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(54) **Shelving device comprising a moveable shelf for displaying articles**

(57) The invention provides a shelving device comprising a base (2), a back frame (3) extending from said base and at least one moveable shelf (7) mounted on said base and/or on said back frame, having an inserted position where she is close to said back frame and a deployed position where she is remote to said back frame and comprising a support plate (30) and a moving system (40) configured to displace said support plate between said inserted and deployed positions and to place said support plate at a first predetermined height relative to said base when said support plate is in said inserted position and to place said support plate at a second predetermined height relative to said base when said support plate is in said deployed position, said first predetermined height being different from said second predetermined height.

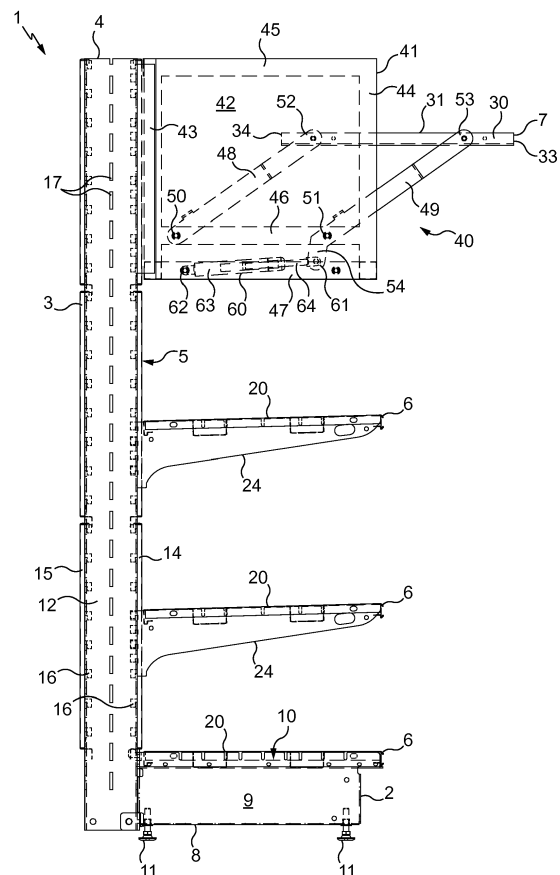


Fig. 2

Description

FIELD OF THE INVENTION

[0001] The invention relates to shelving devices, also named gondola, comprising at least one moveable shelf for displaying articles.

BACKGROUND ART

[0002] Shelving devices, also named gondola, comprising a plurality of shelves for displaying articles are well known. Said shelving devices generally comprise a base, a plurality of vertical columns which extend from the base and a plurality of shelves, also named sales shelves, each mounted on two successive vertical columns.

[0003] Many articles are resting on the shelves so that the latter have to bear the weight of these articles, which weight can be heavy. The shelves have thus to be substantially rigid and must tolerate a shear stress which is high.

[0004] The shelves are generally each formed by a metal plate which is configured to be loaded with many articles.

[0005] Most of shelves are arranged on the shelving device such that they are easily accessible for a user that stocks up again said shelves.

[0006] However, some shelves, in particular the uppermost and lowermost shelves mounted on the shelving device, are not so easy to access.

[0007] The user has to bend down or to crouch for facing such a bottom shelf and then to stretch out its arm to reach the rear of said shelf in order to put or to catch articles; while the user has to put on tiptoe or use a ladder or a lift machine to access such a upper shelf.

[0008] The position of the user is therefore particularly uncomfortable.

[0009] Others shelving devices are already known, which comprise moveable shelves having generally an inserted position for displaying articles placed thereon and a deployed position for restocking.

[0010] Said moveable shelves are arranged like conventional drawers. Namely, they comprise a casing having slide elements which cooperate with guiding rails fixed on the base or on lateral panels that comprises the shelving device.

SUMMARY OF THE INVENTION

[0011] The invention is directed to a shelving device for displaying articles, comprising at least a moveable shelf, which shelf is configured to be convenient and easily accessible for a user to restock and which is also simple, economic and easy to manufacture.

[0012] The invention accordingly provides a shelving device for displaying articles, comprising a base, a back frame extending from said base, at least one of said base

and back frame being configured to receive at least one fixed shelf overhanging said base, and at least one moveable shelf mounted on said base and/or on said back frame and having an inserted position in which said at least one moveable shelf is close to said back frame and a deployed position in which said at least one moveable shelf is remote to said back frame, characterized in that said at least one moveable shelf comprises a support plate configured to display articles and a moving system configured to displace said support plate between said inserted and deployed positions, said moving system being further configured to place said support plate at a first predetermined height relative to said base when said support plate is in said inserted position and to place said support plate at a second predetermined height relative to said base when said support plate is in said deployed position, said first predetermined height being different from said second predetermined height.

[0013] The shelving device according to the invention is very convenient in that the moving system allows to change the height of the support plate in addition to the displacement of the latter between the inserted and deployed positions, in a single operation.

[0014] For instance, it is particularly advantageous when the moveable shelf is located at the top of the shelving device to simultaneously take down and deploy the support plate.

[0015] In the same manner, it is also particularly advantageous for instance when the moveable shelf is located at the bottom of the shelving device to simultaneously raise and deploy the support plate.

[0016] The moving system of the moveable shelf of the shelving device according to the invention thus allows the displacement of the moveable shelf between the inserted and deployed positions in order for instance to restock the support plate in a safe manner, while being particularly simple, economic and easy to manufacture.

[0017] According to features preferred as being very simple, convenient and economical for embodying the shelving device according to the invention:

- said moving system comprises a support frame having at least one first beam mounted on said base and/or on said back frame, and at least two moveable arms each having a first end pivotally attached to said at least one first beam and a second end opposite to said first end and pivotally attached to said support plate;
- said moving system is configured so that, in said inserted position of said at least one moveable shelf, said at least two moveable arms are substantially parallel to each other and face said back frame and, in said deployed position of said at least one moveable shelf, said at least two moveable arms are also substantially parallel to each other and extend in a direction substantially perpendicular to said back frame;
- said support frame has at least one second beam

mounted on said base and/or on said back frame and said moving system comprises at least one actuator having a first end pivotally attached to at least one of said moveable arms and a second end opposite to said first end and pivotally attached to said at least one second beam;

- said moving system and support plate are configured so that said at least one actuator is in a retracted configuration when said at least one moveable shelf is in said deployed position and said at least one actuator is in a deployed configuration when said at least one moveable shelf is in said inserted position;
- said moving system and support plate are configured so that said at least one actuator is in a deployed configuration when said at least one moveable shelf is in said deployed position and said at least one actuator is in a retracted configuration when said at least one moveable shelf is in said inserted position;
- said first end of said at least one actuator is pivotally attached to a finger which protrudes from said first end of said moveable arm;
- at least one of said moveable arms comprises an elongated portion extending between said first and second ends of said moveable arm and said first end of said at least one actuator is pivotally attached to an eyelet which protrudes from said elongated portion;
- said support frame has a general shape of a casing which defines a receiving space and said at least one moveable shelf is introduced into said receiving space in its inserted position and said at least one moveable shelf is at least partially remote to said receiving space in its deployed position;
- said at least one moveable shelf is located at a top of said shelving device and said first predetermined height is bigger than said second predetermined height;
- said at least one moveable shelf is located at a bottom of said shelving device and said first predetermined height is smaller than said second predetermined height;
- said at least one moveable shelf comprises a handle grip for the passage from one to the other of said inserted and deployed positions;
- the shelving device comprises at least one fixed shelf which is mounted on said back frame and which overhangs said base, said at least one moveable shelf overhanging at least in its inserted position said at least one fixed shelf;
- the shelving device comprises at least one fixed shelf which is mounted on said back frame and which overhangs said base and said at least one moveable shelf at least in its inserted position; and/or
- said back frame comprises at least two vertical columns extending from said base and a back panel also extending from said base and disposed between said at least two vertical columns, said at least one fixed shelf being fixed to said at least two vertical

columns and/or to said base.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] The description of the invention now continues with a detailed description of a preferred embodiment given hereinafter by way of non-limiting example and with reference to the appended drawings. In these drawings:

