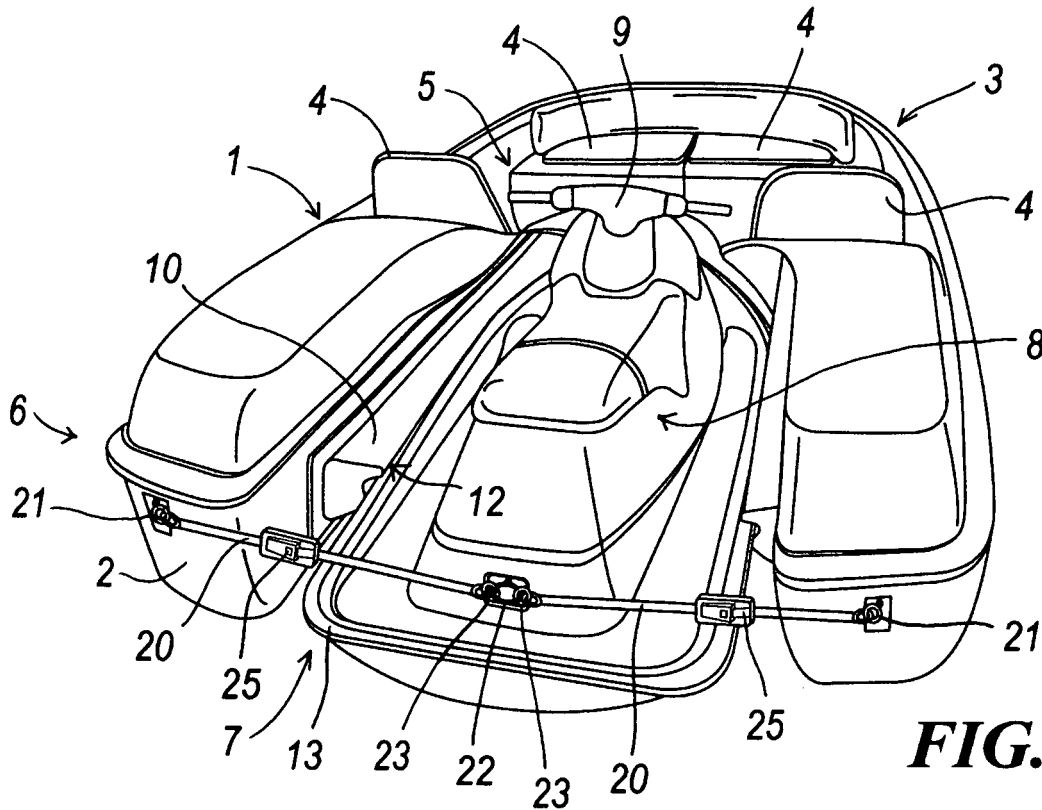


FIG. 1

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Description

[0001] The present invention relates to a watercraft in accordance with the introduction to the main claim. In particular it relates to a watercraft for use as a rescue, patrol or transport means, but not exclusively so.

[0002] In effect, watercrafts for official tasks, especially those supplied to the forces of order, the fire service or the civil protection service are extremely costly, both to purchase and to maintain. They usually comprise propulsion means and specific equipment for intervention in their various scheduled tasks.

[0003] The organizations overseeing these services often possess a fleet of specific watercrafts covering every situation and each necessary intervention.

[0004] The fleet hence comprises a fire-fighting watercraft equipped for example with fire-fighting pumps, a watercraft equipped with lighting means, a watercraft equipped with rafts and the like for rescuing survivors, a watercraft for transporting materials, etc.

[0005] All the available means are seldom used simultaneously in a rescue operation, only the most appropriate means for the required operation being used at any specific time.

[0006] Consequently many of the available means often remain unused.

[0007] Unfortunately, to limit investment relative to watercraft purchase, the various rescue units are often equipped with a single structure which at any given time is fitted with the means required for the specific rescue operation to be carried out. The actual fitting of the means lengthens the rescue time on the site where they are required.

[0008] An object of the present invention is therefore to provide a watercraft which represents an improvement on the known art by virtue of low purchase and running costs, while ensuring the flexibility required by the emergency rescue patrol and transport operations.

