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(71) Applicant: **B. FINANCIAL S.r.l.**
24067 Sarnico (BG) (IT)

(72) Inventor: **BESENZONI, Giorgio**
25030 PARATICO (BS) (IT)

(74) Representative: **Burchielli, Riccardo et al**
Barzano & Zanardo Roma S.p.A.
Via Piemonte 26
00187 Roma (IT)

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(54) **STERN PLATFORM FOR BOATS**

(57) A movable platform (100) intended to be attached to a surface (11) of a boat, comprising a bracket (1) configured to be coupled to the surface (11) of the boat, a first, second and third rocker arms (4, 21, 22,) each rotatably connected to the bracket (1), a support member (3) for a walking surface rotatably connected to the first, second and third rocker arms (4, 21, 22) to form an articulated quadrilateral, characterized in that it includes an actuator (5) rotatably connected to the bracket

(1) and the first rocker arm (4) such that, when the actuator (5) is operated in extension, the platform (100) transitions into an extended configuration by a rotation of the first rocker arm (4) and a movement of the support member (3) away from the bracket (1), whereas, when the actuator (5) is actuated in contraction, the platform (100) steps into a retracted configuration by a rotation of the first rocker arm (4) and an approach of the support member (3) to the bracket (1).

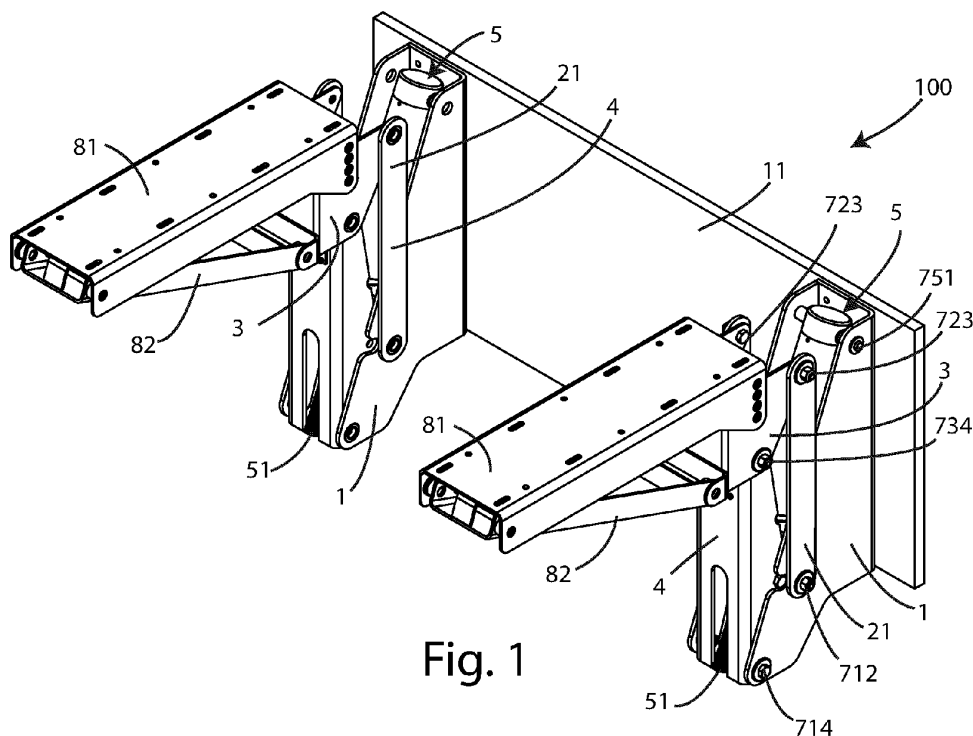


Fig. 1

Description

[0001] The present invention relates to a stern platform for boats.

[0002] More particularly, the invention relates to a mobile and articulated platform, for example installable on the sides or stern of boats or vessels, and designed to be extendable, so as to be able to switch from a retracted or rest configuration, to an extended or use configuration, and vice versa, by means of an articulated quadrilateral.

[0003] They are known in the nautical sector platforms externally associated to leisure boats or cruise ships of movable and tilting type, applied to the boats by means of movement apparatus of conventional type (actuators, pistons, chains, etc.).

[0004] Platforms are used to increase the walkable space available to passengers and crew, usable, for example, during the periods in which the boat is at sea, for activities of various kinds.

