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(54) **GARMENT STEAMER WITH DETACHABLE IRONING BOARD**

(57) The invention relates to a garment steamer (100) comprising a pole assembly (50), a detachable ironing board (60) adapted to be coupled to the pole assembly via a coupling mechanism (70) enabling the ironing board to be positioned in a first angular orientation or in a second angular orientation. The coupling mechanism comprises a first attaching means (71) being fixed on the ironing board, and a second attaching means (72) being fixed on a top part of the pole assembly. The first attaching means comprises a male assembly, the second attaching means comprises a plurality of female assemblies being arranged at a certain angle relative to each other, said male assembly being adapted to cooperate with at least two female assemblies taken among said plurality of female assemblies. Alternatively, the first attaching means comprises a female assembly, the second attaching means comprises a plurality of male assemblies being arranged at a certain angle relative to each other, said female assembly being adapted to cooperate with at least two male assemblies taken among said plurality of male assemblies.

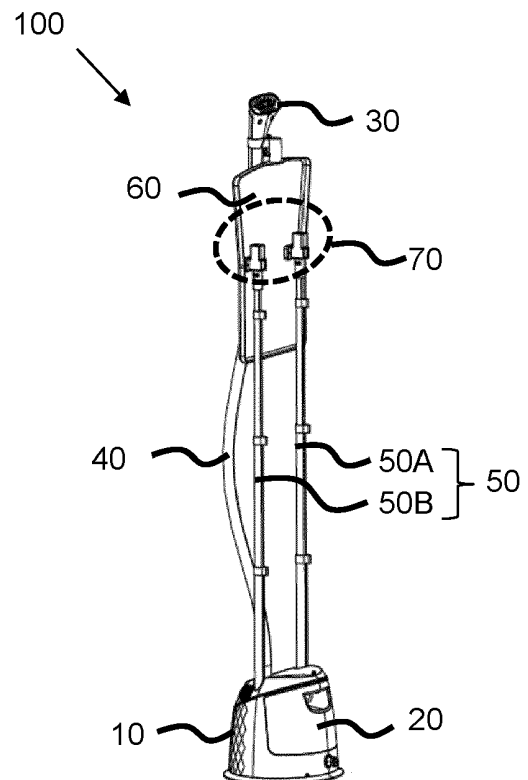


FIG.1A

Description

FIELD OF THE INVENTION

[0001] The invention relates to a garment steamer.

[0002] The invention can be used in the field of garment care.

BACKGROUND OF THE INVENTION

[0003] Conventional garment steamer offers a convenient way of removing wrinkles. However when compared to conventional ironing method, the level of wrinkle removal performance is much lower since there is nothing to support the hanged garment. Tough wrinkles cannot be pressed out like in the process of conventional ironing method which uses a horizontal ironing board to support the garment.

[0004] In recent time, many garment steamers also come with an ironing board that can be arranged in a vertical and a horizontal orientation to facilitate steaming or ironing or garments.

[0005] Many of the ironing board provided by garment steamer come with complex mechanism to enable it to be arranged in a vertical or a horizontal orientation.

[0006] Moreover, the complex mechanism of those garment steamers make them more difficult to manufacture which in turn more costly as well as less user friendly.

OBJECT AND SUMMARY OF THE INVENTION

[0007] It is an object of the invention to propose an improved garment steamer that avoids or mitigates above-mentioned problems.

[0008] The invention is defined by the independent claims. The dependent claims define advantageous embodiments.

[0009] To this end, the garment steamer according to the invention comprises:

- a pole assembly,
- a detachable ironing board adapted to be coupled to the pole assembly via a coupling mechanism enabling the ironing board to be positioned in a first angular orientation or in a second angular orientation,
- the coupling mechanism comprises a first attaching means being fixed on the ironing board, and a second attaching means being fixed on a top part of the pole assembly.

[0010] The first attaching means comprises a male assembly, the second attaching means comprises a plurality of female assemblies being arranged at a certain angle relative to each other, said male assembly being adapted to cooperate with at least two female assemblies taken among said plurality of female assemblies.

[0011] Alternatively, the first attaching means compris-

es a female assembly, the second attaching means comprises a plurality of male assemblies being arranged at a certain angle relative to each other, said female assembly being adapted to cooperate with at least two male assemblies taken among said plurality of male assemblies.

[0012] This solution proposes a garment steamer with ironing board which can be arranged in a vertical and horizontal orientation in a simple and user friendly manner as well as simple to manufacture and cost effective.

[0013] Detailed explanations and other aspects of the invention will be given below.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] 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.1A depicts a garment steamer according to the invention with an ironing board extending vertically, Fig.1B depicts a zoomed-in view of Fig.1A, Fig.2 depicts a first exploded partial view of a garment steamer according to the invention with an ironing board extending horizontally, Fig.3A depicts a second exploded partial view of a garment steamer according to the invention, with an ironing board extending horizontally, Fig.3B depicts a zoomed-in view of Fig.3A, Fig.4A-Fig.4B depict two partial views of a garment steamer according to the invention, with an ironing board extending vertically, Fig.5A-Fig.5B depict two partial views of a garment steamer according to the invention, with an ironing board extending horizontally, Fig.6A-Fig.6B depict two partial views of a garment steamer according to the invention, with an ironing board extending at an angle between vertical and horizontal, Fig.7A depict a three-dimensional view of a garment steamer according to the invention comprising a user-actuable mechanism adapted to immobilize an ironing board, Fig.7B depicts a cross-sectional view of Fig.7A, Fig.7C depicts a zoomed-in view of Fig.7A.

DETAILED DESCRIPTION OF THE INVENTION

[0015] Fig.1A depicts a garment steamer 100 according to the invention with an ironing board extending vertically. Fig.1B depicts a zoomed-in view of Fig.1A.

