



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
25.01.2017 Bulletin 2017/04

(51) Int Cl.:
A47F 5/10 (2006.01) **A47B 47/02** (2006.01)
A47B 96/14 (2006.01)

(21) Application number: **16179873.1**

(22) Date of filing: **18.07.2016**

(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
Designated Validation States:
MA MD

(72) Inventors:
• **NERI, Massimo**
48123 Ravenna (RA) (IT)
• **MARCHESINI, Franco**
35010 San Giorgio delle Pertiche (PD) (IT)

(74) Representative: **Locatelli, Massimo et al**
Barzanò & Zanardo Milano S.p.A.
Via Borgonuovo 10
20121 Milano (IT)

(30) Priority: **22.07.2015 IT UB20152392**

(71) Applicant: **Intrac S.p.A.**
45100 Rovigo (IT)

(54) **SHELVING UNIT WITH ADJUSTABLE MOUNTING OF THE BACK PANELS**

(57) A shelving unit comprises at least one pair of vertical uprights (11), each having a side wall (20) intended to face the side wall (20) of the adjacent upright of the pair, at least one back panel (12) adapted to be hooked in a vertical position to the adjacent uprights (11) of the pair of uprights and at least one shelf (13) to be fixed to the uprights (11). The side walls (20) of the uprights (11) are equipped with a slots arrangement (18) for hanging the back panel (12) and the back panel (12) has, at its side edges, hooking lugs (17, 17') projecting laterally to engage in said slots of the slots arrangement (18) present in the side walls (20) of the uprights (11). Said slots arrangement (18) comprises a first group of slots (21) extending vertically in a central position along the side wall (20) of the upright (11) and at least one further group of slots (22) extending vertically in a lateral position with respect to said first group of central slots (21), along one of the edges of the upright (11).

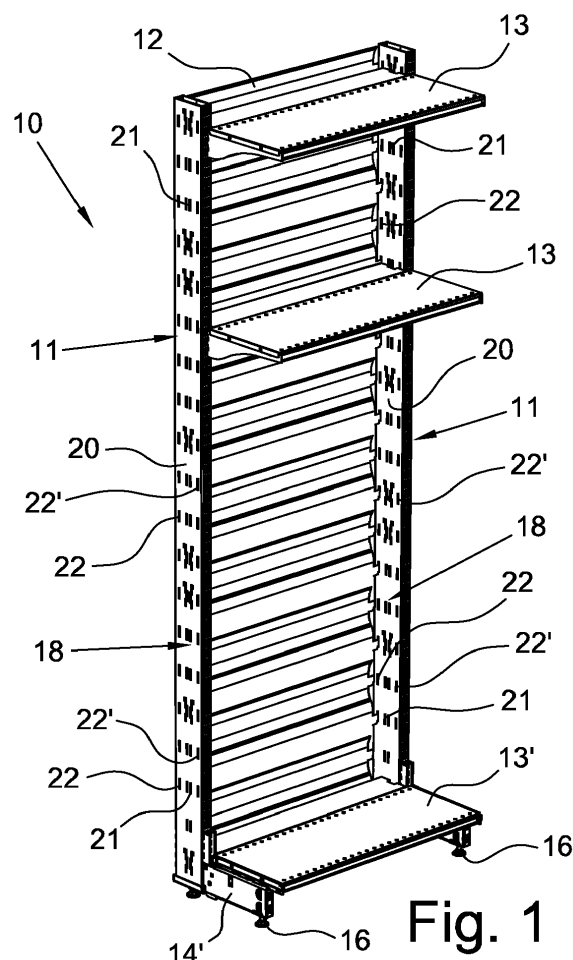


Fig. 1

Description

[0001] The present invention relates to a shelving unit which enables adjusting the mounting position of the back panels with respect to the support uprights.

[0002] Metal shelving units for display of products in stores or in sales points are usually constituted by a plurality of vertical uprights, by horizontal shelves, supported by brackets hooked to the uprights, and by vertical back panelling, hooked to lateral slots in the uprights and designed to close at the back the compartments identified by the shelves. In the case of double-fronted shelving units, said panelling is able to reciprocally separate the two display fronts identified by opposite shelves.

[0003] In the prior art back panels are used, known as "double" panels, which have a box structure adapted to provide a high degree of sturdiness and stiffness to the panel. However, this type of back panel has the drawback of being cumbersome in the direction of the depth of the shelving unit and thus it limits the useful space for display of products on the shelves or, by using shelves having greater depth, the width of the corridor between two facing shelving units is reduced. With the aim of at least partly overcoming the above-mentioned encumbrance problem, back panels have been devised which are made of a single metal sheet, appropriately ribbed so as to give the back panel a greater degree of sturdiness and stiffness. For example, for this aim panels are utilised, which are made of fretted metal sheets, having a zigzag profile with an alternation of ribs arranged on two planes offset with respect to each other. This solution is particularly advantageous, for example, in the construction of shelving units having a double-fronted display, where up to 5 cm of useful depth can be gained in each front.