[0005] Platforms are normally laid out when needed, and are kept oriented along a direction parallel to the deck of the boat itself.

[0006] When not in use, some types of decks must be manually disassembled to be relocated in a separate area so that they do not impede the maneuvering of the vessel and the movements of the crew on board.

[0007] One of the main problems of the known decks is represented by the excessive encumbrance, especially during those situations in which they are not used, for example when the boat is sailing, or when it is at anchor in port.

[0008] The problem of obstruction becomes more and more relevant as the size of the dashboard increases.

[0009] In fact, for practicality reasons, it is not at all convenient for the end user to make dashboards larger than a certain size, especially since their width can be a problem when they are in their retracted or resting configuration.

[0010] In addition, some types of decks are permanently attached to vessels, and are moved between the rest configuration and the use configuration by appropriate equipment and handling systems.

[0011] These systems can cause some operational inconveniences, especially with regard to their reliability and maintenance.

[0012] In fact, the aggressive environmental conditions of marine and/or lake environments (high humidity and presence of salts), together with the large number of mechanical components usually required for the realization of the mechanisms, make handling systems particularly susceptible to failures and malfunctions.

[0013] A further drawback of known handling systems concerns the excessive use of actuators and hydraulic devices in general, which represent the currently preferred alternative in the sector.

[0014] However, environmental problems that these systems can cause have been known for some time, following the release of quantities of oil and/or lubricating

products that, although small, are protracted over time.

[0015] It is, therefore, a principal object of the present invention to provide a stern platform for boats which solves the mentioned drawbacks.

[0016] In particular, it is an object of the present invention to provide a stern platform for boats having a handling system which is simple to construct and reliable with respect to the known technique.

[0017] Another object of the invention is to provide a stern platform having a small encumbrance, especially when the dashboard is not in use.

[0018] In addition, it is an object of the invention to provide a stern platform for boats having a low environmental impact.

[0019] It is further an object of the present invention to provide a stern platform that is easy and inexpensive to make and use, in view of the advantages achieved.

[0020] These and other purposes are achieved by a stern platform for boats according to the attached claim 1; further details and technical features of the invention are contained in the attached dependent claims.

[0021] The present invention will now be described, by way of example but not limitation, according to some of its preferred embodiments, and with the aid of the attached figures, wherein:

Figure 1 is a perspective view of the stern platform for boats according to the present invention in a retracted configuration;

Figure 2 shows a detail of the platform in the configuration depicted in figure 1;

Figure 3 shows a detail of the stern platform for boats according to the invention in an extended configuration;

Figure 4 is a sectional view of a detail of the platform moving system according to the invention.

[0022] Referring to Figures 1-3, there is depicted a platform 100, installable on the hull of a boat (not shown), schematized by means of a fastening surface 11.

[0023] The operation and structure of the platform 100 is based on two mechanically identical assemblies comprising components such as actuators, rods, and other rigid elements connected together to compose an articulated quadrilateral.

[0024] The coupling of each assembly or quadrilateral of the platform 100 to the fastening surface 11 of the craft is accomplished by means of a bracket 1.

[0025] The bracket 1 has four pivot points or hinges for connecting the same number of rigid elements:

a first rocker arm 4, connected via first hinges 714; a second rocker arm 21 and a third rocker arm 22, connected via second hinges 712;

an actuator 5, connected to the bracket 1 by means of a third hinge 751 and used to move the first rocker arm 4.

[0026] The rocker arms 4, 21 and 22 are parallel to each other, and are in turn connected to a support member 3, located opposite the bracket 1, via respective fourth hinges 734 and fifth hinges 723.

[0027] The bracket 1, the rocker arms 4, 21 and 22, together with the support member 3 form for each assembly the articulated quadrilateral for moving the platform 100.

[0028] Preferably, a first and second fastening elements 81, 82 are rigidly connected to the support member 3, so as to keep themselves oriented in a horizontal direction; to them a support surface or walkway (not shown for simplicity) of the platform 100 is attached.

[0029] Movement of the platform 100 between a retracted configuration (Fig. 2) and an extended configuration (Fig. 3) is accomplished by rotation of the first rocker arm 4 about the first hinges 714 and the second and third rockers 21, 22 about the second hinges 712.

[0030] The actuator 5 is preferably of the screw type, and has a worm screw 51 which, rotating about its axis X, allows the translation of a nut 52 by sliding on the surface of the screw 51 itself.

