(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 965 666 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
13.01.2016 Bulletin 2016/02

(51) Int Cl.:
A47F 5/00 *(2006.01)*

(21) Application number: **14306123.2**

(22) Date of filing: **09.07.2014**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(71) Applicant: **HMY Group**
89470 Moneteau (FR)

(72) Inventors:
- **Berthaud, Philippe**
  89700 Tonnerre (FR)
- **Chowaniak, Guillaume**
  89000 Saint-Georges-sur-Baulche (FR)

(74) Representative: **Santarelli**
49, avenue des Champs-Elysées
75008 Paris (FR)

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

(57) The invention provides a shelving device comprising a base (2), at least one moveable bottom shelf (7) mounted on said base, having an inserted position where she is introduced into a receiving space (90) defined by said base and a deployed position where she is remote to said receiving space, comprising a support plate (30) and a moving system (40) comprising at least one carrier (41) on which said support plate rests, at least one mounting interface (42) mounted on said base and at least one slide element (43) sandwiched between and attached to both said carrier and said mounting interface; said carrier, mounting interface and slide element being configured to allow the displacement of said carrier and of said support plate which rests on said carrier relative to said mounting interface and to said base on which said mounting interface is mounted.

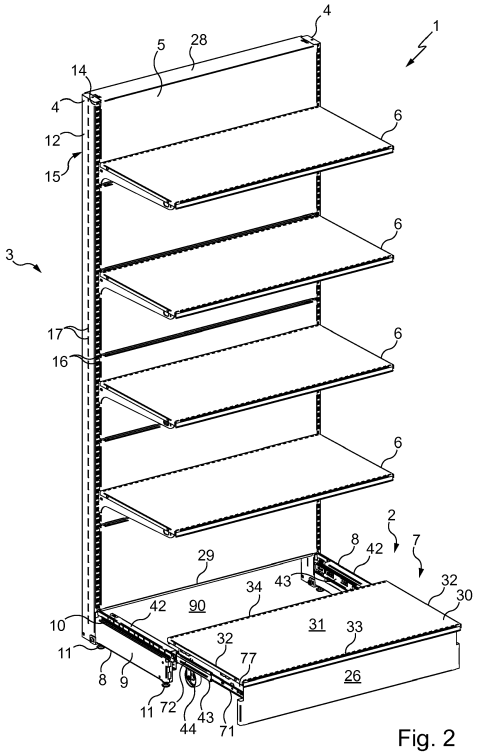


Fig. 2

EP 2 965 666 A1

Description

FIELD OF THE INVENTION

[0001] The invention relates to shelving devices, also named gondola, comprising at least one moveable bottom 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 lowermost shelf mounted on the shelving device, are not so easy to access and the user has to bend down or to crouch for facing such a shelf and then to stretch out its arm to reach the rear of said shelf in order to put or to catch articles.

[0007] The position of the user is therefore particularly uncomfortable.

[0008] Others shelving devices have already known, which comprise moveable bottom shelves having generally an inserted position for displaying articles placed thereon and a deployed position for restocking.

[0009] 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

[0010] The invention is directed to a shelving device for displaying articles, comprising at least a moveable bottom 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.

[0011] The invention accordingly provides a shelving device for displaying articles, comprising a base, at least one moveable bottom shelf which is mounted on said base and a back frame extending from said base and configured to receive at least one fixed shelf overhanging said base, said at least one moveable bottom shelf having an inserted position in which said at least one moveable bottom shelf is introduced into a receiving space defined at least by said base and a deployed position in which said at least one moveable bottom shelf is at least partially remote to said receiving space, characterized in that said at least one moveable bottom 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 comprising at least one carrier on which said support plate rests, at least one mounting interface mounted on said base and at least one slide element sandwiched between and attached to both said at least one carrier and said at least one mounting interface; said at least one carrier, said at least one mounting interface and said at least one slide element being configured to allow the displacement of said at least one carrier and of said support plate which rests on said at least one carrier relative to said at least one mounting interface and to said base on which said at least one mounting interface is mounted.

[0012] The shelving device according to the invention is very convenient in that the at least one slide element has only the functions of guiding and sliding of the moveable bottom shelf and in that the at least one carrier has the function of carrying the heavy weight of the articles resting on the support plate. In other words, the at least one slide element does not carry the weight of the support plate.

[0013] The moving system of the moveable bottom shelf of the shelving device according to the invention thus allows the displacement of the moveable bottom 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.

[0014] 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 plurality of wheels fixedly attached to said at least one carrier and configured to roll on a floor for displacing said carrier;
- said at least one slide element comprises a first part fixedly attached to said at least one carrier and a second part slidable relative to said first part, attached to said at least one mounting interface and configured to be at least slightly vertically moveable relative to said at least one mounting interface and said at least one mounting interface is fixedly attached to said base; by virtue of which said at least one carrier on which rests said support plate is able to compensate the gradient of said floor on which said wheels are configured to roll;
- said at least one mounting interface has a generally C-shaped comprising a main portion, a first and a second auxiliary portions and at least one vertical opening having for instance an oblong shape and

being formed in said main portion;

- said base comprises at least one foot member having a receiving U-shaped portion and said at least one mounting interface has a generally C-shaped comprising a main portion, a first and a second auxiliary portions (and a first edge portion extending from said first auxiliary portion and configured to be introduced into said receiving U-shaped portion;
- said base comprises at least one slot formed in said receiving U-shaped portion and said at least one mounting interface comprises at least one tongue formed in said first edge portion, said at least one tongue being configured to be folded with respect to said first edge portion and introduced into said at least one slot;
- said base comprises at least one foot member having a main body and said at least one mounting interface has a generally C-shaped comprising a main portion, a first and a second auxiliary portions and a second edge portion extending from said second auxiliary portion and configured to come into abutment against said main body;
- said at least one carrier has a U-shaped comprising a bottom portion, a first and a second lateral portions and at least one bearing portion extending from at least one of said first and second lateral portions, and said support plate rests on said at least one bearing portion;
- said support plate is welded to said at least one bearing portion;
- said at least one moveable shelf comprises at least one bearing member distinct to said support plate, said at least one bearing member is attached to said at least one carrier and said support plate rests on said at least one bearing member;
- said at least one moveable shelf comprises at least one rigid element fixedly attached to said support plate and said carrier comprises at least one cut-out in which said at least one rigid element is configured to be inserted;
- said base comprises two foot members spaced apart and said moving system comprises two carriers, two mounting interfaces each fixedly attached to a respective foot member and two slide elements each attached to both a respective carrier and a respective mounting interface;
- the shelving device comprises a plinth and said at least one carrier comprises a front wall on which said plinth is configured to be fastened;
- 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 bottom 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.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] 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 and 2 are perspective views of a shelving device comprising a plurality of fixed shelves and a moveable bottom shelf which is respectively in an inserted position and in a deployed position;
- Figure 3 is a similar view to Figure 1, showing only partially the shelving device, without the fixed shelves and the moveable bottom shelf is devoid of a plinth;
- Figures 4 and 5 are partial front view and side view of the shelving device shown on Figure 3;
- Figure 6 is a similar view to Figure 2, showing only partially the shelving device, without the fixed shelves and the moveable bottom shelf is devoid of a plinth and shown in an exploded state;
- Figure 7 is a partial perspective view of a bearing member that comprises the moveable bottom shelf;
- Figure 8 is a partial and exploded perspective view of a moving system that comprises the moveable bottom shelf;
- Figures 9 and 10 are perspective and top views of a carrier that comprises the moving system;
- Figures 11 and 12 are perspective and front views of a mounting interface that comprises the moving system;
- Figures 13 and 14 are partial perspective and side views of the moveable bottom shelf, showing a slide element that comprises the moving system, here mounted on the carrier;
- Figure 15 is a similar view to Figure 6, showing a variant of the moveable bottom shelf; and
- Figures 16 and 17 are partial perspective and side views of the moveable bottom shelf shown on Figure 15.

DETAILED DESCRIPTION OF PREFERED EMBODIMENTS

[0016] Figures 1 to 6 show a shelving device 1, also named gondola, which is used to display articles (not represented).

