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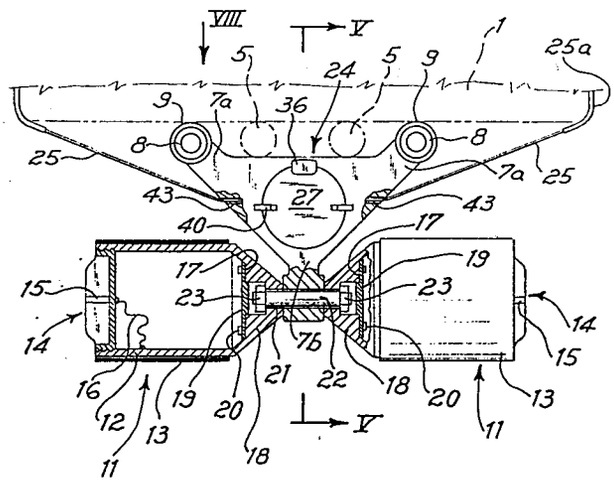
(54) Towing trolley for windsurf rigs.

(57) The Trolley comprises an essentially central body (7), on one side of which are provided supporting elements or legs (8) for the trolley, apt to be applied to board (1) and the other side of which is provided with at least one pair of cylindrical bodies (11) rotatable on said center body (7) and apt to form the wheels of the trolley the latter being also provided with a cable (25) connected with tensioning means to secure board (1).



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"TOWING TROLLEY FOR WINDSURF RIGS"

This invention relates to a trolley for towing windsurf rigs.

The invention refers, more specifically, to a trolley for manual hauling of a windsurf rig when this is to be transferred by the user to the place of utilization, after being removed from its storage site, for example, from a cabin, or after unloading from a vehicle.

Although trolleys of the above type have been known in the art, they have often given rise to a considerable number of drawbacks which made their use extremely impractical and inconvenient.

In the first place, conventional type trolleys consisting essentially of a small frame with wheels, have the considerable disadvantage that they merely act as supports for the surfboard while the remaining parts of the rig must be carried separately by the user with obvious and considerable inconvenients.

In fact, the user is oftentimes compelled to carry the equipment in two separate phases.

A further important drawback of conventional type trolleys lies in the fact that they cannot be abandoned on a beach, but must necessarily be returned to the cabin or vehicle from which they were removed creating an additional problem for the user.

The object of this invention is to provide a trolley for hand towing of windsurf rigs, conceived so as to do away with all the drawbacks above mentioned.

One of the salient features of the trolley according to this invention is the fact that it permits hauling of the complete rig, in a single phase.

Another feature of the trolley under reference is that it remains secured to the surfboard also during navigation; in fact, its limited dimensions do not interfere with the movements of the user, as the single wheels are hollow and are even provided with a chamber apt to contain objects of common use, such as for example, signalling rockets.

The characteristics and advantages of the trolley according to this invention will emerge clearly from the following detailed description of one of its non limitative forms of embodiment, in conjunction with the annexed drawings, in which:

FIGURE 1 is a side view of a surfing board rig set for navigation;

FIGURE 2 is a side view of the same rig set for manual hauling;

FIGURE 3 is a top view of the same rig from the side on which the trolley according to the invention is applied;

FIGURE 4 is a front view of the trolley according to this invention;

FIGURE 5 is a view of the trolley taken on lines V-V of Fig. 4;

FIGURE 6 is a cross sectional view of the trolley showing in particular the mechanism apt to secure the trolley to the surfboard;

FIGURE 7 is a view of the mechanism of Fig. 6, taken on lines VII-VII of the same figure;

FIGURE 8 is a top view of the trolley in the direction of arrow VIII of Fig. 4.

With reference in particular to Figs. 1 thru 3, the

windsurf rig consists essentially of an elongated board, provided with a fin 2, a mast 3, a sail 4 and a boom 5. As the above components are of the known type, they will not be described in detail.

The trolley according to the invention is generally shown in detail 6 of Figs. 1 thru 3, and is described hereinafter in conjunction, specifically, with Figs. 4-8.

Having particular reference to the above figures, the trolley according to the invention comprises a center body of generally triangular flattened shape 7; on the two vertexes 7a of said body are applied means for supporting the trolley on the surfing board while on the remaining vertex 7b are applied sliding means for the trolley when this is used for hauling manually.

Four internally hollow cylindrical bodies 8 provided with a rubber or similar lining 9 are applied on vertexes 7a of center body 7, which are slightly projecting with respect to body 7. Each one of cylindrical bodies 8 is applied to center body 7 by means of a spindle 10, inserted transversally and secured to vertex 7a of center body 7. For this purpose each cylindrical body 8 is forcibly introduced in the projecting end of spindle 10.