[0031] The nut 52 is rigidly connected to a plate 6, which in turn is rotatably connected to the first rocker arm 4 by means of sixth hinges 764.

[0032] Operationally, the plate 6 is pulled along the X-axis of the worm screw 51 by the translational movement of the nut 52 sliding on the screw 51 itself, and determines the extension or contraction of the articulated quadrilateral depending on whether the movement itself occurs away from or towards the bracket 1.

[0033] The receding of the nut 52, i.e. the extension of the actuator 5, causes the first rocker arm 4, connected to the nut 52 by the plate 6, to rotate about the first hinge 714.

[0034] The support member 3 is translated by the rotation of the first rocker arm 4, simultaneous with those of the second and third rockers 21, 22 around the second hinges 712.

[0035] When the nut 52 reaches the end of its travel, the translation of the support element 3 is complete, and the platform 100 is in the extended configuration, as shown in the detail of Figure 3.

[0036] The first and second fasteners 81, 82, which are rigidly connected to the support member 3, are in a lowered position relative to the initial retracted configuration of the platform 100.

[0037] Conversely, when the nut 52 moves in an approaching direction, and the actuator 5 contracts, the support member 3 translates approaching the bracket 1, and the dashboard 100 closes until it reaches the contracted configuration, as shown in Figure 2.

[0038] In other words, when the actuator 5 is operated in extension, the platform 100 transitions into the extended configuration by a receding rotation of the first rocker arm 4 and a receding translation of the support member 3 relative to the bracket 1, whereas, when the actuator 5 is operated in contraction, the platform 100 transitions

into the retracted configuration by an approaching rotation of the first rocker arm 4 and an approaching translation of the support member 3 relative to the bracket 1. Figure 4 shows a section of the actuator 5.

[0039] The actuator 5 includes a motor 506, which is connected to the screw 51 by a gearbox 507.

[0040] An enclosure 505 contains and protects the motor 506 and gearbox 507 from moisture.

[0041] A sealing member 508 is positioned at the end of the actuator 5 from which the screw 51 extends; said sealing member 508 is shaped to isolate the gearbox 507 - screw 51 junction from water intrusion.

[0042] Gaskets 518 are also positioned at the interfaces between screw 51 and sealing element 508.

[0043] Advantageously, all components moving the platform 100 are thus protected in a watertight enclosure.

[0044] The invention thus conceived is susceptible to numerous modifications and variations, all of which fall within the scope of protection of the appended claims.

[0045] Furthermore, all details may be replaced by other technically equivalent elements.

[0046] In practice, the materials used as well as the contingent shapes and dimensions may be varied according to the contingent requirements and the state of the art.

[0047] Where construction features and techniques mentioned in the following claims are followed by reference signs or numbers, such reference signs or numbers have been affixed for the sole purpose of increasing the intelligibility of the claims and, accordingly, they do not in any way constitute a limitation on the interpretation of each element identified, by way of example only, by such reference signs or numbers.

Claims

1. A mobile stern platform (100) intended to be attached to a surface (11) of a boat, comprising

a bracket (1) configured to be coupled to the surface (11) of the boat,

a first, second, and third rocker arms (4, 21, 22,) each rotatably connected to the bracket (11,)

a support member (3) for a walking surface, rotatably connected to the first, second and third rocker arms (4, 21, 22) to form an articulated quadrilateral, **characterized in** comprising

an actuator (5) rotatably connected to the bracket (1) and to the first rocker arm (4) so that, when the actuator (5) is operated in extension, the platform (100) shifts into an extended configuration by means of a rotation of the first rocker arm (4) and of a movement of the support member (3) away from the bracket (1), whereas, when the actuator (5) is actuated in contraction, the platform (100) shifts into a retracted configuration by means of a rotation of the first rocker

arm (4) and an advancement of the support element (3) towards the bracket (1).

2. Mobile stern platform (100) according to claim 1, **characterized in that** said actuator (5) is of the screw type and comprises

a worm screw (51) connected to a motor (506), a nut (52), rotatably connected to the first rocker arm (4) by means of a plate (6) and constrained to translate along the worm screw (51), so that a distal translation of the nut (52) along the screw (51) brings the platform (100) into the extended configuration, and so that a proximal translation of the nut (52) brings the platform (100) into the retracted configuration.