- Figures 1 to 3 are side views of a shelving device comprising a plurality of fixed shelves and a moveable upper shelf which is respectively in an inserted position, in an intermediary position and in a deployed position; and
- Figures 4 to 6 are side views of a variant of a shelving device comprising a fixed shelf and a moveable bottom shelf which is respectively in an inserted position, in an intermediary position and in a deployed position.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0019] Figures 1 to 3 show a shelving device 1, also named gondola, which is used to display articles (not represented).

[0020] The shelving device 1 is configured to be disposed for instance in a supermarket and to receive articles to display for instance for sale.

[0021] The shelving device 1 comprises a base 2 and a back frame 3 extending from the base 2, a plurality of fixed shelves 6 and one upper moveable shelf 7.

[0022] The back frame 3 comprises two vertical columns 4 (only one is shown on Figures) extending from the base 2 and a back panel 5 also extending from the base 2 and disposed between the two vertical columns 4.

[0023] The base 2 is made of metal and comprises two foot members 8 spaced apart and each extending longitudinally from a first end to a second end opposite to the first end.

[0024] Each foot member 8 is fixedly attached by its first end to the bottom of a respective vertical column 4.

[0025] Each foot member 8 comprises a main body 9 and a receiving U-shaped portion 10 protruding from a top edge of the main body 9.

[0026] Each foot member 8 further comprises two adjusting studs 11 extending from a bottom edge of the main body 9, which is opposite to its top edge.

[0027] The adjusting studs 11 are configured to level the shelving device 1 relative to a gradient of a floor (not shown) on which the shelving device 1 is located.

[0028] The two vertical columns 4 are made from metal and have each a general shape of a rod having a rectangular section.

[0029] Each vertical column 4 comprises an exterior lateral face 12, an interior lateral face (not represented) opposite to the exterior lateral face 12, a front face 14 and a back face 15, opposite to the front face 14.

[0030] A plurality of first openings 16 (shown in interrupted lines) are provided both in the front face 14 and in the back face 15. Each first opening 16 has a rectangular general shape whose corners are rounded.

[0031] A plurality of second openings 17 are provided in the lateral face 12.

[0032] The back panel 5 is a flat metal back panel which is sandwiched between the two vertical columns 4.

[0033] The back panel 5 comprises a first lateral end and a second lateral end opposite to the first lateral end (not shown), which are each mounted on a respective interior lateral face of a vertical column 4.

[0034] The back panel 5 further comprises an upper edge and a lower edge opposite to the upper edge (not shown), which upper and lower edges come each into abutment against a respective spacer (not shown) that comprises the shelving device 1.

[0035] The spacers are each disposed between the two vertical columns 4 and are mounted, like the back panel 5, on the respective interior lateral faces of the vertical columns 4.

[0036] One of the two spacers is situated in the vicinity of the respective free ends of the vertical columns 4, opposite to the base 2, and the other of the two spacers is situated at an opposite end of the first one, close to the base 2.

[0037] The shelving device 1 comprises a plurality of fixed shelves 6, here three, one bottom shelf and two intermediary shelves.

[0038] Each shelf 6, bottom or intermediary, comprises an upper face 20, two lateral faces 21 which are opposite to each other (only one lateral face is shown on Figures) and a front face 23 linking both lateral faces 21.

[0039] The lateral faces 21 and the front face 23 are configured to form a roof-deck for the shelf 6.

[0040] The upper face 20, the lateral faces 21 and the front face 23 are for instance made from a single metal sheet which comprises two lateral edges (not represented) which are opposite to each other and a front edge (not represented), all these edges being folded to form the roof-deck.

[0041] The upper metal sheet comprises two cut-outs provided respectively at a junction between the lateral edge and the front edge and at a junction between the lateral edge and the front edge in order to allow folding of it to form the roof-deck.

[0042] The bottom shelf 6 is located at the bottom of the shelving device 1 and, in particular, is mounted on the front face 14 and fastened to the base 2 and optionally further fastened to the back frame 3.

[0043] The bottom shelf 6 is configured to rest on the receiving U-shaped portion 10 of each foot member 8 of the base 2.

[0044] This bottom shelf 6 is optionally configured to be hung to the two vertical columns 4 thanks to hanging members like hooks (not represented), hooks which are configured to be introduced into the respective first openings 16 formed in the front face 14 of the vertical columns

4.

[0045] The intermediary shelves 6 are mounted on the front face 14 and fastened only to the back frame 3.

[0046] The intermediary shelves 6 comprise each two consoles 24 (only one is shown on Figures) fastened to the single metal sheet, close to the respective lateral faces 21.

[0047] Each console 24 comprises a body 25 having the shape of a flange and a plurality of hanging members like hooks 26 protruding from a back edge 27 of the body 25.

[0048] The intermediary shelves 6 are configured to be hung to the two vertical columns 4 thanks to the hooks 26 of the consoles 24, hooks 26 which are configured to be introduced into the respective first openings 16 formed in the front face 14 of the vertical columns 4.

[0049] The intermediary shelves 6 are thus mounted on the back frame 3 so that they overhang the base 2, and also the bottom shelf 6.

[0050] The shelving device 1 further comprises an upper moveable shelf 7 which is here located at a top of the shelving device 1.

[0051] The upper moveable shelf 7 is configured to admit an inserted position in which the upper moveable shelf 7 is close to the back frame 3 (Figure 1) and a deployed position in which the upper moveable shelf 7 is remote to the back frame 3 (Figure 3).

[0052] The upper moveable shelf 7 is further configured to admit an intermediary position, between the inserted and deployed positions, in which the upper moveable shelf 7 is also remote to the back frame 3 (Figure 2).

[0053] The upper moveable shelf 7 is here configured to overhang, at least in its inserted position, the fixed shelves 6.

[0054] The upper moveable shelf 7 comprises a support plate 30 configured to display articles and a moving system 40 configured to displace the support plate 30 between the inserted position and the deployed position.

[0055] The support plate 30 has a similar structure to the structure of the single metal sheet of the fixed shelves 6.

[0056] In particular, the support plate 30 comprises an upper face 31, two lateral faces 32 which are opposite to each other (only one lateral face is shown on Figures 1 to 3) and a front face 33 linking both lateral faces 32. The support plate 30 further comprises a rear face 34 opposite to the front face 33.

[0057] The lateral faces 32, the front face 33 and the rear face 34 are configured to form a roof-deck for the support plate 30.