[0016] The garment steamer (100) comprises a pole assembly (50) and a detachable ironing board (60) adapted to be coupled to the pole assembly via a coupling mechanism (70) enabling the ironing board to be positioned in a first angular orientation or in a second angular

orientation.

[0017] The coupling mechanism comprises a first attaching means (71) being fixed on the ironing board, and a second attaching means (72) being fixed on a top part of the pole assembly.

[0018] The first attaching means comprises a male assembly, the second attaching means comprises a plurality of female assemblies being arranged at a certain angle relative to each other, said male assembly being adapted to cooperate with at least two female assemblies taken among said plurality of female assemblies.

[0019] Alternatively, the first attaching means comprises a female assembly, the second attaching means comprises a plurality of male assemblies being arranged at a certain angle relative to each other, said female assembly being adapted to cooperate with at least two male assemblies taken among said plurality of male assemblies.

[0020] The cooperation between the male assembly and the female assembly results in orienting the ironing board according to different angular orientations.

[0021] For example, the ironing board 60 can be arranged in a vertical and horizontal orientation in a simple and user friendly manner as well as simple to manufacture and cost effective.

[0022] The garment steamer 100 also comprises a base 10, and a steam generator 20 which is arranged in the base 10 (or arranged separate from the base for example in a steamer head).

[0023] The garment steamer 100 also comprises a steamer head 30 which is connected to the steam generator 20 by a steam hose 40.

[0024] The pole assembly 50 extends upwardly from the base 10.

[0025] In this embodiment, the pole assembly comprises two vertical poles (50A, 50B).

[0026] In a preferred embodiment, the pole assembly 50 extends upwardly from the base 10, and the poles are preferably retractable/ telescopic for height adjustment of the ironing board, and can be retracted when they are not in use in order to make the garment steamer compact.

[0027] It is understandable that the number of the poles and the position of the poles can be varied depend on its size, the requirement of stability, and other consideration.

[0028] The male assembly of the first attaching means defines a first and a second plugs, the plurality of female assemblies of the second attaching means defines a first and a second series of hollow structures, arranged on each vertical pole, for receiving said first plug and second plugs, respectively.

[0029] For example, the first and second plugs are arranged on opposite lateral sides of the ironing board.

[0030] The first series of hollow structures is arranged at the top of the first vertical pole, the second series of hollow structures is arranged at the top of the second vertical pole.

[0031] Alternatively, the female assembly of the first attaching means defines a first and a second hollow

structures, the plurality of male assemblies of the second attaching means defines a first and a second series of plugs, arranged on each vertical pole, for engaging with said first and a second hollow structures, respectively.

[0032] Preferably, the plurality of female assemblies of the second attaching means comprises two female assemblies which are arranged at 90 degrees relative to each other.

[0033] Alternatively, the plurality of male assemblies of the second attaching means comprises two male assemblies which arranged at 90 degrees relative to each other.

This allows obtaining two angular orientations for the ironing board: horizontal and vertical.

[0034] Preferably, the plurality of female assemblies of the second attaching means comprises three female assemblies, including two female assemblies being arranged at 90 degrees relative to each other, and another female assembly being arranged in between the two female assemblies at another relative angle.

[0035] Alternatively, the plurality of male assemblies of the second attaching means comprises three male assemblies, including two male assemblies being arranged at 90 degrees relative to each other, and another male assembly being arranged in between the two male assemblies at another relative angle.

[0036] This allows having three angular positions for the ironing board, typically horizontal / vertical / oblique (such as 45 degrees compared to a vertical direction).

[0037] Fig.2 depicts a first exploded partial view of a garment steamer according to the invention with an ironing board 60 extending horizontally.

[0038] It is illustrated the first attaching means 71 adapted to cooperate with the second attaching means 72.

[0039] Fig.3A depicts a second exploded partial view of a garment steamer according to the invention, with an ironing board 60 extending horizontally. Fig.3B depicts a zoomed-in view of Fig.3A.

[0040] The first attaching means 71 comprises a plug 711 and the second attaching means 72 comprises a (pair of) hollow structure unit 721 having a first hollow structure 721A and a second hollow structure 721B arranged perpendicular to each other.

[0041] The pole assembly 50 comprises two poles 50A-50B.

[0042] The second attaching means 72 comprises, on each of the two poles, two hollow structures 721 arranged at the top end of each of the two poles, and the attaching means 71 comprises two plugs 711 fixed on the ironing board 60 and spaced apart symmetrically about the longitudinal axis of the ironing board 60 at a distance corresponding the two (telescopic) poles. The ironing board 60 is orientated vertically when the plugs 711 are inserted into the first hollow structure 721A and the ironing board is orientated horizontally when the plugs 711 are inserted into the second receptacle 721B.

[0043] It is noted that for sake of clarity, only one set

of elements 711-721 are represented on the vertical pole 50B. The same explanations apply for the vertical pole 50A.

[0044] In another preferred embodiment (not shown), the pole assembly 50 comprises a single pole extending vertically.

[0045] With a single pole extending vertically, the male assembly of the first attaching means defines a single plug and the plurality of female assemblies of the second attaching means defines hollow structures for receiving the single plug.

[0046] The first attaching means 71 comprises a single plug 711 and the second attaching means 72 comprises two hollow structures fixed at the top end of the single pole. The single plug 711 is for example fixed in the middle of the ironing board. The ironing board 60 is orientated vertically when the plug 711 is inserted into the hollow structure 721A, and the ironing board 60 is orientated horizontally when the plug 711 is inserted into the second hollow structure 721B.

[0047] Alternatively, the female assembly of the first attaching means defines a single hollow structure and the plurality of male assemblies of the second attaching means defines plugs for engaging with the single hollow structure.

[0048] Fig.4A-Fig.4B depict two partial views of a garment steamer according to the invention, with an ironing board extending vertically.