[0017] The shelving device 1 is configured to be disposed for instance in a supermarket and to receive articles to display for instance for sale.

[0018] 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 bottom moveable shelf 7.

[0019] The back frame 3 comprises two vertical columns 4 extending from the base 2 and a back panel 5 also extending from the base 2 and disposed between

the two vertical columns 4.

[0020] 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.

[0021] Each foot member 8 is fixedly attached by its first end to a bottom part of a respective vertical column 4.

[0022] 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, the receiving U-shaped portion 10 defining a receiving area.

[0023] 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.

[0024] 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.

[0025] The base 2 further comprises a plurality of slots 13 formed in each receiving U-shaped portion 10 and opening in the respective receiving area (Figure 5).

[0026] The two vertical columns 4 are made from metal and have each a general shape of a rod having a rectangular section.

[0027] 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.

[0028] A plurality of first openings 16 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.

[0029] A plurality of second openings 17 are provided in the lateral face 12.

[0030] The back panel 5 is a flat metal back panel which is sandwiched between the two vertical columns 4.

[0031] The back panel 5 comprises a first lateral end 18 and a second lateral end 19 opposite to the first lateral end 18, which are each mounted on the respective interior lateral face of a vertical column 4.

[0032] The back panel 5 further comprises an upper edge 28, which is a free edge, and a lower edge 29 opposite to the upper edge 28, which lower edge 29 is located close to the base 2.

[0033] The shelving device 1 comprises a plurality of fixed shelves 6, here four, which are each mounted on the back frame 3.

[0034] Each fixed shelf 6 comprises an upper face 20, two lateral faces 21 which are opposite to each other and a front face 23 linking both lateral faces 21.

[0035] The lateral faces 21 and the front face 23 are configured to form a roof-deck for the shelf 6.

[0036] 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.

[0037] The upper metal sheet comprises two cut-outs provided respectively at a junction between a lateral edge and the front edge in order to allow folding of it to form the roof-deck.

[0038] The fixed shelves 6 are spaced apart on the shelving device 1 and are rigidly hooked on the front face 14 of the vertical columns 4 and thus fastened to the back frame 3.

[0039] Each fixed shelf 6 comprises two consoles 24 (only one is visible on Figures) fastened to the single metal sheet, close to the respective lateral faces 21.

[0040] Each console 24 comprises a body 25 having the shape of a flange and a plurality of hanging members like hooks (not represented) protruding from a back edge 27 of the body 25.

[0041] The fixed shelves 6 are thus configured to be hung to the two vertical columns 4 thanks to the hooks of the consoles 24, hooks which are configured to be introduced into the respective first openings 16 formed in the front face 14 of the vertical columns 4.

[0042] The fixed shelves 6 are thus mounted on the back frame 3 so that they overhang the base 2.

[0043] The shelving device 1 further comprises the bottom moveable shelf 7 which is here located at the bottom of the shelving device 1. The fixed shelves 6 further overhang the moveable shelf 7.

[0044] The bottom moveable shelf 7 is configured to admit an inserted position in which the bottom moveable shelf 7 is close to the back frame 3 (Figures 1 and 3 to 5) and a deployed position in which the bottom moveable shelf 7 is remote to the back frame 3 (Figures 2 and 6).

[0045] The bottom moveable shelf 7 is configured to be introduced into a receiving space 90 defined between the foot members 18 of the base 2 in its inserted position, and is configured to be at least partially remote to the receiving space 90 in its deployed position.

[0046] The bottom moveable shelf 7 comprises a support plate 30 configured to display articles and a moving system 40 (Figure 6) configured to displace the support plate 30 between the inserted position and the deployed position.

[0047] The support plate 30 has a similar structure to the structure of the single metal sheet of the fixed shelves 6.

[0048] In particular, the support plate 30 comprises an upper face 31, two lateral faces 32 which are opposite to each other 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.

[0049] 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.

[0050] The bottom moveable shelf 7 further comprises two bearing members 35, distinct to the support plate 30 (Figures 6 and 7).

[0051] Each bearing member is formed by an elongated rod 35 having two opposite free ends 36 from each of which protrudes three curved hook portions 37 successively arranged and spaced apart by first insertion

gaps 38.

[0052] Each curved hook portion 37 has an L-shaped and is configured so that a branch of the L-shaped extends remote to the elongated rod 35 and provides a notch 39.

[0053] The bearing members 35 are configured to be fastened to the moving system 40 (see in details below), so that the support plate 30 rests on the bearing members 35, by a lower face (not represented) opposite to the upper face 31.

[0054] The bottom moveable shelf 7 optionally comprises at least one rigid element 50 (Figure 13), distinct to the support plate 30, and configured to be fixedly attached on the lower face of the support plate 31.

[0055] The bottom moveable shelf 7 further comprises a plinth 26 which is configured to be fixedly attached on the moving system 40 (see in details below) and located under the front face 33 of the support plate 30.

[0056] The moving system 40 comprises two carriers 41 which are identical and on which the support plate 30 rests.

[0057] The moving system 40 comprises two mounting interfaces 42 which are identical and configured to be mounted on the base 2, and in particular configured to be fixedly attached to a respective foot member 8.

[0058] The moving system 40 comprises two slide elements 43 which are identical and which are each attached to both a respective carrier 41 and a respective mounting interface 42 (Figures 4, 6 and 8).

[0059] In particular, each slide element 43 is sandwiched between and attached to both a respective carrier 41 and a mounting interface 42.

[0060] The moving system 40 further comprises a couple of wheels 44 fixedly attached to each carrier 41 and configured to roll on a floor for displacing the respective carrier 40.

[0061] Each sub-assembly formed by a carrier 41, a mounting interface 42, a slide element 43 and a couple of wheels 44 is configured to allow the displacement of the wheels 44, the carrier 41 and the support plate 30 which rests on the carrier 41, relative to the mounting interface 42 and to the base 2 on which the mounting interface 41 is mounted.

[0062] In reference to Figures 8 to 10, each carrier 41 has a U-shaped defining an internal space 55 and comprising a bottom portion 51 and a first lateral portion 52 and a second lateral portion 53 which extend from opposite sides of the bottom portion 51 and face to each other.

[0063] Each carrier 41 has an axis of symmetry along the bottom portion 51 and is configured to be used on either side of the moveable bottom shelf 7.

[0064] Each carrier 41 comprises a plurality of bearing portions 54 extending from a free edge of each of the first and second lateral portions 52 and 53, free edges that are opposite to the bottom portion 51.

[0065] The bearing portions 54 extend substantially perpendicularly relative to the first and second lateral portions 52 and 53 and remote to the internal space 55.

[0066] The bearing portions 54 are configured to receive the support plate 30 so that the latter rests on the bearing portions 54.

[0067] In particular, the bearing portions 54 are welded on the lower face of the support plate 30.

[0068] Each carrier 41 comprises a plurality of cut-outs 56 formed in each of the first and second lateral portions 52 and 53, between the bearing portions 54.

[0069] Each cut-out 56 is configured for receiving a rigid element 50 that comprises the moveable bottom shelf 7.

[0070] Each carrier 41 further comprises two first fastening members formed in each of the first and second lateral portions 52 and 53. Each first fastening member comprises three curved slots 57 successively arranged.

[0071] Each curved slots 57 is configured to be pass through by a curved hook portion 37 of the elongated rod 35 for attaching the latter to the respective carrier 41.

[0072] The curved hook portions 37 are inserted into the curved slots 57 and received in the internal space 55, and the elongated rods 35 are rotated for engaging the first and second lateral portions 52 and 53 into the respective notches 39 of the elongated rods 35.

[0073] Each carrier 41 further comprises a plurality of threated holes 70 formed in each of the first and second lateral portions 52 and 53.

[0074] Each threated hole 70 is configured for receiving threated pins 76 for attaching a respective slide element 43 to the carrier 41.

[0075] Each carrier 41 comprises a front wall 59 protruding from the bottom portion 51 and extending at the opposite of the first and second lateral portions 52 and 53, and on which the plinth 26 is configured to be fastened.