[0058] The moving system 40 comprises a support frame 41 having a general shape of a casing which defines a receiving space 42 in which the upper moveable shelf 7 is introduced in its inserted position.

[0059] The casing has an open top for displaying the articles located on the moveable shelf 7.

[0060] The support frame 41 is mounted on the back frame 3.

[0061] The upper moveable shelf 7 is configured to be at least partially remote to the receiving space 42 in its intermediary position and in its deployed position.

[0062] The support frame 41 comprises on either side of the receiving space 42, two subframes (not represented) having each two vertical beams 43 and 44, which are opposite, and two horizontal beams 45 and 46, also named first beams, which are opposite.

[0063] The vertical beam 43 is fastened, directly or thanks to an interface (not represented), to the back frame 3.

[0064] The two horizontal beams 45 and 46 are each mounted both on the vertical beam 43 and on the vertical beam 44 and configured to be spaced apart, substantially parallel.

[0065] The two vertical beams 43 and 44 are also spaced apart, substantially parallel, by the two horizontal beams 45 and 46, which are sandwiched between the two vertical beams 43 and 44.

[0066] Each subframe of the support frame 41 further comprises a supplementary beam 47, also named second beam, similar to the horizontal beams 45 and 46.

[0067] The supplementary beam 47 is mounted both on the vertical beam 43 and on the vertical beam 44, close to the horizontal beam 46.

[0068] As shown on Figures 1 to 3, the horizontal beam 45 and the supplementary beam 47 are respectively mounted on opposite ends of each of the vertical beams 43 and 44.

[0069] The horizontal beam 46 is thus located between the horizontal beam 45 and the supplementary beam 47.

[0070] The support frame 41 further comprises a plurality of crossbeams (not shown) which are each configured to be mounted on horizontal and/or vertical and/or supplementary beams of the respective subframes, to rigidly link the subframes.

[0071] The moving system 40 further comprises two subsystems (not represented) each located close to a respective subframe.

[0072] Each subsystem comprises two moveable arms 48 and 49 each mounted both on the horizontal beam 46 and on the support plate 30.

[0073] The moveable arm 48 has a first end 50 pivotally attached to the horizontal beam 46 by the intermediary of a pivot member (not represented) and a second end 52, opposite to the first end 50, pivotally attached to the support plate 30 by the intermediary of a pivot member (not represented).

[0074] Similarly, the moveable arm 49 has a first end 51 pivotally attached to the horizontal beam 46 by the intermediary of a pivot member (not represented) and a second end 53, opposite to the first end 51, pivotally attached to the support plate 30 by the intermediary of a pivot member (not represented).

[0075] At least one subsystem further comprises one actuator 60 having a first end 61 pivotally attached to the moveable arm 49 by the intermediary of a pivot member (not represented), and a second end 62 opposite to the

first end 61 and pivotally attached to the supplementary beam 47 by the intermediary of a pivot member (not represented).

[0076] The first end 61 of the actuator 60 is pivotally attached to a finger 54 which protrudes from the first end 51 of the moveable arm 49.

[0077] The actuator 60 is for instance of simple-acting type and comprises a body 63 and a rod 64 moveable relative to the body 63.

[0078] The actuator 60 admits a retracted configuration in which the rod 64 is entirely or almost entirely introduced into the body 63, and a deployed configuration in which the rod 64 is almost entirely out of the body 63.

[0079] The actuator 60 can also admit an intermediary configuration in which the rod 64 is at least partially introduced into and at least partially out of the body 63.

[0080] The moving system 40 and the support plate 30 are configured so that the actuator 60 is in the retracted configuration when the upper moveable shelf 7 is in the deployed position (Figure 3) and the actuator 60 is in the deployed configuration when the upper moveable shelf 7 is in the inserted position (Figure 1).

[0081] The moving system 40 and the support plate 30 are thus configured so that the actuator 60 is in the intermediary configuration when the upper moveable shelf 7 is in the intermediary position (Figure 2).

[0082] The moving system 40 is configured to place the support plate 30 at a first predetermined height H1 relative to the base 2 when the support plate 30 is in the inserted position and to place the support plate 30 at a second predetermined height H2 relative to the base 2 when the support plate 30 is in the deployed position.

[0083] Here, the first predetermined height H1 is different from the second predetermined height H2 and in particular, the first predetermined height H1 is bigger than the second predetermined height H2.

[0084] In other words, the moving system 40 is configured to simultaneously take down and deploy the support plate 30 from its inserted position to its deployed position, which is particularly advantageous for restocking the upper moveable shelf 7 which is located at the top of the shelving device 1.

[0085] In particular, the moving system 40 is configured so that, in the inserted position of the upper moveable shelf 7, the moveable arms 48 and 49 are substantially parallel to each other and face the back frame 3 and, in the deployed position of the upper moveable shelf 7, the moveable arms 48 and 49 are also substantially parallel to each other and extend in a direction substantially perpendicular to the back frame 3.

[0086] As shown on Figure 3, the moveable arms 48 and 49 are further configured to be located on a same substantially horizontal plane in the deployed position of the upper moveable shelf 7.

[0087] The moving system 40 is further configured so that, in the intermediary position of the upper moveable shelf 7, the moveable arms 48 and 49 are substantially parallel to each other and are inclined relative to the back

frame 3.

[0088] Figures 4 to 6 show a variant embodiment of the shelving device of Figures 1 to 3.

[0089] In general, we have used the same reference numbers for similar parts, but increased by 100.

[0090] The shelving device 101 is similar to the shelving device 1 shown on Figures 1 to 3.

[0091] The shelving device 101 comprises a base 102 and a back frame 103 extending from the base 102, a fixed shelf 106 and one bottom moveable shelf 107.

[0092] The base 102 and the back frame 103 are identical to the base 2 and to the back frame 3 shown on Figures 1 to 3.

[0093] The fixed shelf 106 is similar to the intermediary shelves 6 shown on Figures 1 to 3.

[0094] The fixed shelf 106 is here located at half-height of the shelving device 101 and, in particular, is mounted on the back frame 103 and overhangs the base 102.

[0095] The bottom moveable shelf 107 is here located at a bottom of the shelving device 1. The fixed shelf 106 further overhangs the moveable shelf 107.

[0096] The bottom moveable shelf 107 is configured to admit an inserted position in which the bottom moveable shelf 107 is close to the back frame 103 (Figure 4) and a deployed position in which the bottom moveable shelf 107 is remote to the back frame 103 (Figure 6).

[0097] The bottom moveable shelf 107 is further configured to admit an intermediary position, between the inserted and deployed positions, in which the bottom moveable shelf 107 is also remote to the back frame 103 (Figure 5).

[0098] The bottom moveable shelf 107 comprises a support plate 130 configured to display articles and a moving system 140 configured to displace the support plate 103 between the inserted position and the deployed position.

[0099] The support plate 130 is similar to the support plate 30 shown on Figures 1 to 3.

[0100] The bottom moveable shelf 107 further comprises a handle grip 190, extending from the front face 133 of the support plate 130, for the passage from one to the other of the inserted position and the deployed position of the bottom moveable shelf 107.

[0101] The moving system 140 comprises a support frame 141 having a general shape of a casing which defines a receiving space 142 in which the bottom moveable shelf 107 is introduced in its inserted position.

