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(54) **Disk-shaped boat**

(57) A boat comprising a hull 10 of generally circular, dished form, a motor and a propulsion unit 22. The pro-

pulsion unit 22 is arranged to be driven by the motor and is angularly moveable through at least 180° to permit steering of the boat.

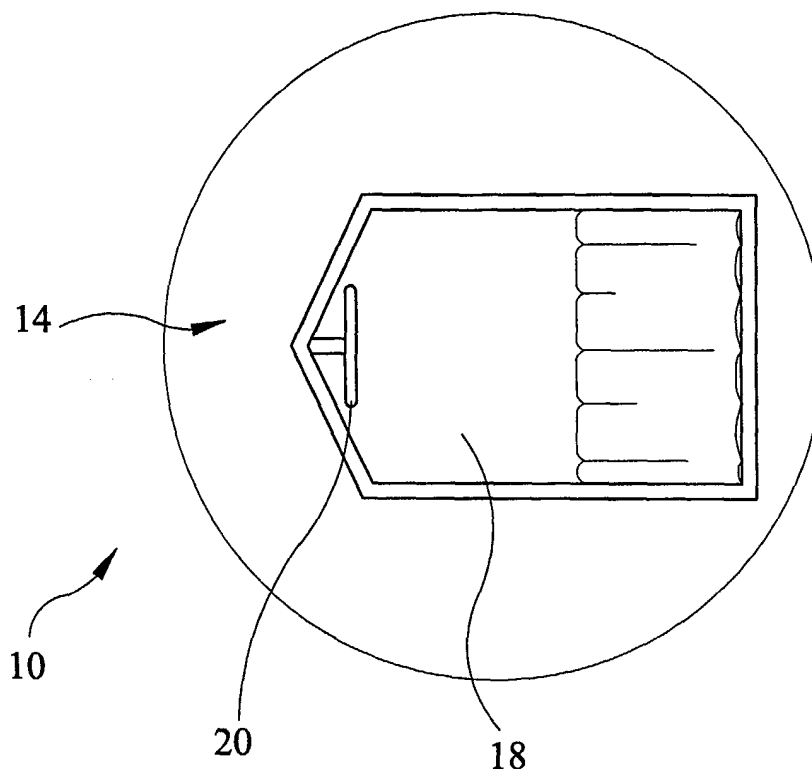


FIG 1

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Description

[0001] This invention relates to a boat, primarily intended for leisure use.

[0002] The use of motorised boats and other motorised watercraft for leisure purposes has become increasingly common both at sea and on inland waterways and lakes. A number of craft exist, for example motor boats and jet skis, and it is an object of the invention to provide an additional water craft of relatively simple and convenient form which is of good manoeuvrability.

[0003] According to the present invention there is provided a boat comprising a hull of generally circular, dished form, a motor, and a propulsion unit arranged to be driven by the motor, the propulsion unit being angularly moveable through at least approximately 180° to permit steering of the boat.

[0004] It will be appreciated that such an arrangement allows the propulsion unit to act in a direction substantially tangential to the hull, when desired, resulting in the craft being of good manoeuvrability, the craft being able to spin substantially around its central axis.

[0005] The hull of the boat is preferably keelless or finless, the absence of a keel or fin improving the manoeuvrability of the boat.

[0006] The propulsion unit conveniently comprises a turbine or propeller rotatable about a fixed axis, and a flexible duct one end of which is fixed relative to the turbine or propeller, the other end being moveable to control the direction in which water is expelled from the duct, thereby allowing the craft to be steered.

[0007] The moveable end of the duct is conveniently connected to control cables moveable to control the position occupied by the duct.

[0008] The boat may be provided with a flap pivotable about a generally horizontal axis and adjustable to control the pitch of the boat, in use.

[0009] The underside of the hull is preferably provided with a series of wheels. The provision of such wheels is advantageous in that the boat can be driven over, for example, ramps without a significant risk of damage to the hull and with a reduced loss of velocity. The wheels may also assist in moving the boat over land, for example when being launched.

