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(54) **REINFORCED SHELVES FOR METAL SHELVING UNITS HAVING APERTURES FOR THE PASSAGE AND THE SUPPORT OF ELECTRIC WIRING, WITH IMPROVED ASSEMBLING**

(57) Shelf (11, 21) for metal shelving comprising at least a downside beam (13, 23) said beam having a shape of an upside-down omega comprising two vertical walls (16, 26) perpendicular to the shelf itself, and a horizontal wall (14, 24) parallel to the shelf itself, provided with a trimming to facilitate the assembly of the shelf and optionally allow the passage and the support of an electric

wiring (25),
characterized in that
said trimming (17, 27) is obtained in each vertical wall (16, 26) and in the horizontal wall (14, 24) of said beams (13, 23) at a suitable distance from the downside (12, 22) of the shelf itself.

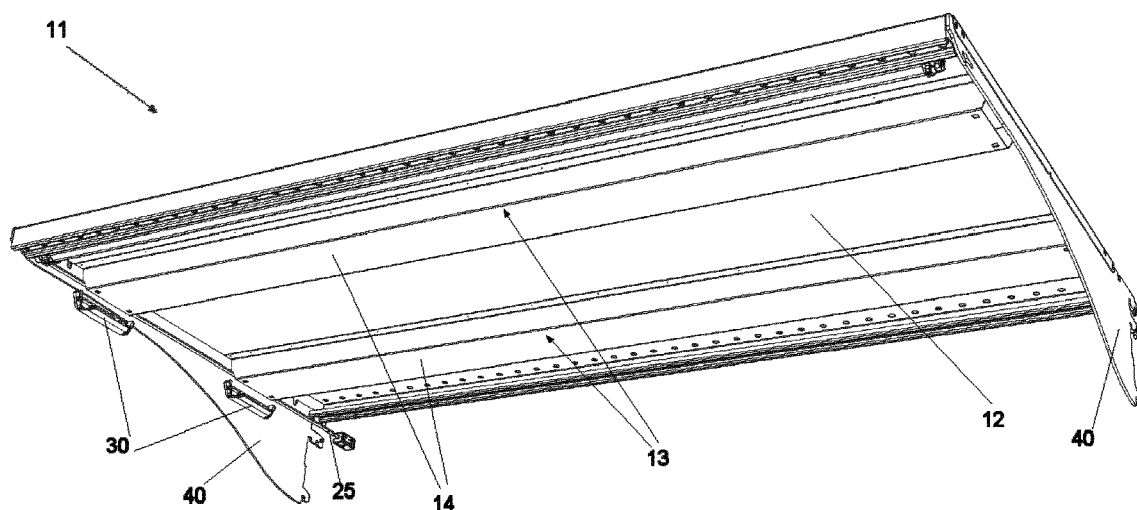


FIG. 1A

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Description

[0001] The present invention relates to the technical field of shopfitting, and in particular to a building element of shelving for displaying goods. More particularly, the present invention relates to metallic shelves, modified so as to simplify their assembling and to allow the passage and support of electric wiring intended to supply peripherals, e.g. LED bars for lighting the displayed goods, or other peripherals in need of electric supply.

[0002] Such shelving are manufactured starting from metal sheet having a thickness of about 1,5 mm (0,5-2,5 mm), which are shaped, sheared and welded to obtain the single parts of which the shelving consist; in case of need, metal wires having a diameter ranging 2-8 mm are used, too. Such parts (bases, uprights, back panels, shelves, brackets) are manufactured in a factory and successively assembled in a point of sale to obtain the shelving having the desired features.

[0003] It is worthwhile mentioning that a shelf of traditional thickness is about 25 mm thick, while a thin shelf is about 10 mm thick. A thin shelf allows to increase the number of shelves which can be assembled in a shelving, as described in EP2863775A1 of the same applicant. Nonetheless, given the thinner thickness of the shelf, the shelf must be provided with a higher number of beams.

[0004] In particular, reference is made to metal shelving of the kind wherein metal shelves are distinct from brackets, while brackets support shelves. In the state of the art, metal shelves typically have recesses suitable for housing the profile of said brackets, and in order to optimize the payload on the assembled shelf+brackets, shelf beams tend to have the largest possible support on the brackets themselves. When the shelf is loaded, it undergoes bending and compression, while the ends of beams lean on the brackets, so that the assembled shelf+brackets can resist to the mechanical stress caused by the load on the shelf.

[0005] Document GB1490793 of Bohnacker R. discloses a shelf for metallic shelving comprising at least a stiffening element. Said stiffening element is shaped like an inverted "omega" comprising two vertical walls which are perpendicular to the shelf and an horizontal wall which is parallel to the shelf, the said element being provided with a trimming for facilitating the mounting of the shelf and optionally for allowing the passage and the support of an electric wire and in which the said trimming is obtained in each of the vertical walls and in the horizontal walls of the said stiffing element at a certain distance from the lower side of the shelf.

[0006] Document NL7204417 of Van Brugh discloses a shelf comprising at least a stiffening element with an inclined trimming at the ends and in which however there is not foreseen any passage of electric wires.

[0007] On the other hand document US4098480 of Neumann Leonard H. discloses a Shelf being provided of at least one stiffening element which has trimmings in the form of slots which are of the different kinds as the

ones disclosed in the previous documents.