[0102] The support frame 141 is mounted on the back frame 103, between the foot members 108 of the base 102.

[0103] The bottom moveable shelf 107 is configured to be at least partially remote to the receiving space 142 in its intermediary position and in its deployed position.

[0104] The support frame 141 comprises on either side of the receiving space 142, two subframes (not represented) having each two vertical beams 143 and 144, which are opposite, a horizontal beam 145, also named first beam, and a supplementary beam 147, also named

second beam, similar to the horizontal beam 145.

[0105] The vertical beam 143 is fastened, directly or thanks to an interface (not represented), to the back frame 103.

5 **[0106]** The horizontal beam 145 and the supplementary beam 147 are each mounted both on the vertical beam 143 and on the vertical beam 144 and configured to be spaced apart, substantially parallel.

10 **[0107]** The two vertical beams 143 and 144 are also spaced apart, substantially parallel, by the horizontal beam 145 and the supplementary beam 147, each of which being sandwiched between the two vertical beams 143 and 144.

15 **[0108]** The support frame 141 further comprises a plurality of crossbeams (not shown) which are each configured to be mounted on horizontal and/or vertical and/or supplementary beams of the respective subframes, to rigidly link the subframes.

20 **[0109]** The moving system 140 further comprises two subsystems (not represented) each located close to a respective subframe.

[0110] Each subsystem comprises two moveable arms 148 and 149 each mounted both on the horizontal beam 145 and on the support plate 130.

25 **[0111]** The moveable arm 148 has a first end 150 pivotally attached to the horizontal beam 145 by the intermediary of a pivot member (not represented) and a second end 152, opposite to the first end 150, pivotally attached to the support plate 130 by the intermediary of a pivot member (not represented).

30 **[0112]** Similarly, the moveable arm 149 has a first end 151 pivotally attached to the horizontal beam 145 by the intermediary of a pivot member (not represented) and a second end 153, opposite to the first end 151, pivotally attached to the support plate 130 by the intermediary of a pivot member (not represented).

35 **[0113]** Each moveable arm 148, 149 comprise an elongated portion, respectively 170 and 171, extending between the respective first end 150, 151 and the respective second end 152, 153 and an eyelet, respectively 172 and 173, which protrudes from the respective elongated portion 170, 171.

40 **[0114]** At least one subsystem further comprises two actuators 160 and 180.

45 **[0115]** The actuator 160 has a first end 161 pivotally attached to the moveable arms 149 by the intermediary of a pivot member (not represented), and a second end 162 opposite to the first end 161 and pivotally attached to the supplementary beam 147 by the intermediary of a pivot member (not represented).

50 **[0116]** The first end 161 of the actuator 160 is pivotally attached to the eyelet 173 which protrudes from the elongated portion 171 of the moveable arm 149.

55 **[0117]** The actuator 160 is for instance of simple-acting type and comprises a body 163 and a rod 164 moveable relative to the body 163.

[0118] The actuator 160 admits a retracted configuration in which the rod 164 is entirely or almost entirely

introduced into the body 163, and a deployed configuration in which the rod 164 is almost entirely out of the body 163.

[0119] The actuator 160 can also admit an intermediary configuration in which the rod 164 is at least partially introduced into and at least partially out of the body 163.

[0120] The actuator 180 has a first end 181 pivotally attached to the moveable arms 148 by the intermediary of a pivot member (not represented), and a second end 182 opposite to the first end 181 and pivotally attached to the supplementary beam 147 by the intermediary of a pivot member (not represented).

[0121] The first end 181 of the actuator 180 is pivotally attached to the eyelet 172 which protrudes from the elongated portion 170 of the moveable arm 148.

[0122] The actuator 180 is for instance of simple-acting type and comprises a body 183 and a rod 184 moveable relative to the body 183.

[0123] The actuator 180 admits a retracted configuration in which the rod 184 is entirely or almost entirely introduced into the body 183, and a deployed configuration in which the rod 184 is almost entirely out of the body 183.

[0124] The actuator 180 can also admit an intermediary configuration in which the rod 184 is at least partially introduced into and at least partially out of the body 183.

[0125] The moving system 140 and the support plate 130 are configured so that the actuators 160 and 180 are in the deployed configuration when the bottom moveable shelf 107 is in the deployed position (Figure 6) and the actuators 160 and 180 are in the retracted configuration when the bottom moveable shelf 107 is in the inserted position (Figure 4).

[0126] The moving system 140 and the support plate 130 are thus configured such that the actuators 160 and 180 are in the intermediary configuration when the bottom moveable shelf 107 is in the intermediary position (Figure 5).

[0127] The moving system 140 is configured to place the support plate 130 at a first predetermined height H3 relative to the base 102 when the support plate 130 is in the inserted position and to place the support plate 130 at a second predetermined height H4 relative to the base 102 when the support plate 130 is in the deployed position.

[0128] Here, the first predetermined height H3 is different from the second predetermined height H4 and in particular, the first predetermined height H3 is smaller than the second predetermined height H4.

[0129] In other words, the moving system 140 is configured to simultaneously raise and deploy the support plate 130 from its inserted position to its deployed position, which is particularly advantageous for restocking the bottom moveable shelf 107 which is located at the bottom of the shelving device 101.

[0130] In particular, the moving system 140 is configured so that, in the inserted position of the bottom moveable shelf 107, the moveable arms 148 and 149 are sub-

stantially parallel to each other and substantially face the back frame 103 and, in the deployed position of the bottom moveable shelf 107, the moveable arms 148 and 149 are also substantially parallel to each other and extend in a direction substantially almost perpendicular to the back frame 103.

[0131] The moving system 140 is further configured so that, in the intermediary position of the bottom moveable shelf 107, the moveable arms 148 and 149 are substantially parallel to each other and are inclined relative to the back frame 103.

[0132] In variants that are not shown:

- the moving system comprises only one moveable arm by subsystem and/or only one subsystem;
- the support frame has not a shape of a casing and comprises only one subframe;
- the moving system which articulates the upper moveable shelf shown on Figures 1 to 3, comprises more than one actuator, for instance two actuators, or on the contrary, is devoid of actuator;
- the moving system which articulates the bottom moveable shelf shown on Figures 4 to 6, comprises only one actuator or is devoid of actuator; and/or
- the shelving device can comprise both an upper moveable shelf as shown on Figures 1 to 3 and a bottom moveable shelf as shown on Figures 4 to 6.

[0133] It should be noted more generally that the invention is not limited to the examples described and represented.

Claims

1. Shelving device for displaying articles, comprising a base (2; 102), a back frame (3; 103) extending from said base (2; 102), at least one of said base and back frame being configured to receive at least one fixed shelf (6; 106) overhanging said base (2; 102), and at least one moveable shelf (7; 107) mounted on said base (2; 102) and/or on said back frame (3; 103) and having an inserted position in which said at least one moveable shelf (7; 107) is close to said back frame (3; 103) and a deployed position in which said at least one moveable shelf (7; 107) is remote to said back frame (3; 103), **characterized in that** said at least one moveable shelf (7; 107) comprises a support plate (30; 130) configured to display articles and a moving system (40; 140) configured to displace said support plate (30; 130) between said inserted and deployed positions, said moving system (40; 140) being further configured to place said support plate (30; 130) at a first predetermined height (H1; H3) relative to said base (2; 102) when said support plate (30; 130) is in said inserted position and to place said support plate (30; 130) at a second predetermined height (H2; H4) relative to said base (2; 102)

when said support plate (30; 130) is in said deployed position, said first predetermined height (H1; H3) being different from said second predetermined height (H2; H4).

