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(54) **Water machine with propeller**

(57) A water machine is disclosed, comprising a fixed frame (1), on the back of which a propeller (2) is situated, and a mobile frame (5, 50) situated on the front of said

fixed frame (1), which can have three positions, of which one is a non-operating contracted position, and two are operating positions that allow the user to keep his back in vertical or horizontal position, respectively.

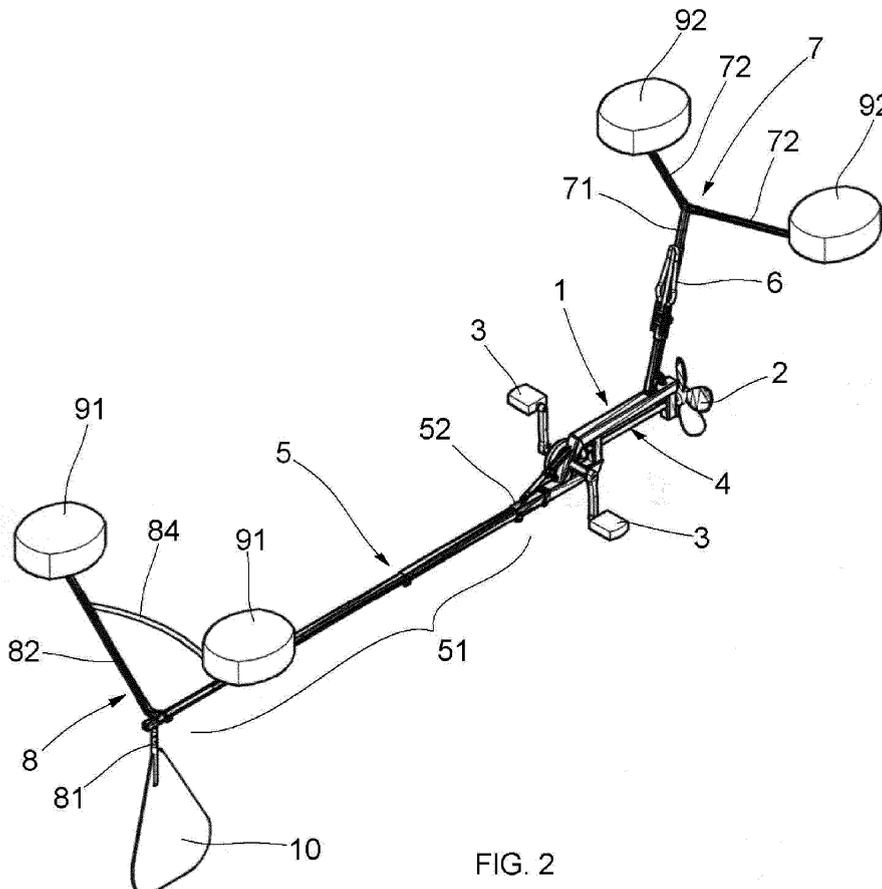


FIG. 2

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Description

[0001] The present patent application for industrial invention relates to a water machine with propeller actuated by electrical motor or pedals.

[0002] The machine of the invention has been devised in the water rehabilitation sector and is an absolute novelty in the field of aquatic gym machines with pedals, since it can be disposed in different ways to allow the user to pedal in different positions.

[0003] Such a machine has been devised both for sports and rehabilitation purposes.

[0004] In view of the above, the water machine can be provided with an electrical motor adapted to drive the propeller into rotation or with pedals and transmission between propeller and pedals.

[0005] In fact, it must be noted that pedaling in water tones up legs and glutei and optimizes the functioning of the cardiovascular system; moreover, pedaling in water is also recommended for rehabilitation purposes because, due to hydrostatic push, the weight of the body on joints is lower, thus eliminating stress and loads that may be harmful in some subjects.

[0006] More precisely, pedaling in water is recommended for people who need a rehabilitation period, for example, after a joint surgery.

[0007] In these cases, physical activity in water can be an efficacious integration to traditional rehabilitation techniques.

[0008] FR 2 618 405 discloses an aquatic pedal machine comprising a rudder and a float provided on the back of the frame. Therefore, such a machine is impaired by problems related with floating, stability, comfort and handling.

[0009] FR 796 986 discloses an aquatic pedal machine comprising a rod with basically Y-shaped structure with two divaricated arms at the ends of which two floats are connected. Such a machine is not configurable and cannot change its position.

[0010] DE 196 22 162 discloses an aquatic pedal machine comprising a compass-like frame hinged to a fixed frame.

[0011] DE 24 10 352 discloses an aquatic pedal machine wherein telescopic sliding of two frames is provided.

[0012] The purpose of the present invention is a water machine with propeller that occupies a very small volume when it is not used.

[0013] A further purpose of the present invention consists in a water machine with propeller that, in addition to achieve the aforementioned purpose, allows the user to keep his back in vertical or horizontal position during use.

[0014] More precisely, such a need has arisen in order to provide maximum versatility of the machine of the invention, which can be used for rehabilitation purposes both by individuals who need to pedal with their back in erected position and individuals who need to pedal while

lying down with their stomach facing downwards.

[0015] The water machine with propeller, according to the invention, comprises a fixed frame, on the back of which a propeller is situated, and a mobile frame situated on the front of said fixed frame, which can have three positions, of which one is a non-operating compact position, and two are operating positions that allow the user to keep his back in vertical or horizontal position, respectively.