[0008] Document CA897637A of Wilson J.A. Display discloses displaceable stiffening members which can be engaged underneath of the lower side of the shelf in such a way to configure the shelf in order to support the present loads. These stiffening elements show a ply oriented perpendicularly in relation to the longitudinal axis of the shelf which could be used for the passage of electric wires.

[0009] Document FR2905248 of HMY discloses a shelf being provided with a stiffening member showing a shape of an inverted "omega" the ends thereof show a rounded trimming.

[0010] A shelving of the above-quoted kind is described in the application EP2832262A2 of the same applicant. Such shelving comprises two distinct solutions, which entail the presence of apertures and supports obtained in the beams of said shelves. The two alternative solutions of slits are shown in the Figures 1 and 10 of EP2832262A3, respectively.

[0011] Application EP16192693 (filing number) of the same applicant is an evolution of application EP2832262A2, with the improvement of the solution herein proposed: through the introduction of clips made of an elastic material, electric wiring is protected and kept in its seat.

[0012] Nonetheless, in practice the solution proposed in EP16192693 has some drawbacks. In particular, the proposed solution provided the presence of an aperture 7 in a portion of the anterior vertical wall, the whole horizontal wall 12, and a portion of the posterior vertical wall of the beam 9 of a shelf. As said beam 9 is intended to give structural stability to shelf 2, especially in the case of thin shelves like those shown in Figure 3 of EP16192693, it is understood that the evolution of the system aims to give to shelves 2, and especially to thin shelves, the maximal possible structural stability.

[0013] Moreover, a typical drawback in practice is that, being the position of the brackets very precise in the recess obtained in the shelf to house them, the position of insertion of the shelf on the two brackets must be found with great attention and precision during the assembling step.

[0014] Aim of the present invention is providing a shelf allowing to overcome the above-described drawbacks, cheap to produce and easy to assemble, even in the point of sale as a retrofit.

[0015] This object is achieved by an apparatus and a method having the features of the independent claims. Advantageous embodiment and refinements are specified in the claims dependent thereon.

[0016] The solution consists in an aperture for the passage and support of electrical wiring obtained with an inclined lateral trimming having an angle of about 30° with respect to the vertical axis, in a position wherein the shelf is not undergoing appreciable bending stress, and wherein shear stress is not significant. The trimming is preferably in the form of a straight line, but there is no limitation to the shape of it.

[0017] Said inclined trimming along the vertical axis defines a technical recess for the passage of the wiring for electrical supply or data transfer, which is held in place by a clip made of an elastic material. The clip is hooked to the horizontal wall of the beam through two small slots, which have a very limited influence on the structural stability of the shelf, even in its thin version.

[0018] In an embodiment, said inclined trimming is obtained in correspondence of at least one or both ends of said beam.

[0019] In particular, one or both the ends of the beam or beams have an edge which extends for at least part of the height of the beam in a plane transversal to the longitudinal edge of the beam, and which is inclined towards the central area of the beam, in the direction of the side of the beam opposed to the shelf.

[0020] In an embodiment, part of the edge of one or both ends of beam or beams extends in a plane perpendicular to the longitudinal edge of the beam, said part corresponding to a portion of the overall height of the beam, on the side adjacent to the shelf plane, while the remaining part of the end edge extends in the inclined plane transversal to the longitudinal axis of the beam, as already described.

[0021] Thanks to the new aperture with inclined trimming and to the new clip, the assembling of the wiring can be performed in two distinct moments, having each different levels of efficiency:

- Factory assembling, with upside down shelf, simply inserting the wiring from above (inserting the wire from above is faster and more efficient than inserting it from a side); the wiring crosses the technical recess obtained with the inclined trimming and is fixed it with the new clip;
- Retrofit point-of sale assembling, without disassembling the shelf from the shelving and without the removal of displayed goods, inserting the wiring from below through the aperture with inclined trimming and fixing it through the new clip.

[0022] Such aperture combines its efficacy with a clip positioning, supporting and covering the wiring, which can be inserted into the said apertures. Said clips, preferably made of an elastic material (e.g. plastics) are snap-fitted in the said aperture, and firmly hold the wiring. With their top portion, they allow the passage of the wiring, in contact with the underside of the shelf, while their lower portion is in continuity with the beam itself, so as to limit the possibility of snagging on the wiring, as the wiring adheres to the underside of the shelf.

[0023] The clips being snap-fitted, they can be easily inserted in case of:

- Factory assembling, with upside down shelf, simply inserting the clips from above;
- Retrofit point-of-sale assembling, without disassembling the shelf from the shelving, inserting the clips

from below to compress the wiring towards the top.

[0024] Surprisingly, the presence of said inclined trimming, in addition to defining the technical recess for the passage of wiring, markedly facilitates the assembling of the shelving in the point of sale, as will be better explained in the following.