[0076] In particular, each carrier 41 comprises two fastening slots 60 formed in the front wall 59 for fastening the plinth 26.

[0077] The front wall 59 is folded relative to the bottom portion 51 thanks to cut-outs 61 formed both on the front wall 59 and on the bottom portion 51.

[0078] Each carrier 41 further comprises a plurality of threated holes 58 formed in the bottom portion 51.

[0079] Each hole 58 is configured for receiving threated pins 62 for attaching the wheels 44 on the carrier 41.

[0080] Each wheel 44 is mounted on a support wheel 62 comprising a base 63 in which complementary threated holes 65 are formed for fixedly attaching the wheel 44 to the bottom portion 51 of the carrier 41, thanks to the threated pins 62.

[0081] Each base 63 here comprises four complementary threated holes 65 and each bottom portion 51 thus comprises a couple of four threated holes 58 formed on opposite sides of the bottom portion 51.

[0082] In reference to Figures 8, 11 and 12, each mounting interface 42 has a generally C-shaped comprising a main portion 81, a first auxiliary portion 82 and a second auxiliary portion 83 opposite to the first auxiliary portion 82.

[0083] Each mounting interface 42 has an internal area in the C-shaped and a rear face 85 opposite to the internal area.

[0084] Each mounting interface 42 comprises two vertical openings 84 formed in the main portion 81 and having here each an oblong shape.

[0085] Each mounting interface 42 further comprises a first edge portion 87 extending from the first auxiliary portion 82 and configured to be introduced into the receiving U-shaped portion 10 of a respective foot member 8 of the base 2.

[0086] Each mounting interface 42 further comprises two tongues 88 formed at opposite ends of the first edge portion 87.

[0087] Each tongue 88 is configured to be folded with respect to the first edge portion 87 and introduced into a slot 13 formed in the receiving U-shaped portion 10 of the respective foot member 8 of the base 2, for fixedly attached the mounting interface 42 relative to the base 2.

[0088] Each mounting interface 42 further comprises a second edge portion 86 extending from the second auxiliary portion 83 and configured to come into abutment against the main body 9 of the respective foot member 8 of the base 2.

[0089] In reference to Figures 2, 8, 13 and 14, each slide element 43 comprises a first part 71 fixedly attached to a respective carrier 41 and a second part 72 slidable relative to the first part 71 and attached to a respective one mounting interface 42.

[0090] The second part 72 has a general C-shaped and the first part 71 is located inside the internal area in the C-shaped.

[0091] The first part 71 comprises a plurality of threated holes 77 (Figure 2) which are each configured for facing a threated holes 70 of one of the first and second lateral portions 52 and 53 and the threated pins 76 are configured for fixedly attaching the first part 71 and the carrier 41 by passing through the respective threated holes 77 and 70.

[0092] The second part 72 comprises a plurality of cut-outs 74 defining a plurality of tongues 73 in which are formed at least one hole 75 configured for facing the rear face 85 of a respective mounting interface 42, and in particular a respective oblong vertical opening 84 of this mounting interface 42.

[0093] The moving system 40 comprises rivets 78 which each comprise a body configured to be received in the hole 75 and the corresponding oblong vertical opening 84, and a head configured to be located in the internal area of the C-shaped of the mounting interface 42.

[0094] The moving system 40 further comprises centering rings 79 each configured to be mounted on the body of a respective rivet 78, close to its head, and also located in the internal area in the C-shaped of the mounting interface 42.

[0095] The moving system 40 further comprises distance rings 80 each configured to be mounted on the body of a respective rivet 78, and sandwiched between the second part 72 of the slide element 43 and the rear face 85 of the mounting interface 42.

[0096] The rivets 78 are configured for assembling the slide element 43 and the mounting interface 42 by keeping a clearance between them so that the heads of the rivets 78 are able to move in the internal area in the C-shaped of the mounting interface 42, thanks to the oblong vertical openings 84 of the latter.

[0097] The slide element 43 is thus configured to be at least slightly vertically moveable relative to the mounting interface 42 in order to compensate the gradient of the floor on which the wheels 44 are configured to roll when the carrier 41 on which rests the support plate 30 is displaced between the inserted position and the deployed position of the bottom moveable shelf 7.

[0098] Figures 15 to 17 show a variant embodiment of the shelving device of Figures 1 to 14.

[0099] In general, we have used the same reference numbers for similar parts, but increased by 100.

[0100] The shelving device 101 is similar to the shelving device 1 shown on Figures 1 to 14.

[0101] The shelving device 101 comprises a base 102 and a back frame 103 extending from the base 102, fixed shelves (not represented) and one bottom moveable shelf 107.

[0102] 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 14.

[0103] The bottom moveable shelf 107 is located at a bottom of the shelving device 101, like the bottom moveable shelf 7, and is configured to admit an inserted position in which the bottom moveable shelf 107 is close to the back frame 103 (not shown) and a deployed position in which the bottom moveable shelf 107 is remote to the back frame 103 (Figure 15).

[0104] 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 130 between the inserted position and the deployed position.

[0105] The support plate 130 is similar to the support plate 30 shown on Figures 1 to 6, 13 and 14.

[0106] The bottom moveable shelf 107 is here devoid of bearing members formed by elongated rods.

[0107] The bottom moveable shelf 107 comprises two rigid elements 150, distinct to the support plate 130, and configured to be fixedly attached on the lower face 192 of the support plate 131.

[0108] The moving system 140 is also similar to the moving system 40 shown on Figures 1 to 14, and comprises two carriers 141 on which the support plate 30 rests, two mounting interfaces 142 configured to be mounted on the base 102, and in particular configured to be fixedly attached to a respective foot member 108, and two slide elements 143 each attached to both a respective carrier 141 and a respective mounting interface 142.

[0109] The slide elements 143 and mounting interfaces 142 are attached by keeping a clearance therebetween, as explained above, thanks to oblong vertical openings 184, rivets 178, centering rings 179 and distance rings 180.

[0110] Each carrier 141 comprises a plurality of bearing portions 154 welded on the lower face 192 of the support plate 130, and a plurality of cut-outs 156 formed in the first and second lateral portions 152 and 153, between the bearing portions 154, and configured for receiving the rigid elements 150; so that the rigid elements 150 are sandwiched between the carriers 141 and the lower face 192 of the support plate 130 and so that the support plate 130 rests on the carriers 141.

[0111] In variants that are not shown:

- the bottom moveable shelf is devoid of rigid element and only comprises bearing members that form a part of the moving system;
- the bearing members are not hooked but rather welded to the carrier;
- the support plate of the bottom moveable shelf is not welded to the carriers but fixedly attached to the carriers thanks for instance to screws or rivets;
- the moving system comprises more or less of wheels, for instance only one wheel or three wheels by carrier, or the moving system is devoid of wheel; and/or
- the carrier is devoid of cut-out for the passage of rigid element and comprises single bearing portions which extends from each of first and second lateral portions.

[0112] 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), at least one moveable bottom shelf (7; 107) which is mounted on said base (2; 102) and a back frame (3; 103) extending from said base (2; 102) and configured to receive at least one fixed shelf (6) overhanging said base (2; 102), said at least one moveable bottom shelf (7; 107) having an inserted position in which said at least one moveable bottom shelf (7; 107) is introduced into a receiving space (90) defined at least by said base (2; 102) and a deployed position in which said at least one moveable bottom shelf (7; 107) is at least partially remote to said receiving space (90), **characterized in that** said at least one moveable bottom 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) comprising at least one carrier (41; 141) on which said support plate (30; 130) rests, at least one mounting interface (42; 142) mounted on said base (2; 102) and at least one slide element (43; 143) sandwiched between and attached to both said at least one carrier (41; 141) and said at least one mounting interface (42; 142); said at least one carrier (41; 141), said at least one mounting interface (42; 142) and said at least one slide element (43; 143) being configured to allow the displacement of said at least one carrier (41; 141) and of said support plate (30; 130) which rests on said at least one carrier (41; 141) relative to said at least one mounting interface (42; 142) and to said base (2; 102) on which said at least one mounting interface (42; 142) is mounted.