[0009] A further object of the invention is to provide a watercraft by which the time required to fit the necessary equipment onto the watercraft is minimized, hence ensuring more rapid intervention on the site where this is to take place.

[0010] These and other objects are attained by a watercraft in accordance with the technical teachings of the accompanying claims.

[0011] Further characteristics and advantages of the invention will be apparent from the description of a preferred but non-exclusive embodiment of the watercraft, illustrated by way of non-limiting example in the accompanying drawings, in which:

Figure 1 is a perspective view of a watercraft of the present invention connected to a sea scooter acting as its propulsion and guide means;

Figure 2 is a perspective view of the watercraft of Figure 1, without the sea scooter present;

Figure 3 is a plan view of a detail of an alternative

embodiment of the watercraft of Figure 1; and Figure 4 is a rear view of a detail of an alternative embodiment of the watercraft of Figure 1.

[0012] Said figures show a watercraft indicated overall by 1.

[0013] The watercraft 1 comprises a floating hull 2 of U-shape (by way of non-limiting example), well visible in Figure 2. The hull presents a bow part 3 in which a plurality of sitting positions 4 for possible passengers are provided, together with a very spacious loading surface 5.

[0014] The watercraft is advantageously constructed of composite materials such as glass reinforced plastic, polymers (or metal materials), the whole structure being filled with self-floating foam.

[0015] A seat 7 to house at least part of a sea scooter 8 is provided at the stern 6 of the hull 2.

[0016] The sea scooter 8 is substantially of conventional type, comprising its own propulsion and guide means.

[0017] The seat 7 is of dimensions sufficient to house a large part of the length of the sea scooter and presents a pair of guides 10 associated with it. The guides 10 are fixed to the hull 2 along the seat 7 by screws 11, which make the guides interchangeable. Consequently, the guides 10 associated with the seat 7 can present a different configuration, depending on the type of sea scooter 8 to be connected to the watercraft 1.

[0018] Essentially, the guides 10 form retention means between the hull 2 and sea scooter 8, and connect these latter rigidly together. In the present context, the term "rigidly" signifies that when connected together, the sea scooter 8 and hull 2 present substantially the same roll, pitch and yaw. When connected together, minimal movements can arise between the sea scooter 8 and hull 2 due to the presence of damping means provided within the connection, consisting for example of rubber, polymer or similar profile pieces.

[0019] The guides 10 present a groove 12 for at least partially housing a perimetral projection 13 on said sea scooter. As known, this projection is covered with rubber to act as a bumper.

[0020] The seat 7 also presents, fixed to the hull by screws, a support 14 to at least partially support the sea scooter. This support 14 also acts as a flow deviator preventing the water flow generated below the watercraft during movement from violently penetrating into the interstices between the hull 2 and sea scooter 8.

[0021] The retention means between the hull 2 and sea scooter comprise fixing means 20 which prevent the sea scooter from emerging from the seat 7. These fixing means comprise a pair of tie rods 20 connected by first rings 21 to the hull 2 and by second rings 23 to a common hook 22 provided on the sea scooter 8. The tie rods 20 advantageously comprise conventional means 25 for manually adjusting their tension.

[0022] The fixing means prevent the sea scooter from leaving the seat 7 when the watercraft is moving in any

direction. In particular they present a minimal elasticity to compensate the movements of the sea scooter along the longitudinal axis of the watercraft.

[0023] The use of the watercraft is apparent from the foregoing and in particular is as follows.

[0024] When the space, the loading capacity and transport capacity of a sea scooter 8 are insufficient, the sea scooter is driven into the seat 7 in the watercraft 1. The rubber perimetral projection 13 on the sea scooter becomes inserted into the groove 12 such that the watercraft 1 and sea scooter 8 engage each other.

[0025] The tie rods are then fixed to the hook 22 on the sea scooter 8 to rigidify the two units.

