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(54) LEVER-OPERATED MECHANISM FOR TILTING AN IRONING BOARD

(57) The invention relates to a lever-operated mechanism (18) for permitting an ironing board, supported by a pole assembly, to be tilted and fixed at different angles. The lever-operated mechanism comprises a pole mounting assembly (20) for fixing relative to the pole assembly. The pole mounting assembly has at least one shaft surface. The lever-operated mechanism further comprises a board mounting assembly (30) for fixing relative to the ironing board. The board mounting assembly comprises at least one engagement surface contacting whilst being slidable around the at least one shaft surface to enable tilting of the ironing board. The lever-operated mechanism is manually operable via a cam lever assembly that comprises at least one cam lever (40). Each of the at least one cam lever comprises a cam surface whose position determines whether the ironing board is fixed at a certain angle or is free to tilt via the at least one engagement surface sliding around the at least one shaft surface. Further provided is a support assembly comprising the lever-operated mechanism, and a steaming device comprising the lever-operated mechanism or the support assembly.

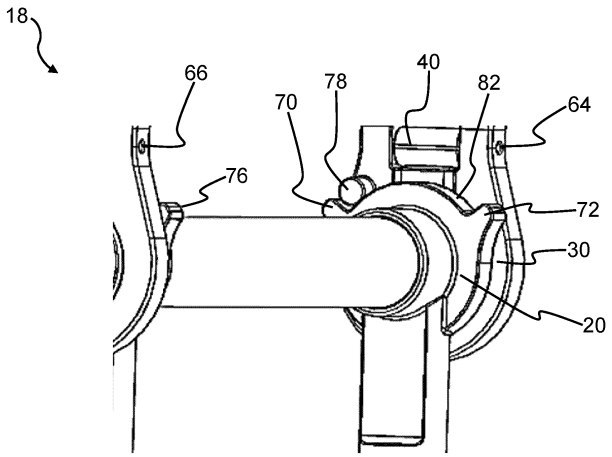

FIG.4A

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Description

FIELD OF THE INVENTION

[0001] The invention relates to a lever-operated mechanism for permitting an ironing board, supported by a pole assembly, to be tilted and fixed at different angles.

[0002] The invention also relates to a support assembly comprising the lever-operated mechanism and one or both of the ironing board and the pole assembly.

[0003] The invention further relates to a steaming device comprising the lever-operated mechanism or the support assembly, and a steam generator for generating steam for delivery to a garment.

[0004] The invention may be used in the field of garment care.

BACKGROUND OF THE INVENTION

[0005] Various devices are known for ironing or steaming garments to remove creases. One type of steaming device is a so-called stand garment steamer that comprises a support base, which support base houses a water reservoir. A steamer head is connected to the support base by a flexible hose through which steam and/or water is or are delivered to the steamer head. The steam may be generated in the base and/or in the steamer head. The steamer head is provided with a steam plate, also known as a soleplate, delimiting one or more steam vents through which steam is discharged onto a fabric being treated.

[0006] Steaming devices, in particular stand garment steamers, tend to be supplied together with an ironing board, for example an ironing board that can be orientated in both vertical and horizontal orientations to facilitate vertical steaming or horizontal ironing of garments.

[0007] Various mechanisms for permitting tilting of such an ironing board at various angles, including angles between horizontal and vertical, have been proposed. However, challenges remain in terms of providing a mechanism that is safe and convenient to use, whilst also having a relatively simple, sleek and low-cost design.

OBJECT AND SUMMARY OF THE INVENTION

[0008] It is an object of the invention to propose a lever-operated mechanism, suitable for permitting an ironing board, supported by a pole assembly, to be tilted and fixed at different angles, that avoids or mitigates one or more of the above-mentioned problems.

[0009] The invention is defined by the independent claims. The dependent claims define advantageous embodiments.

[0010] To this end, the lever-operated mechanism according to the invention comprises:

- a pole mounting assembly for fixing relative to the pole assembly, the pole mounting assembly having at least one shaft surface,
- a board mounting assembly for fixing relative to the ironing board, the board mounting assembly comprising at least one engagement surface contacting and being slidable around the at least one shaft surface to enable tilting of the ironing board, and
- a cam lever assembly comprising at least one cam lever, each of the at least one cam lever comprising a cam surface, the at least one cam lever being:
    - mounted to the board mounting assembly and being moveable relative to the pole mounting assembly in order to change the cam surface's position between a locked position in which the cam surface exerts a force directed to the at least one shaft surface to prevent tilting of the ironing board, and an unlocked position in which the cam surface does not exert said force directed to the at least one shaft surface, to enable tilting of the ironing board, or
    - mounted to the pole mounting assembly and being moveable relative to the board mounting assembly in order to change the cam surface's position between a locked position in which the cam surface exerts a force directed to the at least one engagement surface to prevent tilting of the ironing board, and an unlocked position in which the cam surface does not exert said force directed to the at least one engagement surface, to enable tilting of the ironing board.

[0011] The lever-operated board mechanism benefits from being relatively easy to use due, at least in part, to intuitive turning of the cam lever(s) enabling tilting of the ironing board and fixing of the ironing board at the selected tilt angle. When the cam surface(s) adopt(s) the locked position, the ironing board's angular position is fixed. When the cam surface(s) adopt(s) the unlocked position, the ironing board is permitted to rotate to a desired angular position, for example with the ironing board being vertical, horizontal or any tilt angle between vertical and horizontal.

[0012] Moreover, by the cam surface(s) being positionable to exert a force directed to the shaft surface(s) or directed to the engagement surface(s), the ironing board's angular position can be relatively securely fixed.

[0013] It is additionally noted that the use of cam lever(s) in the lever-operated board mechanism can contribute to a relatively simple and sleek design whose form and function is readily understood and appreciated by the user.

[0014] The term "for fixing relative to" in the context of the pole mounting assembly is intended to mean that the pole mounting assembly and the pole assembly are fixed or fixable to each other in a way that avoids movement of the pole mounting assembly and pole assembly relative to each other.

[0015] The pole mounting assembly can be fixed or fixable to the pole assembly in any suitable manner. In some embodiments, the pole mounting assembly is detachably fixable to the pole assembly. By the pole mounting assembly being detachable from the pole assembly, storage and/or transportation of a support assembly or a steaming device comprising the pole assembly and the pole mounting assembly can be facilitated because of the pole assembly and the pole mounting assembly being more easily storable/packable when detached from each other.

[0016] The term "for fixing relative to" in the context of the board mounting assembly is intended to mean that the board mounting assembly and the ironing board are fixed or fixable to each other in a way that avoids movement of the board mounting assembly and the ironing board relative to each other.

[0017] The board mounting assembly can be fixed or fixable to the ironing board in any suitable manner. In some embodiments, the board mounting assembly is an integral part of the ironing board, for instance due to at least part of the ironing board and the board mounting assembly being molded, e.g. injection molded, as a single piece.

[0018] Alternatively, the boarding mounting assembly and the ironing board can be distinct components fixed or fixable to each other using adhesive and/or one or more fasteners, e.g. screw(s).

[0019] In some embodiments, the lever-operated mechanism comprises at least one slot and a sliding element slidable in each of the at least one slot, with the sliding element being arranged to be pressed by the cam surface when in the locked position. When pressed by the cam surface in the locked position, the sliding element is forced against the at least one shaft surface or into the at least one engagement surface to prevent tilting of the ironing board.

[0020] It is noted that when the at least one sliding element is not being pressed by the cam surface(s), said force is not exerted via the sliding element on the at least one shaft surface or the at least one engagement surface. Hence tilting of the ironing board is enabled.

[0021] In other words, the sliding element(s) can freely move in the slot(s) when not being pressed by the cam surface(s), so that tilting of the ironing board is permitted.

[0022] Inclusion of the sliding element(s) can facilitate assembly because the sliding element(s) permit(s) mounting of the cam lever(s) further away from the at least one shaft surface or the at least one engagement surface.

[0023] The, e.g. each of the, at least one sliding element preferably comprises a contacting surface for engaging the at least one shaft surface or the at least one engagement surface, which contacting surface is shaped, for instance has a curved shape, to complement a shape of the at least one shaft surface or the at least one engagement surface.

[0024] This can enable the at least one sliding element to exert a stronger force on the at least one shaft surface or the at least one engagement surface.

[0025] In embodiments in which the cam lever(s) is/are mounted to the board mounting assembly, the slot(s) can be defined in the board mounting assembly. In embodiments in which the cam lever(s) is/are mounted to the pole mounting assembly, the slot(s) can be defined in the pole mounting assembly.

[0026] In other embodiments, the cam surface exerts the force directly on the at least one shaft surface to prevent tilting of the ironing board, or the cam surface exerts the force directly on the at least one engagement surface to prevent tilting of the ironing board.

[0027] In such embodiments, the slot(s) and sliding element(s) can be omitted.

[0028] In some embodiments, the pole mounting assembly is adapted to connect a pair of spaced-apart poles of the pole assembly to each other. Thus, the pole mounting assembly can fulfil a dual purpose: (i) facilitating tilting of the ironing board, and (ii) providing structural reinforcement by connecting the pole assembly's pair of poles to each other.

[0029] In some embodiments, the at least one shaft surface comprises a first shaft surface and a second shaft surface, with the first and second shaft surfaces being coaxial but spaced apart from each other. In such embodiments, the at least one engagement surface comprises a first engagement surface and a second engagement surface, with the first engagement surface contacting and being slidable around the first shaft surface while the second engagement surface is contacting and slidable around the second shaft surface.

[0030] The first and second shaft surfaces, and correspondingly the first and second engagement surfaces, being spaced apart from each other can assist to ensure stable mounting of the ironing board.