[0016] Moreover, said machine comprises a pair of rods - a front rod and a back rod - respectively fixed to the mobile frame and fixed frame, where the floats that make the machine float are fixed.

[0017] The front rod is fixed to the mobile frame, is free to rotate with respect to a basically vertical axis and comprises a rudder.

[0018] For explanatory reasons, the description of the water machine according to the present invention continues with reference to the attached drawings, which only have illustrative, not limiting value, wherein:

Fig. 1 is an axonometric view of the water machine of the invention, in compact, non-operating position;

Fig. 2 is an axonometric view of the water machine of the invention, in a first operating position;

Fig. 3 is an axonometric view of the water machine of the invention, in a second operating position;

Fig. 4 is an axonometric view of the water machine of the invention according to a second embodiment, in non-operating compact position;

Fig. 5 is an axonometric view of the water machine of Fig. 4 during the passage from the non-operating position of Fig. 4 to the first operating position of Fig. 6;

Fig. 6 is an axonometric view of the water machine of Fig. 4 in a first operating position;

Fig. 7 is an axonometric view of the water machine of Fig. 4 during the passage from the first operating position of Fig. 6 to the second operating position of Fig. 8;

Fig. 8 is an axonometric view of the water machine of Fig. 4 in the second operating position;

[0019] Referring to Figs. 1, 2 and 3, the water machine of the invention comprises:

- a fixed frame (1);
- a propeller (2) situated on the back of the fixed frame (1);
- a pair of pedals (3) supported by said fixed frame (1);
- transmission means (4) between pedals (3) and propeller (2) supported by said fixed frame (1);
- a mobile frame (5) situated on the front of said fixed frame (1);
- a back rod (7) with Y-shape supported by said fixed frame (1) and comprising a lower central rod (71) and a pair of upper divaricated arms (72);
- a seat (6) fixed to said lower central rod (71);

- a revolving front rod (8) with Y-shape supported by said mobile frame (5) and comprising a lower central rod (81) and a pair of upper divaricated arms (82);
- a pair of front floats (91) removably connected at the free ends of said upper divaricated arms (82) of the revolving front rod (8);
- a pair of back floats (92) removably fixed at the free ends (73) of said upper divaricated arms (72) of the back rod (7);
- a rudder (10) fixed at the free end of the lower central rod (81) of the revolving front rod (8).

[0020] Referring to Figs. 1 to 3, according to a first embodiment of the machine of the invention, the mobile frame (5) is composed of a telescopic rod (51) inserted into an oscillating sleeve (52) hinged on the front of the fixed frame (1).

[0021] The machine also comprises lock means (M) of said oscillating sleeve (52) that can be locked by said means (M) in either horizontal (see Fig. 2) or inclined position, as shown in Fig. 3.

[0022] More precisely, when said oscillating sleeve (52) is disposed in horizontal position, the telescopic rod (51) can be disposed in contracted position, under the fixed frame (1), as shown in Fig. 1, so that the machine can have a small volume.

[0023] Alternatively, said telescopic rod (51) can be disposed in completely extended position, as shown in Fig. 2.

[0024] Still referring to Fig. 2, in the first operating position of the machine of the invention, the telescopic rod (51) is completely extended and at the front end of said telescopic rod (51) said revolving front rod (8) is fixed, being adapted to rotate according to a vertical axis.

[0025] Said revolving front rod (8) comprises one crosstie (84) that acts as handle for the operator who can actuate the rudder (10) while pedalling with his back in horizontal position.

[0026] Especially referring to Fig. 3, by disposing the oscillating sleeve (52) in inclined position and extending the telescopic rod (51) only partially, a second operating position of the machine of the invention can be obtained, wherein the machine is configured as a water bicycle, allowing the user to pedal with back in vertical position.

[0027] Also in this case, said crosstie (84) acts as handle for the operator, extension of the telescopic rod (51) and the angle of inclination of the oscillating sleeve (52) supporting it.

[0028] Figs. 4 to 8 show the machine of the invention according to a second embodiment, which differs from the first one only in the configuration of the mobile frame (50). The other parts of the machine, according to the second embodiment, are identical to the ones of the first embodiment and are therefore indicated with the same numerals, omitting their description.

[0029] Said mobile frame (50) is hinged to the fixed frame (1) according to a horizontal axis and is composed of a first end rod (501) and a second central rod (502)

that connects said end rod (501) to the fixed frame (1); said two rods (501, 502) being mutually hinged like a compass, according to a horizontal axis.

[0030] When the machine is not used, the mobile frame (50) is closed under the fixed frame (1), as shown in Fig. 4, wherein the central rod (502) and the end rod (501) are closed in compass-like configuration, in overlapped position under the fixed frame (1).

[0031] Figs. 5 and 6 show the complete extension of the mobile frame (50), with rods (501, 502) perfectly aligned with the fixed frame (1).

[0032] Fig. 6 shows the first operating position of the machine of the invention, which allows the user to pedal with his back in horizontal position and his stomach directed downwards. In such first operating position, at the front end of said mobile frame (50) said revolving front rod (8) is fixed, being adapted to rotate freely according to a vertical axis.

[0033] Fig. 8 shows the second operating position of the machine according to the invention.

[0034] In order to assume such position, the mobile frame (50) is disposed with the central rod (502) inclined upwards, whereas the end rod (501) is disposed in practically horizontal position above the fixed frame (1).