[0025] The first advantage of the present invention consist in the simplification of the assembling of the shelves with their supporting brackets. The inclined trimming at the end of the beam forms a natural funnel that markedly facilitates the positioning of the shelf on its supporting brackets, when leaning the shelf on the brackets. The recess housing the bracket does not need an accurate positioning on the brackets themselves anymore. The recess being much more open with respect to the bracket shape, an approximate position of the bracket with respect to the recess of the shelf is sufficient. Then the natural ramp formed by the inclined trimming under the force of gravity slides the shelf itself up to the reaching of the exact positioning of the shelf on its supporting brackets. This simple constructive shape of the shelf beams with inclined trimming brings a significant increase of efficiency in shelving assembling: a reduction of about ten seconds in the assembly of each shelf that is mounted on its respective brackets. This generates a significant economic advantage: e.g., reducing of 10 seconds only the assembling of each shelf, multiplying it for 2 million of shelves assembled in one year, makes a saving of assembling time quantifiable in 10 sec x 2.000.000 shelves = 20.000.000 seconds, i.e. a saving in the assembly time of over 5.000 working hours in a year!

[0026] A second advantage of the present invention relates to the working life in the points of sale, wherein during the normal operations of displaying and re-stocking goods, it may happen that disassembling the shelves, re-positioning the supporting brackets, and re-assembling the shelves becomes necessary. The inclined trimming of the beams simplifies this operation, typically performed by, often feminine, point of sale staff, in that the trimming facilitates the sliding of the shelf according to the present invention on their supporting brackets up to finding the exact position of the shelf on its supporting brackets.

[0027] The third advantage of the present invention consist in the increase of the payload of the shelf, even in its thin version, in that the aperture and the trimming are an improvement with respect to the solution proposed in EP16192693. The aesthetics is improved, too.

[0028] The fourth advantage of the present invention consists in allowing the assembling of the supplying wiring already inside the factory, providing the customer with a suppliable/illuminable, ready-to-assemble shelf.

[0029] A fifth advantage of the present invention is the possibility of retrofit assembling at the point-of-sale. In fact, with the shelf and the clips according to the present invention, the point-of-sale can purchase the shelves provided with the aperture according to the present invention

without wiring, and assemble them with the electric wiring in a second time, even if the shelving are loaded with displayed goods, given the extreme simplicity of the assembling of the electric wiring and clips.

[0030] A sixth advantage of the present invention consists in a better aesthetic look of the shelving itself, in that the wiring does neither protrude nor dangle from the shelf.

[0031] A seventh advantage consists in an improvement of shelving safety, in that the probability of snapping on the wiring is radically reduced during assembling/disassembling of the shelving, as well as drawbacks in the use of the shelving by point-of-sale customers during their purchasing.

[0032] Further advantages and properties of the present invention are disclosed in the following description, in which exemplary embodiments of the present invention are explained in detail based on the drawings:

- Figure 1A Axonometric view from below of a shelf of traditional thickness with disassembled clip;
- Figure 1B Axonometric view from below of a shelf of thin thickness with disassembled clip;
- Figure 2A Detail of the aperture obtained in the beam of the shelf having traditional thickness;
- Figure 2B Detail of the aperture obtained in the beam of the shelf having thin thickness;
- Figure 3 Axonometric view of the clip;
- Figure 4A Axonometric view from below of a shelf of traditional thickness with assembled clip;
- Figure 4B Axonometric view from below of a shelf of thin thickness with assembled clip.

[0033] Figure 1A shows a shelf of traditional thickness (25 mm) for points of sale. Said shelf 11, well known in the art, is a part of a shelving comprising a plurality of shelves 11, each supported by a couple of brackets 40. Said brackets are typically fixed to a couple of (not shown) uprights, in their turn supported by a couple of (not shown) bases. In the absence of said shelf 11, once the supporting brackets 40 have been assembled on the uprights, the brackets themselves can pivot around their fulcrum. During the assembling of the shelf, they must be aligned. The shelf 11 itself keeps them parallel, once the brackets have taken their precise position in the housing provided for them.

[0034] On the downside 12 of shelf 11 there are welded some beams 13, in the example of Figure 1A, two beams 13. Said beam have an upside-down omega (Ω) shape, with a horizontal wall 14 parallel to the downside and two vertical walls 16, one frontal and one rear, approximately perpendicular to said downside and horizontal wall.

[0035] On the other hand, Figure 1B shows a thin shelf (10 mm) for points of sale, as can easily be observed comparing Figure 1A and Figure 1B. Said thin shelf 21 is part of a shelving having the traditional structure comprising a plurality of shelves 21, each supported by a

couple of brackets 40. Said brackets typically are fixed to a couple of (not shown) uprights, in their turn supported by a couple of (not shown) bases.

[0036] On the downside of shelf 21, there are some welded beams 23, in the example of Figure 1B three beams 23; given the thinner thickness of the shelf, an increased number of beams is needed, in comparison to a shelf having traditional thickness. Said beam have an upside-down omega (Ω) shape, with a horizontal 24 wall parallel to the downside 22 and two vertical walls 26, one frontal and one rear, about perpendicular to said downside and horizontal wall.

[0037] In both cases, an electric wiring 25 must be brought from the rear end (oriented towards the back panels of the shelving) to the frontal end (oriented towards the public) of shelf 11, 21. The views shown in Figures 1A and 1B further comprise two clips 30 in the first Figure and three clips 30 in the second Figure. Said clips are shown as an exploded view, i.e. not in their seat.

[0038] Figure 2A shows a detail of a beam 13 of a shelf 11 having traditional thickness. The two vertical walls 16 and the horizontal wall 14 of said beam 13 have a trimming 17 inclined of about 30° with respect to the vertical axis. The trimming starts from a point of said beam that is at least 5 mm far from the downside 12 of said shelf 11.