The cylindrical bodies 8, provided with external lining 9 (as shown in the enlarged detail of Fig. 1), constitute elements or legs apt to rest the trolley on the windsurf board. In particular, such elements make it easier and simpler to apply the trolley to the board in that they can conveniently be fitted to concave or convex surfaces, considering that the external surfaces of windsurf boards can vary from model to model.

The means which are applied on vertex 7b of center body 7 permit sliding of the carriage during manual

towing. Said means generally consist of a pair of wheels 11, essentially cylindrical in shape and which taper to form a cone in the direction of vertex 7b.

As illustrated in detail of Fig. 4 in which one of wheels 11 is shown in longitudinal cross section, the wheel consists essentially of a body 12 shaped as above described; the body is provided, in its cylindrical part, with a lining of rubber or similar material. It is however evident that such lining could also be applied on the conical part of wheels 11.

The body 12 above mentioned is hollow internally and provided at one of its ends, with a tight sealing plug 14, screwed into the end of body 12. Plug 14 is advantageously provided with ribs 15 apt to facilitate gripping for engagement or disengagement from body 12.

Plug 14 is also advantageously connected to body 12 by means of a cable or rope 16, which connects its internal face with the interior of body 12. This arrangement is contemplated for the particular use conditions of the trolley, as it will be clarified in the description which follows.

Again with reference to Fig. 4, bottom wall 17 of tapered section 18 of wheels 11 is tightly sealed by a plate 19 secured to said bottom wall 17 by lock screws 20. This arrangement is required to render completely waterproof the interior of wheels 11 as the tapered point 18 of the wheels is provided with a passage 21 for a supporting pin 22. The latter crosses transversally vertex 7b of center body 7 and passage 21 of points 18 of wheels 11 and is fully rotatable in same. Lock nuts 23 are also provided on the threaded ends of pin 22; said nuts are apt to retain wheels 11 against the

side faces of vertex 7b without however inhibiting their rotation. In this regard, it is sufficient to provide a threaded part for screwing nuts 23, of a length that will allow a slight clearance between parts 18 and vertex 7b.

The trolley according to this invention comprises, in addition, in a substantially mid zone of central body 7, a ratchet gear assembly 24 which permits tensioning or releasing a cable or chord 25 which closes around surfboard 1 to secure trolley 6 to the latter.

The mechanism just mentioned shown in some detail in Figs. 5, 6 and 7 comprises an internally hollow cylindrical body 26 inserted transversally into center body 7 through a suitable passage in the latter. Cylindrical body 26 is provided, at one of its ends, with a head 27, of greater diameter, which is set externally to body 7 and which constitutes the grip to actuate the ratchet gear assembly.

The above mentioned passage in central body 7 comprises essentially an annular cavity 28, to permit winding of cable 25 on cylindrical body 26 in the securing phase of the trolley to the surfboard.

Center annular cavity 28 is delimited, on the two opposite faces of center body 7, by two annular walls 29 and 30, the first of which (29) has an internal diameter approximately equal to the external diameter of cylindrical body 26, while the second wall (30), has an internal diameter smaller than the outer diameter of cylindrical body 26. Furthermore, the internal surface of wall 30 opposite the outer wall of cylindrical body 26, is provided with teeth, to form the ratchet gear mechanism described above.

Head 27 of cylindrical body 26, as it can be seen in the detail of Figs. 6 and 7, is provided with a substantially "T" shaped cavity 31, within which is movably housed a substantially "L" shaped pawl 32, one end 35 of which engages with the toothed surface of wall 30, while its other end 34 projects outwardly from cavity 31. The bottom of the cavity houses a spring 35, apt to maintain pawl 32 (in particular, its end 33) urged against the toothed surface of wall 30. In this manner the possible rotation of cylindrical body 26 will be unidirectional and will correspond to the winding of cable 25 on cylindrical body 26 for securing the trolley to windsurf board 1, as shown in more detail in Figs. 1 thru 3.

To provide rotation of cylindrical body 26 in a direction opposite to the preceeding one, when the trolley is to be freed from surfboard 1, i.e. when cable 25 is to be loosened, an unlocking pushbutton 36 is provided; said pushbutton is secured to the top end of part 34 of pawl 32 at a certain distance from the outer contour of head 27 (see Fig. 6). Pushbutton 36 may simply be secured to end 34 of pawl 32 or, as shown in the embodiment illustrated in detail in Fig. 6, it may have an appendix 37, which slides against head 27 during movement of pushbutton 36, thus being guided by the latter together with its contour 38, which slides against the face of center body 7.