[0035] The free end of said end rod (501) is fixed to the lower central rod (71) of the back rod (7).

[0036] Referring to Fig. 8, the revolving front rod (8) is fixed to the mobile frame (50) in the hinging point between the central rod (502) and the end rod (501); said revolving front rod (8) being supported by means that allow it to rotate according to a vertical axis in order to actuate the rudder (10).

[0037] According to this second embodiment, the seat (6) can be fixed either to the lower central rod (71) of the back rod (7) or to the end rod (501) of the mobile frame (50), as shown for illustrative purposes in Fig. 8.

[0038] Referring to Fig. 1, the two rods (7, 8) can be advantageously folded, so that the machine of the invention can have a small volume when not used.

[0039] More precisely, the two upper divaricated arms (72, 82) are connected to the lower central rod (71, 81) by means of a hinge that allows the upper arm (72, 82) to be in a first idle position - as shown in Fig. 1, wherein each upper arm (72, 82) is parallel and adjacent to the lower central rod (71, 81) and in a second operating position, wherein each upper arm (72, 82) is divaricated and perpendicular to the lower central rod (71, 81).

Claims

1. A pedal gym machine comprising:

- a fixed frame (1),
- a propeller (2) situated on the back of the fixed frame (1),
- a mobile frame (5) situated on the front of said fixed frame (1),

- a back rod (7) supported by said fixed frame (1),
- a revolving front rod (8) supported by said mobile frame (5),
- floats (91, 92) connected to said back and front rods (7, 8), and
- a rudder (10),

characterized in that

said back rod (7) is "Y" shaped and it comprises a lower central rod (71) and a pair of upper divaricated arms (72), wherein a pair of back floats (92) are fixed at the free ends (73) of said upper divaricated arms (72) of the back rod;

said front rod (8) is "Y" shaped and it comprises a lower central rod (81) and a pair of upper divaricated arms (82), wherein a pair of front floats (91) are fixed at the free end of said upper divaricated arms (82) of the front rod (8);

wherein each upper divaricated arm (72, 82) is connected to the lower central rod (71, 81) by means of a hinge that allows the upper arm (72, 82) to be in a first idle position wherein it is parallel and adjacent to the lower central rod (71, 81) and in a second operating position wherein it is divaricated and perpendicular to the lower central rod (71, 81);

said rudder (10) being fixed to the free end of the a lower central rod (81) of the revolving front rod (8);

said mobile frame (5) comprising a oscillating sleeve (52) hinged on the front of the fixed frame (1) and a telescopic rod (51) inserted into said sleeve; said machine also comprising lock means (M) of said oscillating sleeve (52) that can lock it in either horizontal or inclined position, so that said mobile frame (5) can have three positions:

- a non-operating position, wherein the telescopic rod (51) is arranged in contracted position under the fixed frame (1),
- a first operating position, wherein the telescopic rod (51) is completely extended and the front end of said telescopic rod (51) is fixed to said revolving front rod (8) that can rotate according to a vertical axis, and
- a second operating position, wherein the oscillating sleeve (52) is in inclined position, the telescopic rod (51) is partially extended and the front end of said telescopic rod (51) is fixed to said revolving front rod (8) that can rotate according to a vertical axis.

2. A machine as claimed in claim 1, **characterized in that** it comprises a seat (6) fixed to said lower central rod (71) of the back rod.

3. A pedal gym machine comprising:

- a fixed frame (1),

- a propeller (2) situated on the back of the fixed frame (1),

- a mobile frame (50) situated on the front of said fixed frame (1),

- a back rod (7) supported by said fixed frame (1),

- a revolving front rod (8) supported by said mobile frame (50),

- floats (91, 92) connected to said back and front rods (7, 8), and

- a rudder (10),

characterized in that

said back rod (7) is "Y" shaped and it comprises a lower central rod (71) and a pair of upper divaricated arms (72), wherein a pair of back floats (92) are fixed at the free ends (73) of said upper divaricated arms (72) of the back rod;

said front rod (8) is "Y" shaped and it comprises a lower central rod (81) and a pair of upper divaricated arms (82), wherein a pair of front floats (91) are fixed at the free end of said upper divaricated arms (82) of the front rod (8);

wherein each upper divaricated arm (72, 82) is connected to the lower central rod (71, 81) by means of a hinge that allows the upper arm (72, 82) to be in a first idle position wherein it is parallel and adjacent to the lower central rod (71, 81) and in a second operating position wherein it is divaricated and perpendicular to the lower central rod (71, 81);

said rudder (10) being fixed to the free end of the a lower central rod (81) of the revolving front rod (8);

said mobile frame (50) is hinged to the fixed frame (1) according to a horizontal axis and the mobile frame (50) comprises a first end rod (501) and a second central rod (502) that connects said end rod (501) to the fixed frame (1); said two rods (501, 502) being mutually hinged like a compass, according to a horizontal axis, so that said mobile frame (50) can have three positions:

- a non-operating position wherein the mobile frame (50) is closed under the fixed frame (1), with the central rod (502) and the end rod (501) in overlapped adjacent position, under the fixed frame (1),

- a first operating position wherein the mobile frame (50) is completely extended, with the end and central rods (501, 502) perfectly aligned with the fixed frame (1); the front end of said end rod (501) being fixed to said revolving front rod (8) that can rotate according to a vertical axis; and
- a second operating position wherein the mobile frame (50) is disposed with the central rod (502) inclined upwards, whereas the end rod (501) is disposed in horizontal position above said fixed frame (1); the revolving front rod (8) being fixed to the mobile frame (50) in the hinging point be-

tween central rod and end rod and said revolving front rod (8) is supported by means that allow it to rotate according to a vertical axis.