[0031] For example, the first shaft surface and the first engagement surface are arranged to support the ironing board at a first position, with the second shaft surface and the second engagement surface being arranged to support the ironing board at a second position that is spaced apart from the first position across a width of the ironing board.

[0032] In embodiments in which the pole assembly is adapted to connect the pair of spaced apart poles of the pole assembly to each other, the first shaft surface and the first engagement surface are preferably arranged proximal to one of the pair of poles, with the second shaft surface and the second engagement surface being arranged proximal to the other of the pair of poles.

[0033] In a first set of embodiments, the at least one cam lever comprises:

- a first cam lever comprising a first cam surface, with the first cam lever being mounted to the board mounting assembly and movable in order to switch between the first cam surface exerting and not exerting said force towards the first shaft surface, an-

d/or

- a second cam lever comprising a second cam surface, with the second cam lever being mounted to the board mounting assembly and movable in order to switch between the second cam surface exerting and not exerting said force towards the second shaft surface.

[0034] In a second set of embodiments, the at least one cam lever comprises:

- a first cam lever comprising a first cam surface, with the first cam lever being mounted to the pole mounting assembly and movable in order to switch between the first cam surface exerting and not exerting said force towards the first engagement surface, and/or
- a second cam lever comprising a second cam surface, with the second cam lever being mounted to the pole mounting assembly and movable in order to switch between the second cam surface exerting and not exerting said force towards the second engagement surface.

[0035] It is noted that one cam lever is in principle sufficient to enable tilting and fixing of the ironing board at different angles. A single cam lever benefits from simplicity of design, and thus lower manufacturing cost, as well as having convenience of use-related advantages.

[0036] On the other hand, including both the first cam lever and the second cam lever can assist to ensure secure fixing of the ironing board at the selected tilt angle.

[0037] In some embodiments, mounting of the at least one cam lever is via a pin that passes through the respective cam lever and is received in a recess defined in the board mounting assembly when the respective cam lever is mounted to the board mounting assembly or defined in the pole mounting assembly when the respective cam lever is mounted to the pole mounting assembly.

[0038] In such embodiments, the pin is arranged to allow rotation of the respective cam lever so that the cam surface is moveable between the locked and unlocked positions.

[0039] In some embodiments, the lever-operated mechanism comprises stopper elements arranged on the board mounting assembly and on the pole mounting assembly for limiting an angular range of tilting of the ironing board. Limiting the angular range of tilting of the ironing board in this manner can help to enhance convenience of use and safety, since the ironing board can be prevented by the stopper elements from tilting too much, for instance should the user accidentally let go of the ironing board while each of the cam surface(s) is in the unlocked position.

[0040] Preferably, the stopper elements are arranged to limit tilting of the ironing board between a horizontal orientation and a vertical orientation. This can provide enhanced user-convenience because the limits defined by the stopper elements can be used by the user as a tactile guide that can inform them of when the ironing board is in the horizontal and vertical orientations.

[0041] In some embodiments, the pole mounting assembly comprises at least one further shaft surface extending between first stopper element(s) of the pole mounting assembly, with second stopper element(s) of the board mounting assembly being slidable on the at least one further shaft surface between the first stopper element(s) during tilting of the ironing board.

[0042] This benefits from being a relatively straightforwardly implementable way of limiting the angular range of tilting of the ironing board.

[0043] According to another aspect there is provided a support assembly comprising the lever-operated mechanism according to any of the embodiments described herein, and one or both of:

- an ironing board for fixing to the board mounting assembly, and
- a pole assembly for supporting the ironing board, the pole assembly being for fixing to the pole mounting assembly.

[0044] In some embodiments, the support assembly comprises a support base adapted to support the pole assembly such that the pole assembly upstands from the support base.

[0045] According to a further aspect there is provided a steaming device comprising: the lever-operated mechanism according to any of the embodiments described herein or the support assembly according to any of the embodiments described herein, and a steam generator for generating steam for delivery to a garment.

[0046] In some embodiments, the steaming device comprises a support base and a water reservoir for containing water for supplying to the steam generator, with the water reservoir being included in the support base.

[0047] The steaming device can also include a steamer head and a flexible hose for connecting the steamer head to the support base, with steam and/or water being deliverable from the support base to the steamer head via the flexible hose.

[0048] It is noted that the steaming device's steam generator can be included in the support base and/or the steamer head.

[0049] In some embodiments, the steaming device comprises a support base adapted to support the pole assembly such that the pole assembly upstands from the support base. This pole assembly support function is, for example, an alternative or in addition to the support base comprising the water reservoir.

[0050] Detailed explanations and other aspects of the invention will be given below.

BRIEF DESCRIPTION OF THE DRAWINGS

[0051] Particular aspects of the invention will now be explained with reference to the embodiments described hereinafter and considered in connection with the accompanying drawings, in which identical parts or sub-steps are designated in the same manner:

Fig.1 schematically depicts a steaming device whose ironing board can be tilted at various angles,
Fig.2 provides a cutaway view showing an interior of a lever-operated mechanism according to an example,
Fig.3A provides an enlarged view of part of the lever-operated mechanism shown in Fig.2,
Fig.3B provides a cutaway view of a section of the part of the lever-operated mechanism shown in Fig.3A,
Fig.3C provides an exploded view of the part of the lever-operated mechanism shown in Fig.3A,
Figs.4A and 4B provide views showing stopper elements of the lever-operated mechanism shown in Fig.2,
Fig.5 schematically depicts a force being exerted on the ironing board during use,
Fig.6 provides a cutaway view showing an interior of a lever-operated mechanism according to another example,
Fig.7A provides an enlarged view of part of the lever-operated mechanism shown in Fig.6, and
Fig.7B provides a cutaway view of a section of the part of the lever-operated mechanism shown in Fig.7A.

DETAILED DESCRIPTION OF THE INVENTION

[0052] The invention relates to a lever-operated mechanism for permitting an ironing board, supported by a pole assembly, to be tilted and fixed at different angles. The lever-operated mechanism comprises a pole mounting assembly for fixing relative to the pole assembly. The pole mounting assembly has at least one shaft surface. The lever-operated mechanism further comprises a board mounting assembly for fixing relative to the ironing board. The board mounting assembly comprises at least one engagement surface contacting whilst being slidable around the at least one shaft surface to enable tilting of the ironing board. The lever-operated mechanism is manually operable via a cam lever assembly that comprises at least one cam lever. Each of the at least one cam lever comprises a cam surface whose position determines whether the ironing board is fixed at a certain angle or is free to tilt via the at least one engagement surface sliding around the at least one shaft surface. Further provided is a support assembly comprising the lever-operated mechanism, and a steaming device comprising the lever-operated mechanism or the support assembly.

[0053] Fig. 1 depicts a steaming device 1 according to an example. The steaming device 1 comprises an ironing board 10 and a pole assembly 12 for supporting the ironing board 10.

[0054] The steaming device 1 preferably comprises a support base 14 adapted to support the pole assembly 12 such that the pole assembly 12 upstands from the support base 14. The support base 14 can be alternatively termed a "stand assembly".

[0055] The support base 14, in other words stand assembly, can rest on a stable external surface, e.g. a floor.

[0056] The pole assembly 12 can have any suitable design provided that the pole assembly 12 is capable of supporting the ironing board 10, particularly when the ironing board 10 is tilted at different angles. In some embodiments, the pole assembly 12 comprises a pair of poles that are each supported by, and upstand from, the support base 14.

[0057] In some embodiments, the support base 14 includes a water reservoir for containing water for supplying to a steam generator (not visible). The steam generator can be included in the support base 14 and/or in a steamer head (also not visible) included in the steaming device 1.

[0058] A steam plate included in the steamer head can delimit one or more steam vents through which steam is discharged onto a fabric being treated. A flexible hose connecting the steamer head and the support base 14 can carry steam and/or water from the support base 14 to the steamer head.

[0059] The ironing board 10, while being supported by the pole assembly 12, can be tilted and fixed at different angles. For example, the ironing board 10 is tiltable into a vertical orientation, as shown in the left hand image of Fig. 1, a horizontal orientation, as shown in the middle image of Fig. 1, and intermediate orientation(s) between the horizontal and vertical orientations, as schematically shown in the right hand image of Fig. 1.

[0060] To this end, and referring to Figs.1 and 2, the steaming device 1, or a support assembly 16 comprising the ironing board 10, the pole assembly 12 and optionally the support base 14, further comprises a lever-operated mechanism 18. The lever-operated mechanism 18 couples the ironing board 10 to the pole assembly 12 in a way that enables the user to change the angle of the ironing board 10, while the pole assembly 12 is preferably supported by the support base 14.

[0061] In other words, the lever-operated mechanism 18 permits the ironing board 10 to be tilted and fixed at different angles, as described in more detail herein below.

[0062] Referring to Fig.2, the lever-operated mechanism 18 comprises a pole mounting assembly 20 for fixing relative to the pole assembly 12. The pole mounting assembly 20 has at least one shaft surface 22, 24.

[0063] The term "for fixing relative to" in the context of the pole mounting assembly 20 is intended to mean that the pole mounting assembly 20 and the pole assembly 12 are fixed or fixable to each other in a way that avoids

movement of the pole mounting assembly 20 and pole assembly 12 relative to each other.

[0064] In some embodiments, such as shown in Fig.2, the pole mounting assembly 20 is adapted to connect a pair of spaced-apart poles of the pole assembly 12 to each other. Thus, the pole mounting assembly 20 can fulfil a dual purpose: (i) facilitating tilting of the ironing board 10, and (ii) providing structural reinforcement by connecting the pole assembly's 12 pair of poles to each other.