[0049] Fig.5A-Fig.5B depict two partial views of a garment steamer according to the invention, with an ironing board extending horizontally.

[0050] Fig.6A-Fig.6B depict two partial views of a garment steamer according to the invention, with an ironing board extending at an angle between vertical and horizontal.

[0051] In those six figures, the first attaching means comprises (a pair of) plugs 711, each plug 711 being adapted to cooperate with a second attaching means comprising three hollow structures 721A-721B-721C.

[0052] The hollow structures 721A-721B form a 90 degrees angle between each other.

[0053] The hollow structure 721C is inclined by 45 degrees compared to a vertical direction. But different angles could be chosen similarly.

[0054] In one embodiment, the first attaching means is integrally formed with the ironing board.

[0055] For example by using plastic injection if those elements are both made of plastic.

[0056] In one embodiment, the first attaching means is made as a separate component and is fixed to the ironing board via any suitable fixing means.

[0057] For example screws, snap-fit catches, clipping mechanism, ultrasonic welding, glue,... etc can be used.

[0058] In a preferred embodiment, the first attaching means and/or the second attaching means are made from plastic material.

[0059] For example Polypropylene, Acrylonitrile butadiene styrene, Polycarbonate can be used.

[0060] Preferably, the coupling mechanism 70 further comprises a locking mechanism to immobilize the first attaching means relative to the second attaching means.

[0061] This feature prevents the ironing board from getting detached from the pole assembly when user exerts a force on the ironing board during steaming/ironing of garments.

[0062] For example, as illustrated in Fig.4A-Fig.4B, the locking mechanism comprises a snap-fit mechanism 400 arranged between the first attaching means the second attaching means when the ironing board 60 is coupled to the pole assembly.

[0063] The snap-fit mechanism comprises a protrusion extending from the first attaching means 71, cooperating with a cavity arranged in the second attaching means 72.

[0064] The snap catch mechanism cooperates with the opening to (temporarily) immobilize the first attaching means relative to the second attaching means.

[0065] Fig.7A depict a three-dimensional view of a garment steamer according to the invention comprising a user-actuatable mechanism adapted to immobilize an ironing board.

[0066] Fig.7B depicts a cross-sectional view of Fig.7A.

[0067] Fig.7C depicts a zoomed-in view of Fig.7A.

[0068] The second attaching means comprises at least one user-actuatable mechanism (701A, 701B) adapted to immobilize with the first attaching means 71 when the ironing board is coupled to the pole assembly.

[0069] The user-actuatable mechanism can be mounted at the top part of one pole, or at each of the top part of the two poles

[0070] If the pole assembly comprises two vertical poles, a first user-actuatable mechanism can be arranged at an upper end of the first vertical pole, and a second user-actuatable mechanism can be arranged at an upper end of the second vertical pole.

[0071] Preferably, the user-actuatable mechanism comprises a handle 702A, 702B mounted on a hinge (703A, 703B). The handle comprises at least one protrusion 704A, 704B, 704C being adapted to cooperate with at least one cavity 706A, 706B, 706C being arranged in the first attaching means such as the plug 711, as illustrated in Fig.7C.

[0072] It is noted that in Fig.7C the plug 711 is artificially represented three times (with different angular positions), for sake of explanations.

[0073] For example, the at least one cavity 706A, 706B, 706C are arranged in the plurality of female assemblies 721A, 721B, 721C, respectively.

In this specific embodiment, the protrusions 704A, 704B, 704C pass through the openings 705A, 705B, 705C which are arranged in the plurality of female assemblies 721A, 721B, 721C, respectively.

[0074] Preferably, the handle comprises a hooking mechanism 707 adapted to hook with the second attaching means.

[0075] This feature allows holding the handle in place, and prevent that the protrusions 704A, 704B, 704C will

disengage by themselves from the cavities 706A, 706B, 706C when user exerts a force/movement on the ironing board during steaming/ironing of garments.

[0076] For example, the hooking can be done at the lateral sides of only one female assembly, such as the central female assembly of the second attaching means.

[0077] Alternatively (not shown), the second attaching means comprises at least one sliding latch cooperating with a cavity arranged in the first attaching means.

[0078] For example, the sliding latch can be spring-mounted or not.

[0079] Alternatively (not shown), the second attaching means comprises at least one sliding pin cooperating with a cavity arranged in the first attaching means.

[0080] For example, the pin can be a separate removable element.

[0081] With the proposed invention, it is intuitive and simple for the user to arrange the ironing board in a first orientation (e.g. vertical orientation) for steaming or to arranged the ironing board in a second orientation (e.g. horizontal orientation for ironing).

[0082] This advantageously improved user friendliness of the garment steamer. Furthermore, it also enable a low cost garment steamer with the simple construction that can be manufactured by low cost plastic injection moulding.

[0083] 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 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 garment steamer (100) comprising:

- a pole assembly (50),
- a detachable ironing board (60) adapted to be coupled to the pole assembly via a coupling mechanism (70) enabling the ironing board to be positioned in a first angular orientation or in a second angular orientation,
- the coupling mechanism comprises a first attaching means (71) being fixed on the ironing board, and a second attaching means (72) being fixed on a top part of the pole assembly,

wherein:

- the first attaching means comprises a male assembly, the second attaching means comprises a plurality of female assemblies being arranged at a certain angle relative to each other, said male assembly being adapted to cooperate with at least two female assemblies taken among said plurality of female assemblies, or
- the first attaching means comprises a female assembly, the second attaching means comprises a plurality of male assemblies being arranged at a certain angle relative to each other, said female assembly being adapted to cooperate with at least two male assemblies taken among said plurality of male assemblies.