[0004] To enable fixing said back panels to the uprights, each rib is provided with lugs projecting laterally with respect to the plane of the respective rib and shaped like a hook, so as to fit into corresponding slots present in the side walls of the uprights. The whole back panel is therefore equipped with two series of lugs arranged on two parallel planes that are spaced from one another, in the direction of the depth of the shelving unit, by a distance equal to the offset distance of the respective ribs of the fretted metal sheet.

[0005] In the prior art, the uprights are provided with a vertical arrangement of slots placed centrally on the lateral face of the upright facing towards the compartment identified by the shelves (i.e. the face of the upright turned towards the adjacent upright).

[0006] Some embodiments include, for said vertical slots arrangement, a single series of slots having a width that is substantially equal to the above-mentioned distance between the planes of the lugs of the two series of offset ribs of the fretted metal sheet which forms the back panel. Each slot can therefore indifferently accommodate the lug of one of the more advanced ribs or the lug of one of the more retracted ribs.

[0007] Some further embodiments include, for said

vertical slots arrangement, a double row of slots distanced by said distance equal to the offset distance of the two series of ribs of the fretted metal sheet and each having a width that is substantially equal to the thickness of a single lug of the back panel. In this case, each of the two series of lugs of the back panel enters into a specific vertical row of slots (the lugs of the more advanced ribs into the slots of the more advanced row of slots in said central arrangement of slots and the lugs of the more retracted ribs into the slots of the more retracted row of slots in said central arrangement of slots).

[0008] This hanging system of the back panels to the uprights guarantees excellent stability of the shelving unit. However, should it be desired to vary the depth of the shelving unit on the basis of the surface required for the products to be displayed, the only possible solution would be to use shelves having a different width (understood to mean the dimension in the perpendicular direction to the back panel). This is however not always possible as there is often a constraint due to the available space and, in any case, the standard widths for the shelves usually differ from one another by at least 10-15 centimetres, thus making intermediate variations, of the order of 4-5 centimetres, impossible.

[0009] Even if there is sufficient space, the user desiring to vary the useful surface of the shelves of an already-installed shelving unit would in any case have to obtain new shelves (and respective brackets) having appropriate size, to be mounted in the place of the existing ones.

[0010] The general aim of the present invention is to overcome the above-mentioned drawbacks by providing a shelving unit which enables a simple and economical set-up of various mounting configurations of the back panel with a limited number of standardised components.

[0011] In view of this aim, it has been thought to devise, according to the invention, a shelving unit comprising at least one pair of vertical uprights, each having a side wall intended to face the side wall of the adjacent upright of the pair, at least one back panel adapted to be hooked in a vertical position to the adjacent uprights of the pair of uprights and at least one shelf to be fixed to the uprights, said side walls of the uprights being equipped with a slots arrangement for hanging the back panel and the back panel having, at its side edges, hooking lugs projecting laterally to engage in said slots of the slots arrangement present in the side walls of the uprights, said slots arrangement comprising a first group of slots extending vertically in a central position along the side wall of the upright, characterised in that the slots arrangement comprises at least one further group of slots extending vertically in a lateral position with respect to said first group of central slots, along one of the edges of the upright.

[0012] In order to aid the clarity of the explanation of the innovative principles of the present invention and the advantages thereof with respect to the prior art, a description will be made in the following of a possible embodiment applying those principles, with the aid of the

accompanying drawings. In the drawings:

Figure 1 illustrates a general view of a shelving unit according to the invention.

Figure 2 is an exploded view of an upper portion of the shelving unit of Figure 1, where the various component elements are separately visible.

Figure 3 is a larger-scale view of an upper portion of the shelving unit of Figure 1, according to a first set-up configuration.

Figure 4 is a view like that of Figure 3, with the back panel in a second set-up configuration.

Figure 5 is a lateral schematic view of the set-up configuration of the back panel illustrated in Figure 3.

Figure 6 is a lateral schematic view of the set-up configuration of the back panel illustrated in Figure 4.

[0013] With reference to the figures, Figure 1 illustrates a shelving unit 10 which comprises vertical uprights 11, back panels 12 and horizontal shelves 13 able to constitute a rest surface for the products to be displayed.

[0014] In particular, in the case of shelving units having a modular extension, the above-mentioned components are designed to define a shelving unit module having a pair of adjacent uprights 11 reciprocally facing at a distance equal to the length of the back panel, at least one back panel 12 (the back of the unit might in fact be made with only one panel extending over the whole height of the shelving unit, in particular when such height is not excessive, or with a plurality of panels having a smaller height, mounted sequentially one above the other) and at least one shelf 13 (the number of shelves can obviously vary according to the height of the shelving unit and the free space that is to be maintained between one shelf and another).