[0026] The sea scooter 8 is started, its propulsion also driving the watercraft. Essentially, the sea scooter represents a propulsion (including reversing) and guide means for the watercraft 1. Advantageously, the watercraft 1 connected to the sea scooter 8 provides much more space for loading equipment and material, especially for first aid. It also enables several people to be transported, in addition to the two transported by the sea scooter.

[0027] The use of this type of watercraft is particularly advantageous in an emergency rescue or patrol context as several watercraft can be provided pre-equipped with different fittings.

[0028] A first watercraft can for example be fitted out for lighting, provided with electrical generating modules for powering lighting towers also mounted thereon, and with floating lighting buoys, to be used in rescue operations and research. This craft can also be provided with a compressor to maintain self-ballasting lighting buoys under pressure. A second rescue watercraft can be provided with inflatable rafts, for example of London type, to be launched into the water in proximity to those in danger, to protect them and then tow them to safety. A third watercraft can be fitted with fire-fighting means (for example one or more monitors) operated by i.c. engine-driven or electric motor-driven pumps installed on said hull; advantageously the fire-fighting pumps can comprise remote control means, enabling them to be also operated at a distance, by parking the watercraft in proximity to the fire and withdrawing the operators.

[0029] A fourth watercraft can be provided for transporting materials or passengers, with individual or bench seats.

[0030] During an emergency, the sea scooter driver can "choose" which watercraft to use, so minimizing intervention times. In effect, it is no longer necessary to fit out the watercraft with the required rescue means, it being sufficient to choose that which most fits the purpose, from a plurality of ready and moored watercrafts, which can also be constructed with different cross-sections or keels, and of different lengths.

[0031] A watercraft conceived in this manner is susceptible to numerous modifications and variants, all falling within the scope of the inventive concept.

[0032] For example, the watercraft can comprise inde-

pendent steering and/or propulsion means, so that the sea scooter is at least able to contribute to the propulsion of said watercraft.

[0033] In an alternative embodiment, the guide means 10a (see Figure 4) present a profile 12a shaped to correspond to the outer profile 8a of the sea scooter, so that it can be adapted to any type of commercially available sea scooter by simply changing the guide 10a.

[0034] In a further embodiment (Figure 3), the tie rods 20 are replaced by a pair of jaws which, when closed, lock the sea scooter into the seat 7, by at least partially obstructing seat access. The jaws present a projecting shaft with a final portion of elliptical configuration. This portion is insertable into an elliptical seat provided in a block 31 connected to the hull 2. When the final portion is inserted into the block 31 the jaw 20a assumes a locked configuration (Figure 3) and cannot rotate in the direction of the arrow F. Raising the jaw enables the jaw to rotate (arrow F) and to release the exit for the sea scooter.