[0039] As it is apparent, the trimming 17 entails that the end edge of the corresponding end of beam 13 is contained in an inclined plane, which in the direction of the width of said beam, i.e. of the distance of the two vertical walls 16, is perpendicular to the longitudinal axis of beam 13, while in the direction of said longitudinal axis is inclined towards the centre of the beam, so that the terminal edge of the horizontal wall of the beam is curved inwards of a pre-set measure with respect to the edge of the portion of vertical beams 16 adjacent to downside 12 of shelf. Therefore, the terminal edges of the two vertical sides 16 have an inclined trend toward the centre or toward the opposed end of beam starting from a certain distance from the downside 12 of the shelf, up to the area in contact with the terminal edge of the horizontal wall 14 of the beam. In this way, the weakening of the beam in its terminal tract is limited, generating an unloading of loading forces operating on the ends of beam towards the rearward end of the horizontal wall 14 of the beam.

[0040] The dimensions of the single segments of the edge of the vertical walls 16 and of the horizontal wall 14 of the beam can be modified according to the performances desired for the shelf, in relation with the maximum load intended for the shelf.

[0041] In another embodiment, the end edges of the vertical walls 16 of the beams or of part of them can also be inclined for their whole length from the end adjacent to the downside 12 of the shelf up to the horizontal wall 14 of the beam. Moreover, notwithstanding that the simple inclined trimming of the end of beams can be a preferred solution, this solution must not be regarded as limiting, in that curved profiles, concave or convex, e.g. of the terminal edges of the vertical walls 16 of the beams,

or even polygonal trends with a succession of rectilinear tracts having different inclinations can be provided.

[0042] The polygonal or curved segments can form concave or convex lines.

[0043] Figure 2B shows a detail of said beam 23 of a shelf 21 having thin thickness. The two vertical walls 26 and the horizontal wall 24 of beam 23 have a trimming 27 inclined of about 30° with respect to the vertical axis. The trimming starts from a point of said beam that is at least 5 mm far from the downside 22 of said shelf 21.

[0044] In the preferred embodiment, the trimming 17 obtained in a shelf 11 having traditional thickness (25 mm) starts at 12 mm from the downside 12 of shelf 11, while in the thin shelf 21 (10 mm) the trimming 27 starts at 6 mm from the downside 22.

[0045] In fact, the wall of beams 13, 23 must have a vertical portion 16, 26, and only in proximity of the horizontal wall 14, 24 an inclined trimming can be obtained. The vertical portion 16, 26 of said beam is intended to lean on bracket 40, and when shelf 11, 21 is loaded, said vertical portion 16, 26 undergoes compression against bracket 40. Tests and simulations indicate that the vertical distal portion 16, 26 must be at least 5 mm long, or cover at least 20% of the thickness of the beam.

[0046] Figures 2A and 2B show that each beam 13, 23, has at least a slot, preferably a couple of slots 18, which are intended for the fixing of said clip 30.

[0047] Figures 2A and 2B show a detail of a shelf seen from below, wherein the recess obtained in the shelf to house left bracket is visible; the position of the beams having an inclined trimming is apparent, in one of the preferred embodiments. The inclined trimming can work as an inclined plane to allow the sliding of a shelf on brackets, even when their reciprocal position is not perfectly aligned.

[0048] Figure 3 shows said clip 30 in an axonometric view. Said clip 30 shows a transversal section having a L-shape, with a lateral wall 36 which, when assembled, goes into contact with the bracket 40 supporting said shelves 11, 21, becoming the extension of the vertical walls 16, 26 of beams. Said clip 30 has a lower wall 35 that, when said clip 30 is assembled on beams 13, 23, becomes the extension of the horizontal wall 14, 24 of beam itself.

[0049] Said clip 30 has at least a protrusion, preferably two protrusions 31 on its lower wall 35, allowing the fixing of said clip through snap-fitting in the slot 18 of beam 13, 23. Said assembling and disassembling can be easily and advantageously be performed by hand, without the need of any tool.

[0050] A couple of lateral protrusions 32 on the frontal and rear walls of the clip goes into contact with the underside 12, 22 of shelf 11, 21. In the frontal and rear walls of the clip there are provided two slots 33 allowing the passage of wiring 25; said wiring crosses said clip 30 in a sort of aisle 34.

[0051] Figure 4A shows two clips 30 assembled on two beams 13, respectively, of a shelf 11 having traditional

thickness. As explained above, the clips 30 are fixed through the joint of protrusions 31 and slots 18 obtained in beams 13. The wiring 25 flows from the rear to the front of shelf 11 passing through slots 33 and aisle 34 obtained in slots 30.

[0052] As can be appreciated in the Figure, the lower wall 35 of clip 30 is the substantial extension of the horizontal wall 14 of beam 13, while the lateral wall 36 of clip 30 is substantially in contact with the bracket 40 supporting the shelf 11 itself.

[0053] Figure 4B shows three clips 30 assembled on three beams 23, respectively, of a shelf 21 having thin thickness. As explained above, the clips 30 are fixed through the joint of protrusions 31 and slots 18 obtained in beams 23. The wiring 25 flows from the rear to the front of shelf 21 passing through slots 33 and aisles 34 obtained in slots 30.