4. Machine as claimed in claim 3, **characterized in that** the free end of said end rod (501) of the mobile frame is fixed on the lower central rod (71) of the back rod (7). 5
5. Machine as claimed in claim 3 or 5, **characterized in that** it comprises a seat (6) fixed to said end rod (501) of the mobile frame. 10
6. Machine as claimed in anyone of the preceding claims, **characterized in that** said revolving front rod (8) comprises at least one crosstie (84) that acts as handle for the operator who can actuate the rudder (10) while pedalling with his back in horizontal position. 15
7. Machine as claimed in anyone of the preceding claims, **characterized in that** it comprises: 20
- a pair of pedals (3) supported by said fixed frame (1), and 25
 - transmission means (4) between pedals (3) and propeller (2) supported by said fixed frame (1).

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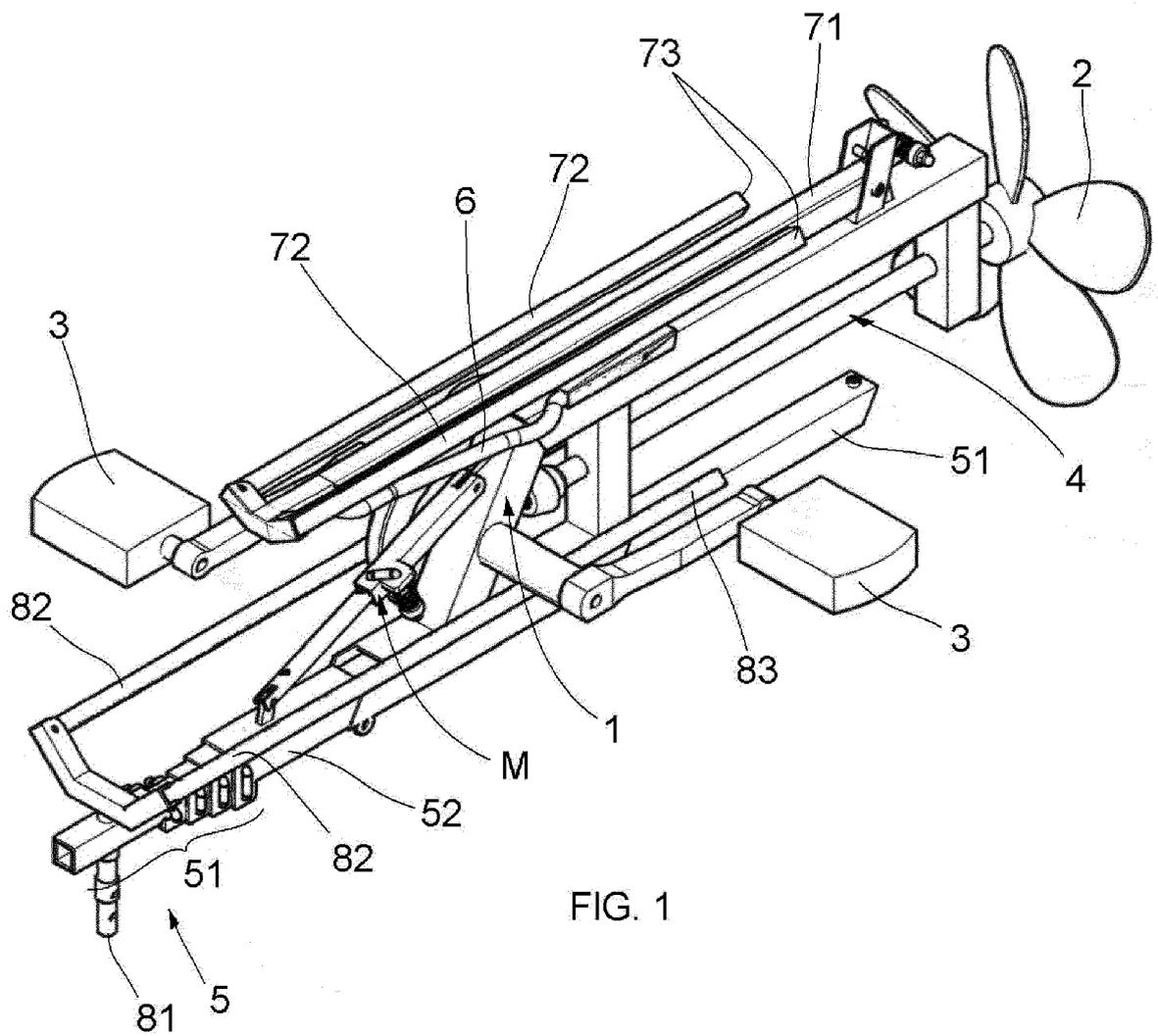