2. Garment steamer as claimed in claim 1, wherein the pole assembly comprises two vertical poles (50A, 50B), and:

- the male assembly of the first attaching means defines a first and a second plugs, the plurality of female assemblies of the second attaching means defines a first and a second series of hollow structures, arranged on each vertical pole, for receiving said first plug and second plugs, respectively, or
- the female assembly of the first attaching means defines a first and a second hollow structures, the plurality of male assemblies of the second attaching means defines a first and a second series of plugs, arranged on each vertical pole, for engaging with said first and a second hollow structures, respectively.

3. Garment steamer as claimed in claim 1, wherein the pole assembly comprises a single vertical pole, and:

- the male assembly of the first attaching means defines a single plug and the plurality of female assemblies of the second attaching means defines hollow structures for receiving the single plug, or
- the female assembly of the first attaching means defines a single hollow structure and the plurality of male assemblies of the second attaching means defines plugs for engaging with the single hollow structure.

4. Garment steamer as claimed in claim 1, wherein:

- the plurality of female assemblies of the second attaching means comprises two female assemblies which are arranged at 90 degrees relative to each other, or
- the plurality of male assemblies of the second attaching means comprises two male assemblies which arranged at 90 degrees relative to each other.

5. Garment steamer as claimed in claim 1, wherein:
- the plurality of female assemblies of the second attaching means comprises three female assemblies, including two female assemblies being arranged at 90 degrees relative to each other, and another female assembly being arranged in between the two female assemblies at another relative angle, or
 - the plurality of male assemblies of the second attaching means comprises three male assemblies, including two male assemblies being arranged at 90 degrees relative to each other, and another male assembly being arranged in between the two male assemblies at another relative angle.
6. Garment steamer as claimed in anyone of claims 1 to 5, wherein the first attaching means is integrally formed with the ironing board.
7. Garment steamer as claimed in anyone of claims 1 to 5, wherein the first attaching means is made as a separate component and is fixed to the ironing board via any suitable fixing means.
8. Garment steamer as claimed in anyone of the claims 1 to 3, wherein first attaching means and/or the second attaching means are made from plastic material.
9. Garment steamer as claimed in anyone of the preceding claims, wherein the coupling mechanism further comprises a locking mechanism to immobilize the first attaching means relative to the second attaching means.
10. Garment steamer as claimed in anyone of the claims 1 to 10, wherein the locking mechanism comprises a snap-fit mechanism (400) arranged between the first attaching means the second attaching means when the ironing board is coupled to the pole assembly.
11. Garment steamer as claimed in anyone of the claims 1 to 10, wherein the second attaching means comprises at least one user-actuable mechanism (701A, 701B) adapted to immobilize with the first attaching means when the ironing board is coupled to the pole assembly.
12. Garment steamer as claimed in claim 11, wherein the user-actuable mechanism comprises a handle (702A, 702B) mounted on a hinge (703A, 703B), the handle comprising at least one protrusion (704A, 704B, 704C) being adapted to cooperate with at least one cavity (706A, 706B, 706C) being arranged in the first attaching means.
13. Garment steamer as claimed in claim 11 or 12, wherein the handle comprises a hooking mechanism (707) adapted to hook to the second attaching means.
14. Garment steamer as claimed in anyone of the claims 1 to 10, wherein the second attaching means comprises at least one sliding latch cooperating with a cavity arranged in the first attaching means.
15. Garment steamer as claimed in anyone of the claims 1 to 10, wherein the second attaching means comprises at least one sliding pin cooperating with a cavity arranged in the first attaching means.