[0010] The invention will further be described by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a plan view illustrating the boat of an embodiment of the invention;

Figure 2 is a side view of the boat of Figure 1;

Figures 3 and 4 are diagrammatic views illustrating the propulsion unit of the boat of Figure 1; and

Figures 5 and 6 are side and rear views of a modification.

[0011] The boat illustrated in Figures 1 to 4 of the ac-

companying drawings comprises a hull 10 of generally circular shape, as shown in Figure 1. The hull 10 includes a lower surface 12 of dished or saucer-like form. An upper surface 14 of the hull 10 defines, with the lower surface 12, an enclosed space within which a motor (not shown) is located. The motor is conveniently a petrol or diesel driven internal combustion engine, but it will be appreciated that motors of other forms could be used. As shown in Figures 1 and 2, the upper surface 14 of the hull 10 is provided with an opening defining a cockpit 18 within which an operator or driver of the boat may sit. Located within the cockpit 18 are the controls necessary for use in controlling the boat. Obviously, the controls include controls for the motor to control the operation thereof, for example the operating speed thereof, and also means, conveniently in the form of a steering wheel 20, for steering the boat in use.

[0012] As is apparent from the enclosed drawings, the hull is of the keelless or finless type, the absence of a keel or fin reducing the resistance to angular or rotational movement of the boat, in use, thereby increasing the ability of the boat to spin, and hence improving the manoeuvrability of the boat.

[0013] Adjacent the rear of the hull 10 is provided a propulsion unit 22. The propulsion unit 22 is illustrated diagrammatically, in greater detail in Figures 3 and 4. As illustrated in Figures 3 and 4, the propulsion unit 22 comprises a housing 24 within which a propeller or turbine is rotatably mounted and arranged to be driven by a drive shaft 26 of the motor. The housing 24 is of generally cylindrical form and extends coaxially with the axis of rotation of the drive shaft 26. A flexible duct 28 is secured to the housing 24 in such a manner that water propelled by the turbine or propeller enters the duct 28 and is forced through the duct, exiting the duct 28 at an open end 30 thereof.

[0014] The duct 28 is supported by a support and steering assembly including a support member 32 located to support the free end 30 of the duct 28. The member 32 is secured to a bracket 34 rigidly mounted upon the housing 24, the connection between the bracket 34 and the member 32 being a pivotal connection, the pivot axis of which extends generally vertically. Control cables 36, 38 are connected to the member 32, the control cables 36, 38 passing through openings formed in the hull and are connected to the steering wheel 20 or other steering device in such a manner that operation of the steering wheel 20 or other device causes the member 32 to pivot relative to the housing 24, such movement occurring by causing one of the cables 36, 38 to become under tension whilst allowing the other of the control cables to become relatively slack.

[0015] Figure 3 illustrates the propulsion unit 22 in its condition when the boat is to be driven in a forward direction. From this condition, rotation of the steering wheel 20, for example in an anti-clockwise direction will cause the control cable 36 to pull the member 32 from the position in Figure 3 to that shown in Figure 4, the

control cable 38 being relatively slack during this operation. It will be appreciated that with the propulsion unit in the configuration shown in Figure 4 operation of the motor forces water through the duct 28 exiting the open end 30 thereof in a direction substantial tangential to the hull 10 causing the hull 10 to move angularly substantially about a central axis thereof. Once the desired angular movement of the hull 10 has occurred, rotation of the steering wheel 20 in the opposite direction will return the propulsion unit 22 towards the position shown in Figure 3. If, once the position shown in Figure 3 has been attained rotation of the steering wheel 20 continues, then the propulsion unit 22 will move towards a condition in which the boat will rotate in the opposing direction. Although the drawings only illustrate the propulsion unit 22 in its straight ahead condition and 'full lock' condition, it will be appreciated that the propulsion unit 22 can be held in any intermediate position if desired.

[0016] As the boat illustrated in the accompanying drawings is able to spin substantially about a fixed axis, if desired, it will be appreciated that the boat is highly manoeuvrable. The boat is conveniently constructed of reinforced fibreglass, but it will be appreciated that other materials may be used if desired. Further, although a particular propulsion unit has been described herein before, it will be appreciated that the nature of the propulsion unit may be modified within the scope of the invention.