[0015] The shelves 13 are supported by brackets 14 (clearly visible in the exploded view of Figure 2) provided at an end thereof with lugs for hooking into slots 15 present on the front face of each upright 11, as is well known to the skilled person.

[0016] The shelving unit 10 can advantageously also comprise, at the lower end of the uprights 11, base brackets 14' provided with feet 16 for resting on a floor surface and adapted to support a base shelf 13', as shown in Figure 1.

[0017] The back panel 12 destined to be hooked in a vertical position to a pair of adjacent uprights 11, can be used to make the rear closure of a single-display shelving unit or a separating wall between two opposite display zones when constructing a double-fronted display shelving unit.

[0018] The back panel 12 is provided, at side edges thereof, with hooking lugs 17, 17' projecting laterally with respect to the vertical extension plane of the panel.

[0019] The lugs 17, 17' are hook-shaped, with respective vertical grooves open at the bottom in order to lock on the lower edge of slots of a slots arrangement 18 present in the side walls of the respective uprights so as

to provide hanging of the back panel.

[0020] Advantageously, the back panel 12 is made of fretted metal sheet, having a zigzag profile with an alternation of ribs 19, 19' arranged on two parallel planes offset with respect to each other. In particular, in the accompanying figures, reference numeral 19 denotes the ribs projecting towards the front part of the shelving unit (i.e. towards the shelves) and 19' the ribs projecting towards the rear part of the shelving unit.

[0021] For greater ease of description, in the following the above-mentioned front ribs 19 can also be identified as "convex ribs" and the rear ribs 19' as "concave ribs", coherently with the configuration they present to an observer positioned in front of the shelving unit. Further, and again for the sake of ease of description, the expressions "plane of front ribs" and "plane of rear ribs" of the back panel will be used respectively where these two parallel planes are offset with respect to one another by a predetermined distance.

[0022] The particular configuration of the back panel 12, with the above-mentioned front ribs (convex) 19 and the rear ribs (concave) 19' is clearly visible in Figures 5 and 6.

[0023] As above mentioned, the uprights 11 are provided, at their side walls 20 (i.e. the walls designed to face the side wall of an adjacent upright in the shelving unit module), with a slots arrangement 18 for hanging the back panel 12 by means of the hooking lugs 17, 17'.

[0024] The slots arrangement 18 comprises a first group of slots 21 extending vertically in a central position along the side wall 20 of each upright 11.

[0025] This first group of central slots 21 can be constituted by a single vertical row of slots having a width substantially equal to the offset distance between the plane of the front ribs 19 of the back panel 12 and the plane of the rear ribs 19' for housing both the respective lugs 17, 17', or more advantageously, as also known in the art, said first group of central slots 21 can consist of a double vertical row of slots spaced by said offset distance and each having a width that is substantially equal to the thickness of a single lug of the back panel for enabling selective insertion of each series of lugs 17, 17' in a respective vertical row of slots.

[0026] In the accompanying figures, this latter embodiment is illustrated and the mounting configuration of the back panel 12 in said first group of central slots 21 (here defined for simplicity as the "central mounting configuration") is visible in Figures 3 and 5.

[0027] According to the invention, the slots arrangement 18 comprises at least one further group of slots 22 extending vertically in a lateral position with respect to said group of central slots 21, in proximity of one of the edges of the upright 11.

[0028] This further group of slots 22 can consist of a vertical row of slots, advantageously arranged along the edge of the upright 11 destined to be rearward in the shelving unit, i.e. on the opposite side with respect to the shelves 13.

[0029] Figures 4 and 6 illustrate a mounting configuration of the back panel wherein the lugs of the back panel (or panels) 12 are inserted in the slots of said further group of lateral slots 22. This mounting configuration will be defined in the following as the "rear mounting configuration".

[0030] Naturally, in the above-mentioned rear mounting configuration only the lugs 17 of the front ribs (convex) 19, i.e. the lugs closest to the centre of the upright, will be inserted in the slots of the group of lateral slots 22 arranged along the rear edge of the uprights 11 (as visible in Figures 4 and 6), while the lugs 17' of the rear ribs (concave) 19' lie normally in a more external plane, slightly retracted with respect to said rear edge of the uprights, without being inserted into any slot. However, it has been observed that in the normal use this does not compromise the stability of the back panel or the sturdiness of the shelving unit.

[0031] It is clear from the comparison of Figures 3 and 5 with Figures 4 and 6 that the further group of lateral slots 22 arranged along the rear edge of the uprights 11 according to the invention enables earning, if requested, useful space for displaying products on the shelves 13 thanks to a mounting configuration of the back panel that is more retracted with respect to the normal central mounting configuration.