[0054] As can be appreciated in the Figure, the lower wall 35 of clip 30 is the substantial extension of the horizontal wall 24 of beam 23, while the lateral wall 36 of clip 30 is substantially in contact with the bracket 40 supporting the shelf 21 itself.

[0055] In other words, the application of clip 30 brings back the profile of beams 13, 23 to the squared shape, without the trimming 17, 27 according to the present invention, it has in the known art.

[0056] Advantageously, said clip 30 is of one kind only and has the same dimensions, disregarding the fact that is assembled on a shelf 11 having traditional thickness or on a thin shelf 21.

- 11 shelf having traditional thickness
- 12 downside of the shelf
- 13 beam
- 14 horizontal wall of beam
- 16 vertical walls of beam
- 17 trimming of beam
- 21 thin shelf
- 22 downside of the shelf
- 23 beam
- 24 horizontal wall of beam
- 25 electrical wiring
- 26 vertical walls of beam
- 27 trimming
- 30 clip
- 31 protrusion
- 32 protrusion in contact with downside
- 33 slot for the passage of wiring
- 34 aisle for the passage of wiring
- 35 clip lower wall
- 36 clip lateral wall
- 40 bracket

Claims

1. Shelf (11, 21) for metal shelving comprising at least a downside beam (13, 23) said beam having a shape

of an upside-down omega comprising two vertical walls (16, 26) perpendicular to the shelf itself, and a horizontal wall (14, 24) parallel to the shelf itself, provided with a trimming to facilitate the assembly of the shelf and optionally allow the passage and the support of an electric wiring (25),

characterized in that

said trimming (17, 27) is obtained in each vertical wall (16, 26) and in the horizontal wall (14, 24) of said beams (13, 23) at a suitable distance from the downside (12, 22) of the shelf itself

and in that

said wiring (25) is supported in said at least a down-side beam (13, 23) by a clip (30) having an L-shaped transversal section.

2. Reinforced shelf (11, 21) for metal shelving according to claim 1, wherein said trimming (17, 27) is obtained at a distance from the downside (12, 22) of the shelf itself longer than 3 mm, preferably longer than 5 mm, or anyway at a distance longer than 20% of the overall length of said vertical walls (17, 27).
3. Reinforced shelf (11, 21) for metal shelving according to claim 1 or 2, wherein each trimming is inclined of 20°-45°, preferably of 30°, with respect to said vertical wall (16, 26).
4. Reinforced shelf (11, 21) for metal shelving according to one of the preceding claims, wherein said horizontal wall (14, 24) has at least a slot (18), preferably two slots (18).
5. Reinforced shelf (11, 21) for metal shelving according to one of the preceding claims 1 to 4, wherein the lower wall (35) of said clip (30) has at least one, preferably two protrusions (31) for snap-fitting the clip itself in the slots (18) obtained in the horizontal wall (14, 24) of said beams (13, 23).
6. Reinforced shelf (11, 21) for metal shelving according to claim 1 or 5, wherein said clip (30) has a couple of slots (33) and an aisle (35) for the passage of the electric wiring (25).
7. Reinforced shelf (11, 21) for metal shelving according to claim 1-6, wherein said clip (30) has the same shape and dimensions both for traditional shelves and for thin shelves (21).
8. Reinforced shelf (11, 21) for metal shelving according to claim 4, wherein the lateral wall (35) of said assembled clip (30) is in substantial continuity with said vertical wall (17, 27) of beam (13, 23), is substantially adjacent to a bracket (40) supporting the shelf, while the lower wall of said assembled clip (30) is in substantial continuity with the horizontal wall (14, 24) of beams (13, 23).

9. Metal shelving comprising at least a couple of bases, at least a couple of uprights which in their turn support a plurality of brackets (40) which in their turn support a plurality of shelves (11, 21) according to claims 1 - 8.

10. Assembling method in a point of sale of a shelving comprising a couple of brackets (40) in their turn supporting each shelf (11, 21) according to claims 1-8, said brackets being fixed to a couple of (not shown) uprights, supported by a couple of (not shown) bases, wherein during the assembling said shelf (11, 21) is supported in a non-precise way on the couple of brackets (40) intended to support it, the trimmings (17, 27) on the vertical walls (16, 26) and on the horizontal walls (14, 24) working as a funnel which facilitates and speeds up the positioning of said shelves (11, 21) with respect to the couple of shelves (40).

11. Factory assembling method for reinforced shelves (11, 21) for metal shelving according to claims 1 to 8, comprising the following steps:

- Turning upside-down said shelf (11, 21) comprising said trimmings (17, 27);
- Inserting wiring (25) from above;
- Applying clips (30) according to need, one for each beam (13, 23);
- Shipping of the pre-wired shelf (11, 21) to the point-of-sale;
- Assembling of a plurality of pre-wired shelves (11, 21) to obtain a shelving having the desired features.

12. Point-of-sale assembling method for reinforced shelves (11, 21) for metal shelving according to claims 1 to 8, comprising the following steps:

- Shipping the shelves (11, 21) comprising at least a trimming (17, 27) from the factory to the point-of-sale;
- Assembling at the point-of-sale a plurality of shelves (11, 21) to obtain a shelving having the desired features;
- Loading of shelving with goods;
- Inserting wiring (25) inside trimmings (17, 27), on loaded shelves;
- Applying clips (30) to support wiring (25).