[0065] The pole mounting assembly 20 can be fixed or fixable to the pole assembly 12 in any suitable manner. For example, the pole mounting assembly 20 comprises a connector assembly for fixing the pole mounting assembly 20 to the pole assembly 12.

[0066] In some embodiments, such as shown in Fig.2, the connector assembly comprises a first connector 26 for fixing the pole mounting assembly 20 to one of the pair of poles included in the pole assembly 12, and a second connector 28 for fixing the pole mounting assembly 20 to the other of the pair of poles included in the pole assembly 12.

[0067] Connector(s) 26, 28 of the connector assembly can be designed in any suitable manner provided that the connector(s) 26, 28 enable the pole mounting assembly 20 to be fixed to the pole(s) of the pole assembly 12. In some embodiments, such as shown in Fig.2, the connector(s) 26, 28 each include a socket for receiving and engaging with a respective pole of the pole assembly 12.

[0068] In some embodiments, the connector assembly 26, 28 is adapted to enable detachment of the pole mounting assembly 20 from the pole assembly 12, for example by the socket(s) being adapted to enable removal of the pole(s) received therein. In more general terms, the pole mounting assembly 20 is preferably detachably fixable to the pole assembly 12. This can facilitate storage and/or transportation of the support assembly 16 or the steaming device 1 because of the pole assembly 12 and the pole mounting assembly 20 being more easily storable/packable when detached from each other.

[0069] The pole mounting assembly 20 can be formed from any suitable mechanically robust material. In some embodiments, the pole mounting assembly 20 is formed from a plastic material and/or a metallic material.

[0070] The lever-operated mechanism 18 also comprises a board mounting assembly 30 for fixing relative to the ironing board 10. The board mounting assembly 30 comprises at least one engagement surface 32, 34 that contacts and slides around the at least one shaft surface 22, 24 to enable tilting of the ironing board 10, for example between the vertical, horizontal and intermediate orientation(s) shown in Fig.1.

[0071] The term "for fixing relative to" in the context of the board mounting assembly 30 is intended to mean that the board mounting assembly 30 and the ironing board 10 are fixed or fixable to each other in a way that avoids movement of the board mounting assembly 30 and the ironing board 10 relative to each other.

[0072] The board mounting assembly 30 can be fixed or fixable to the ironing board 10 in any suitable manner. In some embodiments, and as best shown in Figs.3A to 3C, the board mounting assembly 30 is an integral part of the ironing board 10, for instance due to at least part of the ironing board 10 and the board mounting assembly 30 being molded, e.g. injection molded, as a single piece.

[0073] Alternatively, the boarding mounting assembly 30 and the ironing board 10 can be distinct components fixed or fixable to each other using adhesive and/or one or more fasteners, e.g. screw(s).

[0074] It is noted at this point that the present disclosure relates to the lever-operated mechanism 18 per se, since the lever-operated mechanism 18 can in principle be supplied to the user separately from one or both of the ironing board 10 and the pole assembly 12.

[0075] In some embodiments, such as shown in Fig.2, the at least one shaft surface 22, 24 comprises a first shaft surface 22 and a second shaft surface 24, with the first and second shaft surfaces 22, 24 being coaxial but spaced apart from each other. In such embodiments, the at least one engagement surface 32, 34 comprises a first engagement surface 32 and a second engagement surface 34, with the first engagement surface 32 contacting and being slidable around the first shaft surface 22 while the second engagement surface 34 is contacting and slidable around the second shaft surface 24.

[0076] The first and second shaft surfaces 22, 24, and correspondingly the first and second engagement surfaces 32, 34, being spaced apart from each other can assist to ensure stable mounting of the ironing board 10. For example, the first shaft surface 22 and the first engagement surface 32 are arranged to support the ironing board 10 at a first position, with the second shaft surface 24 and the second engagement surface 34 being arranged to support the ironing board 10 at a second position that is spaced apart from the first position across a width of the ironing board 10.

[0077] Alternatively or additionally, the first shaft surface 22 and the first engagement surface 32 are preferably arranged proximal to one of the pair of poles of the pole assembly 12, with the second shaft surface 24 and the second engagement surface 34 being arranged proximal to the other of the pair of poles.

[0078] The board mounting assembly 30 can be formed from any suitable mechanically robust material. In some embodiments, the board mounting assembly 30 is formed from a plastic material and/or a metallic material.

[0079] More generally, the lever-operated mechanism 18 comprises a cam lever assembly comprising at least one cam lever 40, 42, with each of the at least one cam lever 40, 42 comprising a cam surface 44, 46. In the embodiment shown in Figs.2 and 3A to 3C, the, e.g. each of the, at least one cam lever 40, 42 is mounted to the board mounting assembly 30 and is moveable relative to the pole mounting assembly 20 in order to change the

cam surface's 44, 46 position between a locked position in which the cam surface 44, 46 exerts a force directed to the at least one shaft surface 22, 24 to prevent tilting of the ironing board 10, and an unlocked position in which the cam surface 44, 46 does not exert said force directed to the at least one shaft surface 22, 24, to enable tilting of the ironing board 10.

[0080] In other words, the at least one cam lever 40, 42 can be mounted to the board mounting assembly 30 and moveable to change the cam surface's 44, 46 position between a locked position that causes the cam lever assembly to engage the at least one shaft surface 22, 24 and an unlocked position in which the cam lever assembly is disengaged from the at least one shaft surface 22, 24 to enable tilting of the ironing board 10.

[0081] The lever-operated board mechanism 18 benefits from being relatively easy to use due, at least in part, to intuitive turning of the cam lever(s) 40, 42 enabling tilting of the ironing board 10 and fixing of the ironing board 10 at the selected tilt angle. When the cam surface(s) 44, 46 adopt(s) the locked position, when the cam lever(s) 40, 42 is/are tightened, the ironing board's 10 angular position is fixed. When the cam surface(s) 44, 46 adopt(s) the unlocked position, when the cam lever(s) 40, 42 is/are loosened, the ironing board 10 is permitted to rotate to a desired angular position, for example the vertical, horizontal and intermediate orientation(s) shown in Fig.1.

[0082] Moreover, by the cam surface(s) 44, 46 being positionable to exert a force directed to the shaft surface(s) 22, 24, the ironing board's 10 angular position can be relatively securely fixed. It is additionally noted that the use of cam lever(s) 40, 42 in the lever-operated board mechanism 18 can contribute to a relatively simple and sleek design whose form and function is readily understood and appreciated by the user.

[0083] It is noted that the cam lever(s) 40, 42 is/are preferably rotatable in a first direction to cause the cam surface(s) 44, 46 to move to the locked position, and rotatable in a second direction opposite the first direction to cause the cam surface(s) 44, 46 to move to the unlocked position.

[0084] In some embodiments, and as best shown in Fig.2, the at least one cam lever 40, 42 comprises a first cam lever 40 comprising a first cam surface 44, with the first cam lever 40 being mounted to the board mounting assembly 30 and movable in order to switch between the first cam surface 44 exerting and not exerting said force towards the first shaft surface 22.

[0085] Alternatively or additionally, the at least one cam lever 40, 42 can include a second cam lever 42 comprising a second cam surface 46, with the second cam lever 42 being mounted to the board mounting assembly 30 and movable in order to switch between the second cam surface 46 exerting and not exerting said force towards the second shaft surface 24.

[0086] It is noted that only one cam lever is in principle sufficient to enable tilting and fixing of the ironing board 10 at different angles. A single cam lever benefits from simplicity of design, and thus lower manufacturing cost, as well as having convenience of use-related advantages.

[0087] On the other hand, including both the first cam lever 40 and the second cam lever 42 can assist to ensure secure fixing of the ironing board 10 at the selected tilt angle.

[0088] The at least one cam lever 40, 42 can be formed from any suitable mechanically robust material. In some embodiments, the at least one cam lever 40, 42 is formed from a plastic material and/or a metallic material.

[0089] The at least one cam lever 40, 42 can be mounted, e.g. rotatably mounted, to the board mounting assembly 30 in any suitable manner.

[0090] In some embodiments, and as best shown in Figs.2, 3A to 3C, 4A and 4B, mounting of the at least one cam lever 40, 42 is via a pin 60, 62 that passes through the respective cam lever 40, 42 and is received in a recess 64, 66 defined in the board mounting assembly 30. In such embodiments, the pin 60, 62 is arranged to allow rotation of the respective cam lever 40, 42 so that the cam surface 44, 46 is moveable between the locked and unlocked positions.

[0091] It is noted at this point that the term "exert a force directed to" refers to the direction of exertion of the force due to positioning of the cam surface 44, 46, but noting that the cam surface 44, 46 itself does not need to come into contact with the shaft surface 22, 24.

[0092] In some embodiments, and as best shown in Figs.2 and 3A to 3C, the lever-operated mechanism 18 comprises at least one slot 48 and a sliding element 50, 52 slidable in each of the at least one slot 48, with the sliding element 50, 52 being arranged to be pressed by the cam surface 44, 46 when in the locked position. When pressed by the cam surface 44, 46 in the locked position, the sliding element 50, 52 is forced against the at least one shaft surface 22, 24 to prevent tilting of the ironing board 10.

[0093] It is noted that when the at least one sliding element 50, 52 is not being pressed by the cam surface(s) 44, 46, said force is not exerted via the sliding element(s) 50, 52 on the shaft surface(s) 22, 24. Hence tilting of the ironing board 10 is enabled.

[0094] In other words, the sliding element(s) 50, 52 can freely move in the slot(s) 48 when not being pressed by the cam surface(s) 44, 46, so that tilting of the ironing board 10 is permitted.

[0095] Inclusion of the sliding element(s) 50, 52 can facilitate assembly because the sliding element(s) 50, 52 permit(s) mounting of the cam lever(s) 40, 42 further away from the at least one shaft surface 22, 24.