[0032] Advantageously, in order to guarantee a substantial continuity of the rest plane of the products up to the wall of the back panel 12, suitable extension elements 23, 23' can be included, having an appropriate different width (according to the chosen mounting configuration, central or rear) to be fastened, using connecting means 24 visible in Figure 2, rearward of the shelves 13 for filling the empty space between the rear edge of the shelf (in fixed position, as being mounted on the brackets 14 hooked to the slots 15 present on the front face of the uprights) and the wall of the back panel 12.

[0033] Naturally, as the shelves 13 can be mounted, at the desired height, both at the position of the convex ribs 19 of the back panel 12 (as, for example, the lower shelf in Figures 5 and 6) and at the position of the concave ribs 19' (as the upper shelf of Figures 5 and 6), in the latter case a small empty space can be present between the rear edge of the extension element 23, 23' and the wall of the back panel 12. However this small empty space is fully acceptable, being generally of a dimension contained within about 1 cm.

[0034] Since for production reasons (optimisation and minimisation of the number of construction parts), and also for reasons of flexibility of use over time of the shelving units in stores, it can be useful to have completely symmetrical uprights (therefore utilisable even when rotated 180°), the slots arrangement 18 can also advantageously comprise a second further group of slots 22' extending vertically in proximity of the edge of the upright 11 opposite with respect to the edge along which the above-described first further group of slots 22 is arranged, i.e. the edge destined to be forward in the shelv-

ing unit, on the side of the shelves 13.

[0035] This second further group of slots 22' consisting of a vertical row of slots arranged along the front edge of the upright 11 can be seen in the accompanying figures.

[0036] The presence of said second further group of slots 22' makes also possible, if desired, a further mounting configuration of the back panel wherein the lugs of the panel (or panels) of the back panel 12 are inserted in the slots of this further group of lateral slots 22', thus increasing the flexibility of use of the shelving unit. This mounting configuration of the back panel will be defined in the following as the "front mounting configuration".

[0037] At this point, it is clear how, with the shelving unit according to the invention, it is possible to attain the prefixed aim of enabling a high degree of flexibility of set-up of the shelving, creating in a simple and economical way various mounting configurations of the back panel with a limited number of standardised components.

[0038] Naturally the foregoing description of an embodiment applying the innovative principles of the present invention is made by way of exemplifying said innovative principles and must therefore not be taken as a limitation of the scope of the protection as claimed herein.