13. Kit of parts for obtaining electrified shelving, **characterized in that** it comprises at least a pair of bases, at least a pair of uprights, supporting a plurality of brackets (40), which in turn support a plurality of shelves (11, 21); said metal shelves being realized according to one or more of the claims 1 to 8; further comprising at least an electric wiring (25) and at least a clip (30) for fixing said electric wiring.

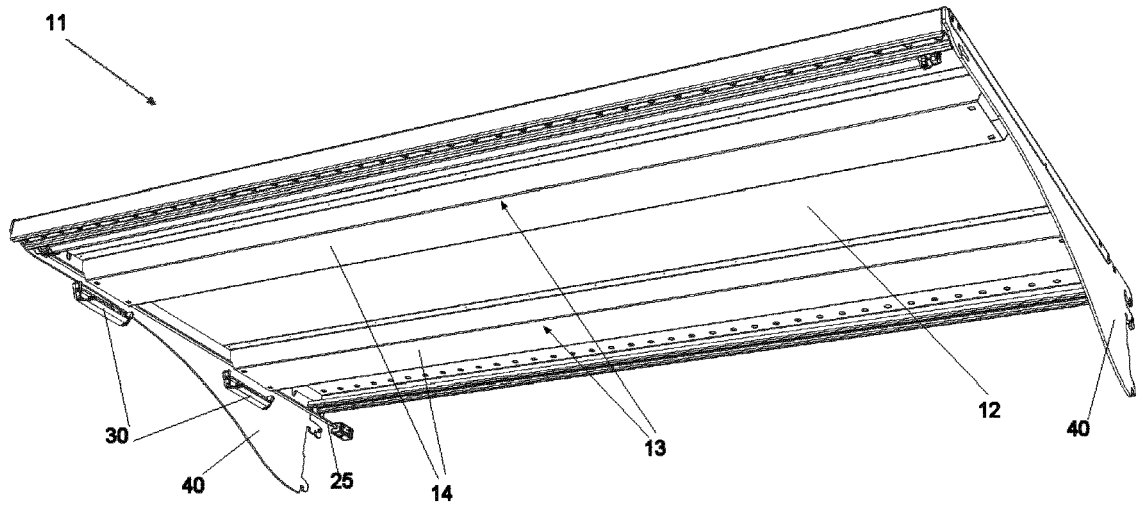


FIG. 1A

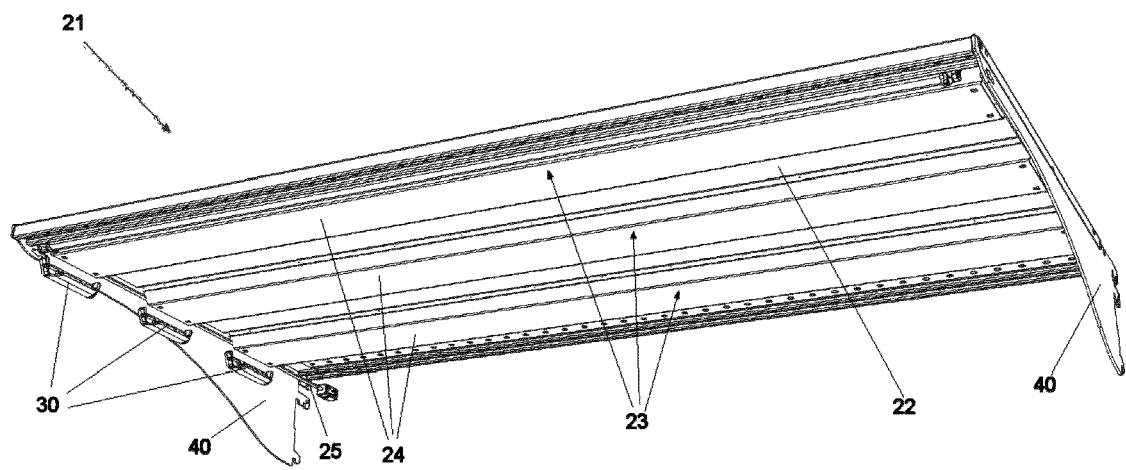


FIG. 1B

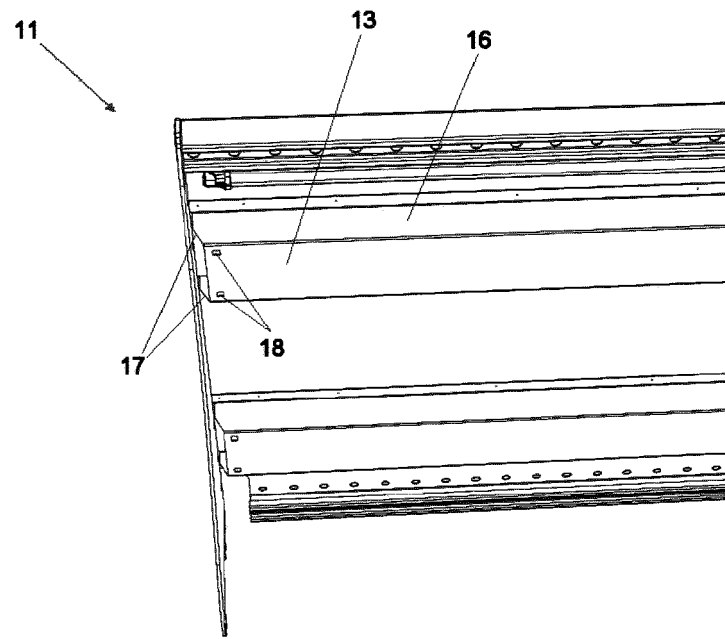


FIG. 2A

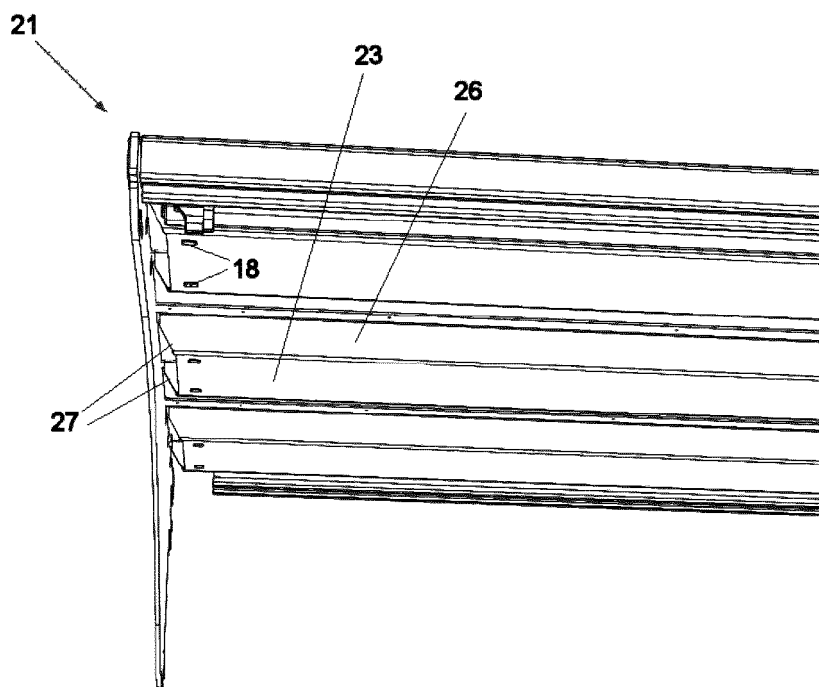


FIG. 2B

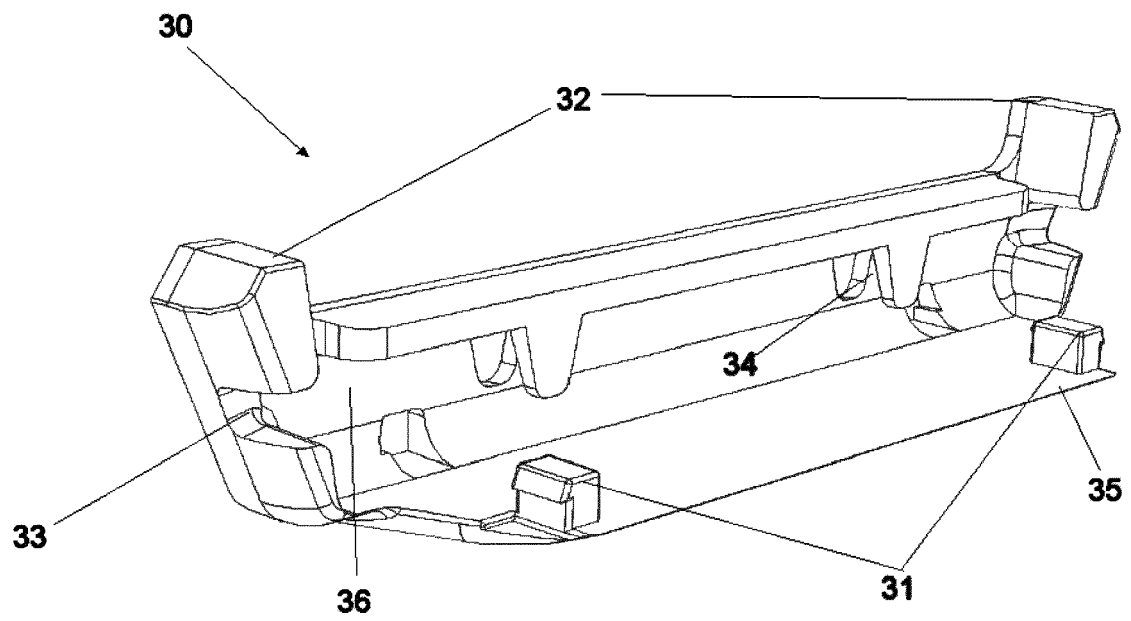


FIG. 3

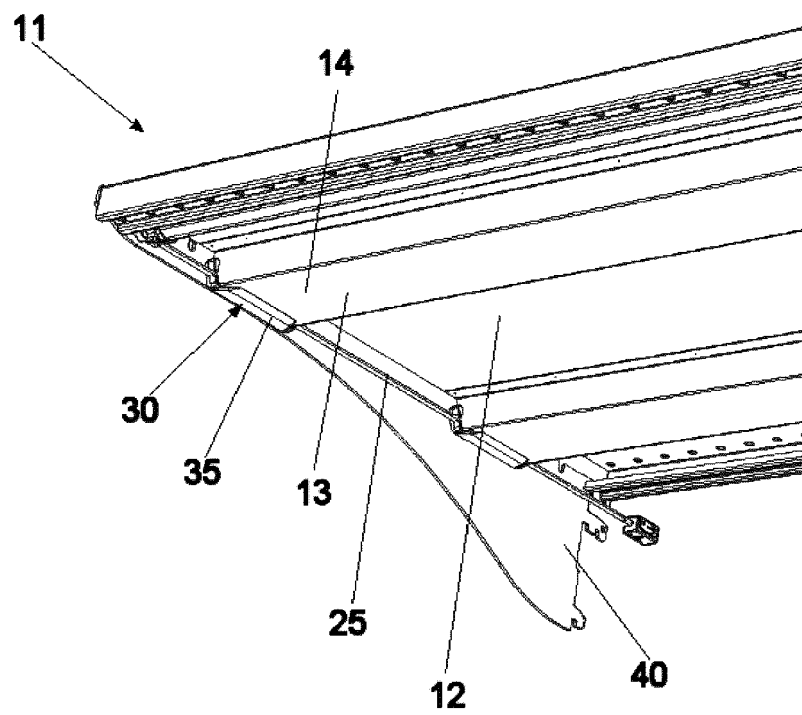


FIG. 4A

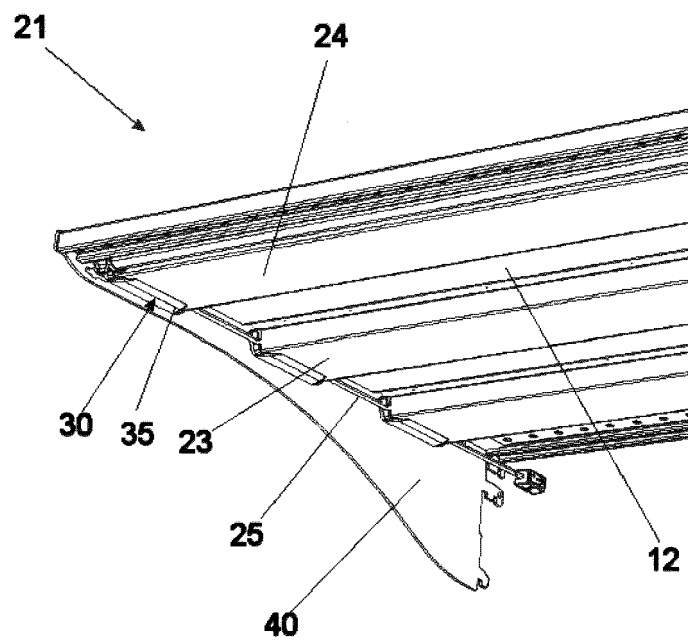


FIG. 4B



EUROPEAN SEARCH REPORT

Application Number
EP 18 16 3882