[0096] It is noted that the sliding element(s) 50, 52 can be regarded as being included, together with the cam lever(s) 40, 42, in the cam lever assembly.

[0097] In embodiments, such as shown in Figs.2 and 3A to 3C, in which the cam lever(s) 42, 44 is/are mounted to the board mounting assembly 30, the slot(s) 48 can be

defined in the board mounting assembly 30.

[0098] In some embodiments, and as best shown in Fig.2, a first sliding element 50 is arranged to be pressed by the first cam surface 44 against the first shaft surface 22 when the first cam surface 44 is in the locked position, and a second sliding element 52 is arranged to be pressed by the second cam surface 46 against the second shaft surface 24 when the second cam surface 46 is in the locked position.

[0099] The sliding element 50, 52 can have any suitable shape, such as a block shape, e.g. parallelepiped.

[0100] In some embodiments, and as best shown in Figs.3B and 3C, the, e.g. each of the, at least one sliding element 50, 52 comprises a contacting surface 54 for engaging the at least one shaft surface 22, 24, which contacting surface 54 is shaped, for instance has a curved shape, to complement a shape of the at least one shaft surface 22, 24.

[0101] This can enable the at least one sliding element 50, 52 to exert a stronger force on the at least one shaft surface 22, 24.

[0102] The sliding element 50, 52 can be made of any suitable material provided that the sliding element 50, 52 is capable of exerting the force on the at least one shaft surface 22, 24 to prevent tilting of the ironing board 10 when the cam surface 44, 46 is in the locked position. In some embodiments, the sliding element 50, 52 is made of a polymeric material, e.g. a plastic material or an elastomeric/rubber material.

[0103] The cam lever(s) 40, 42 can therefore be assembled to a region, in other words the board mounting assembly 30, connected to the ironing board 10, with the sliding element(s) 50, 52 adjacent to the cam lever(s) 40, 42 interfacing with the stationary part, in other words the shaft surface(s) 22, 24, connected to the pole assembly 12.

[0104] When the cam lever(s) 40, 42 is/are unlocked, the sliding element(s) 50, 52 can be spaced apart from the shaft surface(s) 22, 24 at the interface between the shaft surface(s) 22, 24 and the engagement surface(s) 32, 34, enabling the ironing board 10 to be rotated to change its tilt angle.

[0105] When the cam lever(s) 40, 42 is/are locked, the sliding element(s) 50, 52 exert force at the interface between the shaft surface(s) 22, 24 and the engagement surface(s) 32, 34, inhibiting movement of the ironing board 10, hence locking the ironing board's 10 orientation/position.

[0106] In some embodiments, and as best shown in Figs.4A and 4B, the lever-operated mechanism 18 comprises stopper elements 70, 72, 74, 76, 78, 80 arranged on the board mounting assembly 30 and on the pole mounting assembly 20 for limiting an angular range of tilting of the ironing board 10. Limiting the angular range of tilting of the ironing board 10 in this manner can help to enhance convenience of use and safety, since the ironing board 10 can be prevented by the stopper elements 70, 72, 74, 76, 78, 80 from tilting too much, for instance should the user accidentally let go of the ironing board 10 while each of the cam surface(s) 44, 46 is in the unlocked position.

[0107] Preferably, the stopper elements 70, 72, 74, 76, 78, 80 are arranged to limit tilting of the ironing board 10 between the horizontal orientation shown in the middle image of Fig.1 and the vertical orientation shown in the left hand image of Fig.1. This can provide enhanced user-convenience because the limits defined by the stopper elements 70, 72, 74, 76, 78, 80 can be used by the user as a tactile guide that can inform them of when the ironing board 10 is in the horizontal and vertical orientations.

[0108] In some embodiments, the pole mounting assembly 20 comprises at least one further shaft surface 82; 84 extending between first stopper element(s) 70, 72; 74, 76 of the pole mounting assembly 20, with second stopper element(s) 78; 80 of the board mounting assembly 30 being slidable on the at least one further shaft surface 82; 84 between the first stopper element(s) 70, 72; 74, 76 during tilting of the ironing board 10.

[0109] This benefits from being a relatively straightforwardly implementable way of limiting the angular range of tilting of the ironing board 10.

[0110] Fig.5 schematically depicts a force F being exerted on the ironing board 10 during use. The lever-operated board mechanism 18 is designed, when the cam surface 44, 46 is in the locked position, to be able to withstand force F exerted on the ironing board 10 during use. In terms of this force withstanding requirement, the scenario of using the ironing board 10 in the horizontal orientation is considered to be the worst case, when compared to using the ironing board 10 in the vertical or intermediate tilted orientations. Hence, the horizontal orientation forms the basis for the force calculation. 2 kgf is a representative example of force F applied to the ironing board 10 (including the steamer head or iron), with the distance x for the design force calculation being 0.5 m.

[0111] When the cam surface(s) 44, 46 is or are in the locked position, the cam lever(s) 40, 42, and in some embodiments the cam lever(s) 40, 42 and the sliding element(s) 50, 52, exert a force on the shaft surface(s) 22, 24, in other words on the pole mounting assembly 20 interface, that is higher than the torque due to the force F over the ironing board's 10 length.

[0112] A representative friction coefficient at the interface is, for example, about 0.35.

[0113] The cam lever(s) 40, 42, and the sliding element(s) 50, 52 (when present), can be formed from any suitable material capable of exerting the requisite force. In some embodiments, the cam lever(s) 40, 42 is or are formed from an engineering thermoplastic, for example acrylonitrile butadiene styrene (ABS).

[0114] The sliding element(s) 50, 52 (when present) can be formed from an engineering thermoplastic, for example polyoxymethylene (POM).

[0115] In a non-limiting example, the sliding element(s) 50, 52 and the cam lever(s) 40, 42 are formed from POM

and ABS respectively.

[0116] In some embodiments, such as shown in Figs.6, 7A and 7B, the at least one cam lever 40, 42 is mounted to the pole mounting assembly 20 and is moveable relative to the board mounting assembly 30 in order to change the cam surface's 44, 46 position between a locked position in which the cam surface 44, 46 exerts a force directed to the at least one engagement surface 32, 34 to prevent tilting of the ironing board 10, and an unlocked position in which the cam surface 44, 46 does not exert said force directed to the at least one engagement surface 32, 34, to enable tilting of the ironing board 10.

[0117] In other words, the at least one cam lever 40, 42 can be mounted to the pole mounting assembly 20 and moveable to change the cam surface's 44, 46 position between a locked position that causes the cam lever assembly to engage the at least one engagement surface 32, 34 and an unlocked position in which the cam lever assembly is disengaged from the at least one engagement surface 32, 34 to enable tilting of the ironing board 10.

[0118] Mounting, e.g. rotatably mounting, the cam lever(s) 40, 42 to the pole mounting assembly 20 can be implemented in any suitable manner, for example via a pin 60, 62 that passes through the respective cam lever 40, 42 and is received in a recess defined in the pole mounting assembly 20.

[0119] In such embodiments, and as best shown in Fig.7B, the pin 60, 62 can extend within a hollow shaft of the pole mounting assembly 20, which hollow shaft includes the shaft surface 22, 24.

[0120] In some embodiments, and as best shown in Fig.6, the first cam lever 40 is movable in order to switch between the first cam surface 44 exerting and not exerting said force towards the first engagement surface 32. Alternatively or additionally, the second cam lever 40 is movable in order to switch between the second cam surface 44 exerting and not exerting said force towards the second engagement surface 34.

[0121] Various features of the lever-operated mechanism 18 described above in relation to the embodiment shown in Figs. 2 to 4B are applicable to the lever-operated mechanism 18 shown in Figs.6, 7A and 7B. For example, the lever-operated mechanism 18 preferably comprises the at least one slot 48 and the sliding element 50, 52 described above in relation to the embodiment shown in Figs. 2 to 4B, but with the slot(s) 48 being defined in the pole mounting assembly 20 rather than in the board mounting assembly 30.

[0122] The cam lever(s) 40, 42 can therefore be assembled to a region, in other words the pole mounting assembly 20, connected to the pole assembly 12, with the sliding element(s) 50, 52 adjacent to the cam lever(s) 40, 42 interfacing with the engagement surface(s) 32, 34 connected to the ironing board 10.

[0123] When the cam lever(s) 40, 42 is/are unlocked, the sliding element(s) 50, 52 can be spaced apart from the engagement surface(s) 32, 34 at the interface between the shaft surface(s) 22, 24 and the engagement surface(s) 32, 34, enabling the ironing board 10 to be rotated to change its tilt angle. In other words, spacing of the sliding element(s) 50, 52 from the engagement surface(s) 32, 34 can allow free rotation of the board mounting assembly 30 about the pole mounting assembly 20.

[0124] When the cam lever(s) 40, 42 is/are locked, the sliding element(s) 50, 52 exert force at the interface between the shaft surface(s) 22, 24 and the engagement surface(s) 32, 34, inhibiting movement of the ironing board 10, hence locking the ironing board's 10 orientation/position.

[0125] In other words, when the cam lever(s) 40, 42 is/are tightened, e.g. by rotation about the pin(s) 60, 62 in an opposite direction to the direction used for loosening the cam lever(s) 40, 42, the cam surface(s) 44, 46 exert force on the sliding element(s) 50, 52 due to interference between the cam surface(s) 50, 52 and the corresponding surface of the sliding element(s) 50, 52, and between the sliding element(s) 50, 52 and the engagement surface(s) 32, 34. This inhibits relative movement of the board mounting assembly 30 and the pole mounting assembly 20. Thus, the ironing board 10 is locked in position.