[0017] Although the propulsion unit 22 may be mounted adjacent the periphery of the hull, it will be appreciated that the propulsion unit need not be located precisely at the periphery but rather may be inboard of the boat by a small distance if desired. Location of the propulsion unit away from the periphery of the boat will reduce the manoeuvrability of the boat to some extent but, depending upon the application in which the boat is to be used, such reduced manoeuvrability may be acceptable, provided the propulsion unit remains sufficiently close to the edge of the hull to maintain a good level of manoeuvrability.

[0018] Figures 5 and 6 illustrate a modification to the boat described hereinbefore, and only the significant differences will be described. There are two main differences between the arrangement of Figures 5 and 6 and that of Figures 1 to 4. The first is that the hull 10 is provided with two generally parallel recesses or grooves 40 within which wheels 42 are located, the wheels 42 projecting from the recesses or grooves 40 and serving to assist movement of the boat over land or over, for example, a water ski ramp or jump with a reduced loss of velocity. The partial location of the wheels 42 within the recesses or grooves 40 limits the restriction to angular movement of the boat when in water formed by the wheels 42. Although the wheels 42 are located partially within elongate grooves or recesses, it will be appreciated that separate recesses could be provided for each wheel, if desired.

[0019] The second difference is that the rear of the

boat is provided with a flap 44 pivotable about a generally horizontal axis. The position occupied by the flap may be controlled hydraulically or, as shown, by means of cables 46. The flap 44 serves to provide control over the pitch of the boat as it is driven through water. If is desired to turn the boat then, if desired, the flap 44 may be lifted to minimise the restriction to angular movement of the boat.

Claims

1. A boat comprising a hull of generally circular, dished form, a motor, and a propulsion unit arranged to be driven by the motor, the propulsion unit being angularly moveable through at least approximately 180° to permit steering of the boat.
2. A boat according to Claim 1, wherein the hull is keelless or finless.
3. A boat according to Claim 1 or Claim 2, wherein the propulsion unit comprises a turbine or propeller rotatable about a fixed axis, and a flexible duct one end of which is fixed relative to the turbine or propeller, the other end being moveable to control the direction in which water is expelled from the duct, thereby allowing the craft to be steered.
4. A boat according to Claim 3, wherein the moveable end of the duct is connected to control cables moveable to control the position occupied by the duct.
5. A boat according to any one of the preceding claims, further comprising a flap pivotable about a generally horizontal axis and adjustable to control the pitch of the boat, in use.
6. A boat according to any one of the preceding claims, wherein the underside of the hull is provided with a series of wheels.
7. A boat according to Claim 3 or Claim 4, wherein the said other end of the duct is connected to a support which is pivotally mounted upon the hull.
8. A boat according to Claim 7, wherein the frame is moveable through an angle of at least approximately 180° relative to the hull.
9. A boat according to Claim 7, wherein the frame permits the said other end of the duct to be moved through an angle of at least approximately 180° relative to the hull.
10. A boat according to any one of the preceding claims, wherein the propulsion unit is adapted to permit the application of a thrust in a direction per-

pendicular to a radius of the hull.

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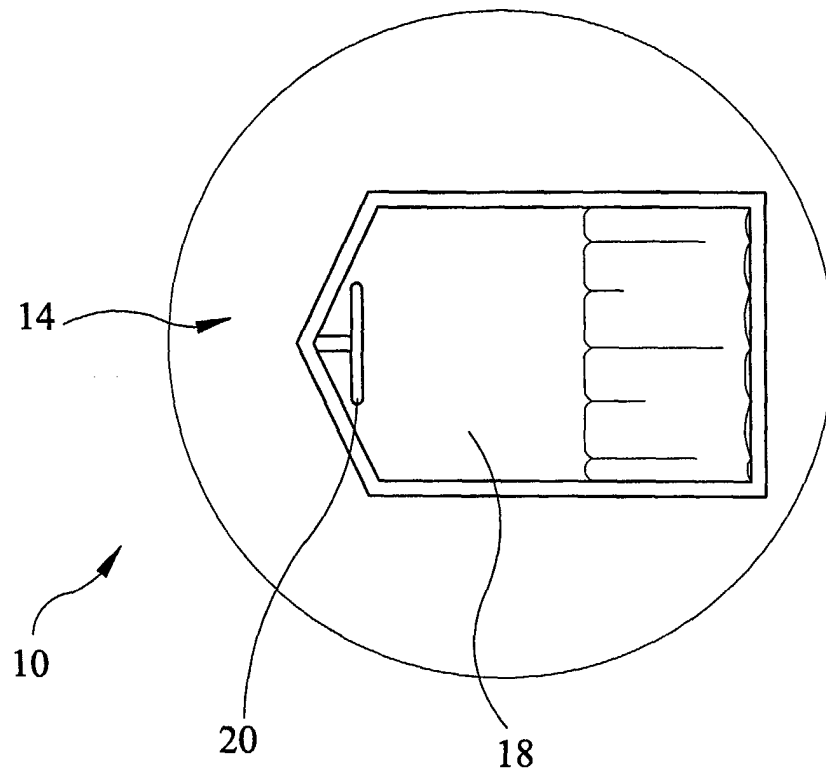