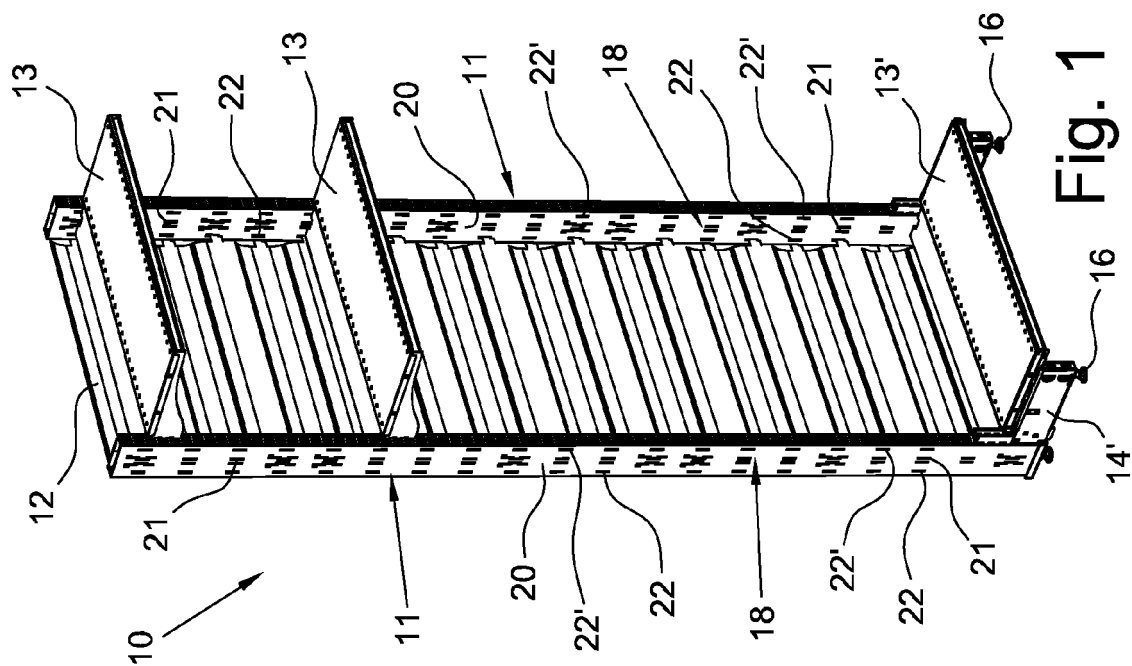
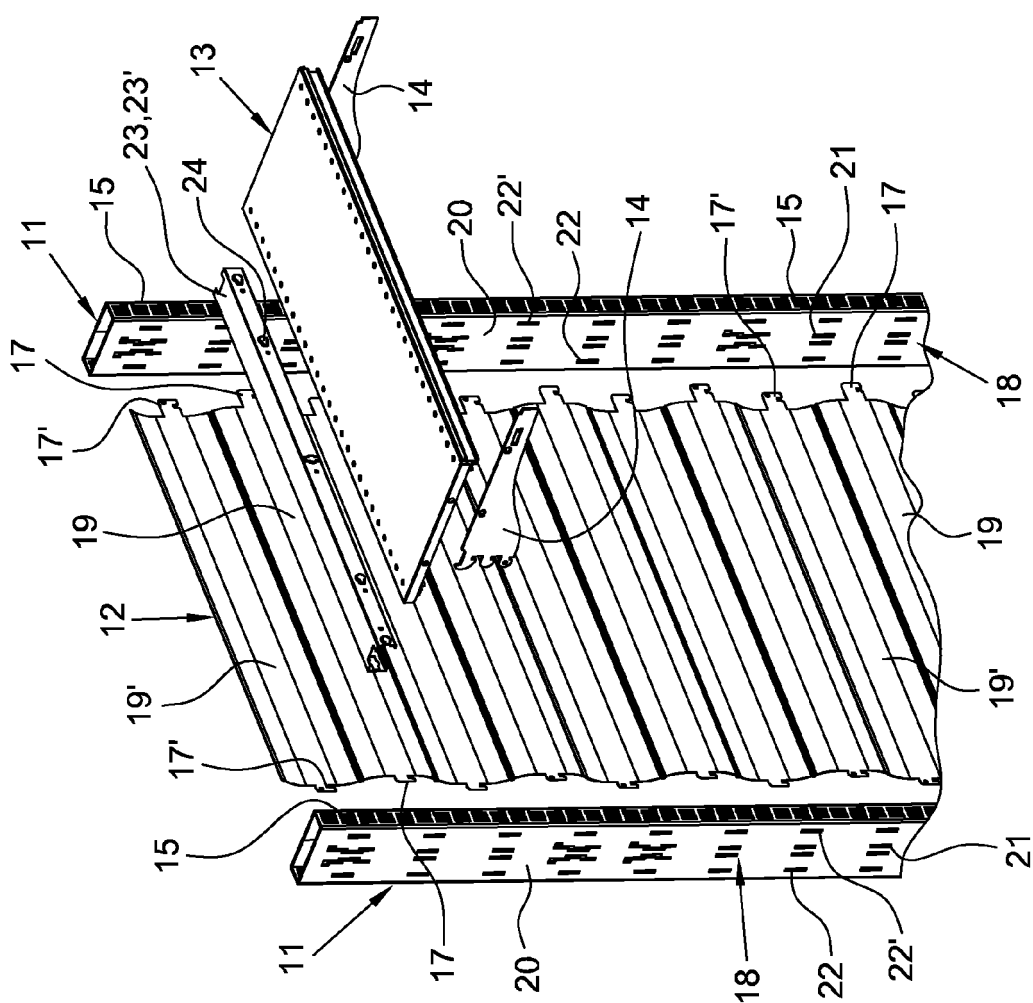
[0039] For example, in the case of a front mounting configuration of the back panels, the extension element thought for the central and rear configurations previously described for filling the empty space up to the back panel might not be necessary.

[0040] Further, also the further groups of slots 22, 22' might consist, if the dimensions of the upright allow it, of a double vertical row of slots spaced by the offset distance between the planes of the front and rear ribs of the back panel 12, so as to enable selective insertion of each series of lugs 17, 17' in a respective vertical row of slots as in the case of the group of central slots 21, even though groups of lateral slots 22, 22' consisting of only one row of slots can normally be preferable for reasons of greater economy and constructional simplicity of the uprights that this solution provides.