[0126] It is emphasized that the term "exert a force directed to" refers to the direction of exertion of the force due to positioning of the cam surface 44, 46, but is not intended to require the cam surface 44, 46 to itself come into contact with the engagement surface 32, 34. The possibility of the cam surface 44, 46 contacting the engagement surface 32, 34 to exert the force, so that the sliding element 50, 52 and the slot 48 can be omitted, is nonetheless contemplated by the present disclosure.

[0127] In some embodiments, the, e.g. each of the, at least one sliding element 50, 52 comprises a contacting surface 54 for engaging the at least one engagement surface 32, 34, which contacting surface 54 is shaped, for instance has a curved shape, to complement a shape of the at least one engagement surface 32, 34.

[0128] This can enable the at least one sliding element 50, 52 to exert a stronger force on the at least one engagement surface 32, 34.

[0129] The stopper elements 70, 72, 74, 76, 78, 80 described above in relation to Figs.4A and 4B can be included in the lever-operated mechanism 18 shown in Figs.6, 7A and 7B to limit tilting of the ironing board 10.

[0130] The above embodiments as described are only illustrative, and not intended to limit the technique approaches of the present invention. Although the present invention is described in details referring to the preferable embodiments, those skilled in the art will understand that the technique approaches of the present invention can be modified or equally displaced without departing from the protective scope of the claims of the present invention. In particular, although the invention has been described in the context of a tiltable ironing board, it can be applied to any household device that is tiltable or has a tiltable component. In the claims, the word "comprising" does

not exclude other elements or steps, and the indefinite article "a" or "an" does not exclude a plurality. Any reference signs in the claims should not be construed as limiting the scope.

Claims

1. A lever-operated mechanism (18) for permitting an ironing board (10), supported by a pole assembly (12), to be tilted and fixed at different angles, the lever-operated mechanism comprising:

    - a pole mounting assembly (20) for fixing relative to the pole assembly, the pole mounting assembly having at least one shaft surface (22, 24),
    - a board mounting assembly (30) for fixing relative to the ironing board, the board mounting assembly comprising at least one engagement surface (32, 34) contacting and being slidable around the at least one shaft surface to enable tilting of the ironing board, and
    - a cam lever assembly comprising at least one cam lever (40, 42), each of the at least one cam lever comprising a cam surface (44, 46), the at least one cam lever being:

        - mounted to the board mounting assembly and being moveable relative to the pole mounting assembly in order to change the cam surface's position between a locked position in which the cam surface exerts a force directed to the at least one shaft surface to prevent tilting of the ironing board, and an unlocked position in which the cam surface does not exert said force directed to the at least one shaft surface, to enable tilting of the ironing board, or
        - mounted to the pole mounting assembly and being moveable relative to the board mounting assembly in order to change the cam surface's position between a locked position in which the cam surface exerts a force directed to the at least one engagement surface to prevent tilting of the ironing board, and an unlocked position in which the cam surface does not exert said force directed to the at least one engagement surface, to enable tilting of the ironing board.

2. The lever-operated mechanism (18) according to claim 1, comprising at least one slot (48) and a sliding element (50, 52) slidable in each of the at least one slot, the sliding element being arranged to be pressed by said cam surface (44, 46) when in the locked position.

3. The lever-operated mechanism (18) according to claim 1 or claim 2, wherein:

    - the at least one shaft surface (22, 24) comprises a first shaft surface (22) and a second shaft surface (24), the first and second shaft surfaces being coaxial but spaced apart from each other, and
    - the at least one engagement surface (32, 34) comprises a first engagement surface (32) and a second engagement surface (34), the first engagement surface contacting and being slidable around the first shaft surface while the second engagement surface is contacting and slidable around the second shaft surface.

4. The lever-operated mechanism (18) according to claim 3, wherein the at least one cam lever (40, 42) comprises:

    - a first cam lever (40) comprising a first cam surface (44), the first cam lever being mounted to the board mounting assembly (30) and movable in order to switch between the first cam surface exerting and not exerting said force towards the first shaft surface (22), and/or
    - a second cam lever (42) comprising a second cam surface (46), the second cam lever being mounted to the board mounting assembly and movable in order to switch between the second cam surface exerting and not exerting said force towards the second shaft surface (24).

5. The lever-operated mechanism (18) according to claim 3, wherein the at least one cam lever (40, 42) comprises:

    - a first cam lever (40) comprising a first cam surface (44), the first cam lever being mounted to the pole mounting assembly (20) and movable in order to switch between the first cam surface exerting and not exerting said force towards the first engagement surface (32), and/or
    - a second cam lever (42) comprising a second cam surface (46), the second cam lever being mounted to the pole mounting assembly and movable in order to switch between the second cam surface exerting and not exerting said force towards the second engagement surface (34).

6. The lever-operated mechanism (18) according to any one of claims 1 to 5, wherein said mounting of the at least one cam lever (40, 42) is via a pin (60, 62) that passes through the respective cam lever and is received in a recess (64, 66) defined in the board mounting assembly (30) or in the pole mounting assembly (20), the pin being arranged to allow rotation of the respective cam lever so that the cam

surface (44, 46) is moveable between the locked and unlocked positions.

7. The lever-operated mechanism (18) according to any one of claims 1 to 6, comprising stopper elements (70, 72, 74, 76, 78, 80) arranged on the board mounting assembly (30) and on the pole mounting assembly (20) for limiting an angular range of tilting of the ironing board (10).

8. The lever-operated mechanism (18) according to claim 7, wherein the stopper elements (70, 72, 74, 76, 78, 80) are arranged to limit tilting of the ironing board (10) between a horizontal orientation and a vertical orientation.

9. The lever-operated mechanism (18) according to claim 7 or claim 8, wherein:

- the pole mounting assembly (20) comprises at least one further shaft surface (82; 84) extending between first stopper element(s) (70, 72; 74, 76) of the pole mounting assembly,
- second stopper element(s) (78; 80) of the board mounting assembly (30) being slidable on the at least one further shaft surface between the first stopper element(s) during tilting of the ironing board (10).

10. The lever-operated mechanism (18) according to any one of claims 1 to 9, wherein the pole mounting assembly (20) is detachably fixable to the pole assembly (12).

11. The lever-operated mechanism (18) according to any one of claims 1 to 10, wherein the pole mounting assembly (20) is adapted to connect a pair of spaced-apart poles of the pole assembly (12) to each other.

12. A support assembly (16) comprising the lever-operated mechanism (18) according to any one of claims 1 to 11, and one or both of:

- an ironing board (10) for fixing to the board mounting assembly (30), and
- a pole assembly (12) for supporting the ironing board, the pole assembly being for fixing to the pole mounting assembly (20).

13. A steaming device (1) comprising:

- the lever-operated mechanism (18) according to any one of claims 1 to 11 or the support assembly (16) according to claim 12, and
- a steam generator for generating steam for delivery to a garment.

14. The steaming device (1) according to claim 13, comprising a support base (14) and a water reservoir for containing water for supplying to the steam generator, the water reservoir being included in the support base.

15. The steaming device (1) according to claim 14, wherein the support base (14) is adapted to support the pole assembly (12) such that the pole assembly upstands from the support base.