The actuation of cylindrical body 26, ie, its rotation, is operated by grasping head 27 which is provided with projecting wings, to facilitate gripping. In the embodiment shown, two have been provided, set at 180° from each other, but it is obvious that a different number could

have been provided. It is also evident that wings 40 could be advantageously substituted by knurls in head 27, particularly on its side surfaces, to achieve the same purpose.

Cylindrical body 26 is retained in the passage of central body 7 by a flange 39, which closes said passage, being of greater diameter, and being secured directly to cylindrical body 26 by lock screws 41. Obviously, a slight play will be allowed between head 27 and flange 39 to permit unhampered rotation of said cylindrical body 26.

As it can be noted in Fig. 6 in particular, cylindrical body 26 is provided with a longitudinal cavity 42 the function of which is to receive the end of shaft 1 of the rig when this is to be towed manually, as will be described infra.

As it can be noted in Figs. 4, 5 and 8, one of the intermediate zones of cable or rope 25 is provided with a strap 25a which represent the enveloping means true and proper for elongated board 1, as shown in Figs. 1 thru 3.

Furthermore, ends 25b of cable 25 (Fig. 6) are secured externally to cylindrical body 26 in diametrally opposite points by known means, for example by "U" bolts 25c. Cable 25 then exits from central body 7 through holes 43 provided in the latter. (See Fig. 4).In this way, when cable 25 is tensioned as a result of the rotation of the ratchet gear mechanism, the cable re-enters through holes 43 and winds itself up on cylindrical body 26 until strap 25a stretches itself on elongated board 1, as shown schematically in Fig. 4.

The use of the trolley according to this invention

can be described, generally, as follows.

Let us suppose that the starting position is that in which the rig is utilized for surfing in navigation, as shown in Fig. 1; trolley 6 is secured to the extreme rear end of board 1, so as not to interfere with the user's body movements. The trolley rests with its tubular elements or legs (8) on board 1 and strap 25a winds itself stably on the botton part of the board.

Wheels 11, which are now arranged on the top part of board 1, can advantageously serve as containers for objects of common use, for example signalling rockets, essential for the user should he not be able to return ashore before dark.

When the rig is no longer utilized and must be transported manually, after having dismantled mast 3, sail 4 and boom 5 these components are arranged as shown in Figs. 2 and 3. In particular, one end of mast 3, on which sail 4 is wound, is inserted in cavity 42 of cylindrical body 26 (see Fig. 6).

One of the ends of boom 5, arranged under mast 3, in introduced under body 7 of the trolley, precisely between its vertexes 7a as schematically shown by the dashed line in Fig. 4. The ends of boom 5 will then be blocked between one side of central body 7 and the top surface of board 1. The other end of boom 5 is retained by a further strap or belt 50 which also serves to secure mast 3.

It can be noted from Fig. 2 that in case of manual handling, trolley 6 is applied in a more advanced position on the end of board 1 since, during transport, the rig will be slightly inclined downward and the rear end of board 1 must not touch the ground. During this phase,

wheels 11 perform their function true and proper which is that of a sliding means for the rig.

The above description clearly places in evidence the advantages afforded by the trolley according to this invention; these advantages can be summarized as follows:

1) the trolley makes it possible to haul the complete surfboard rig, since the boom and mast are secured to board 1, thus providing a compact unit while greatly facilitates transport by the user;

2) in addition to permitting hauling of the rig, the invention also provides a double container for objects which the user could obviously not carry with him, due to the very nature of this particular sport;

3) as the trolley can be maintained on the board during sailing it need not be abandoned on the ground nor will there be need to store it in a sheltered place.

It is clear, lastly, that variants and/or modifications may be introduced in the trolley described, without departing however from the domain and scope and spirit of the invention.

C L A I M S

1. Trolley for towing a windsurf rig comprising substantially an elongated board, a mast with sail and a boom, characterized in that it comprises an essentially central body (7), on one side of which are provided supporting elements or legs (8) for the trolley, apt to be applied to board (1) and the other side of which is provided with at least one pair of cylindrical bodies (11) rotatable on said center body (7) and apt to form the wheels of the trolley the latter being also provided with a cable (25) connected with tensioning means to secure board (1).

2. Trolley according to claim 1, characterized in that the tensioning means for cable (25) consist of a ratchet gear mechanism which may be de-activated.

3. Trolley according to claim 2, characterized in that said ratchet gear mechanism comprises an essentially cylindrical body (25) inserted in a passage in center body (7) and which is provided with a head (27) projecting from said body (7) said head being provided with a recess (31) within which is inserted a pawl mechanism (32) engaging with a toothed surface (30) of the passage of body (7) in which is inserted cylindrical body (26), elastic means (35) being also arranged in said cavity (31) to maintain pawl (32) in engagement with toothed surface (30).