Claims

1. Shelving unit comprising at least one pair of vertical uprights (11), each having a side wall (20) intended to face the side wall (20) of the adjacent upright of the pair, at least one back panel (12) adapted to be hooked in a vertical position to the adjacent uprights (11) of the pair of uprights and at least one shelf (13) to be fixed to the uprights (11), said side walls (20) of the uprights (11) being equipped with a slots arrangement (18) for hanging the back panel (12) and the back panel (12) having, at its side edges, hooking lugs (17, 17') projecting laterally to engage in said slots of the slots arrangement (18) present in the side walls (20) of the uprights (11), said slots ar-

- rangement (18) comprising a first group of slots (21) extending vertically in a central position along the side wall (20) of the upright (11), **characterised in that** the slots arrangement (18) comprises at least one further group of slots (22) extending vertically in a lateral position with respect to said first group of central slots (21), along one of the edges of the upright (11).
2. Shelving unit according to claim 1, **characterised in that** the slots arrangement (18) also comprises a second further group of slots (22') extending vertically in a lateral position with respect to said first group of central slots (21), along the edge of the upright (11) opposite with respect to the edge along which said at least one further group of slots (22) is arranged.
 3. Shelving unit according to claim 1, **characterised in that** the back panel (12) is made of fretted metal sheet, having a zigzag profile with an alternation of ribs (19, 19') arranged on two parallel planes offset with respect to each other, respective hooking lugs (17, 17') projecting from the ribs (19, 19') of each plane.
 4. Shelving unit according to claim 3, **characterised in that** said first group of central slots (21) consists of a vertical double row of slots spaced apart from each other by the offset distance of said parallel planes on which the ribs (19, 19') of the back panel (12) having a zigzag profile lie, the hooking lugs (17, 17') of the ribs (19, 19') of each plane selectively inserting into the slots of one of the two vertical rows of slots.
 5. Shelving unit according to claim 3, **characterised in that** said at least one further group of lateral slots (22) consists of a vertical row of slots, adapted to the insertion of the hooking lugs (17) of the ribs (19) that lie on the plane closest to the centre of the upright (11), the lugs (17') of the other ribs (19') remaining on a more outer plane with respect to the edge of the upright (11).
 6. Shelving unit according to claim 1, **characterised in that** it comprises extension elements (23, 23') for extending the shelves (13), adapted to be fixed to the shelf in order to fill the empty space between the rear edge of the shelf (13) and the vertical wall of the back panel (12).
 7. Shelving unit according to claim 6, **characterised in that** the extension elements (23, 23') have a different width depending on whether the back panel (12) is mounted through engagement in said first group of central slots (21) or through engagement in said at least one further group of lateral slots (22).
 8. Shelving unit according to claim 1, **characterised in that** the at least one shelf (13) is fixed to the uprights (11) through support brackets (14) equipped at one end with tabs for hooking into slots (15) present on the front face of each upright (11) of the pair.
 9. Use of a shelving unit according to claim 1, wherein the hooking position of said at least one back panel (12) to the uprights (11) is selected from a configuration with engagement of the hooking lugs (17, 17') of the back panel in said first group of central slots (21) or a configuration with engagement of the hooking lugs (17, 17') of the back panel in said at least one further group of lateral slots (22).