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	GB 1 490 793 A (BOHNACKER R) 2 November 1977 (1977-11-02) * figures 1-12 *	4-9, 11-14	INV. A47B96/02
A	NL 7 204 417 A (VAN DER BRUGH) 10 October 1972 (1972-10-10) * figure 3 *	1-14	ADD. A47B57/10
A	US 4 098 480 A (NEUMANN LEONARD H) 4 July 1978 (1978-07-04) * figures 2-3 *	1-14	
A	CA 897 637 A (WILSON J A DISPLAY) 11 April 1972 (1972-04-11) * figures 1-3 *	1-14	
A	FR 2 905 248 A1 (HMY GESTION SOC PAR ACTIONS SI [FR]) 7 March 2008 (2008-03-07) * figures 1-3 *	1-14	
A	US 2 940 601 A (SMITH WALTER G) 14 June 1960 (1960-06-14) * figures 1-5 *	4-8	TECHNICAL FIELDS SEARCHED (IPC) A47B H05K G09F A47F
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 9 April 2018	Examiner Ibarrondo, Borja
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EPO FORM 1503 03/82 (P04C01)

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

EP 18 16 3882

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50

55

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 1490793	A	02-11-1977	AT 332595 B	11-10-1976
			BE 824084 A	02-05-1975
			CH 577291 A5	15-07-1976
			FR 2258151 A1	18-08-1975
			GB 1490793 A	02-11-1977
			IT 1026899 B	20-10-1978
			NL 7500322 A	22-07-1975

NL 7204417	A	10-10-1972	BE 781831 A	31-07-1972
			NL 7204417 A	10-10-1972

US 4098480	A	04-07-1978	NONE	

CA 897637	A	11-04-1972	NONE	

FR 2905248	A1	07-03-2008	AT 533381 T	15-12-2011
			EP 2073668 A1	01-07-2009
			ES 2379524 T3	27-04-2012
			FR 2905248 A1	07-03-2008
			WO 2008029019 A1	13-03-2008

US 2940601	A	14-06-1960	NONE	

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 2863775 A1 [0003]
- GB 1490793 A, Bohnacker R. [0005]
- NL 7204417, Van Brugh [0006]
- US 4098480 A, Neumann Leonard H. [0007]
- CA 897637 A, Wilson J.A. [0008]
- FR 2905248 [0009]
- EP 2832262 A2 [0010] [0011]
- EP 2832262 A3 [0010]
- EP 16192693 A [0011] [0012] [0027]