FIG. 1

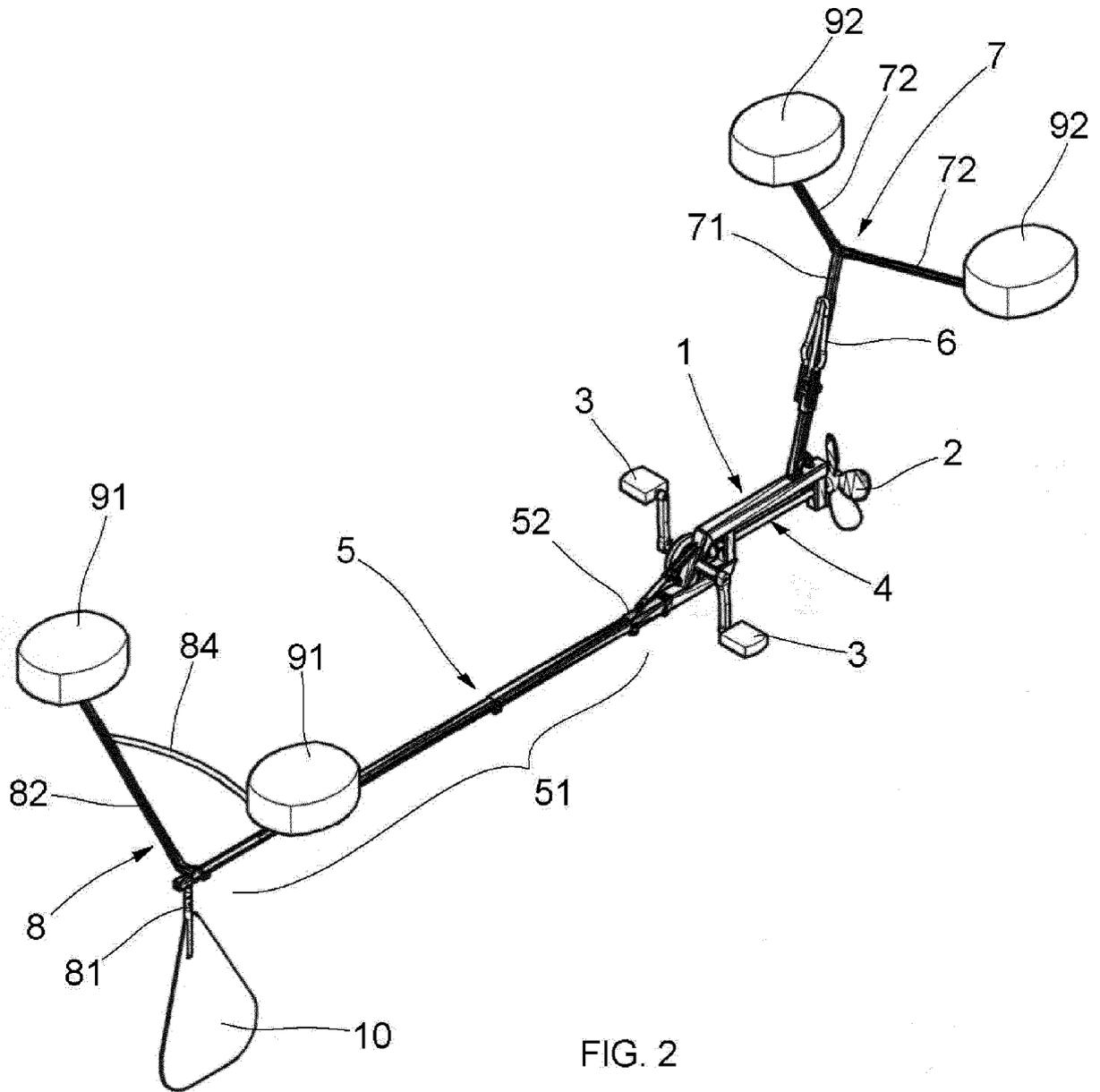


FIG. 2

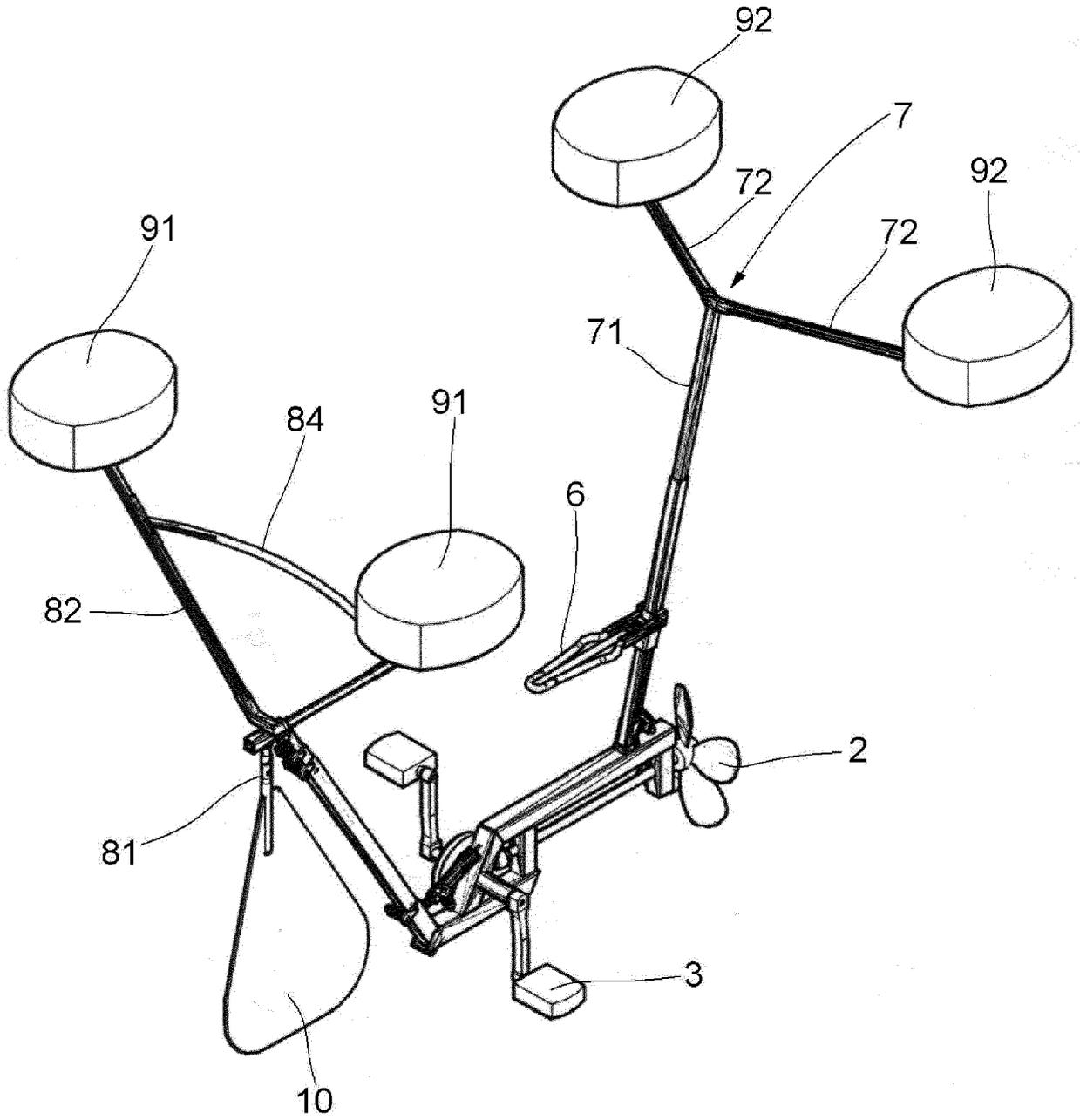