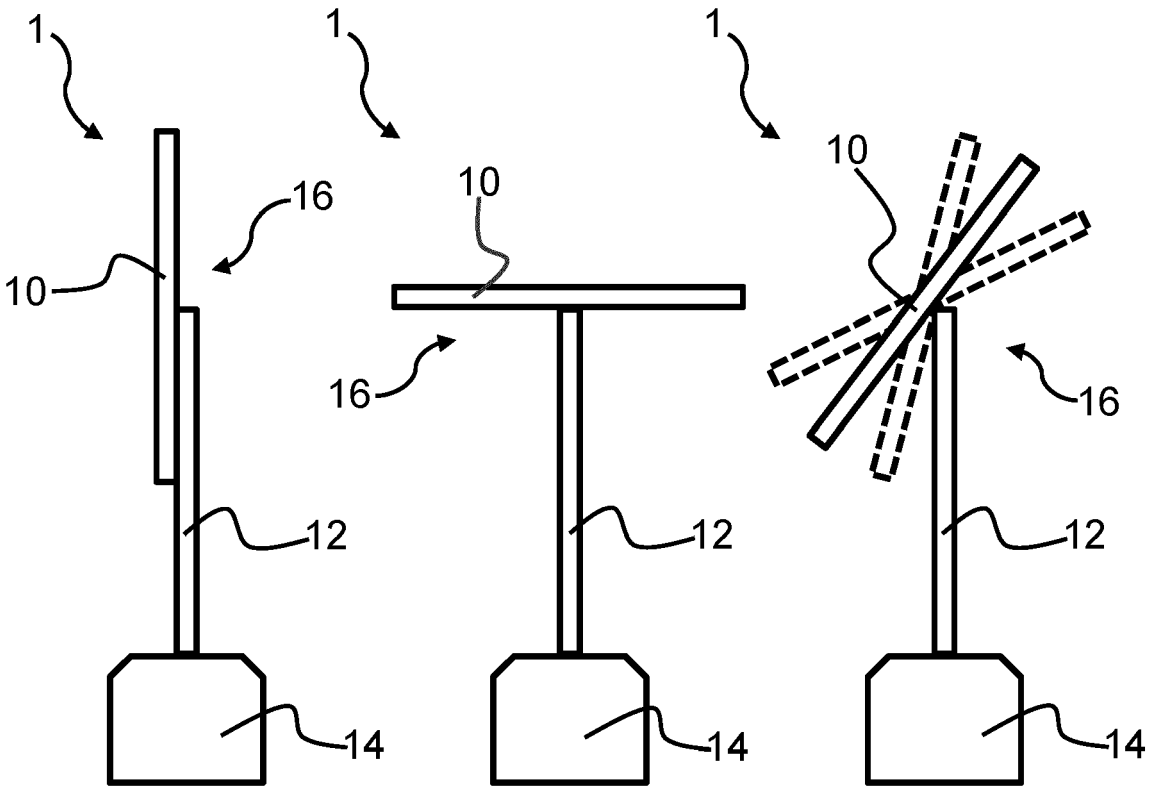

FIG.1

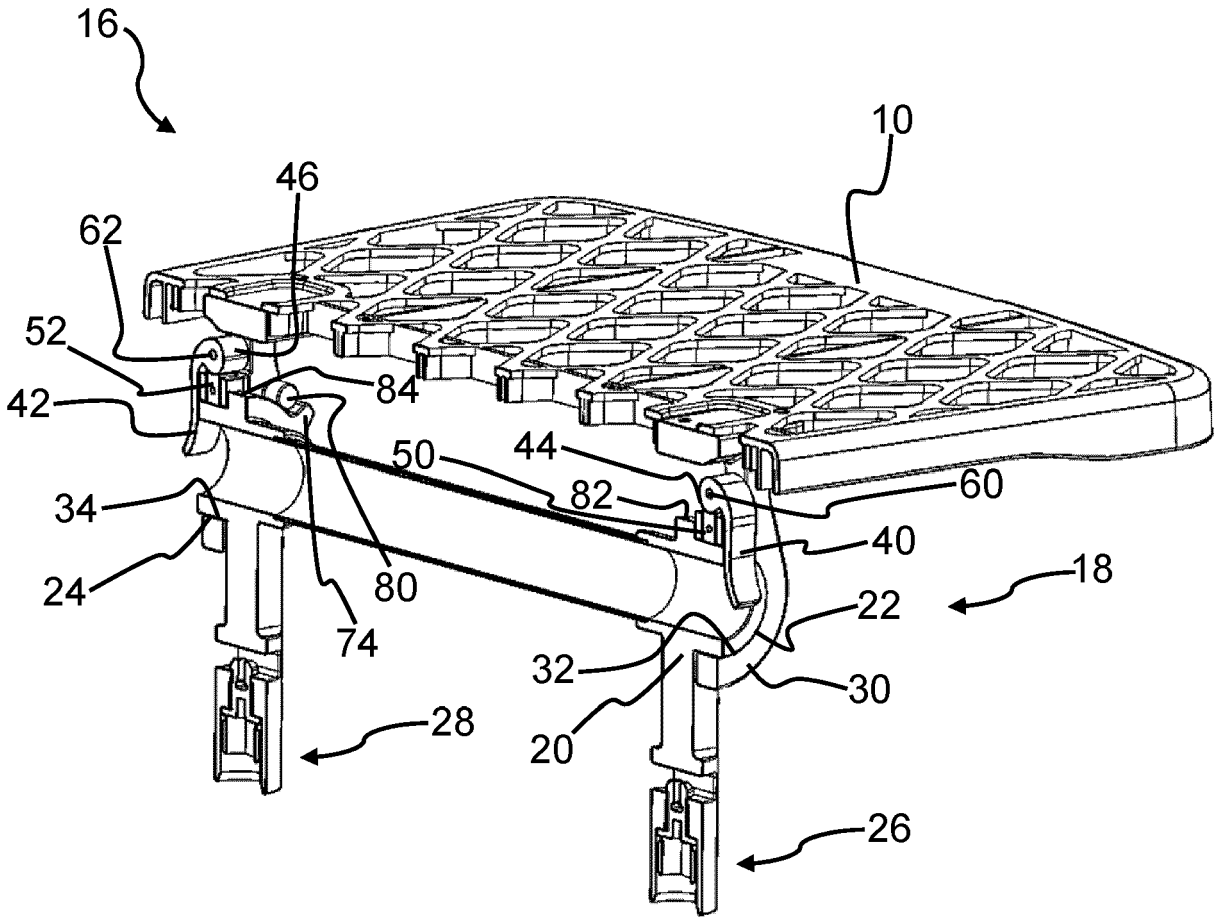

FIG.2

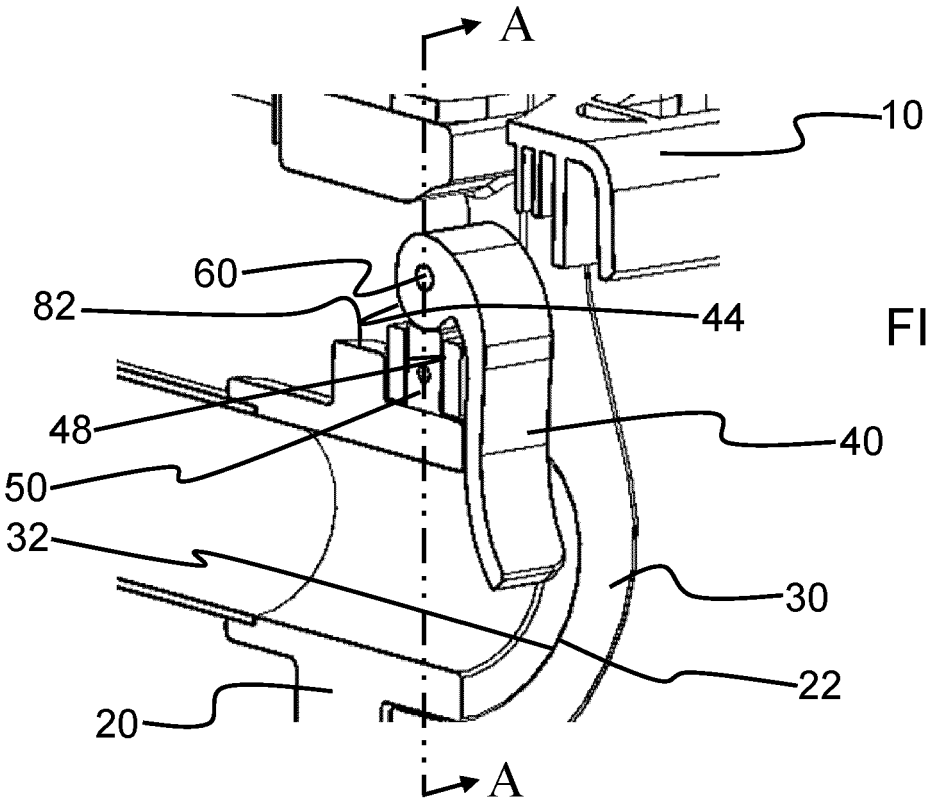

FIG.3A

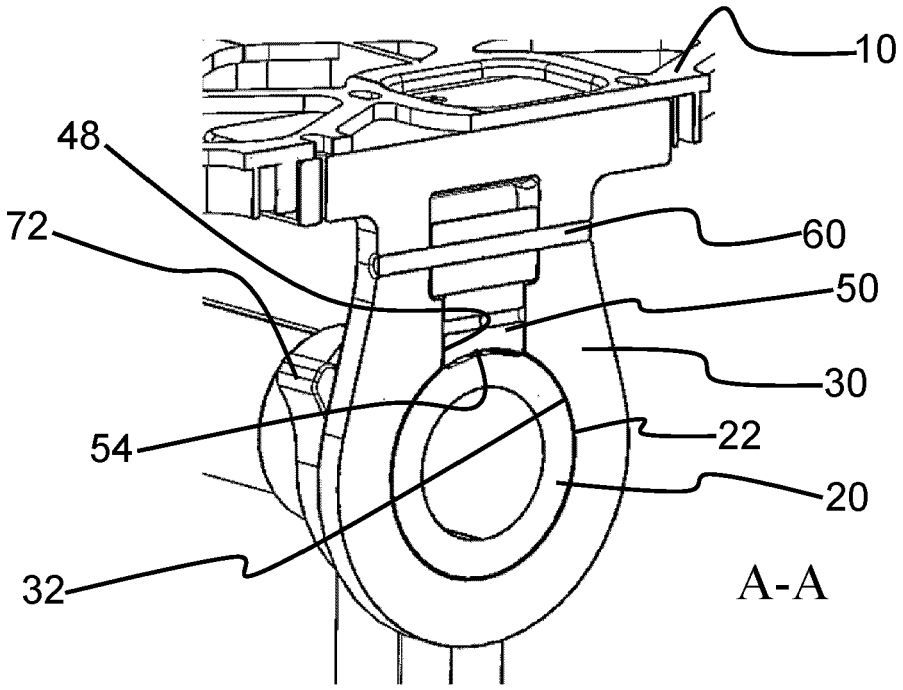

FIG.3B

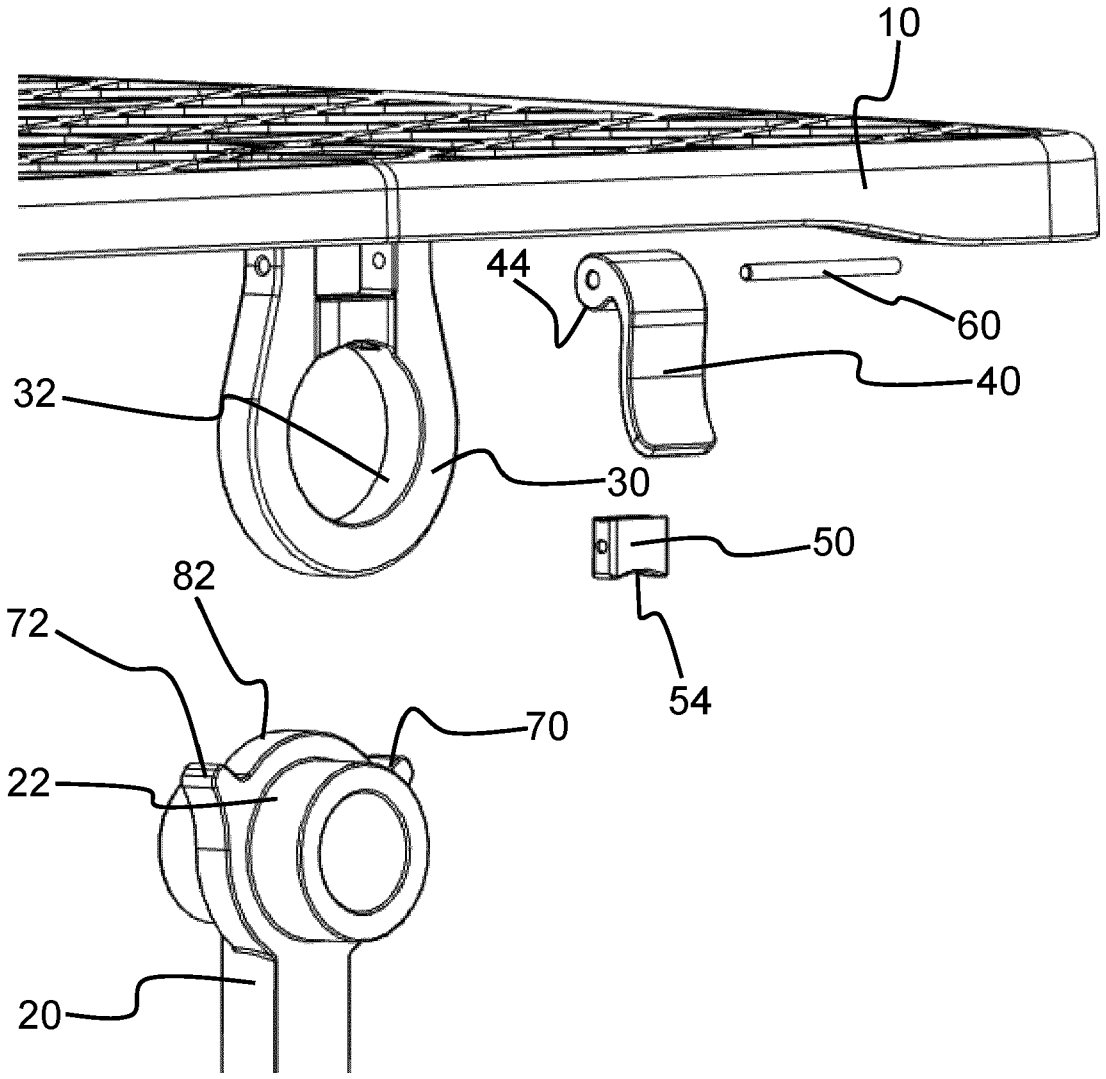

FIG.3C

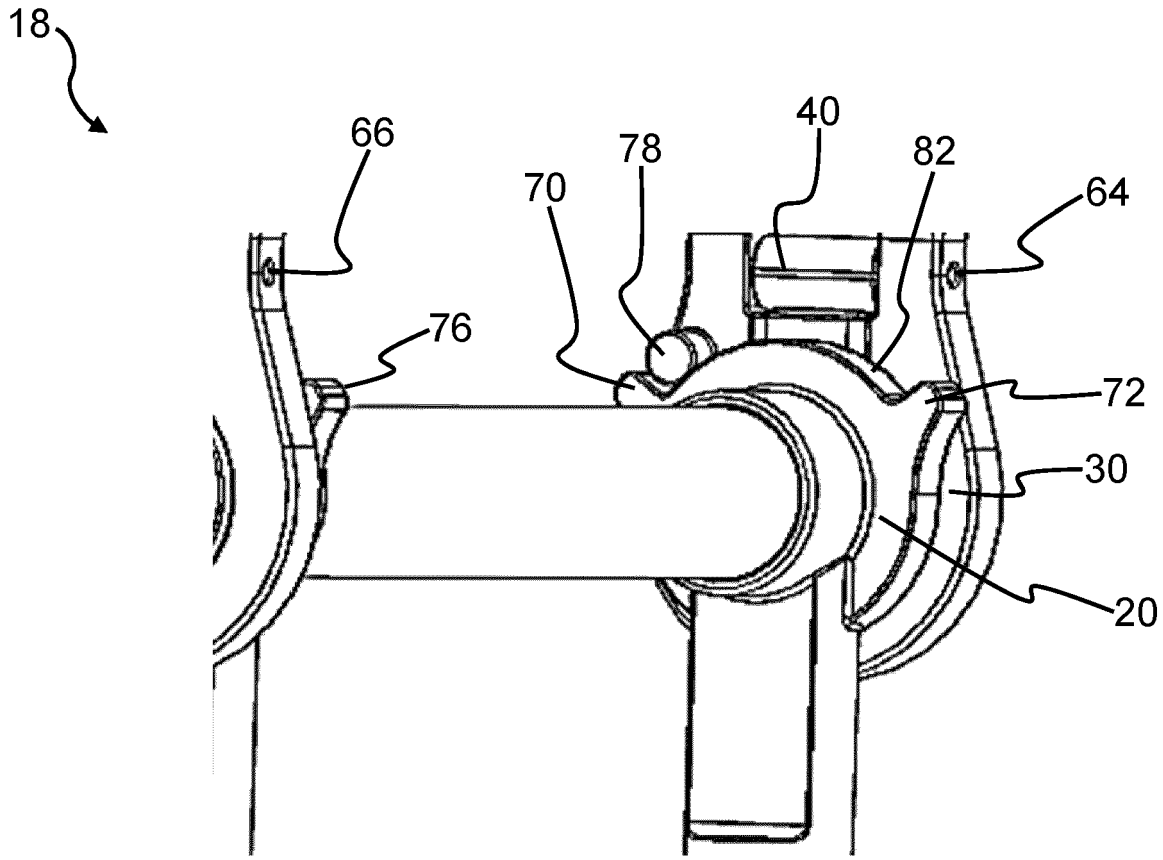

FIG.4A

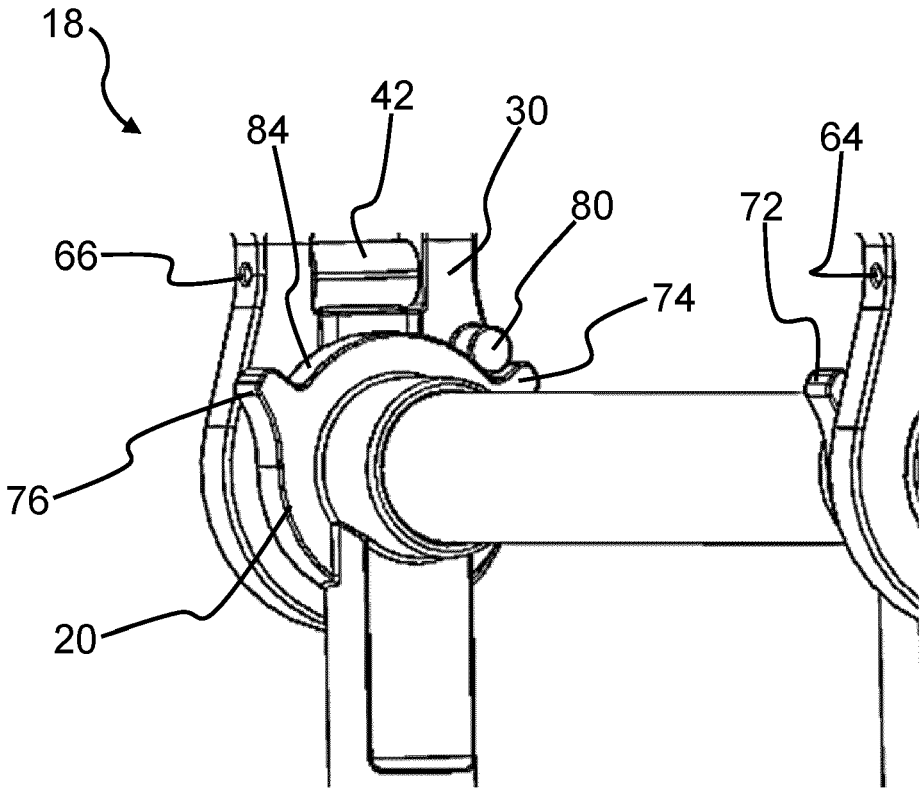

FIG.4B

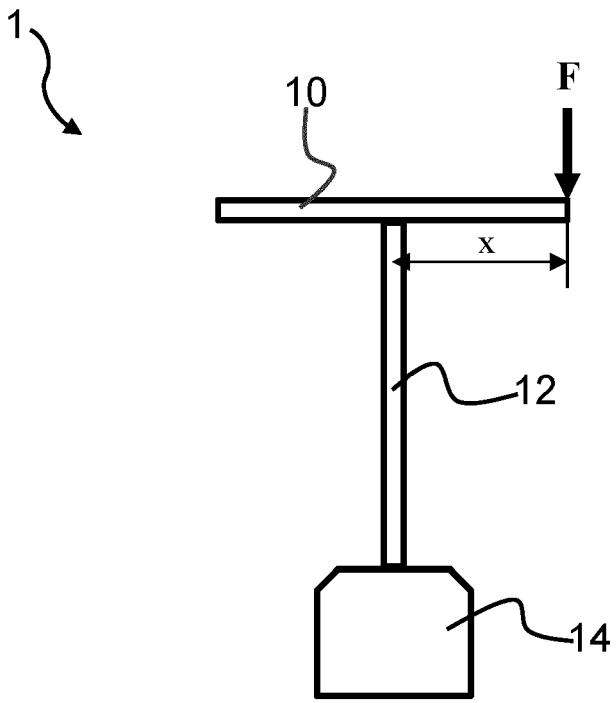

FIG.5

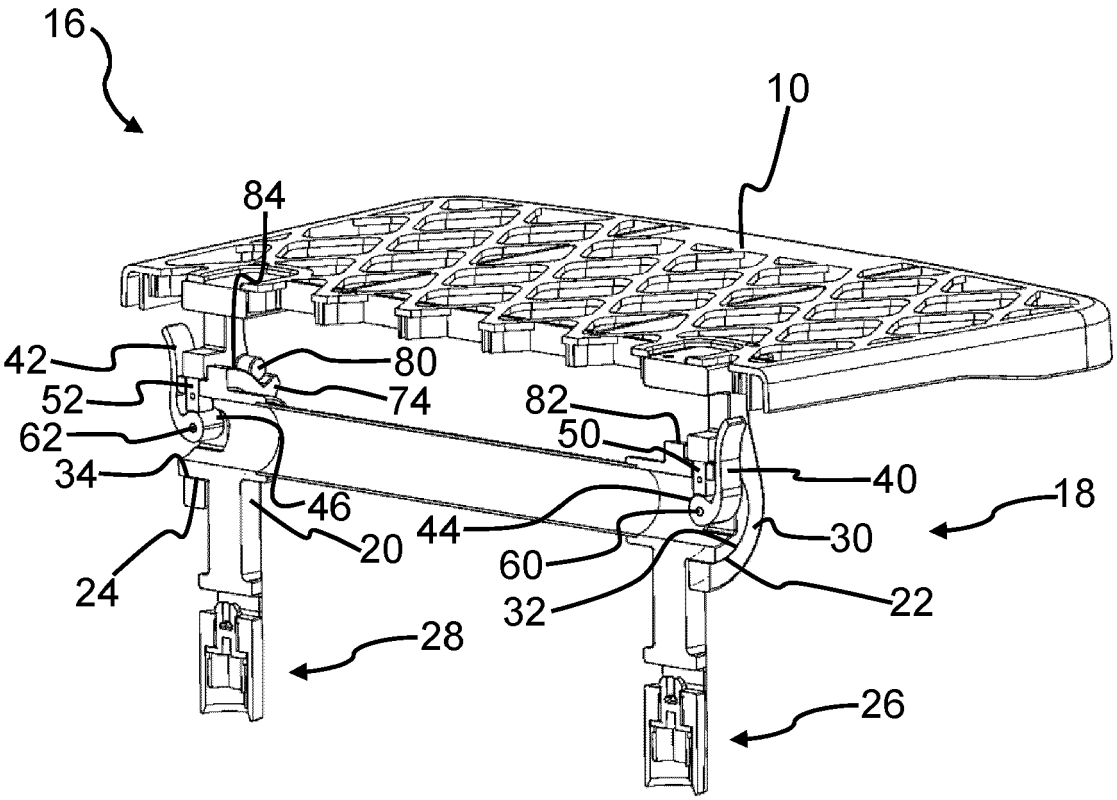

FIG.6

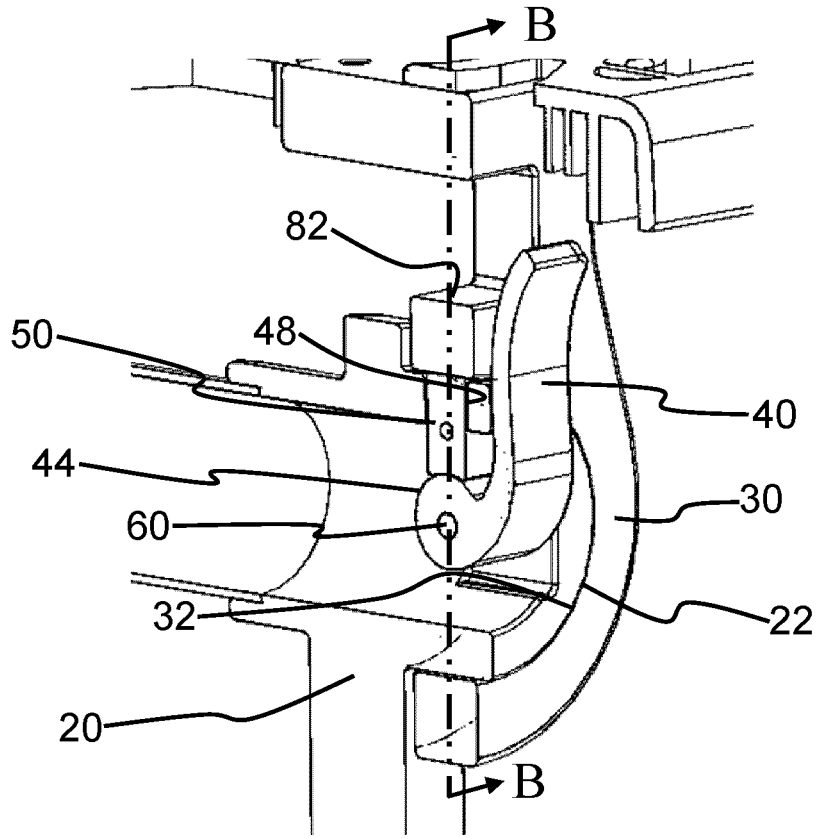

FIG.7A

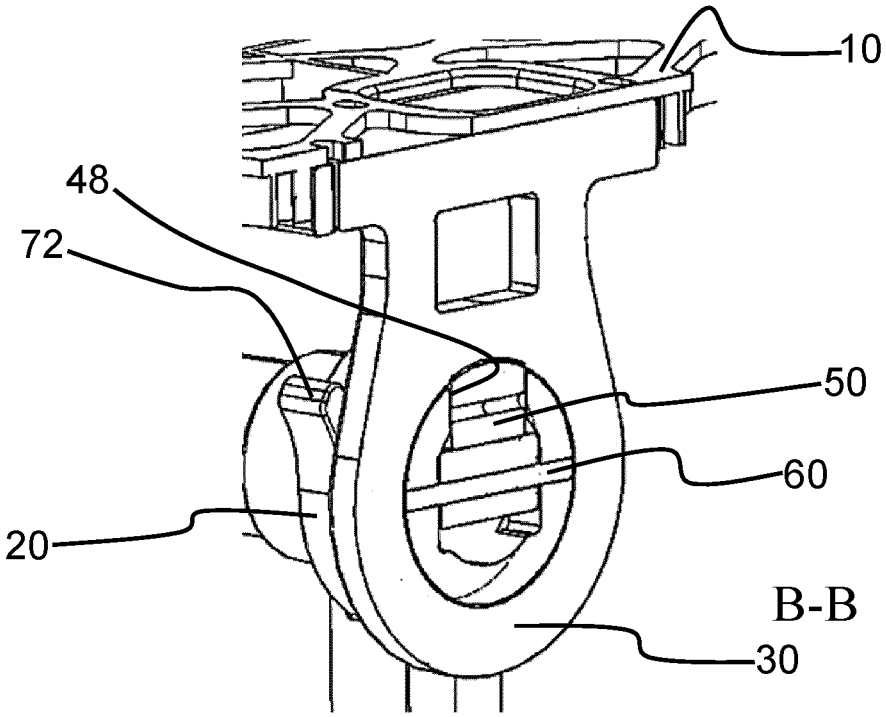

FIG.7B

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EUROPEAN SEARCH REPORT

Application Number
EP 24 15 0182

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	CN 107 761 346 A (ZHANG JINGONG) 6 March 2018 (2018-03-06) * the whole document *	1-12 13-15	INV. D06F81/00 ADD.