2. Shelving device according to claim 1, wherein said moving system (40; 140) comprises a plurality of wheels (44; 144) fixedly attached to said at least one carrier (41; 141) and configured to roll on a floor for displacing said carrier (41; 141).

3. Shelving device according to claim 2, wherein said at least one slide element (43; 143) comprises a first part (71) fixedly attached to said at least one carrier (41; 141) and a second part (72) slidable relative to said first part (71), attached to said at least one mounting interface (43; 143) and configured to be at least slightly vertically moveable relative to said at least one mounting interface (40; 140) and said at least one mounting interface (43; 143) is fixedly attached to said base (2; 102); by virtue of which said at least one carrier (41; 141) on which rests said support plate (30; 130) is able to compensate the gradient of said floor on which said wheels (44; 144) are configured to roll.

4. Shelving device according to claim 3, wherein said at least one mounting interface (42; 142) has a generally C-shaped comprising a main portion (81), a first and a second auxiliary portions (82, 83) and at least one vertical opening (84; 184) having for instance an oblong shape and being formed in said main portion (81).

5. Shelving device according to any one of claims 1 to 4, wherein said base (2; 102) comprises at least one foot member (8; 108) having a receiving U-shaped portion (10) and said at least one mounting interface (42; 142) has a generally C-shaped comprising a main portion (81), a first and a second auxiliary portions (82, 83) and a first edge portion (87) extending from said first auxiliary portion (82) and configured to be introduced into said receiving U-shaped portion (10).

6. Shelving device according to claim 5, wherein said

base (2; 102) comprises at least one slot (13) formed in said receiving U-shaped portion (10) and said at least one mounting interface (42; 142) comprises at least one tongue (88) formed in said first edge portion (87), said at least one tongue (88) being configured to be folded with respect to said first edge portion (87) and introduced into said at least one slot (13).

7. Shelving device according to any one of claims 1 to 6, wherein said base (2; 102) comprises at least one foot member (8; 108) having a main body (9) and said at least one mounting interface (42; 142) has a generally C-shaped comprising a main portion (81), a first and a second auxiliary portions (82, 83) and a second edge portion (86) extending from said second auxiliary portion (83) and configured to come into abutment against said main body (9).

8. Shelving device according to any one of claims 1 to 7, wherein said at least one carrier (41; 141) has a U-shaped comprising a bottom portion (51), a first and a second lateral portions (52, 53; 152, 153) and at least one bearing portion (54; 154) extending from at least one of said first and second lateral portions (52, 53; 152, 153), and said support plate (30; 130) rests on said at least one bearing portion (54; 154).

9. Shelving device according to claim 8, wherein said support plate (30; 130) is welded to said at least one bearing portion (54; 154).

10. Shelving device according to any one of claims 1 to 9, wherein said at least one moveable shelf (7) comprises at least one bearing member (35) distinct to said support plate (30), said at least one bearing member (35) is attached to said at least one carrier (41) and said support plate (30) rests on said at least one bearing member (35).

11. Shelving device according to any one of claims 1 to 10, wherein said at least one moveable shelf (7; 107) comprises at least one rigid element (50; 150) fixedly attached to said support plate (30; 130) and said carrier (41; 141) comprises at least one cut-out (56; 156) in which said at least one rigid element (50; 150) is configured to be inserted.

12. Shelving device according to any one of claims 1 to 11, wherein said base (2; 102) comprises two foot members (8; 108) spaced apart and said moving system (40; 140) comprises two carriers (41; 141), two mounting interfaces (42; 142) each fixedly attached to a respective foot member (8; 108) and two slide elements (43; 143) each attached to both a respective carrier (41; 141) and a respective mounting interface (42; 142).

13. Shelving device according to any one of claims 1 to 12, comprising a plinth (26) and said at least one carrier (41; 141) comprises a front wall (59) on which said plinth (26) is configured to be fastened.

14. Shelving device according to any one of claims 1 to 13, comprising at least one fixed shelf (7; 107) which is mounted on said back frame (3; 103) and which overhangs said base (2; 102) and said at least one moveable bottom shelf (7; 107) at least in its inserted position.

15. Shelving device according to claim 14, wherein said back frame (3; 103) comprises at least two vertical columns (4; 104) 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 (5; 105) being fixed to said at least two vertical columns (4; 104).

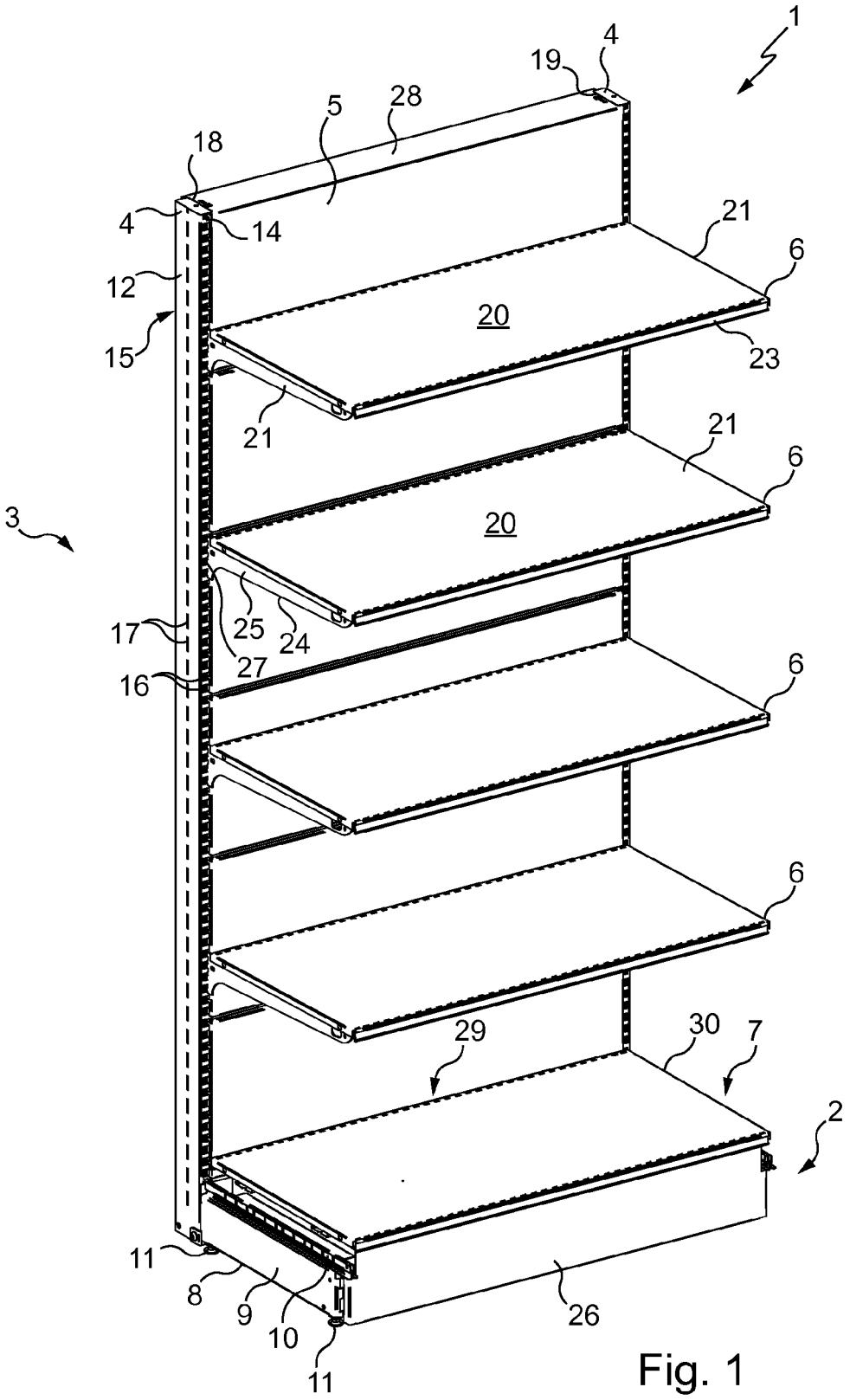

1
4
19
5
28
18
4
14
21
6
12
20
15
23
21
21
6
3
20
25
24
17
27
16
6
6
29
30
7
2
11
8
9
10
11
26