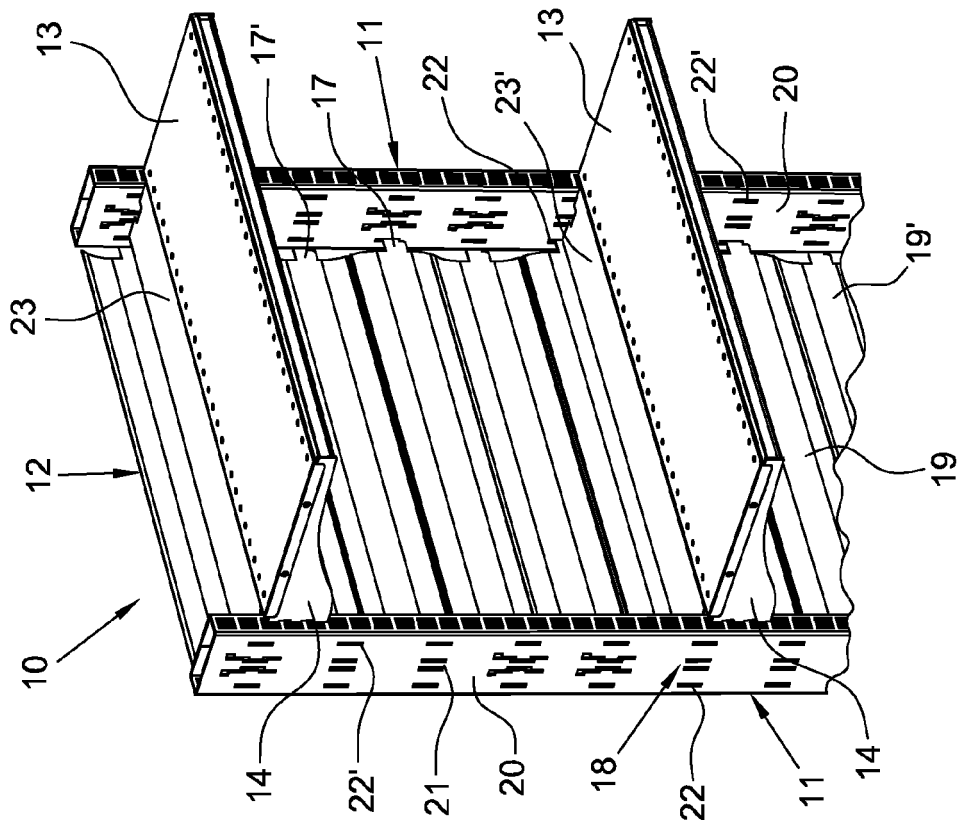


Fig. 4

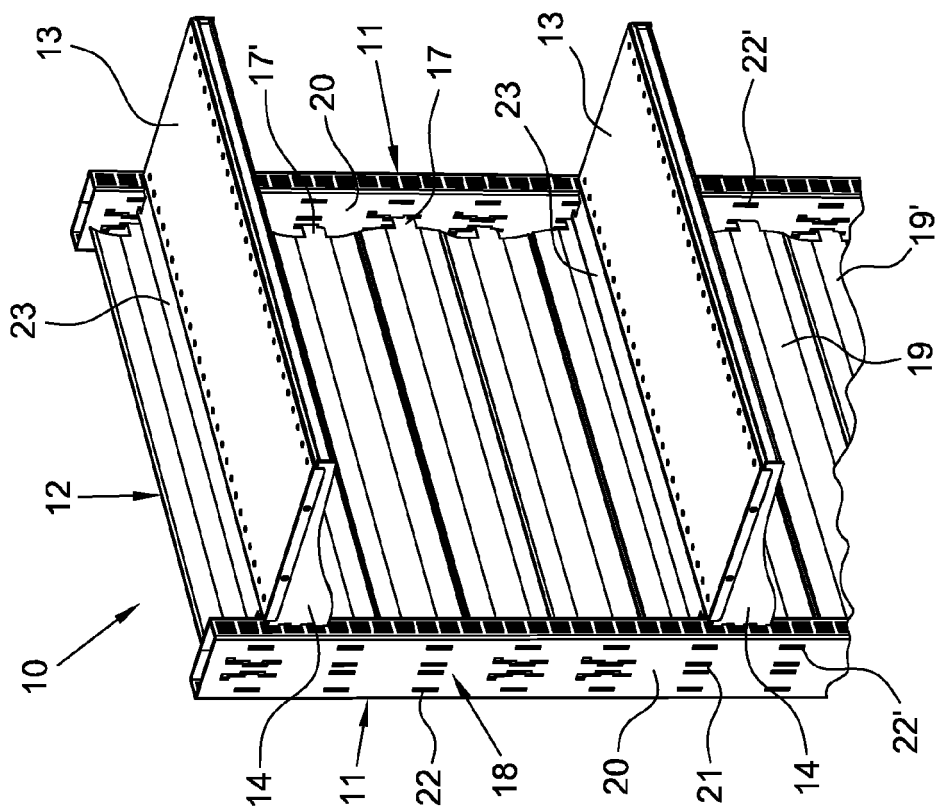


Fig. 3

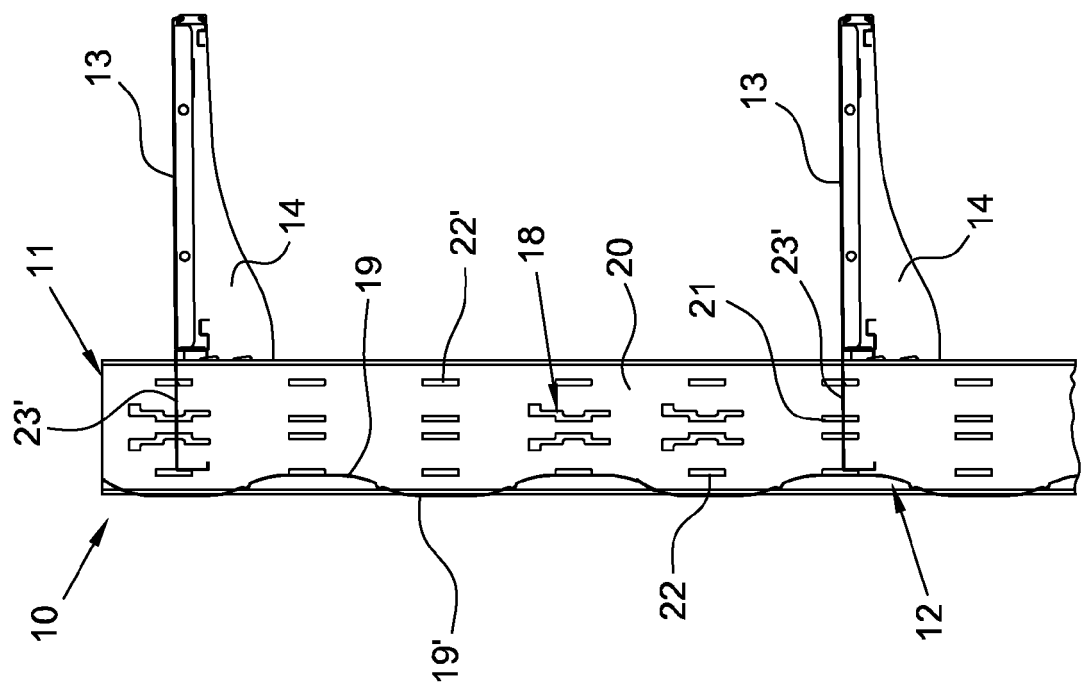


Fig. 6

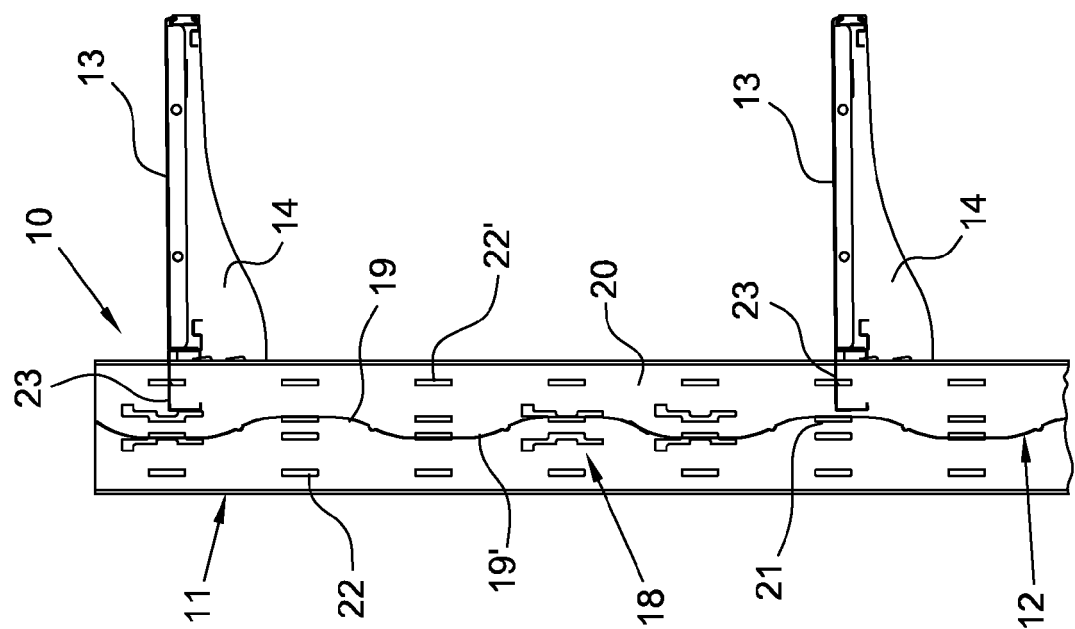


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 16 17 9873

5

10

15

20

25

30

35

40

45

50

55

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	US 3 517 623 A (GOLDSTEIN ARTHUR ET AL) 30 June 1970 (1970-06-30) * column 2, line 39 - column 4, line 12; figures 1-4 *	1,6,8,9	INV. A47F5/10 A47B47/02 A47B96/14
A	FR 2 874 487 A1 (HMY INVESTISSEMENTS SA [FR]) 3 March 2006 (2006-03-03) * page 1, line 1 - page 8, line 6; figures 1-6 *	1-9	
A	WO 97/33053 A1 (NIET CHRISTOPHER DANIEL DE [GB]) 12 September 1997 (1997-09-12) * abstract; figures 7-20 *	1-9	
A	GB 2 205 378 A (CLARES EQUIP LTD) 7 December 1988 (1988-12-07) * page 3, line 16 - page 4, line 11; figures 1-3 *	1-9	
			TECHNICAL FIELDS SEARCHED (IPC)
			A47F A47B E04B G09F A47G
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 14 November 2016	Examiner Kohler, Pierre
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 16 17 9873

5

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.

14-11-2016

10

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3517623 A	30-06-1970	NONE	
FR 2874487 A1	03-03-2006	NONE	
WO 9733053 A1	12-09-1997	AT 415530 T AU 2100497 A EP 0885335 A1 JP 2001505266 A NZ 332180 A US 6185899 B1 WO 9733053 A1	15-12-2008 22-09-1997 23-12-1998 17-04-2001 29-06-1999 13-02-2001 12-09-1997
GB 2205378 A	07-12-1988	NONE	

15

20

25

30

35

40

45

50

55

EPO FORM P0459

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