X Y A	EP 3 842 588 A1 (KONINKLIJKE PHILIPS NV [NL]) 30 June 2021 (2021-06-30) * the whole document *	1,2,6-15 13-15 3-5	D06F81/02 D06F81/04 D06F81/06 D06F81/10
A	CN 207 760 607 U (GUANGDONG MIDEA ENVIRONMENT APPLIANCES MFG CO LTD; MIDEA GROUP CO LTD) 24 August 2018 (2018-08-24) * abstract; figures *	1-15	
A	US 2010/242317 A1 (TROWSDALE DAN [GB] ET AL) 30 September 2010 (2010-09-30) * abstract * * paragraph [0045]; figures *	1-15	
A	CN 208 379 286 U (SUZHOU GAMANA ELECTRIC APPLIANCE CO LTD) 15 January 2019 (2019-01-15) * abstract * * figures 1,2,9 *	1-15	TECHNICAL FIELDS SEARCHED (IPC) D06F
A	EP 3 031 980 A1 (COLOMBO NEW SCAL SPA [IT]) 15 June 2016 (2016-06-15) * abstract; figures *	1	
A	DE 297 12 147 U1 (LOH KG HAILO WERK [DE]) 12 November 1998 (1998-11-12) * the whole document *	1	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	22 May 2024	Prosig, Christina

CATEGORY OF CITED DOCUMENTS

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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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22-05-2024

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CN 107761346 A	06-03-2018	NONE	
EP 3842588 A1	30-06-2021	CN 113906180 A	07-01-2022
		EP 3842588 A1	30-06-2021
		EP 3953522 A1	16-02-2022
		KR 20220002685 A	06-01-2022
		PL 3953522 T3	24-04-2023
		WO 2021130050 A1	01-07-2021
CN 207760607 U	24-08-2018	NONE	
US 2010242317 A1	30-09-2010	GB 2468717 A	22-09-2010
		US 2010242317 A1	30-09-2010
CN 208379286 U	15-01-2019	NONE	
EP 3031980 A1	15-06-2016	EP 3031980 A1	15-06-2016
		IT MI20140384 U1	10-06-2016
DE 29712147 U1	12-11-1998	NONE	

EPO FORM P0459

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