Fig. 1

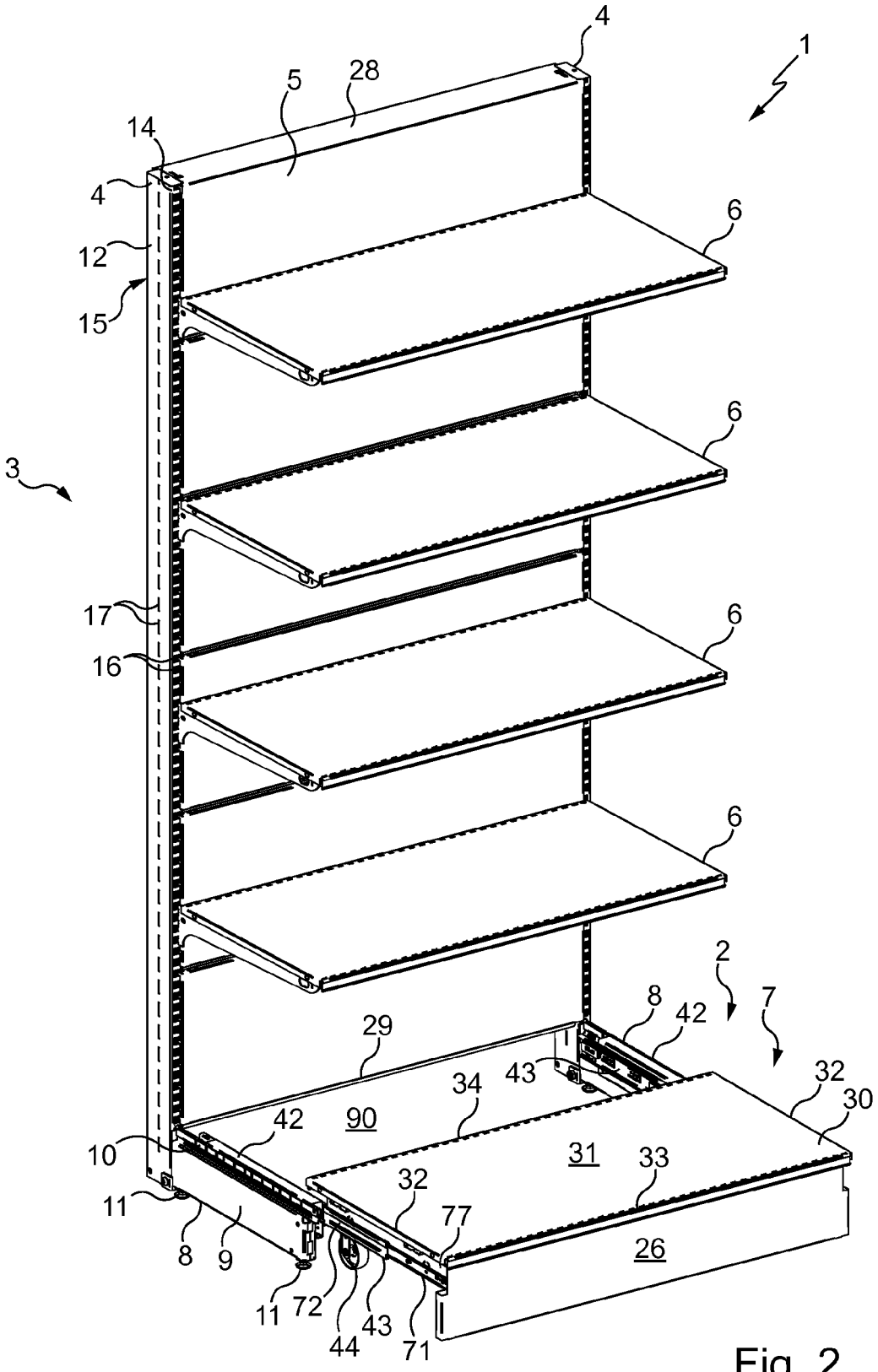

1
2
3
4
5
6
7
8
9
10
11
12
14
15
16
17
26
28
29
30
31
32
33
34
42
43
44
71
72
77
90