4. Trolley according to claim 3,characterized in that the ratchet gear assembly (32) is associated with a releasing pushbutton (36) apt to move said ratchet gear (32) in contrast with elastic means (35).

5. Trolley according to claim 3, characterized in

that cylindrical body (26) is retained rotatably inside the passage of body (7) through a flange (39), secured to it at its end opposite to head (27).

6. Trolley according to claim 3, characterized in that cylindrical body (26) is provided with a longitudinal cavity (42) apt to house one of the ends of mast (1) during manual hauling.

7. Trolley according to claim 3, characterized in that head (27) of cylindrical body (26) is provided with wings (40) for gripping and actuation by the user.

8. Trolley according to claim 1 ,characterized in that the supporting elements or legs (8) each consist of a hollow cylindrical body (8) inserted forcibly on a spindle (10) crossing central body (7) in a transversal direction and secured to the latter.

9. Trolley according to claim 1, characterized in that substantially central body (7) is essentially triangular in shape and in that supporting elements or legs (8) and cylindrical bodies (11) are arranged at its vertexes, slightly projecting from its contour.

10. Trolley according to claim 1, characterized in that cylindrical bodies (11) forming the wheels of the trolley are hollow and provided at one end with a removable watertight plug (14).

11. Trolley according to claim 9, characterized in that plug (14) is connected to cylindrical body (11) by a cable (16).

12. Trolley according to claim 10, characterized in that the wall of each cylindrical body (11) opposite sealing plug (14)is provided with a passage (21) for a supporting shaft (22) said passage being closed by a bottom wall (19) on the internal side of cylindrical

body (11).

13. Trolley according to claim 12, characterized in that shaft (22) is inserted rotatably on one vertex of center body (7) and in that cylindrical bodies (11) are applied on it through lock nuts (23) which retain said bodies (11) whilst allowing their rotation.

14. Trolley according to clamis 1 and 3, characterized in that the passage in body (7), into which is inserted cylindrical body (26), is provided with an annular cavity (28) apt to permit winding of cable (25) on said cylindrical body (26).

15. Trolley according to claim 14, characterized in that both ends of cable (25) are secured to said cylindrical body (26).

16. Trolley according to claim 15, characterized in that cable (25) outlets from center body (7) through holes (43) provided on the sides comprised between supporting elements or legs (8) and cylindrical bodies (11).

17. Trolley according to claim 1, characterized in that supporting elements or legs (8) , arranged on one vertex (7a) of tangular center body (7), are offset with respect to the side which connects said vertexes (7a), so that, when the trolley is applied to board (1), said side will delimit, with board (1), a space for insertion of boom (5).

18. Trolley for hauling a windsurf rig, substantially as described hereinabove and illustrated in the annexed drawings.

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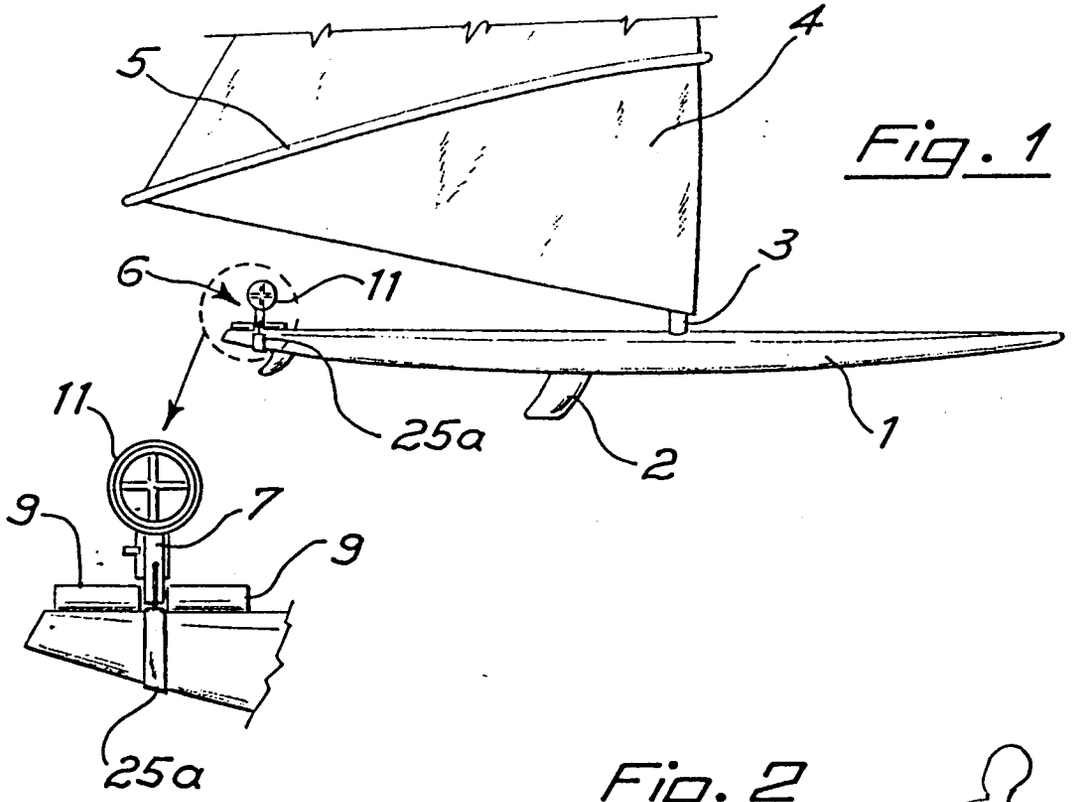