FIG 1

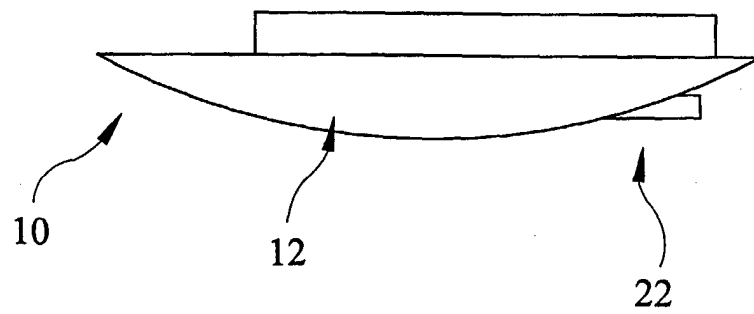


FIG 2

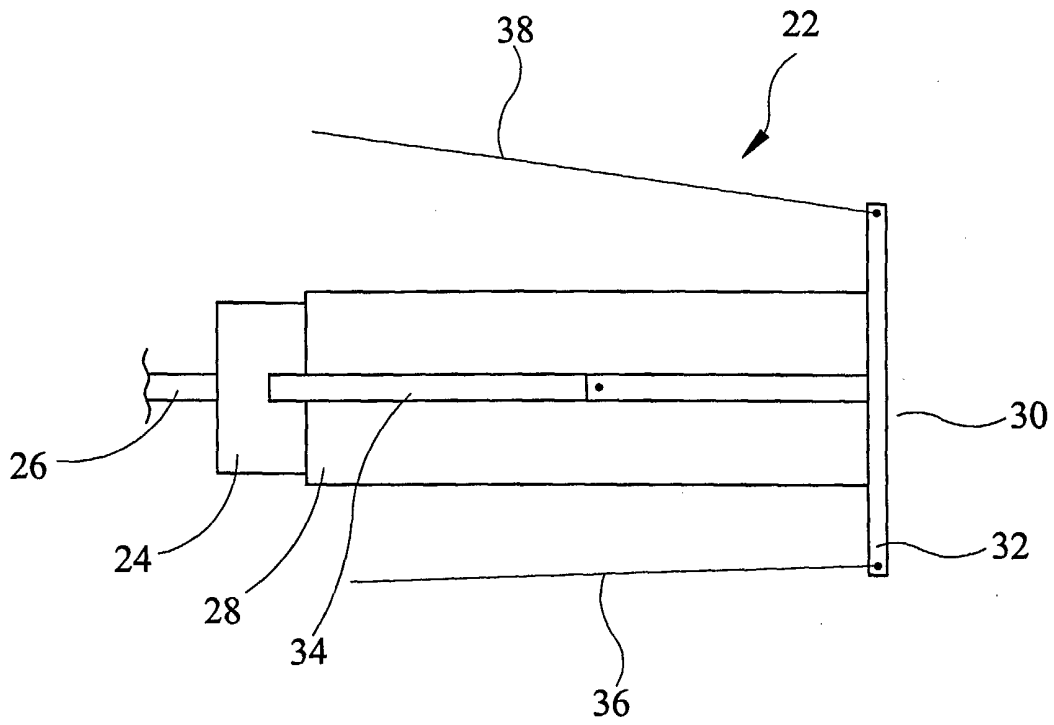


FIG 3

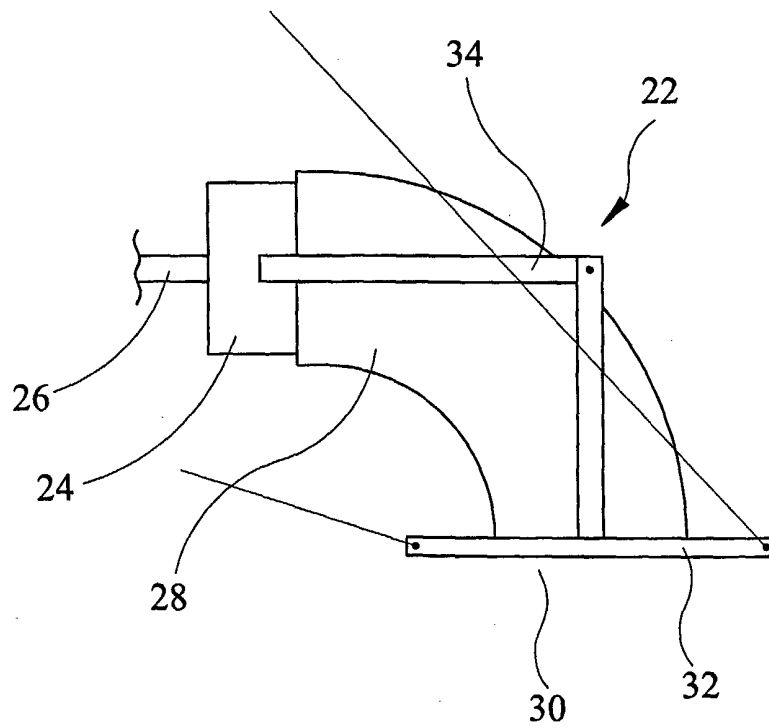
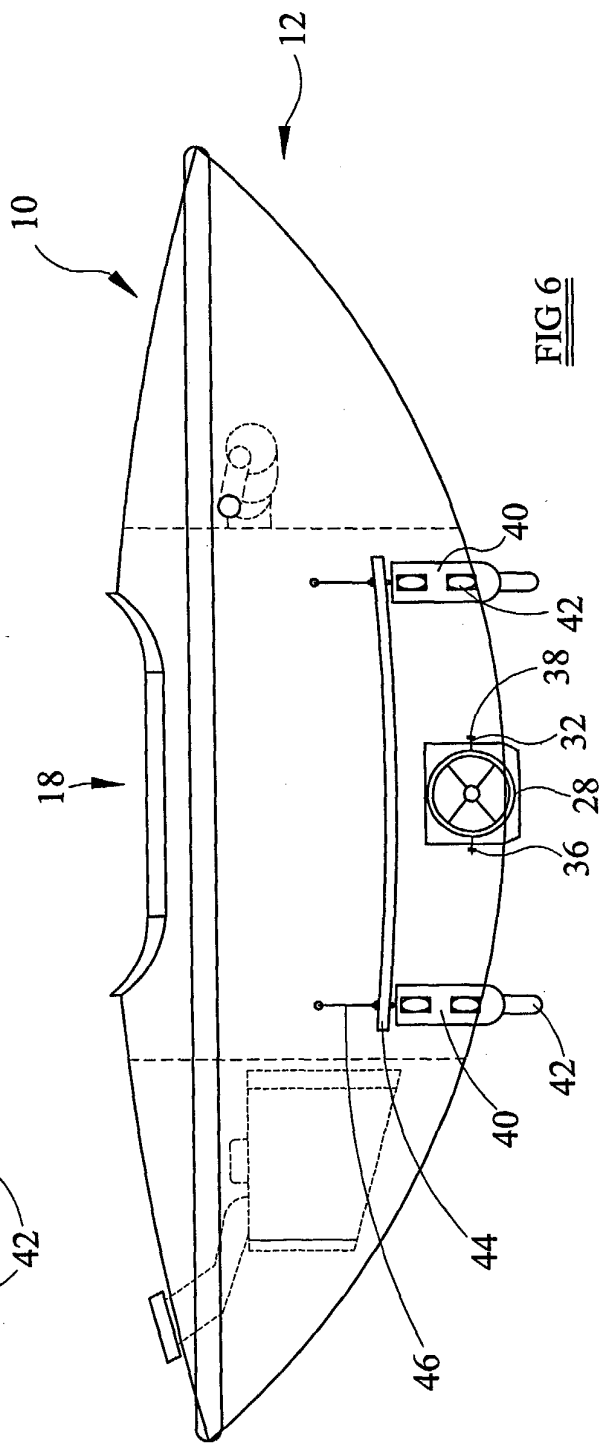
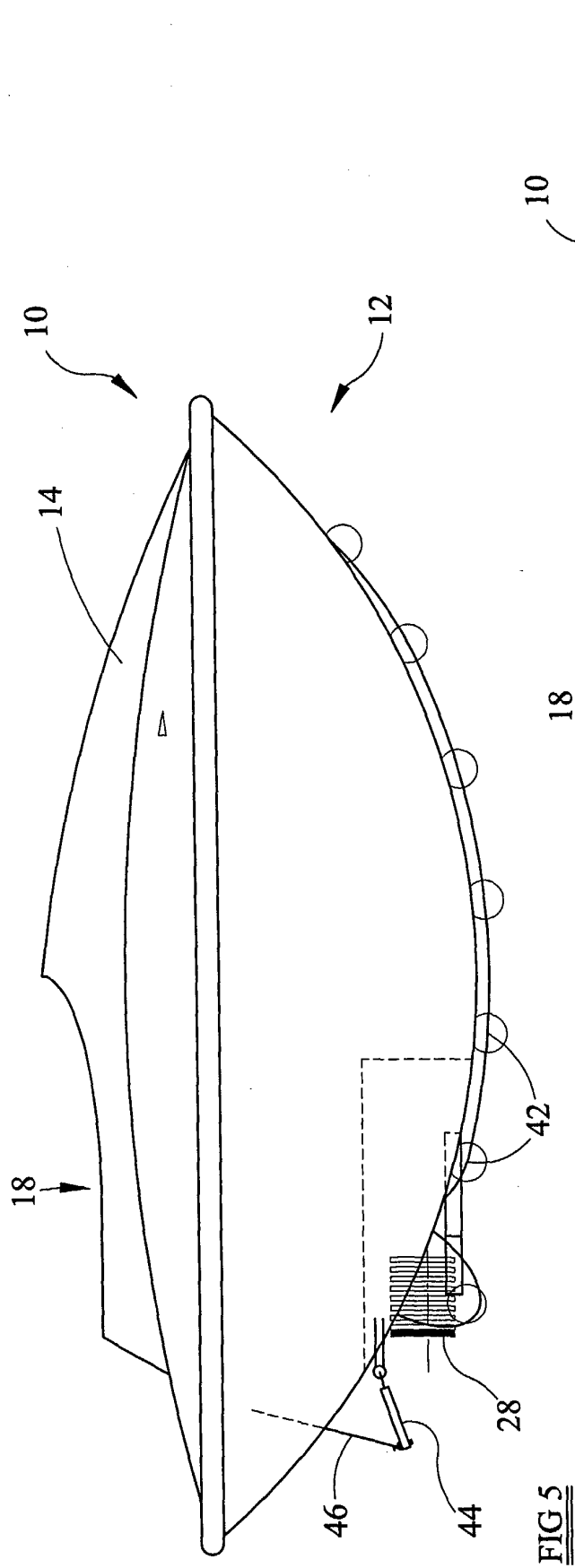


FIG 4





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EUROPEAN SEARCH REPORT

Application Number
EP 03 25 2613

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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Y	US 6 375 522 B1 (BELLENS MARCEL ET AL) 23 April 2002 (2002-04-23) * abstract; figures *	2	

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The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 7 October 2003	Examiner Moya, E
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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EP 03 25 2613

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