Fig. 2

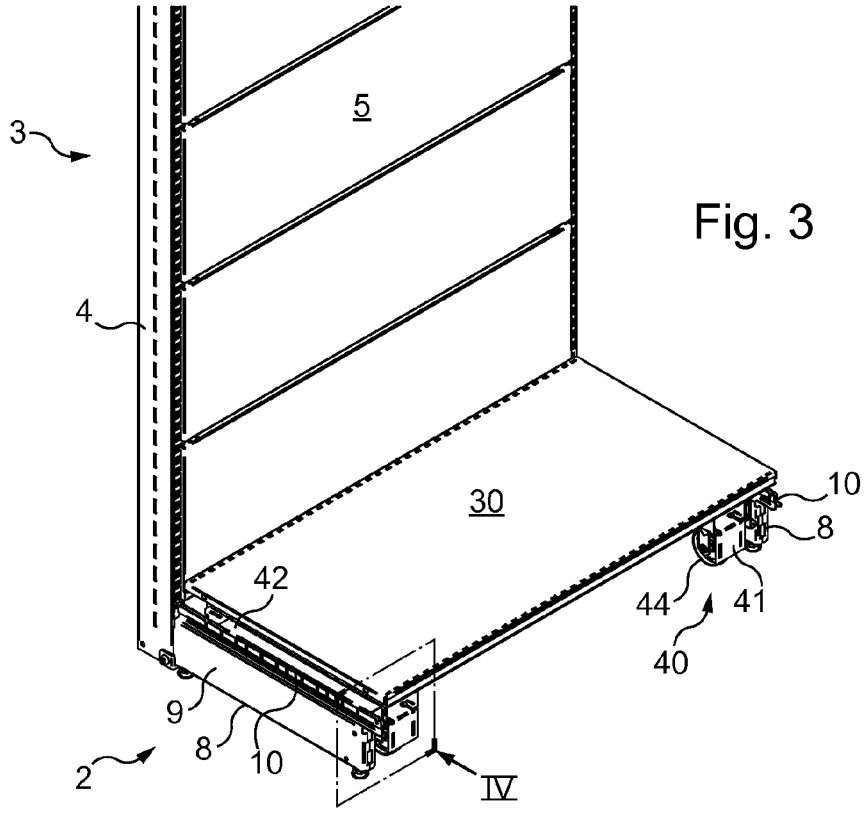

3
5
4
30
10
8
42
44
41
40
9
8
10
2
IV

Fig. 3

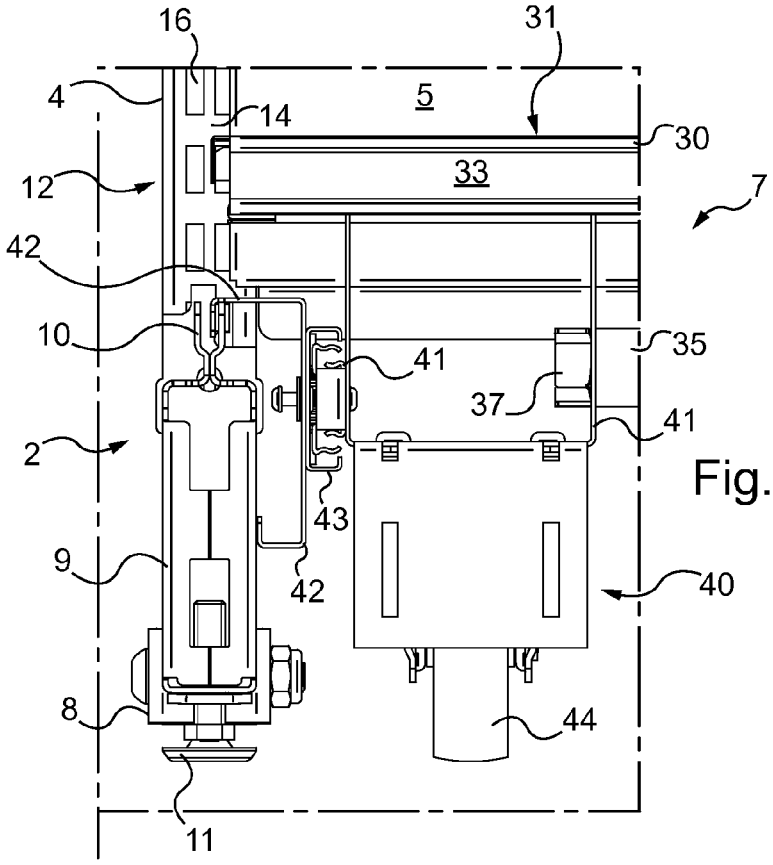

16
31
4
5
14
30
33
12
7
42
10
41
35
37
41
2
43
9
42
40
8
44
11

Fig. 4

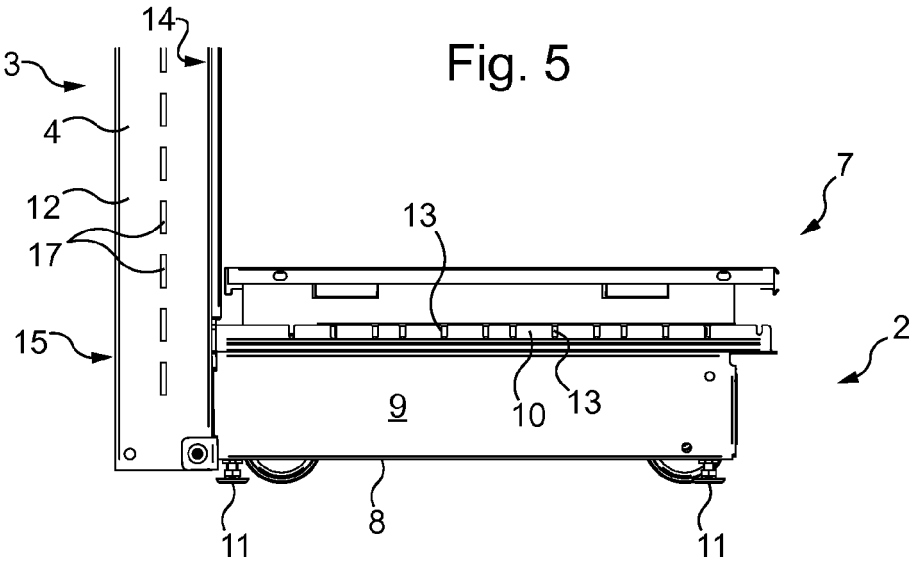

14
3
4
12
17
15
13
7
2
9
10
13
8
11
11

Fig. 5

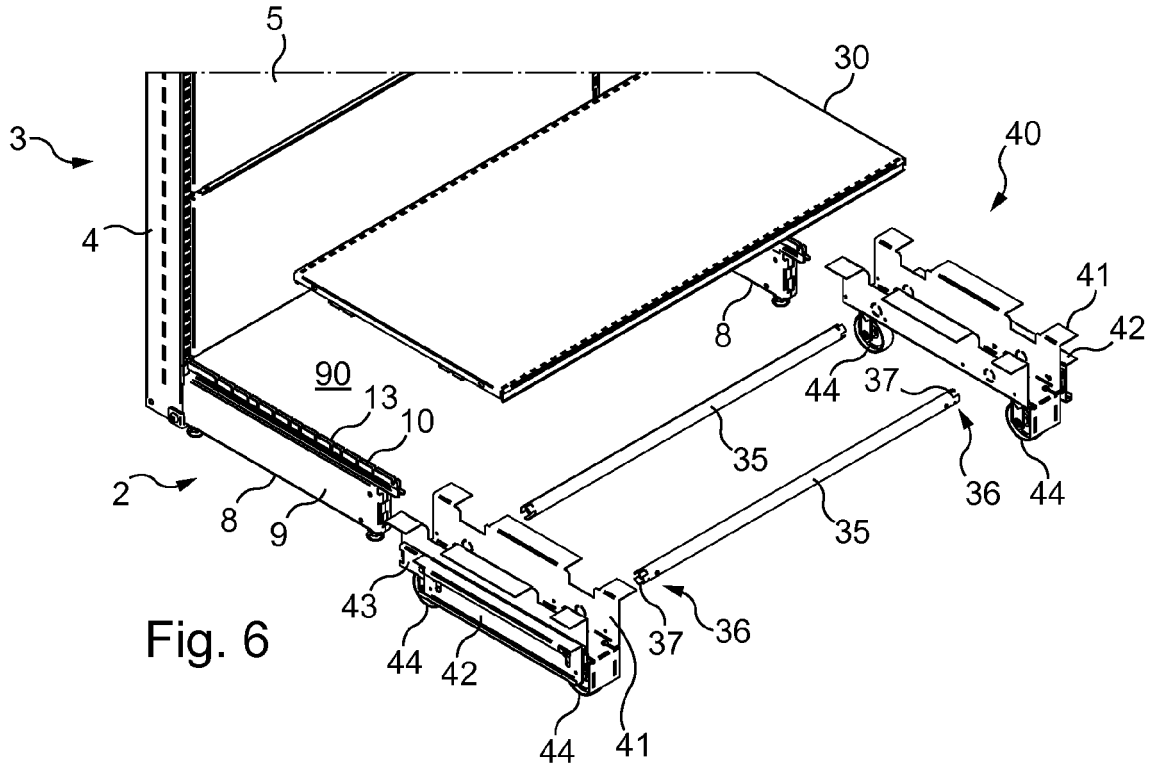

5
30
3
40
4
41
42
8
90
13
10
44
37
35
2
8
9
36
44
35
43
37
36
44