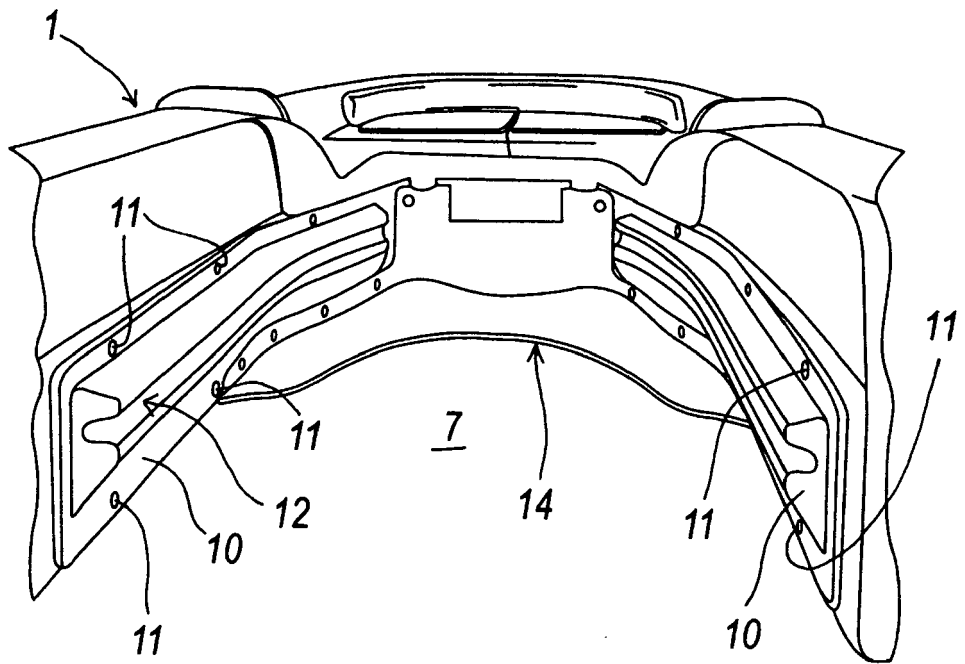
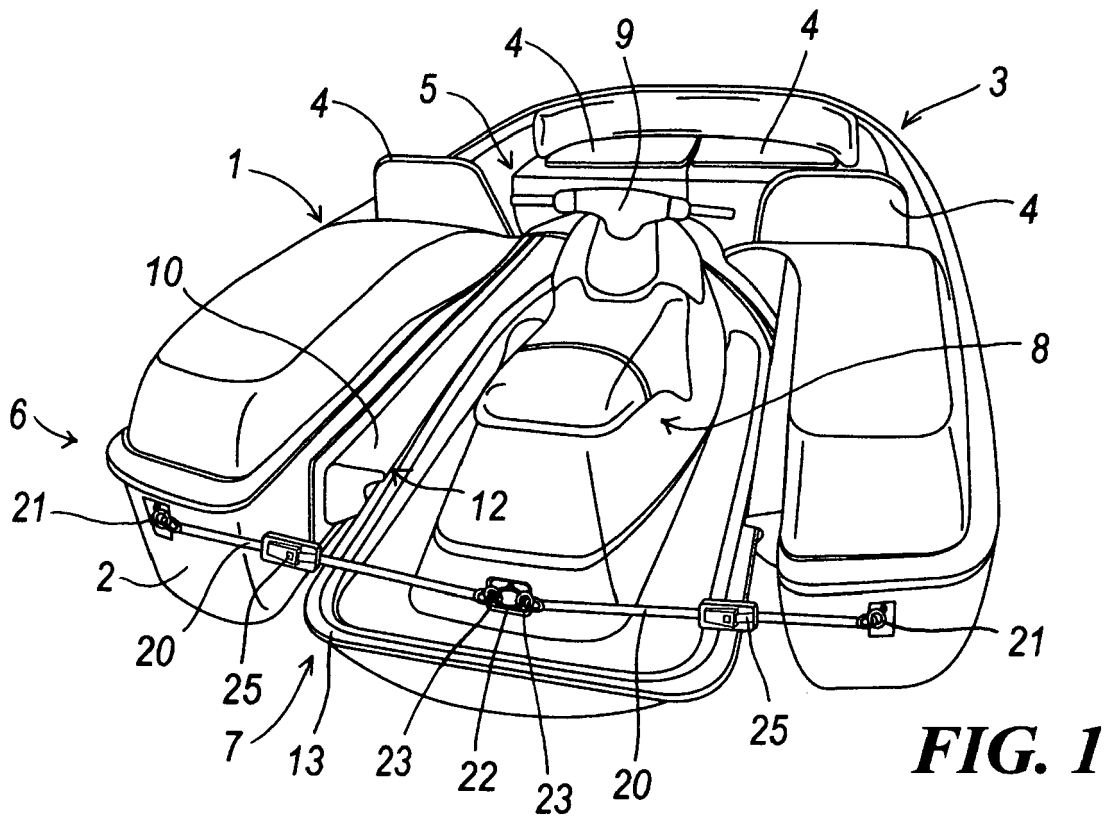
[0035] In yet a different embodiment, a pair of inflatable elements are fixed to the hull 2 to the side of the sea scooter 8 on the seat 7. When these inflatable elements are pressurized, they press against the sea scooter 8, clinging to the profile of said sea scooter (Figure 4, left) to prevent its exit from said seat 7. These inflatable elements 20b comprise an internal pressure regulator circuit connected to a source of pressurized fluid. Figure 4, right side, shows an inflatable element 20b with the sea scooter absent from the seat 7.