2. Shelving device according to claim 1, wherein said moving system (40; 140) comprises a support frame (41; 141) having at least one first beam (46; 145) mounted on said base (2; 102) and/or on said back frame (3; 103), and at least two moveable arms (48, 49; 148, 149) each having a first end (50, 51; 151, 152) pivotally attached to said at least one first beam (46; 145) and a second end (52; 53) opposite to said first end (50; 51) and pivotally attached to said support plate (30; 130).
3. Shelving device according to claim 2, wherein said moving system (40; 140) is configured so that, in said inserted position of said at least one moveable shelf (7; 107), said at least two moveable arms (48, 49; 148, 149) are substantially parallel to each other and face said back frame (3; 103) and, in said deployed position of said at least one moveable shelf (7; 107), said at least two moveable arms (48, 49; 148, 149) are also substantially parallel to each other and extend in a direction substantially perpendicular to said back frame (3; 103).
4. Shelving device according to one of claims 2 and 3, wherein said support frame (41; 141) has at least one second beam (47; 147) mounted on said base (2; 102) and/or on said back frame (3; 103) and said moving system (40; 140) comprises at least one actuator (60; 160, 180) having a first end (61; 161, 181) pivotally attached to at least one of said moveable arms (49; 149) and a second end (62; 162, 182) opposite to said first end (61; 161, 181) and pivotally attached to said at least one second beam (47; 147).
5. Shelving device according to claim 4, wherein said moving system (40) and support plate (30) are configured so that said at least one actuator (60) is in a retracted configuration when said at least one moveable shelf (7) is in said deployed position and said at least one actuator (60) is in a deployed configuration when said at least one moveable shelf (7) is in said inserted position.
6. Shelving device according to claim 4, wherein said moving system (140) and support plate (130) are configured so that said at least one actuator (160, 180) is in a deployed configuration when said at least one moveable shelf (107) is in said deployed position and said at least one actuator (160, 180) is in a retracted configuration when said at least one moveable shelf (107) is in said inserted position.
7. Shelving device according to any one of claims 4 to

6, wherein said first end (61) of said at least one actuator (60) is pivotally attached to a finger (54) which protrudes from said first end (51) of said moveable arm (49).

8. Shelving device according to any one of claims 4 to 6, wherein at least one of said moveable arms (148, 149) comprises an elongated portion (170, 171) extending between said first and second ends (151, 152, 153, 154) of said moveable arm (148, 149) and said first end (161, 181) of said at least one actuator (160, 180) is pivotally attached to an eyelet (172, 173) which protrudes from said elongated portion (170, 171).
9. Shelving device according to any one of claims 1 to 8, wherein said support frame (41; 141) has a general shape of a casing which defines a receiving space (42; 142) and said at least one moveable shelf (7; 107) is introduced into said receiving space (42; 142) in its inserted position and said at least one moveable shelf (7; 107) is at least partially remote to said receiving space (42; 142) in its deployed position.
10. Shelving device according to any one of claims 1 to 9, wherein said at least one moveable shelf (7) is located at a top of said shelving device (1) and said first predetermined height (H1) is bigger than said second predetermined height (H2).
11. Shelving device according to any one of claims 1 to 9, wherein said at least one moveable shelf (107) is located at a bottom of said shelving device (101) and said first predetermined height (H3) is smaller than said second predetermined height (H4).
12. Shelving device according to any one of claims 1 to 11, wherein said at least one moveable shelf (107) comprises a handle grip (190) for the passage from one to the other of said inserted and deployed positions.
13. Shelving device according to any one of claims 1 to 12, comprising at least one fixed shelf (6) which is mounted on said back frame (3) and which overhangs said base (2), said at least one moveable shelf (7) overhanging at least in its inserted position said at least one fixed shelf (6).
14. Shelving device according to any one of claims 1 to 12, comprising at least one fixed shelf (106) which is mounted on said back frame (103) and which overhangs said base (102) and said at least one moveable shelf (107) at least in its inserted position.
15. Shelving device according to one of claims 13 and 14, wherein said back frame (3; 103) comprises at least two vertical columns (4) extending from said

base (2; 102) and a back panel (5; 105) also extending from said base (2; 102) and disposed between said at least two vertical columns (4; 104), said at least one fixed shelf (6; 106) being fixed to said at least two vertical columns (4; 104) and/or to said base (2; 102). 5

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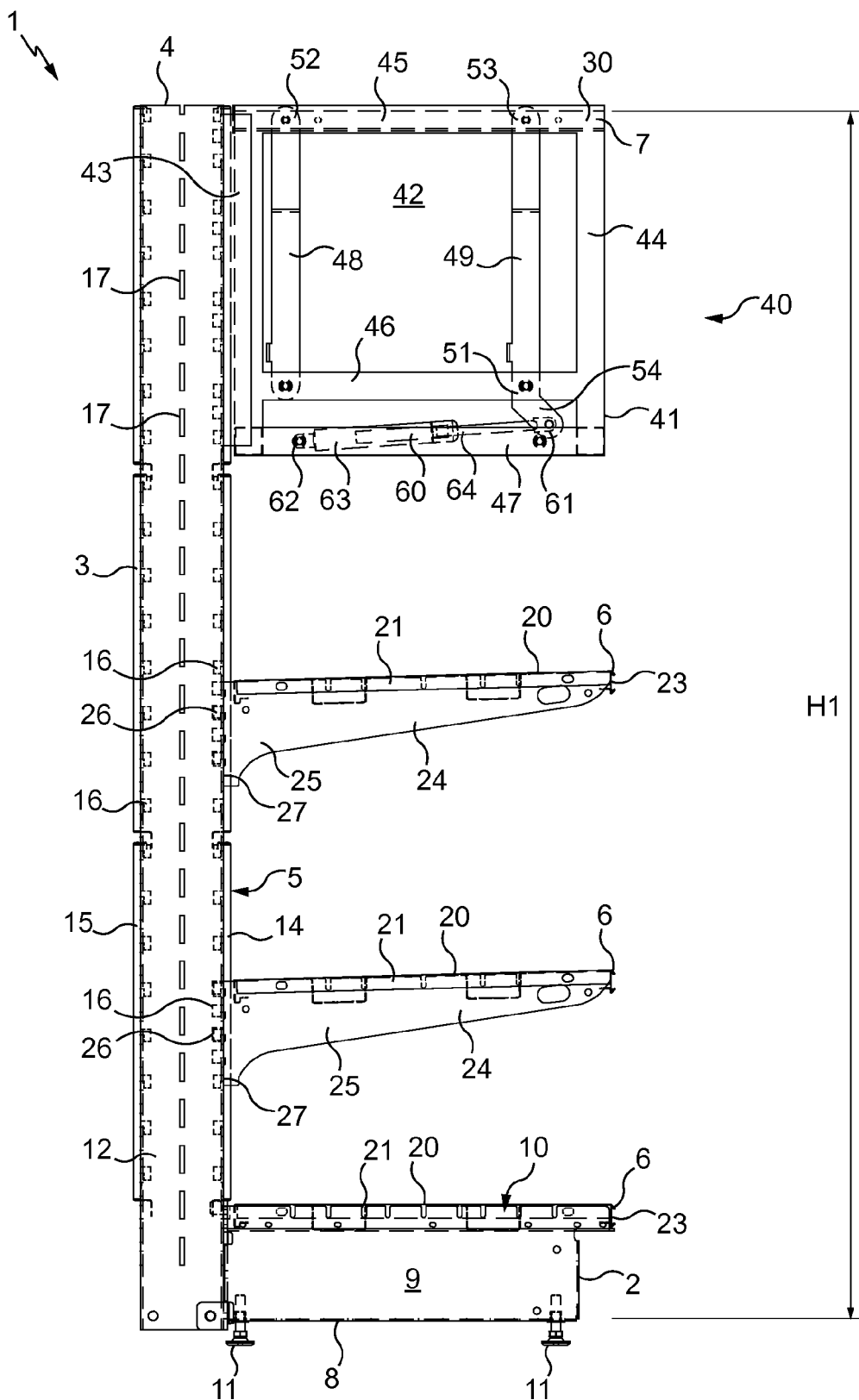