42
44
41

Fig. 6

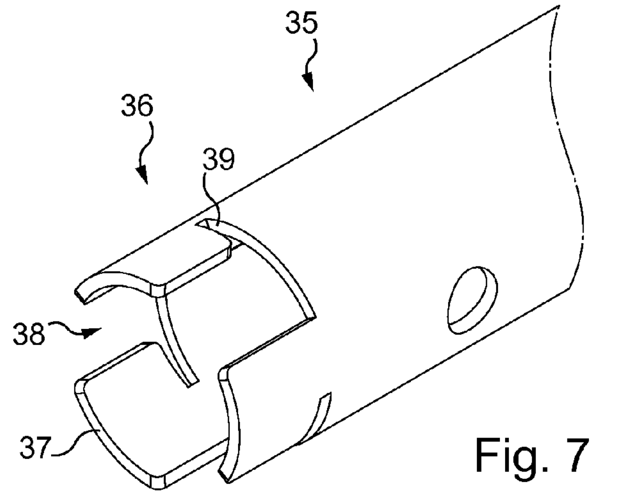

35
36
39
38
37

Fig. 7

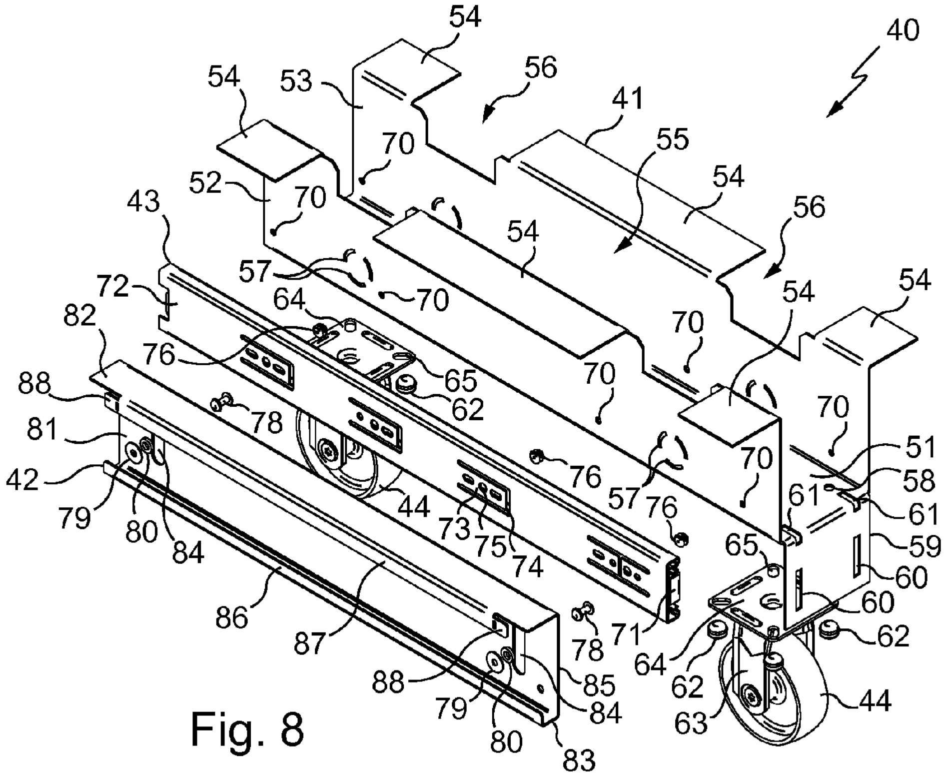

54
53
56
41
40
54
55
54
52
70
70
56
43
54
57
54
72
64
70
70
82
76
65
62
70
70
88
78
51
81
76
58
42
44
57
76
61
61
79
73
75
74
70
59
80
84
65
60
86
71
60
87
78
64
62
62
88
79
85
84
63
44
80
83

Fig. 8

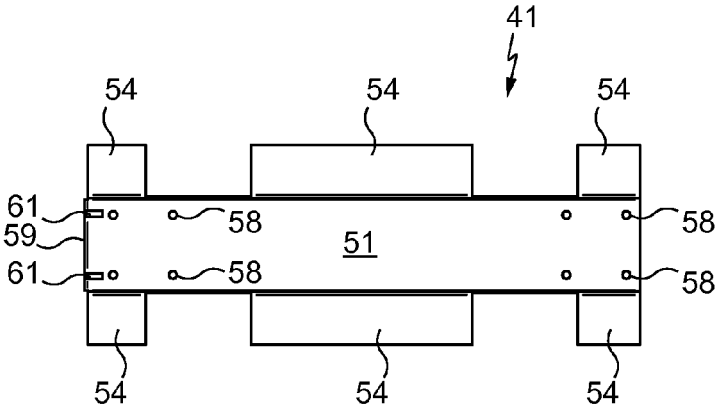
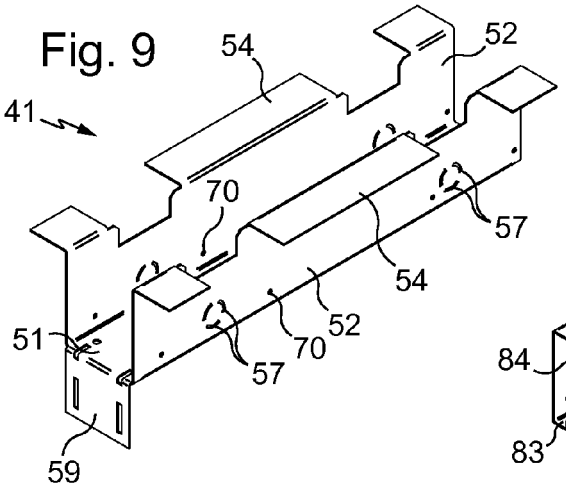