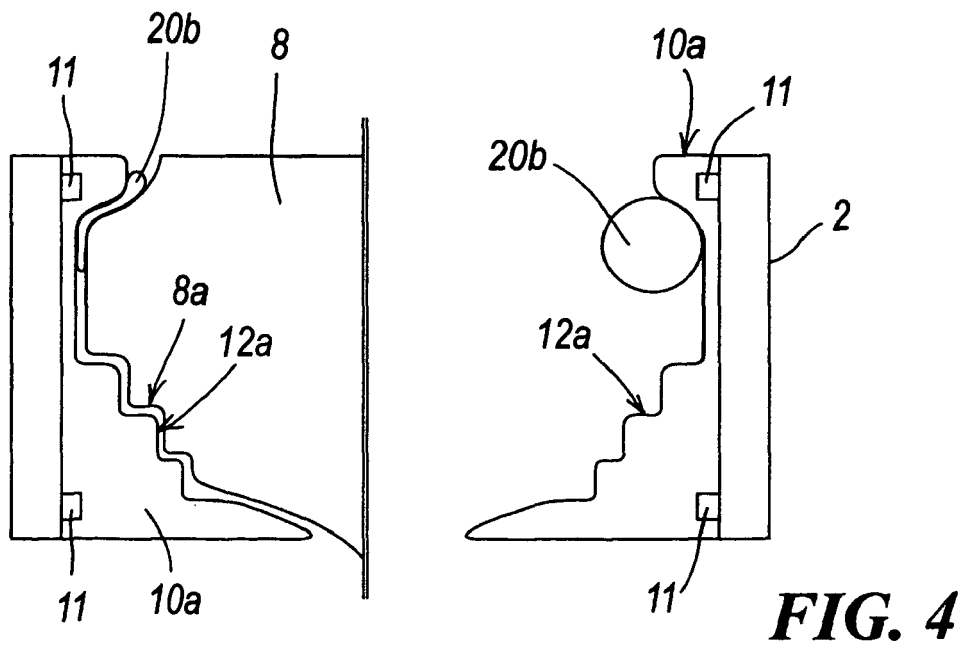
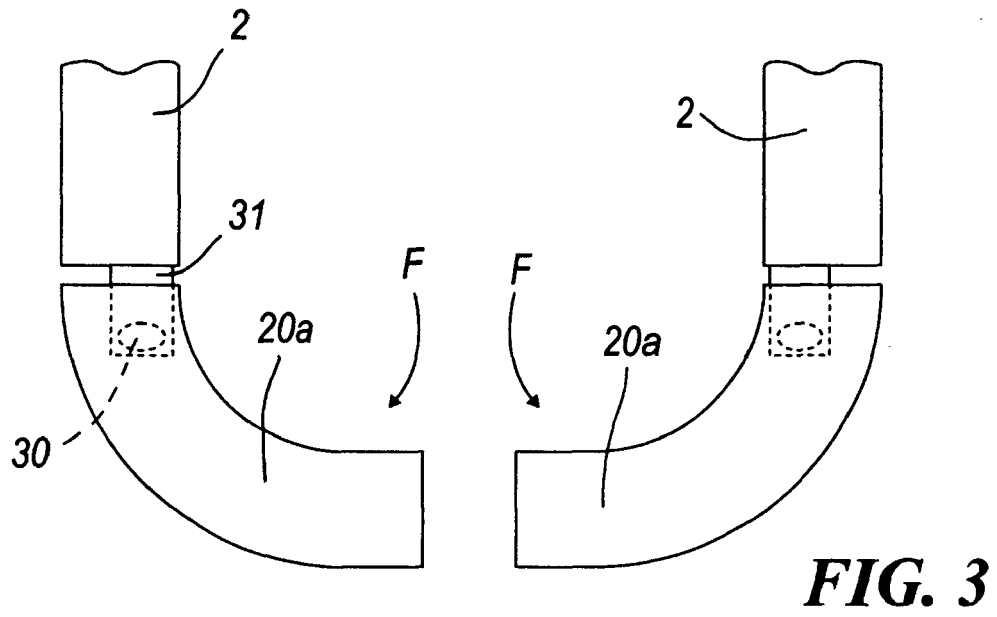
[0036] It should be noted that the hull can be constructed with different keels, for example: cylindrical, flared, sharp edged flat, round, deep V planar, catamaran type and the like.