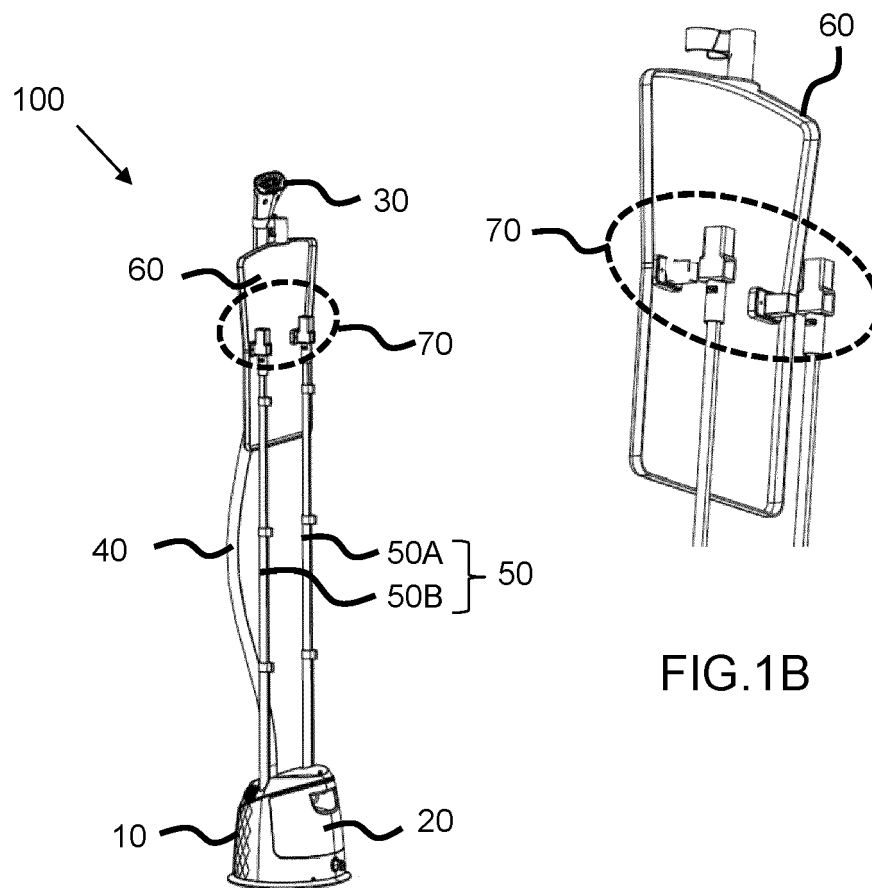


FIG.1A

FIG.1B

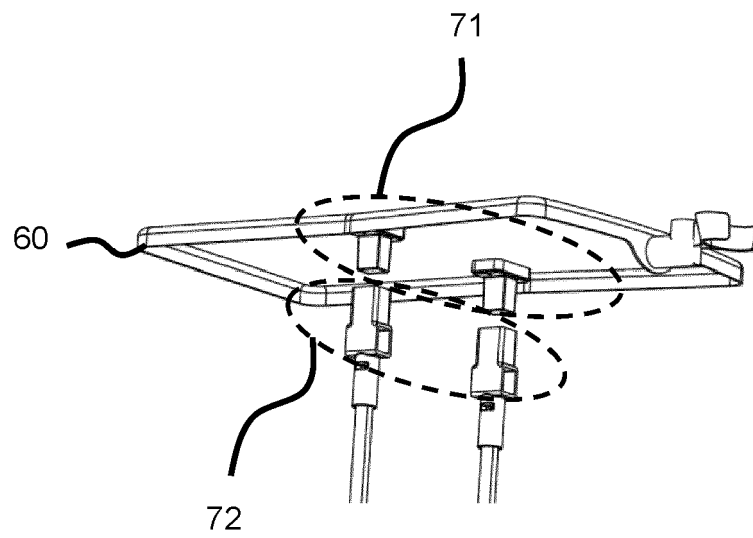


FIG.2

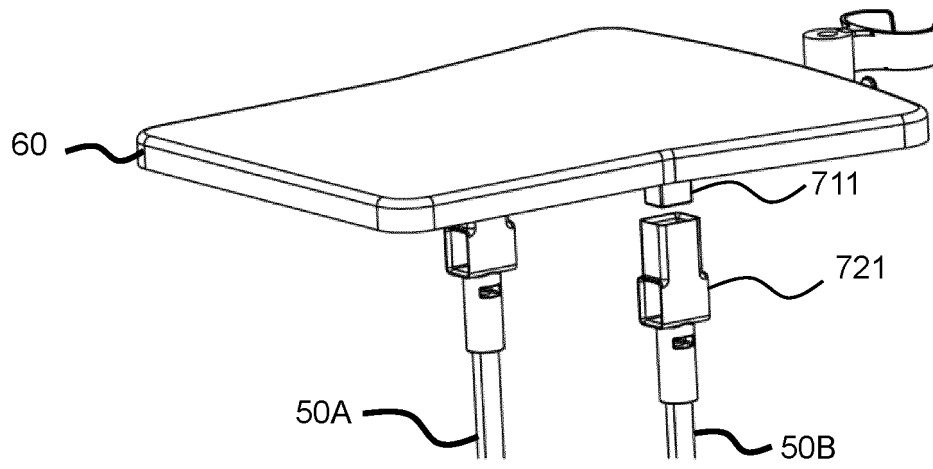


FIG.3A

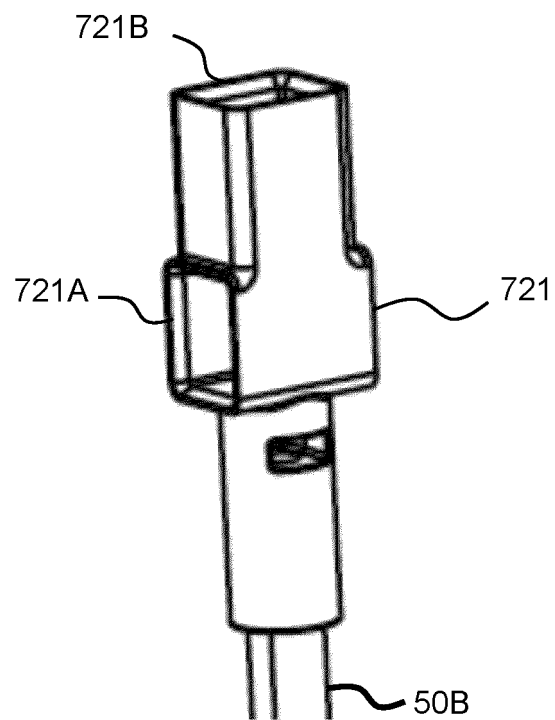


FIG.3B

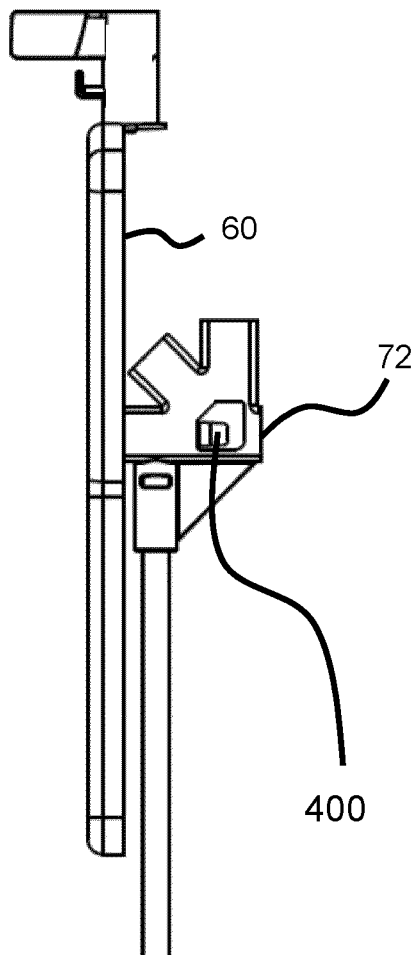


FIG. 4A

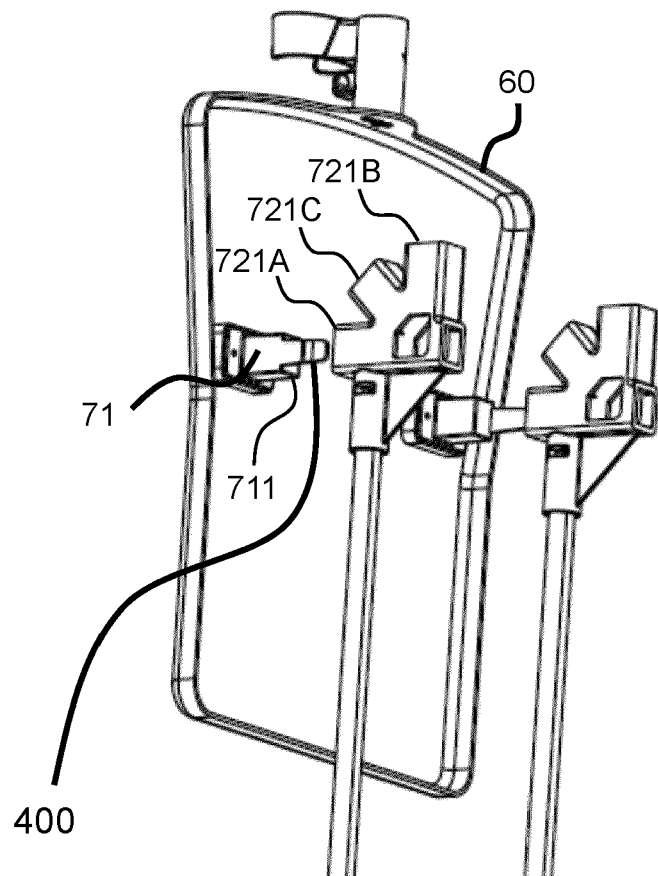


FIG. 4B

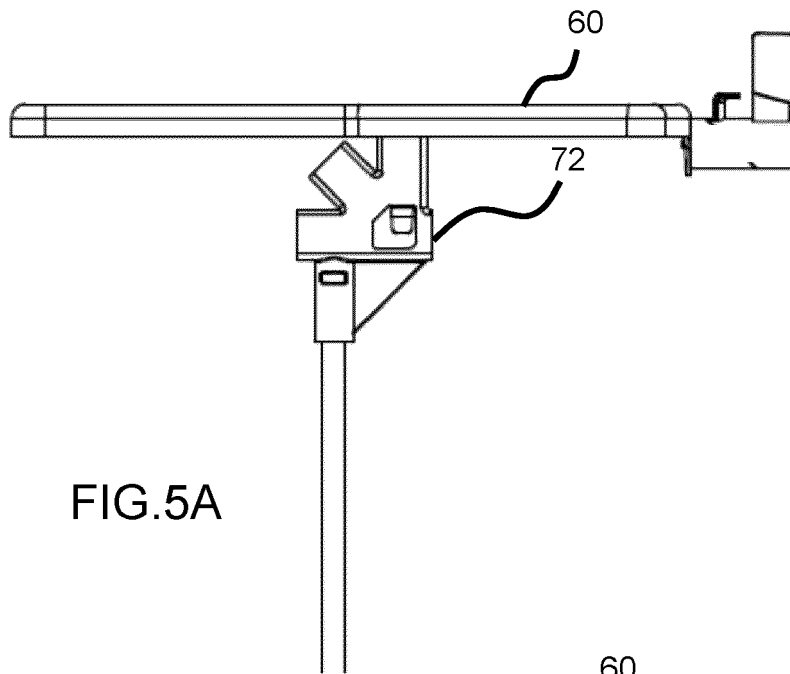


FIG. 5A

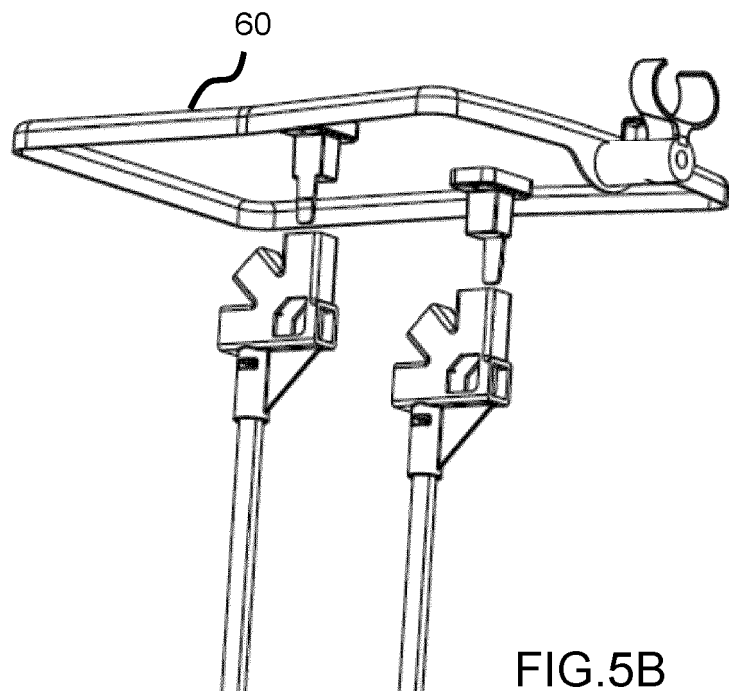


FIG. 5B