Fig. 1

Fig. 2

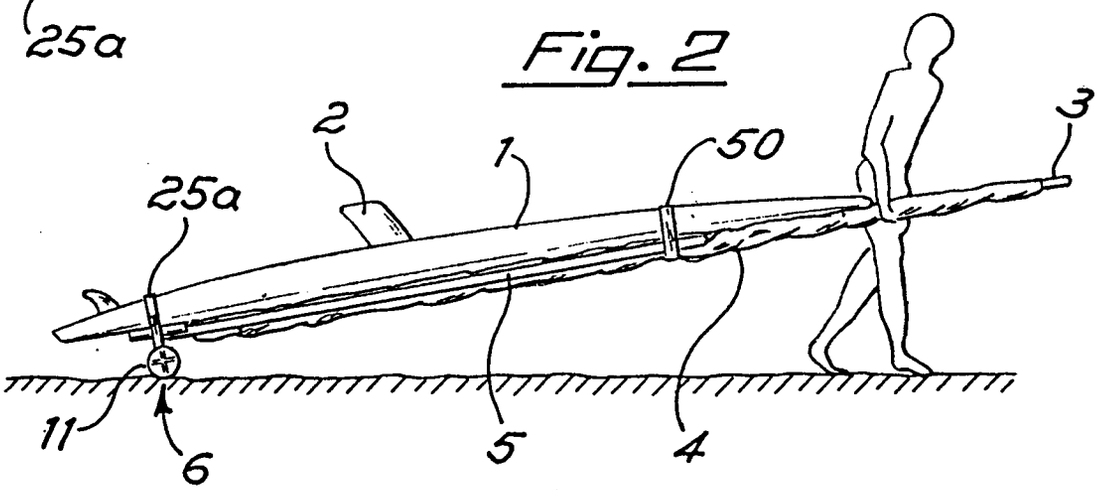

Fig. 3

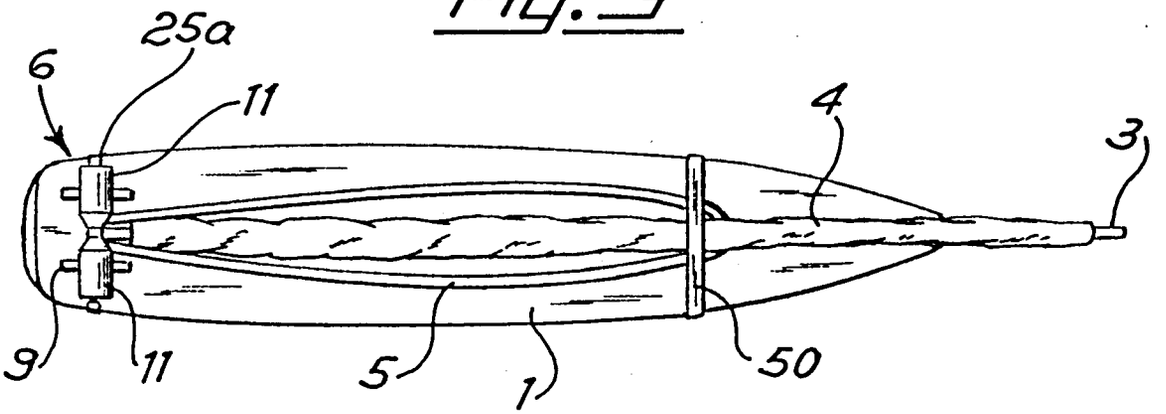

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Fig. 4

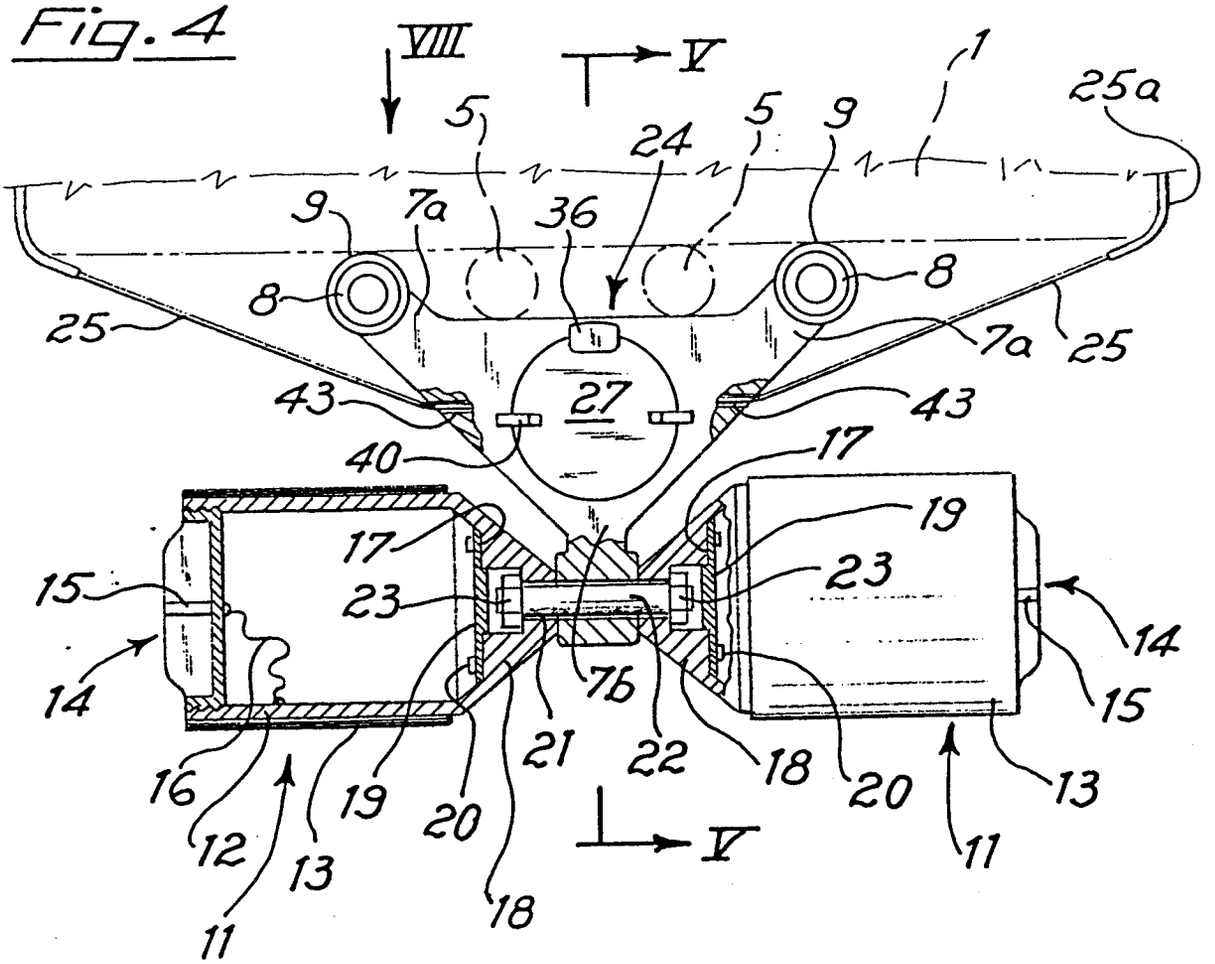

Fig. 5

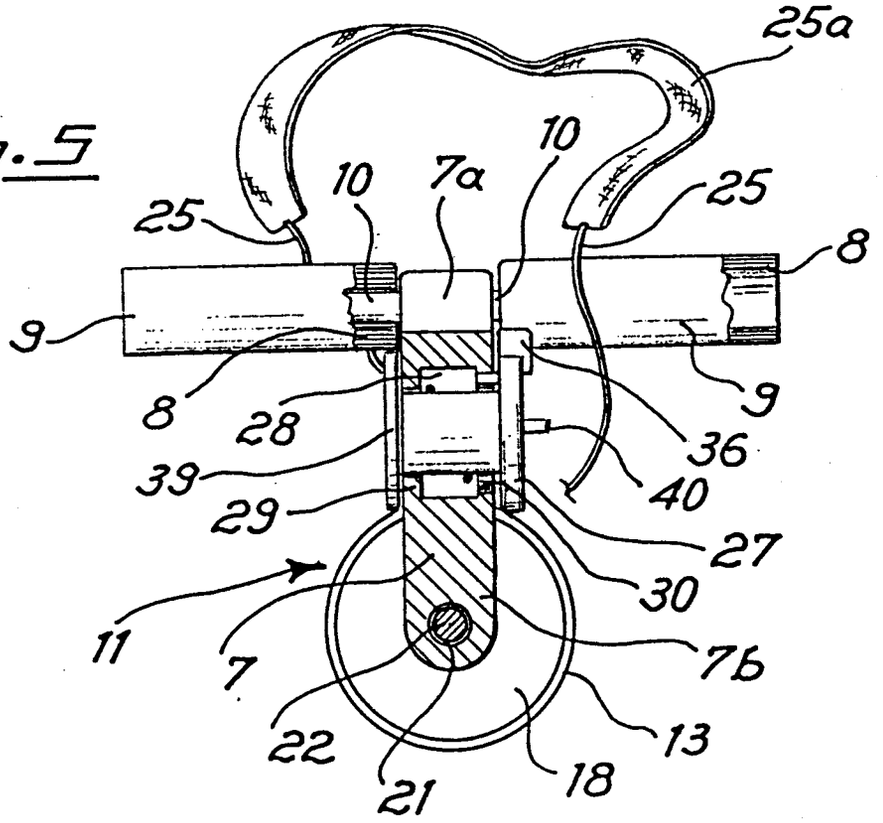