Fig. 1

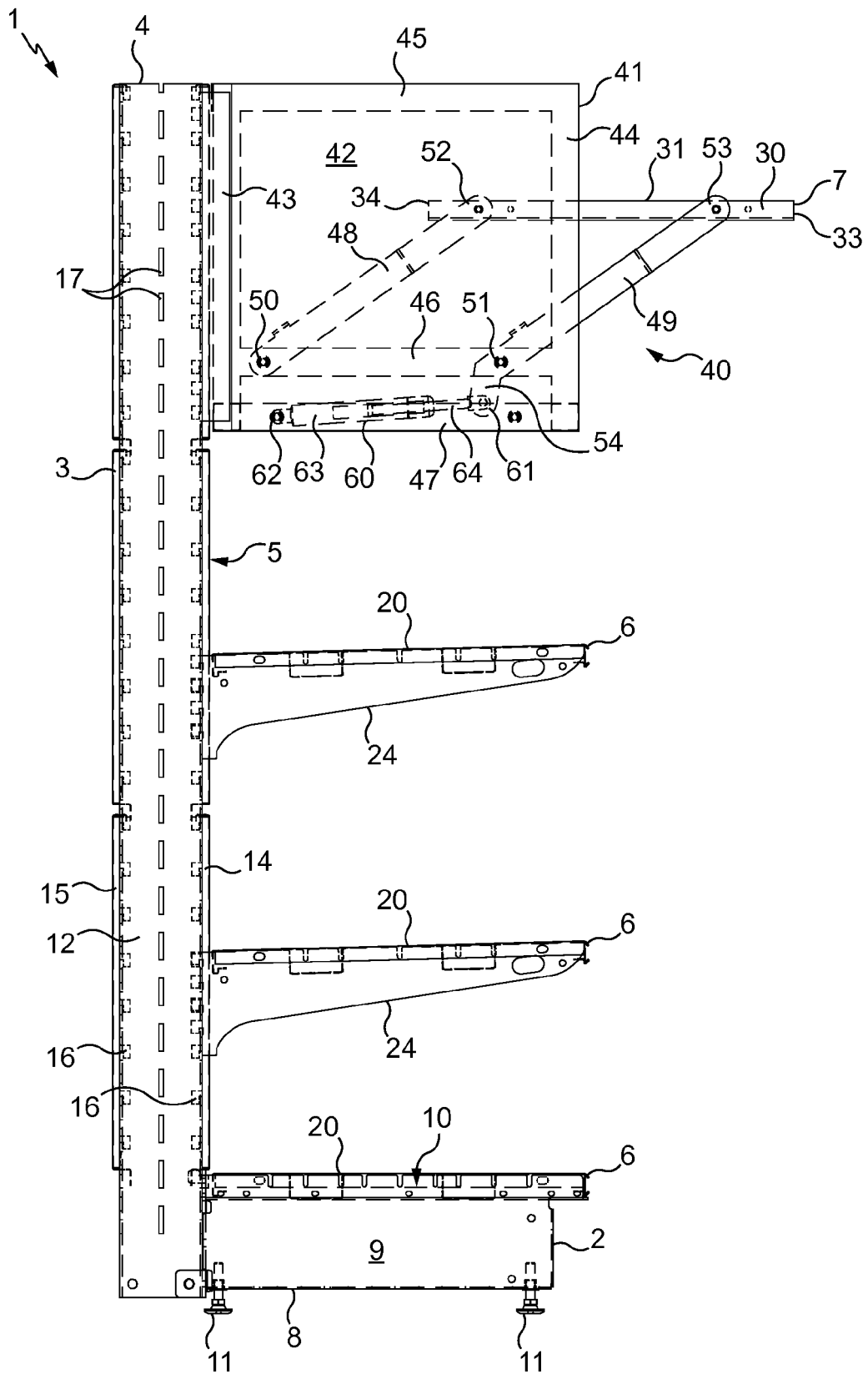


Fig. 2

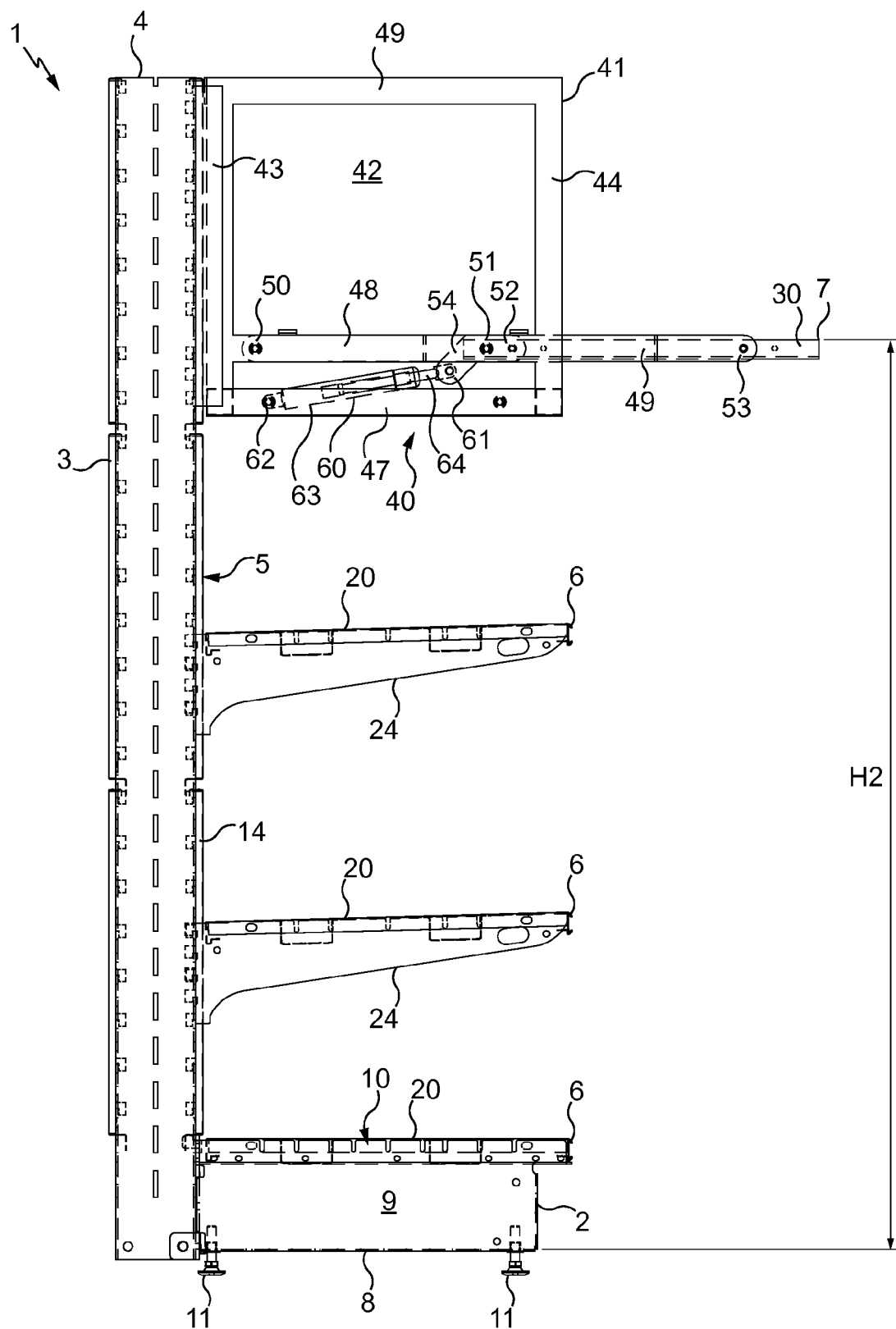


Fig. 3

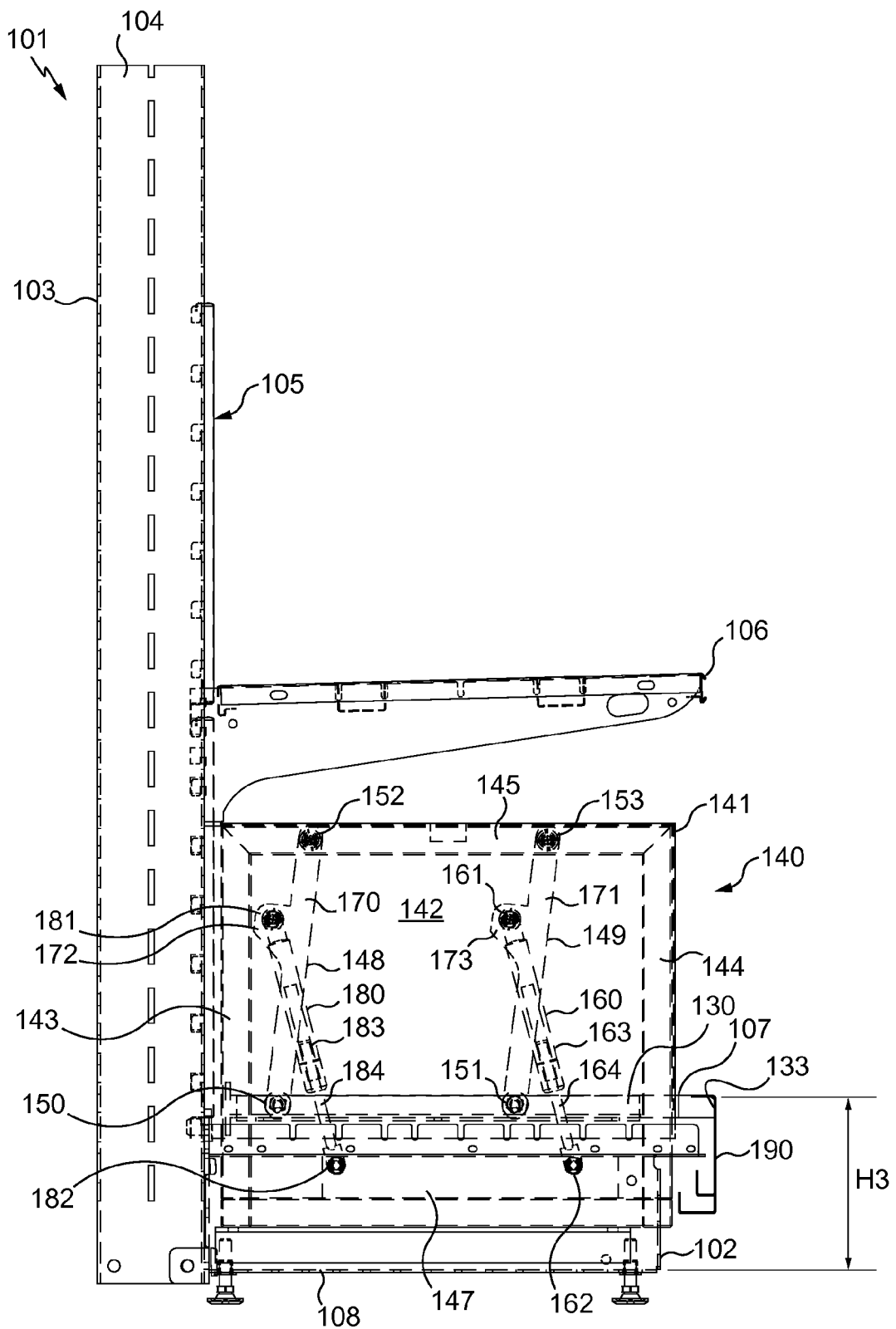


Fig. 4

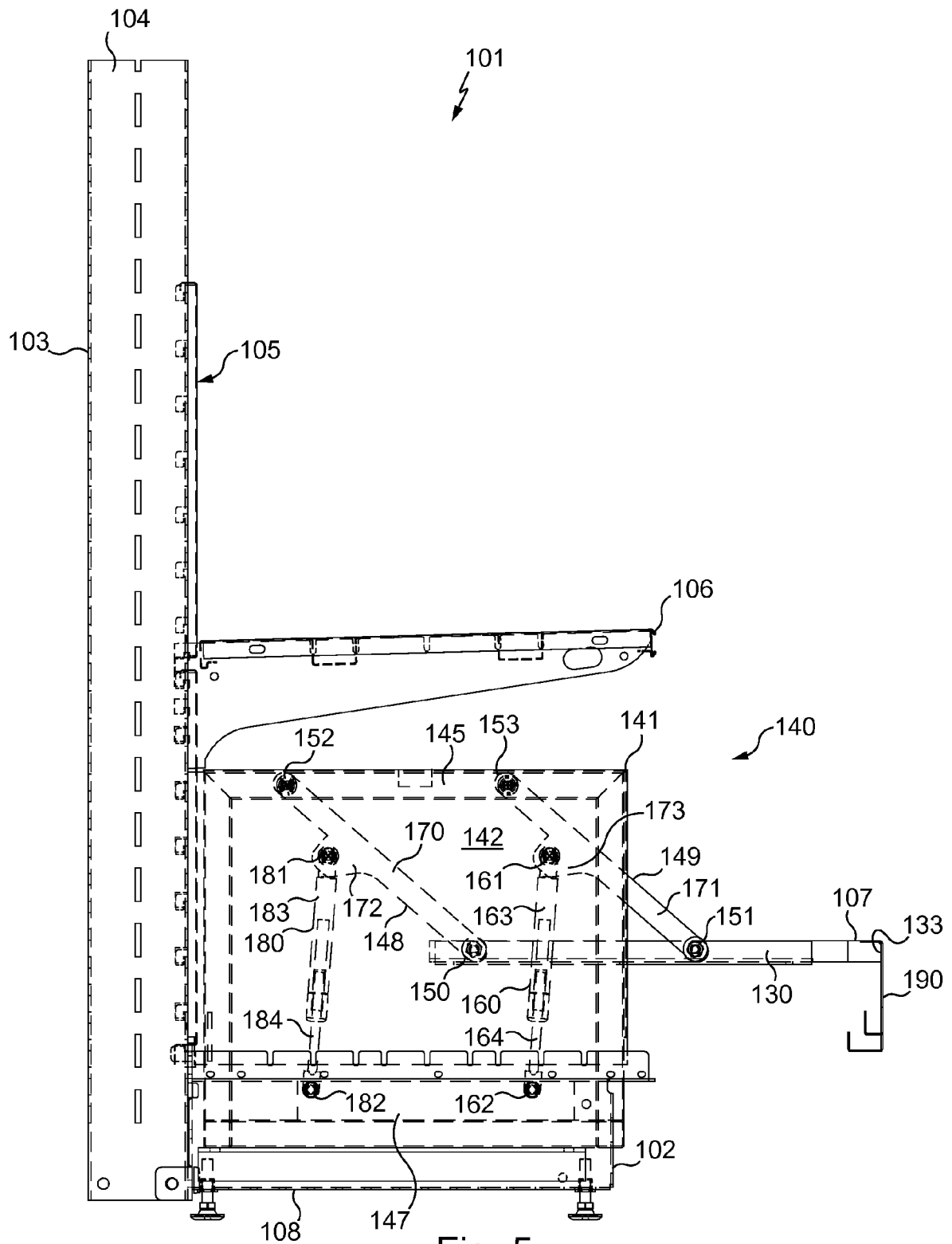


Fig. 5

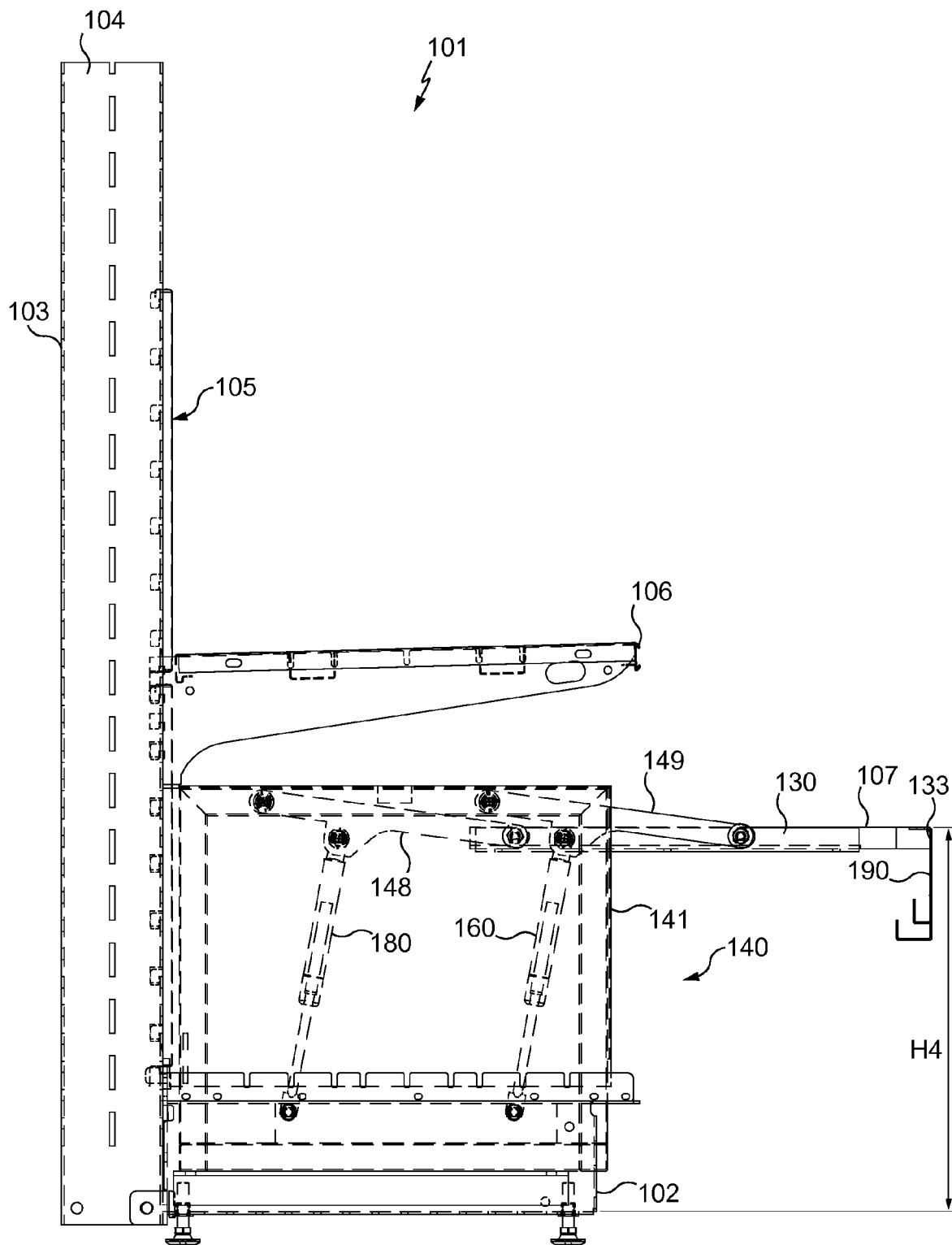


Fig. 6



EUROPEAN SEARCH REPORT

 Application Number
 EP 14 30 6122

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X	US 2006/191449 A1 (PATTEN JIM W [US]) 31 August 2006 (2006-08-31)	1-6, 9, 10, 12-15	INV. A47B96/02
Y	* paragraph [0022] - paragraph [0033]; figures 1-7 *	7, 8	A47F5/00
Y	DE 34 33 137 A1 (HUNTEBRINKER HANS [DE]) 20 March 1986 (1986-03-20) * figures 1-3 *	7, 8	
X	US 6 340 214 B1 (ADAMS H LEE [US]) 22 January 2002 (2002-01-22) * column 2, line 33 - column 3, line 32; figures 1-4 *	1-3, 9-12, 14, 15	
X	US 2005/206282 A1 (WALBURN WILLIAM L [US]) 22 September 2005 (2005-09-22) * abstract; figures 1-11 *	1-3, 9, 11-15	
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			A47B A47F
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		15 January 2015	Vehrer, Zsolt
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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ON EUROPEAN PATENT APPLICATION NO.**

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The members are as contained in the European Patent Office EDP file on
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15-01-2015

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