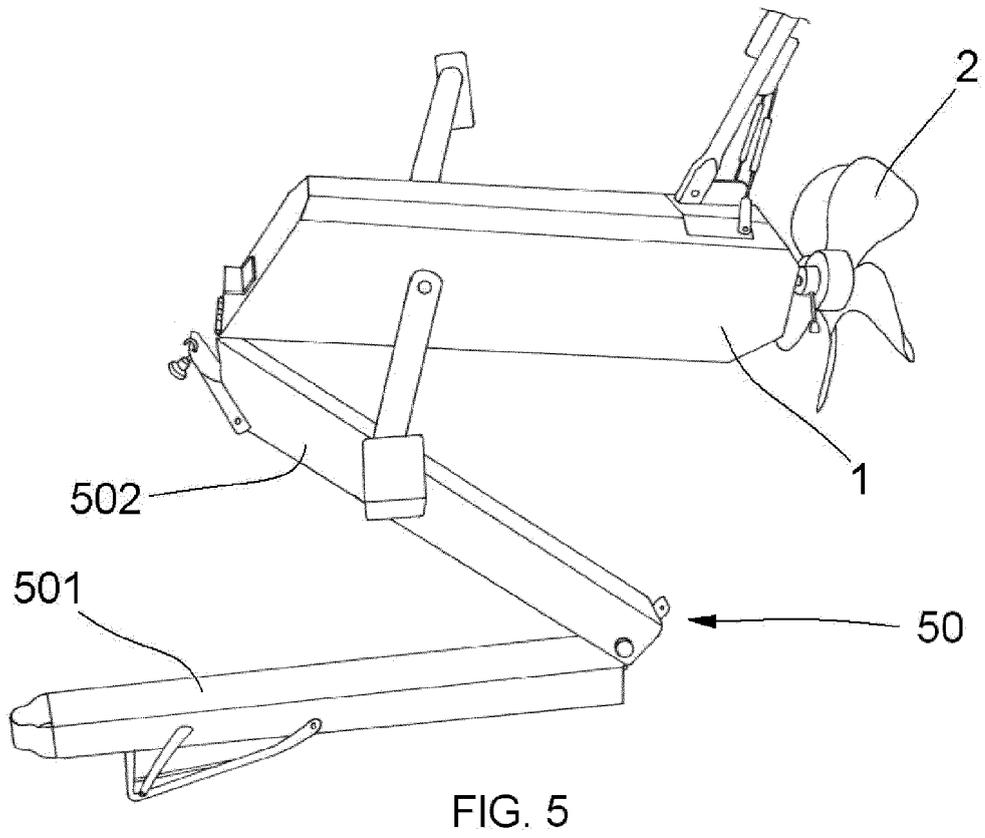
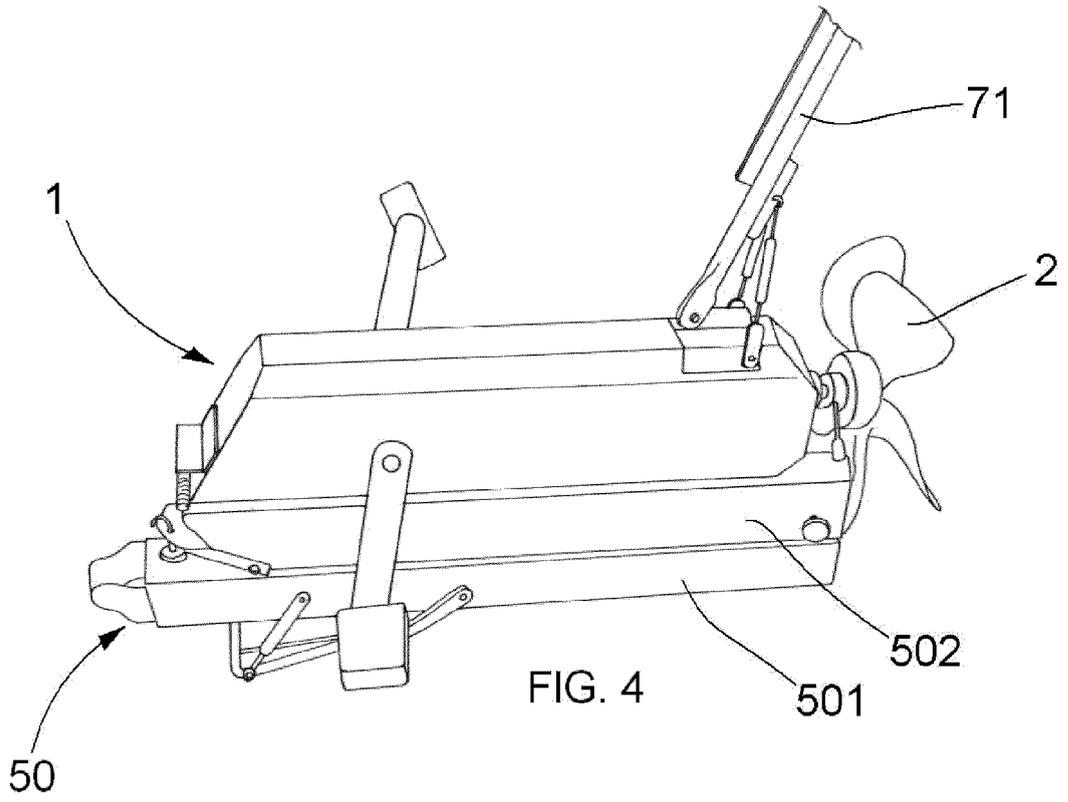