3. Mobile stern platform (100) according to claim 2, **characterized in that** the actuator (5) comprises a gearbox (507), connected to the motor (506) and to the worm screw (51), wherein the motor (506) and the gearbox (507) are arranged within a watertight housing (505) having a sealing element (508) in proximity to the worm screw (51).

4. Mobile stern platform (100) according to any one of claims 1-3, **characterized in that** a first fastening element (81) and a second fastening element (82) are coupled to the support element (3), for connecting a walking surface or platform to the support element (3).

5. Mobile stern platform (100) according to one of the claims 1-4, **characterized in that** the rocker arms (4, 21, 22) are connected to the bracket (1) and to the support element (3) by respective hinges (714, 712, 734, 723).

6. Mobile stern platform (100) according to one of the claims 1-5, **characterized in that** the actuator (5) is connected to the bracket (1) by a hinge (751) and the plate (6) is connected to the first rocker arm (4) by a supplementary hinge (764).

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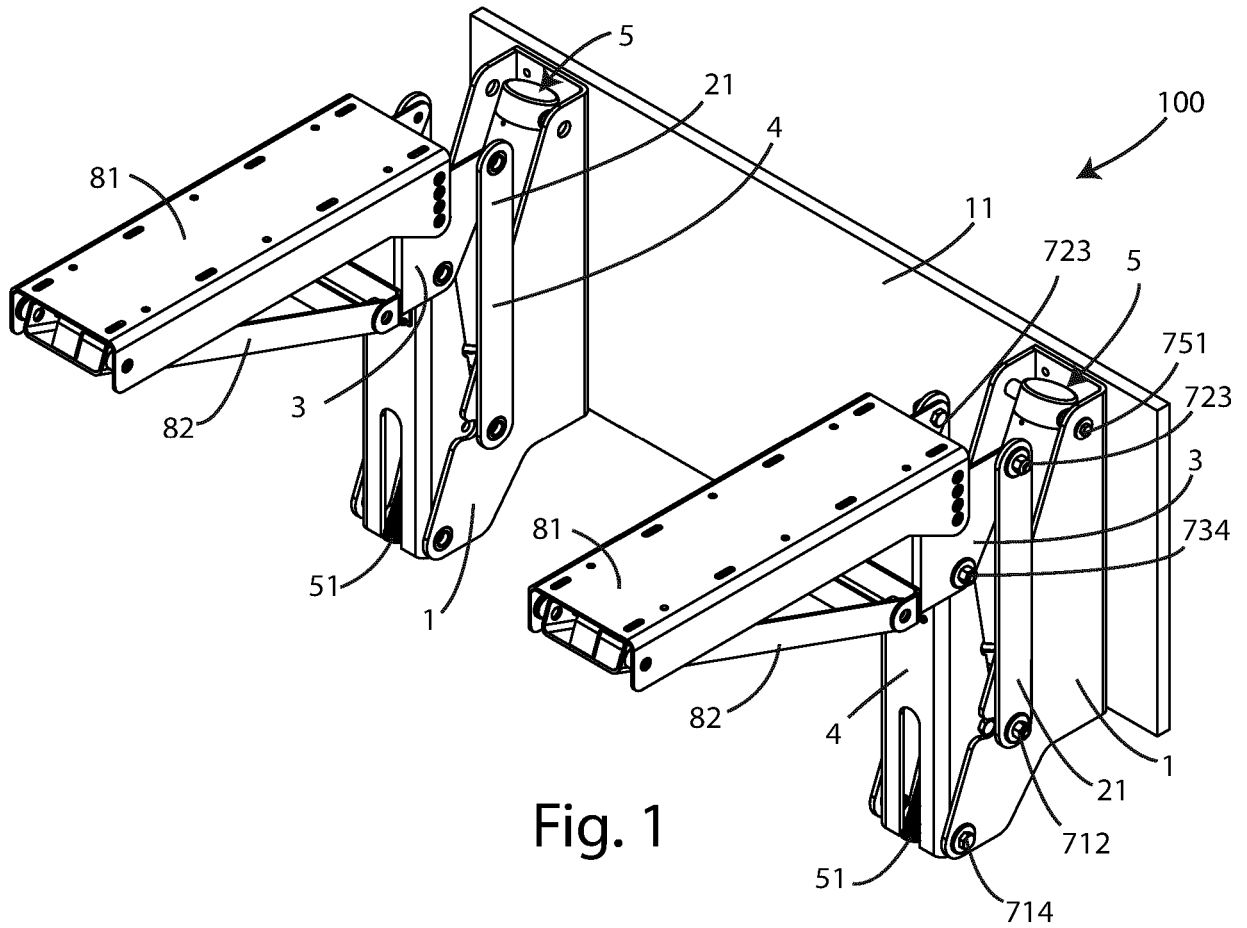