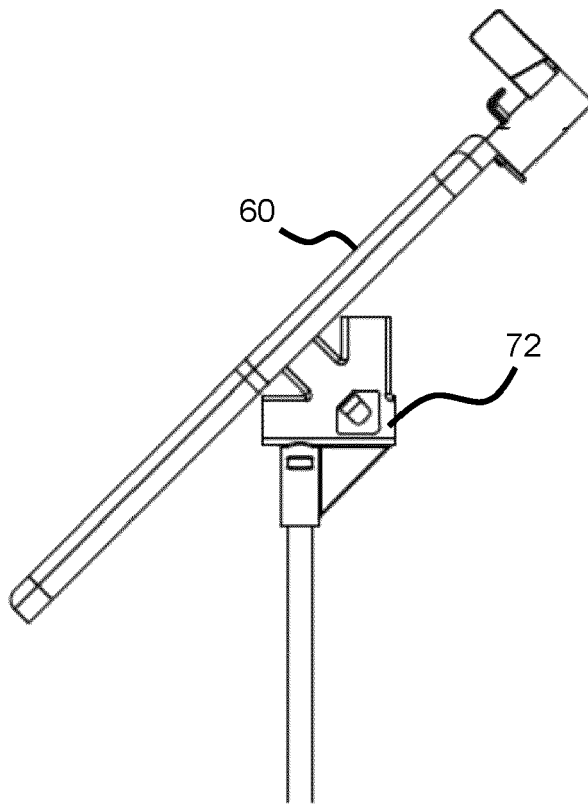


FIG. 6A

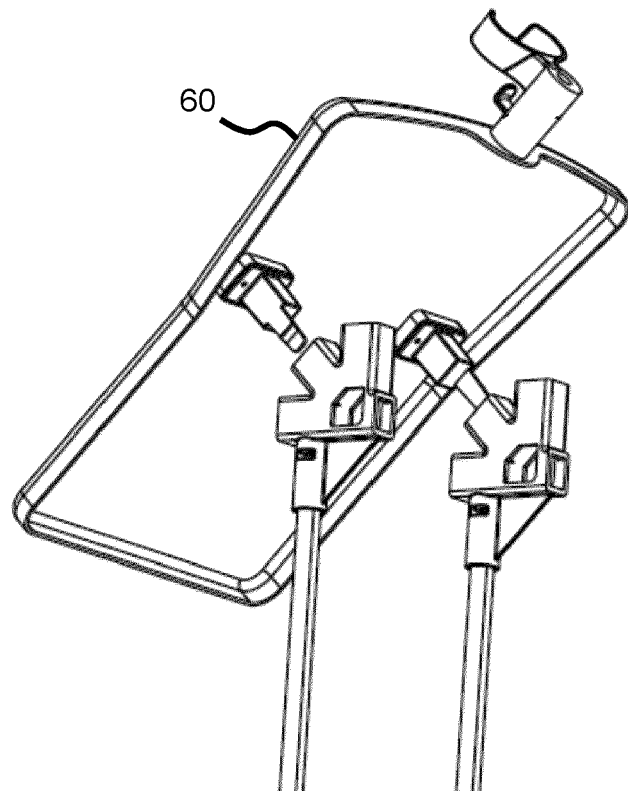


FIG. 6B

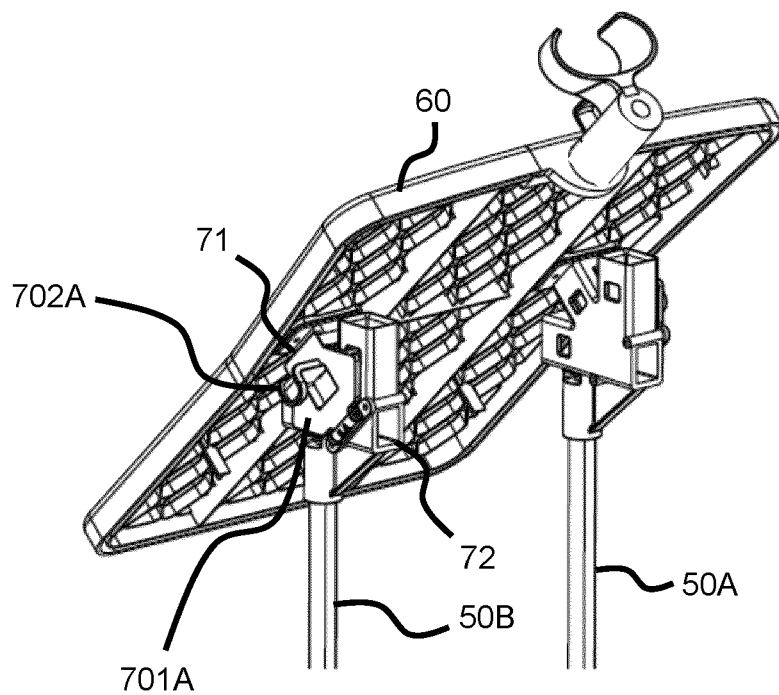


FIG. 7A

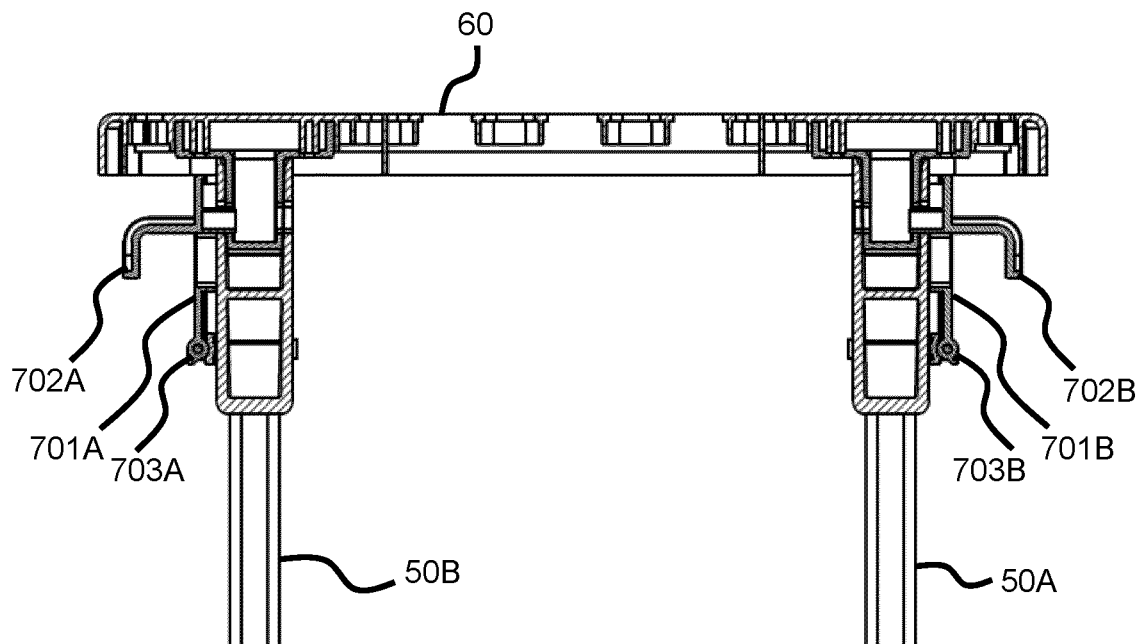


FIG. 7B

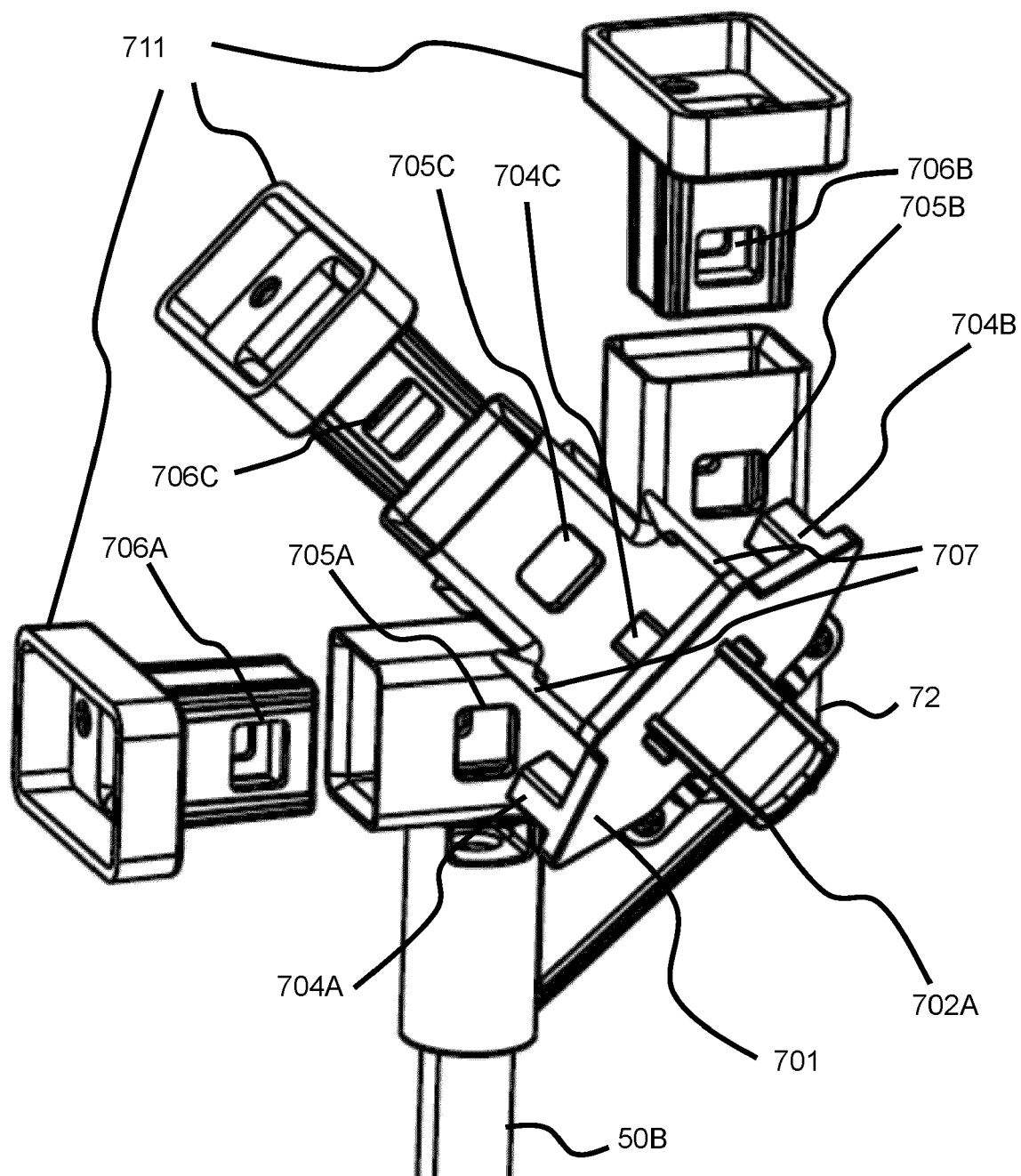


FIG.7C



EUROPEAN SEARCH REPORT

Application Number
EP 20 20 4577

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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	CN 108 166 230 A (SUZHOU GEMEINA ELECTRIC APPLIANCE CO LTD) 15 June 2018 (2018-06-15) * paragraphs [0005] - [0062] * * abstract; claims 1-10; figures 1-10 *	1-15	INV. D06F73/00
A	CN 208 395 531 U (YANG WEIJUN) 18 January 2019 (2019-01-18) * paragraphs [0004] - [0023] * * claim 1; figures 1-7 *	1-15	
			TECHNICAL FIELDS SEARCHED (IPC)
			D06F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 12 April 2021	Examiner Weinberg, Ekkehard
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 20 20 4577

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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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12-04-2021

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
CN 108166230	A	15-06-2018	NONE	

CN 208395531	U	18-01-2019	NONE	

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