Fig. 10

Fig. 9



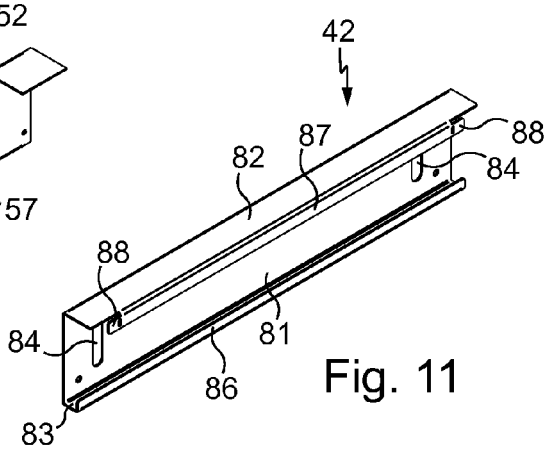


Fig. 11

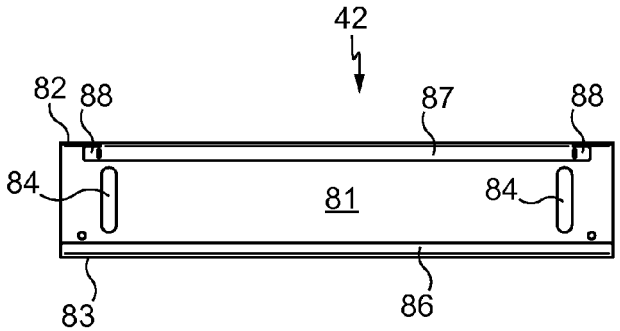


Fig. 12

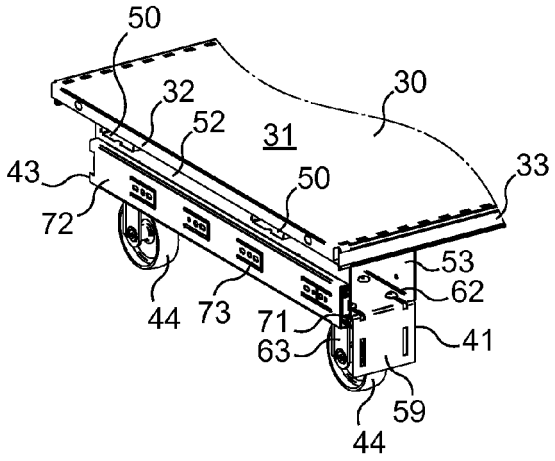


Fig. 13

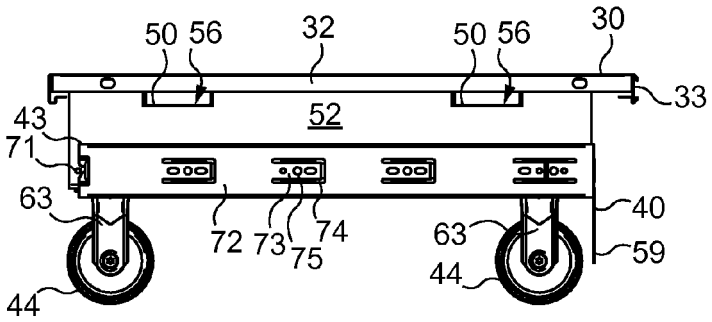


Fig. 14

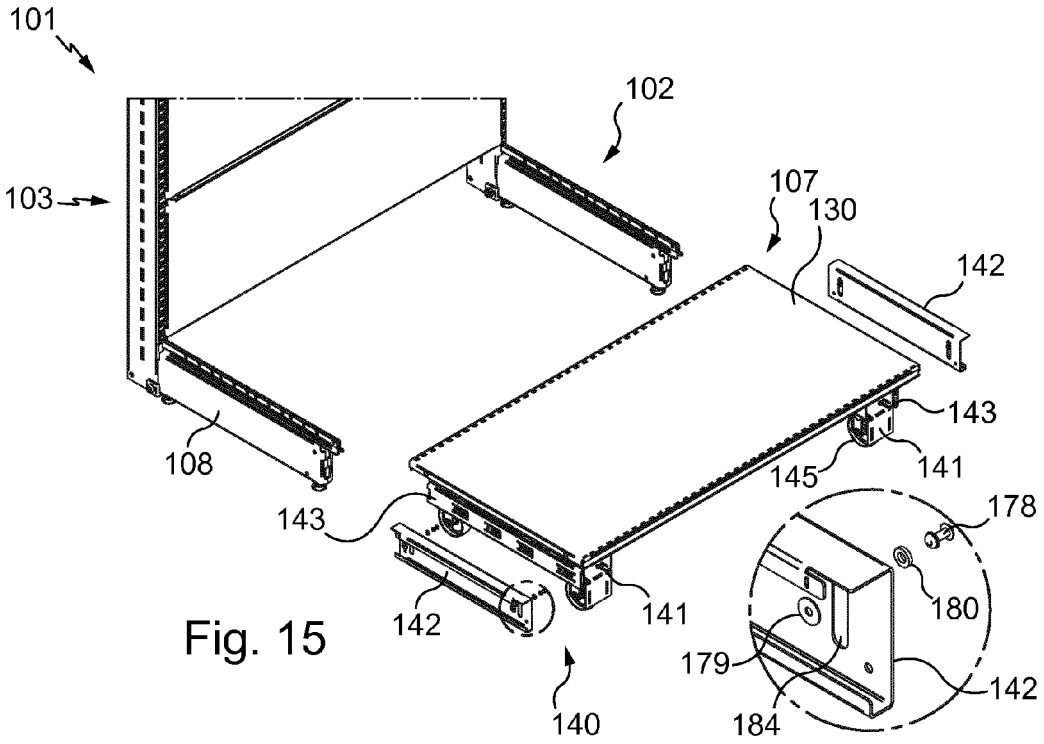
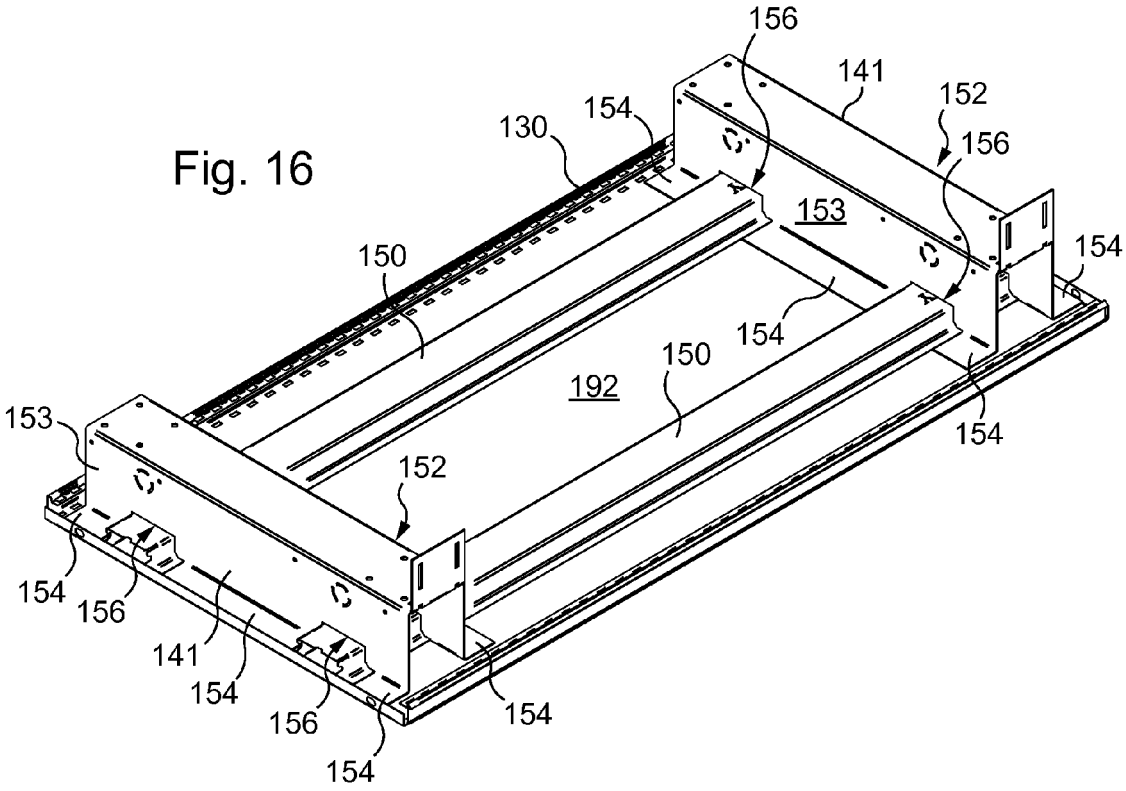


Fig. 15

Fig. 16


156
141
152
154
130
156
153
154
150
154
150
192
153
154
152
154
156
141
154
156
154
154

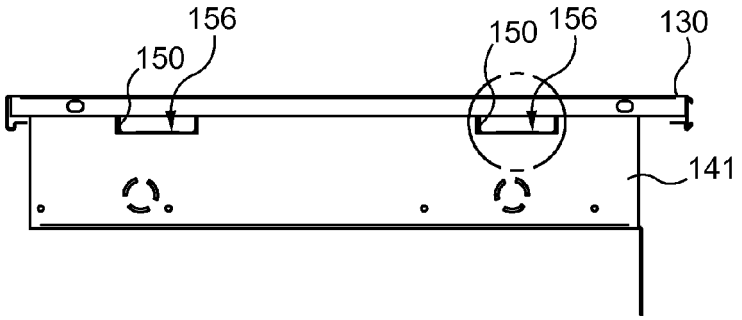
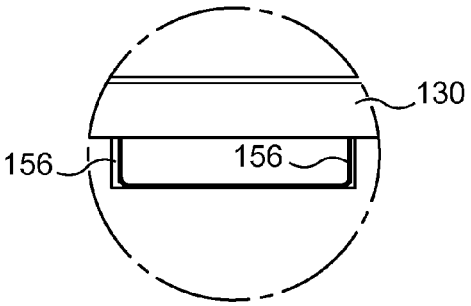

156
150
150
156
130
141

Fig. 17


130
156
156

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 14 30 6123

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	EP 0 709 049 A1 (ROTHMANS TOBACCO COMPANY B V) 1 May 1996 (1996-05-01) * the whole document *	1-4,7,8, 10,12-15	INV. A47F5/00
X	US 6 364 136 B1 (WESHLER ET AL) 2 April 2002 (2002-04-02) * column 8, line 20 - line 46 * * column 9, line 6 - line 60; figure 7 *	1,8-12, 14,15	
A	EP 0 441 452 A1 (SARA LEE DE NV) 14 August 1991 (1991-08-14) * column 4, line 6 - column 5, line 22; figures 1,2 *	1,4,7, 10,12-15	
A	US 4 063 518 A (BUSTOS) 20 December 1977 (1977-12-20) * column 4, line 26 - column 6, line 36; figures 1,2,10,11 *	1,3,6, 12,14,15	
A	JP S60 171902 A (KANEKO) 5 September 1985 (1985-09-05) * abstract; figures 1-5 *	1,2,12	

TECHNICAL FIELDS SEARCHED (IPC)

A47F
B65G
A47B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	13 August 2014	Jacquemin, Martin

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

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 14 30 6123

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

13-08-2014

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0709049 A1	01-05-1996	BE 1008812 A3	06-08-1996
		DE 69507107 D1	18-02-1999
		DE 69507107 T2	01-07-1999
		EP 0709049 A1	01-05-1996
		ES 2127465 T3	16-04-1999
US 6364136 B1	02-04-2002	CA 2356531 A1	18-11-2001
		MX PA01009248 A	20-08-2003
		US 6364136 B1	02-04-2002
EP 0441452 A1	14-08-1991	AT 109637 T	15-08-1994
		AU 7027191 A	08-08-1991
		DE 69103291 D1	15-09-1994
		DE 69103291 T2	01-12-1994
		DK 0441452 T3	26-09-1994
		EP 0441452 A1	14-08-1991
		ES 2062659 T3	16-12-1994
		IE 910411 A1	14-08-1991
		NO 910475 A	08-08-1991
		PT 96696 A	31-12-1992
		US 5096074 A	17-03-1992
US 4063518 A	20-12-1977	NONE	
JP S60171902 A	05-09-1985	NONE	

EPO FORM P0459

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