Fig. 1

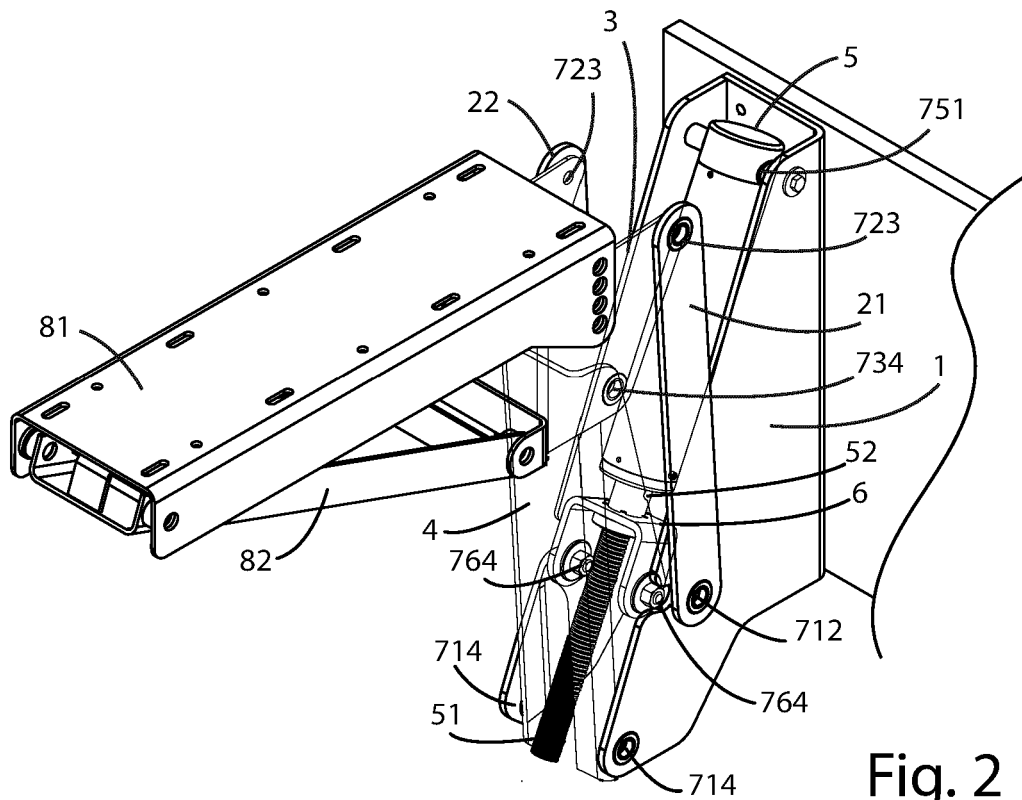


Fig. 2

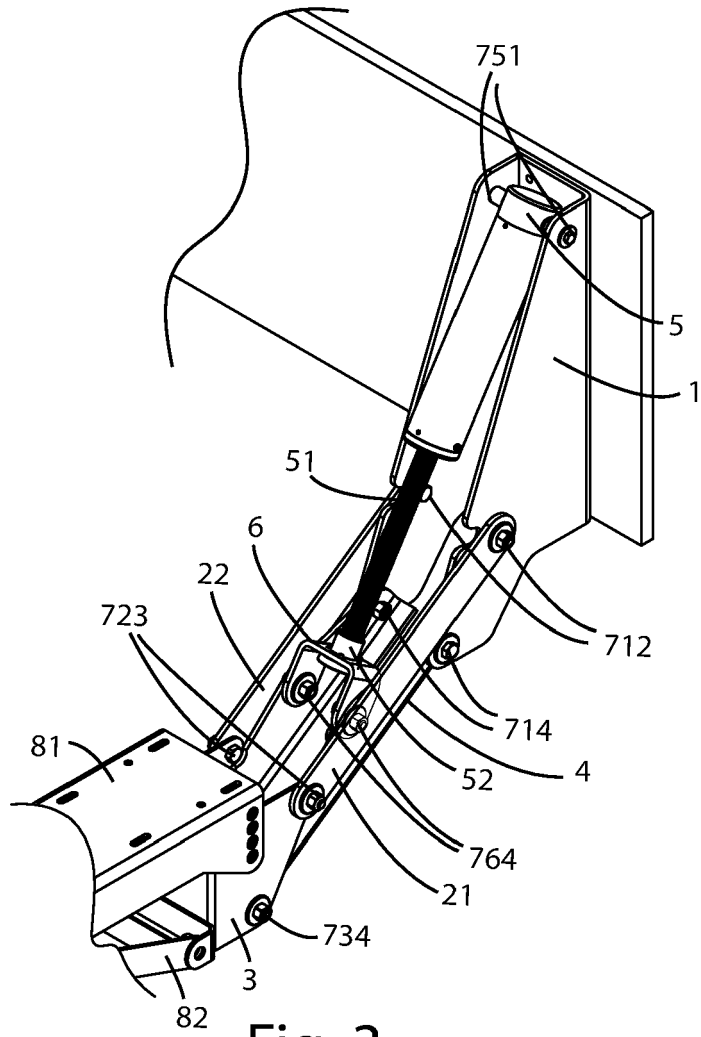


Fig. 3

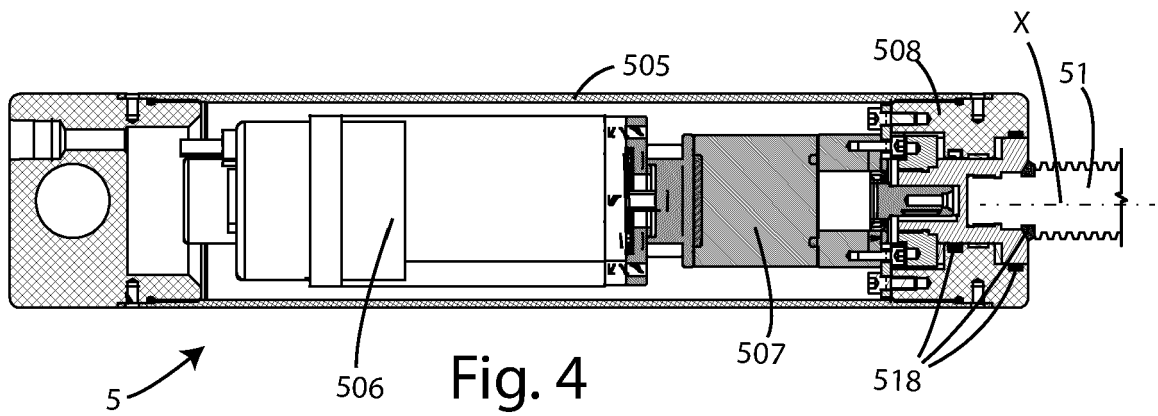


Fig. 4



EUROPEAN SEARCH REPORT

Application Number

EP 22 15 2957

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DOCUMENTS CONSIDERED TO BE RELEVANT

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 10 2018 133044 A1 (H B TECHNICS GMBH CO KG [DE]) 25 June 2020 (2020-06-25) * paragraph [0021] - paragraph [0022] * * figures * * paragraph [0042] *	1-6	INV. B63B27/14
X	EP 2 479 104 A1 (H & B TECHNICS GMBH & CO KG [DE]) 25 July 2012 (2012-07-25) * paragraph [0052] * * paragraph [0055] * * figures 4, 6, 8 * * claims 12, 14 *	1, 4-6 2, 3	
A	WO 2013/191715 A2 (ROBERTSON JOHN [US]) 27 December 2013 (2013-12-27) * paragraph [0045]; figures *	1, 2	
			TECHNICAL FIELDS SEARCHED (IPC)
			B63B

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The present search report has been drawn up for all claims

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Place of search	Date of completion of the search	Examiner
The Hague	22 June 2022	Barré, Vincent

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 22 15 2957

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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22-06-2022

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 102018133044 A1	25-06-2020	NONE	

EP 2479104 A1	25-07-2012	DE 202011001767 U1	12-05-2011
		EP 2479104 A1	25-07-2012
		ES 2425550 T3	16-10-2013
		PL 2479104 T3	29-11-2013
		SI 2479104 T1	30-10-2013

WO 2013191715 A2	27-12-2013	US 2013340668 A1	26-12-2013
		WO 2013191715 A2	27-12-2013

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