Claims

1. A watercraft (1) comprising a floating hull (2), **characterised by** comprising retention means (7, 10, 20, 20a, 20b) to connect a sea scooter (8) and said hull (2) together in such a manner that said sea scooter can at least contribute to the propulsion of said watercraft.
2. A watercraft as claimed in claim 1, **characterised in that** said retention means (7, 10, 20, 20a, 20b) are arranged to connect said hull and said sea scooter together rigidly.
3. A watercraft as claimed in claim 1, **characterised in that** said retention means comprise a seat (7) to house at least part of said sea scooter.
4. A watercraft as claimed in claim 3, **characterised in that** said seat (7) extends such as to house a large part of the sea scooter.
5. A watercraft as claimed in claim 3, **characterised**

- in that** said seat (7) is provided in the stern (6) of said watercraft.
6. A watercraft as claimed in claim 3, **characterised in that** said seat (7) presents guide means (10) arranged to impose the same roll and/or the same pitch and/or the same yaw on the sea scooter and on the watercraft. 5
7. A watercraft as claimed in claim 4, **characterised in that** said guide means (10) comprise a profile (12) arranged to at least partially house a perimetral projection (13) on said sea scooter. 10
8. A watercraft as claimed in claim 4, **characterised in that** said guide means comprise a profile (12a) shaped to correspond to the outer profile (8a) of the sea scooter. 15
9. A watercraft as claimed in claim 4, **characterised in that** said seat (7) comprises a support (14) for at least partially supporting the sea scooter. 20
10. A watercraft as claimed in claim 1, **characterised in that** said retention means comprise fixing means (20, 20a, 20b) to prevent said sea scooter from leaving said seat (7). 25
11. A watercraft as claimed in claim 10, **characterised in that** said fixing means comprise at least one tie rod (20) connected to said hull. 30
12. A watercraft as claimed in claim 10, **characterised in that** said fixing means comprise a pair of tie rods (20), each of which presents an end (21) connected to the hull (2) and an end (23) connected to the sea scooter. 35
13. A watercraft as claimed in claims 11 and/or 12, **characterised in that** said tie rods comprise means (25) for adjusting their tension. 40
14. A watercraft as claimed in claim 10, **characterised in that** said fixing means comprise at least one jaw (20a) arranged to at least partially obstruct access to said seat after the sea scooter has entered it. 45
15. A watercraft as claimed in claim 14, **characterised in that** said jaw (20a) presents means for locking said jaw in its closed position. 50
16. A watercraft as claimed in claim 10, **characterised in that** said fixing means comprise an inflatable element (20b) positioned between said hull (2) and said sea scooter (8), said inflatable element, when inflated, adhering to the profile of said sea scooter (8) and preventing its exit from said seat (7). 55
17. A watercraft as claimed in claim 16, **characterised in that** said inflatable element (20a) comprises, for regulating its internal pressure, a circuit connected to a pressurized fluid feed source.
18. A watercraft as claimed in claim 1, **characterised in that** said hull (2) comprises independent steering and/or propulsion means.
19. A watercraft as claimed in claim 1, **characterised in that** said hull (2) presents, associated with it, one or more fire-fighting pumps powered by electrical generators also provided on said hull.
20. A watercraft as claimed in claim 19, **characterised in that** said fire-fighting pumps present remote control means.
21. A watercraft as claimed in claim 1, **characterised in that** said hull presents tower-mounted lighting devices powered by electrical generators also provided on said hull.
22. A watercraft as claimed in claim 1, **characterised in that** said hull is equipped with a compressor to maintain self-ballasted lighting buoys under pressure.







DOCUMENTS CONSIDERED TO BE RELEVANT			
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC) B63B
Place of search Munich		Date of completion of the search 19 March 2007	Examiner Brumer, Alexandre
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		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	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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