FIG. 3



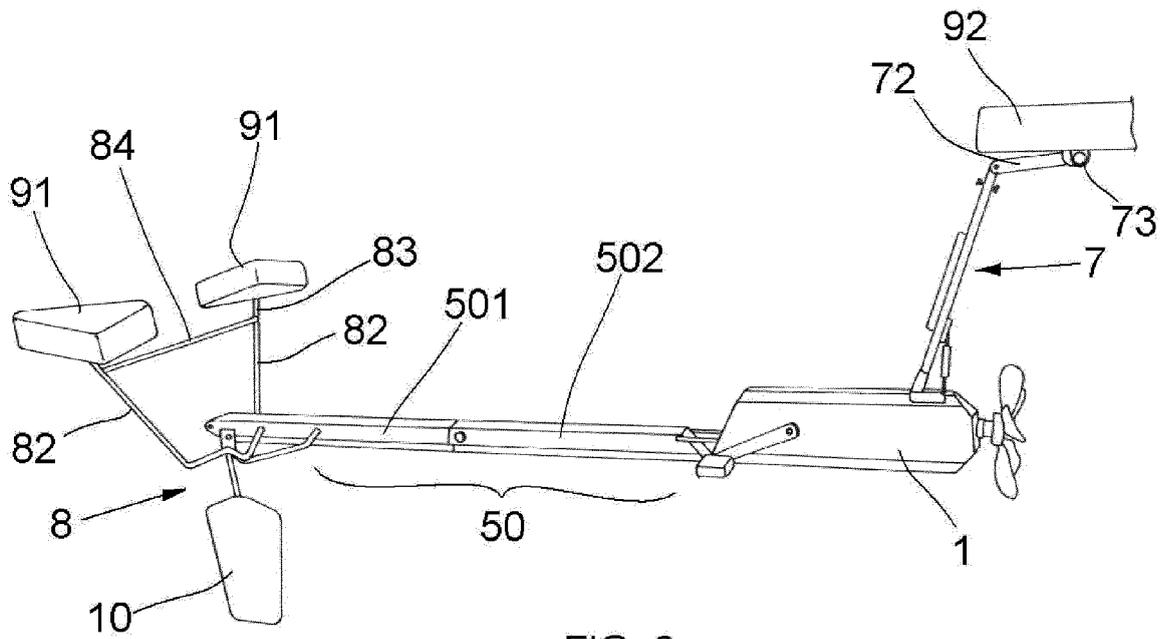


FIG. 6

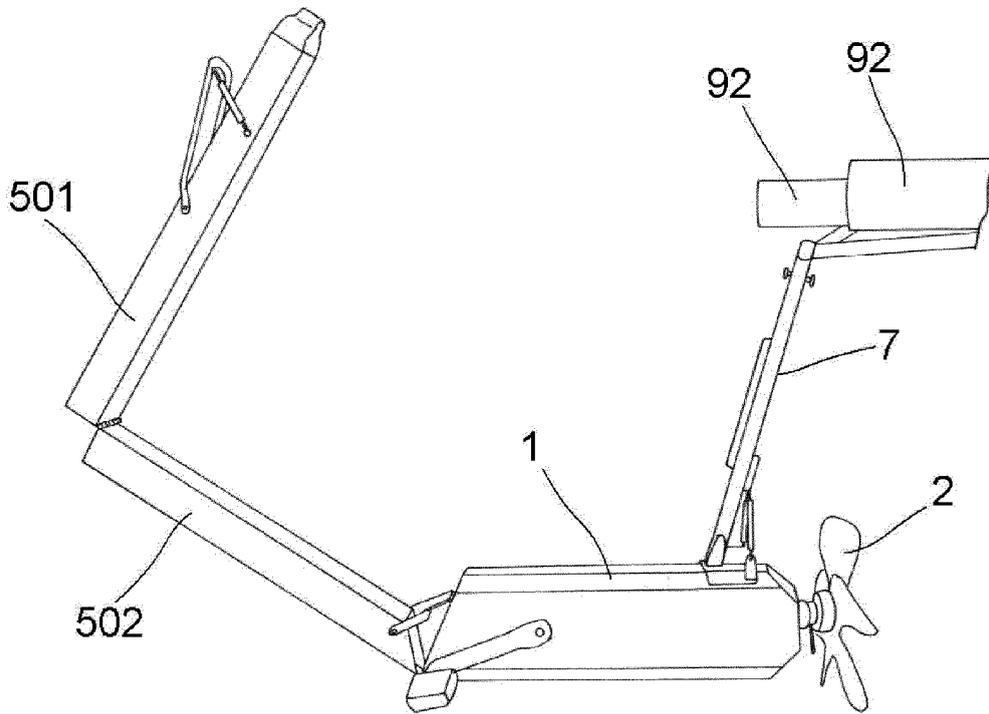


FIG. 7

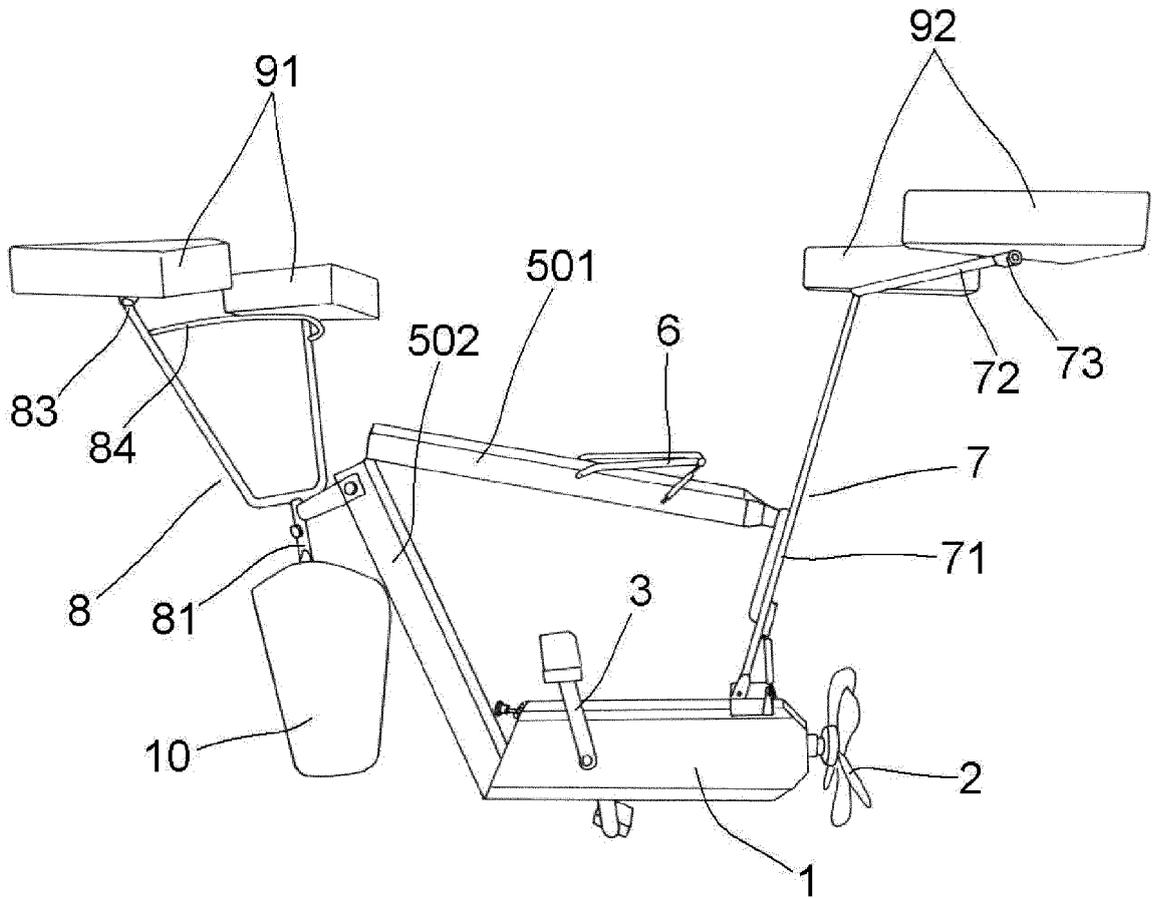


FIG. 8



EUROPEAN SEARCH REPORT

Application Number
EP 12 16 3527

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	DE 196 22 162 A1 (LEIDE GEORG [DE]) 4 December 1997 (1997-12-04) * column 1; figures 1,2 * -----	1,3	
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 29 May 2012	Examiner Duquénoy, Alain
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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29-05-2012

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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