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Fig. 6

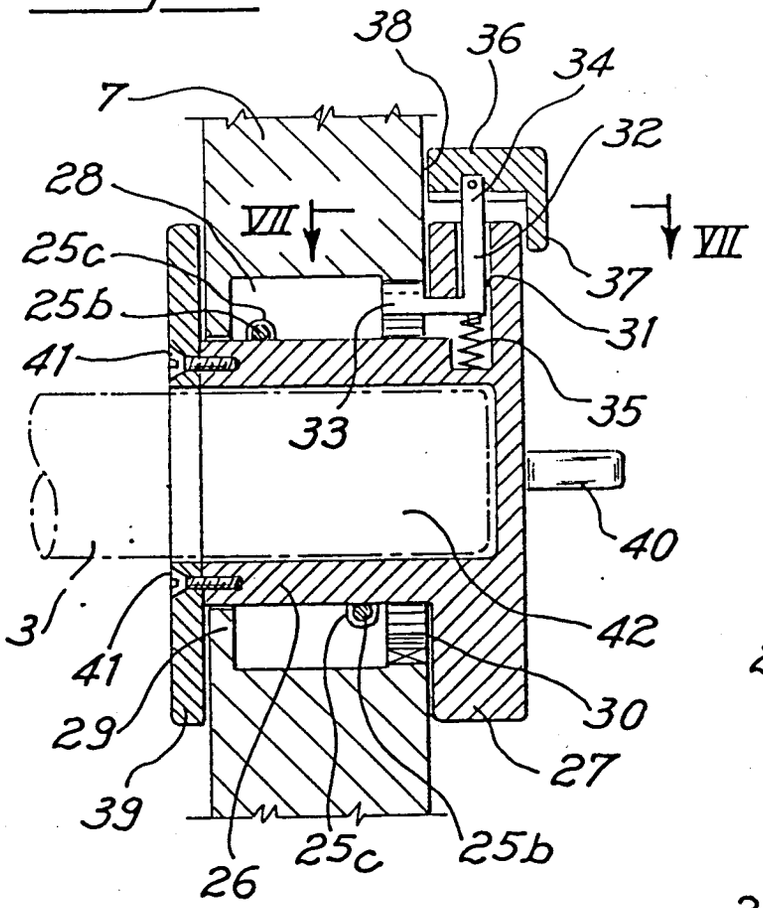


Fig. 7

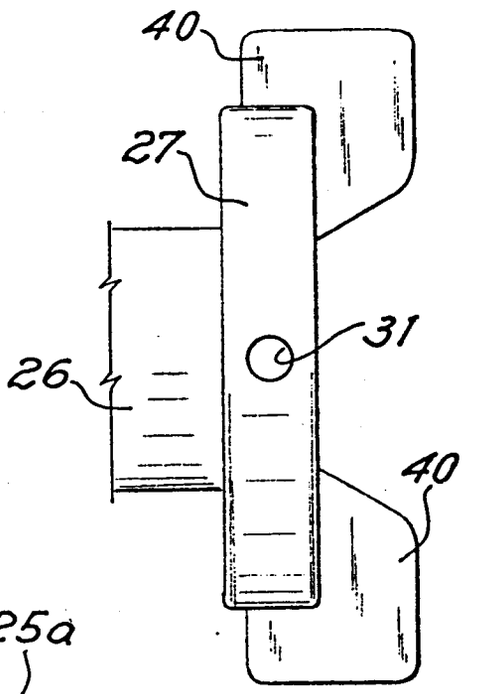
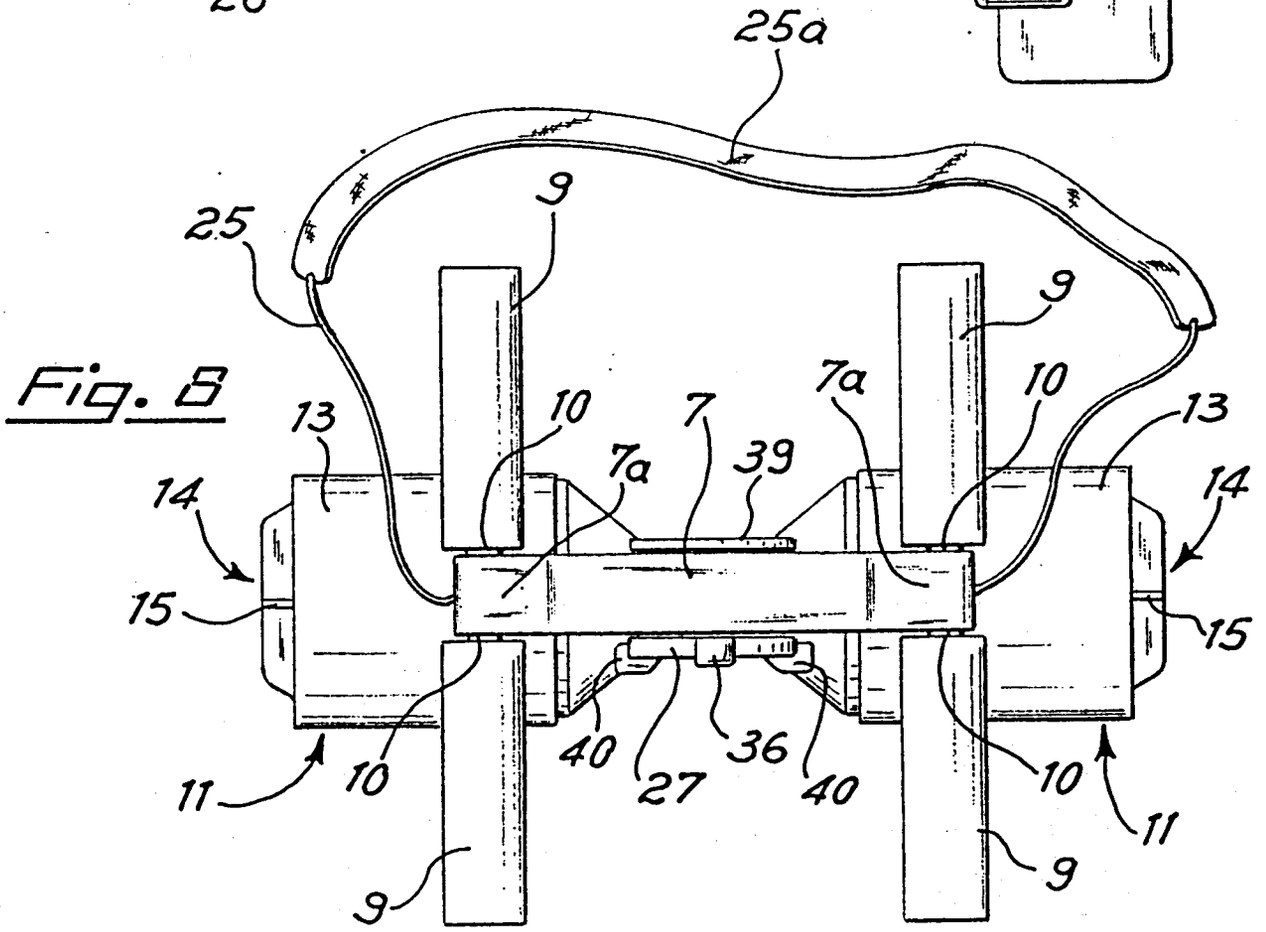


Fig. 8



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EUROPEAN SEARCH REPORT

0119965 Application number

EP 84 83 0043

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. ³)
X	GB-A-2 093 775 (BEACH-THOMAS) * Page 1, lines 44-62; figure 1 *	1	B 63 C 13/00
A	DE-A-2 633 149 (FRIEDEL) * Page 2; figure ref. to page 2 *	1	
A	DE-A-3 039 562 (SCHMIDT)		

TECHNICAL FIELDS SEARCHED (Int. Cl. ³)

B 63 B
B 63 C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	28-05-1984	BRUMER A.M.

CATEGORY OF CITED DOCUMENTS

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