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(54) **A SHELVING POST AND AN ADJUSTABLE SHELVING SYSTEM**

(57) The present invention provides an adjustable shelving post (22) which features a low profile rear support comprising front facing surface (26) and rearwardly projecting lug guards (28). The front facing surface has apertures (30) either side of fin (24) through which lugs on the shelf arms are supported and maintained for holding the shelf. The adjustable shelving post (22) also has horizontal leg portion (32) which is in turn comprised of a leg fin (34) mounted upon a planar leg base 36. The fin (24) and leg fin (34) abut each other to provide further structural support for the shelving post (22).

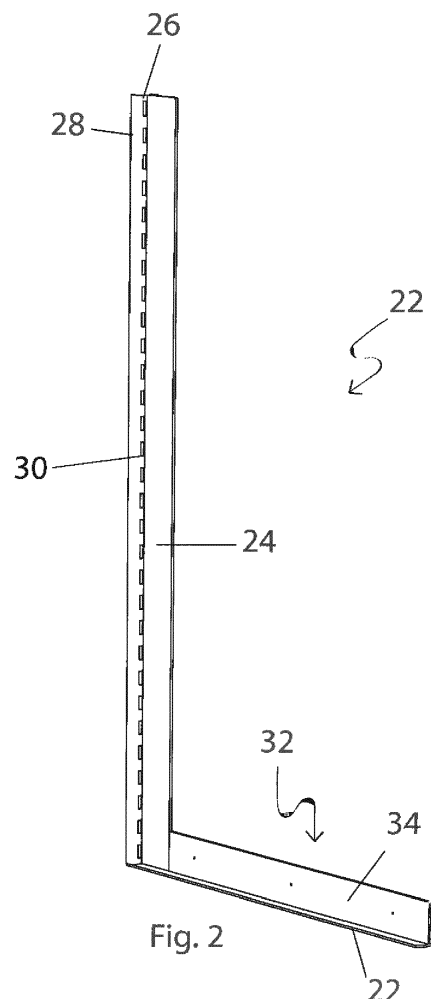


Fig. 2

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Description

TECHNICAL FIELD

[0001] The invention relates to shelving posts utilised in adjustable shelving systems. More specifically the invention relates to improved shelving systems for displaying product in retail environments and in particular, supermarkets and other such stores.

BACKGROUND ART

[0002] Retail environments such as supermarkets employ shelving systems for displaying merchandise for sale. Due to the ever changing nature of products sold by stores, shelving systems employing adjustable shelving systems are the dominant and most common type of shelving systems used in this area. This is because a retailer may wish to reconfigure one or more sections of the shelves to accommodate products that would otherwise not fit in the pre-existing shelving fit out.

[0003] Adjustable shelves often are supported by a single pair of shelving posts which differentiate them from those shelving systems that incorporate four posts and rectangular shelves attached to all four posts. The utilisation of just a single pair of posts at the rear of the shelves allow for more unimpeded access to the products on the shelves.

[0004] However the utilisation of a single pair of posts to support shelves brings with it a set of problems in how to support the shelves which may have to bear considerable amount of heavy products. For this reason, and others, the usual manner of constructing a shelving post is to utilise rectangular hollow section (RHS) or square hollow section (SHS) steel members which have apertures cut into them for receiving the connecting lugs that are connected to the shelf to be supported by the post. Due to the structural requirement for supporting heavy loads, the cross section of the RHS or SHS sections are often considerable. This leads to a significant disadvantage which is that the width and depth of the SHS or RHS steel posts reduces the available shelving space. In particular it often means that there is a rear section of the supported shelf that extends between the posts that is of a reduced width when compared with the width of the front section of the shelf. Due to the depth of the posts, this restricted rear area of the shelf can be significant. For retailers, who tend to line products up in lines extending from the front of the shelf right to the rear of the shelf, this means that there will be product lines at either side of the shelf that can hold lesser quantities of product. More often than retailers leave a gap at the each side of the shelf in front of the shelving posts. Considering that rows and rows of shelves are placed side by side, the loss of retail space along a supermarket aisle due to the posts can be considerable.

[0005] It is an object of the present invention to produce a shelving post for utilisation within a shelving system

that obviates or at least lessens the losses of retail space in front of the shelving posts.

DISCLOSURE OF INVENTION

[0006] In a first aspect of the invention there is provided, a shelving post for use in supporting a shelf of an adjustable shelving system characterised in that the shelving post comprises:

- (i) a first vertically extending member; and
- (ii) a second vertically extending member connected to the first vertically extending member such that the second vertically extending member extends from the first vertically extending member so as to divide the first vertically extending member into a first support surface and a second support surface;

and wherein the first and second support surfaces each have a plurality of apertures formed therethrough and which are configured to receive engaging members of the shelf or of a support structure for the shelf.

[0007] Preferably the second vertically extending member extends perpendicularly from the first vertically extending member.

[0008] More preferably the vertically extending members are planar.

[0009] Alternatively, the first and second support surfaces of the first vertically extending member are coplanar and the second vertically extending member is planar.

[0010] Preferably the first and second support surfaces of the first vertically extending member are planar and the first vertically extending member further comprises at least one projecting member that extends rearwardly from the coplanar first and second support surfaces.

[0011] Still more preferably the at least one rearwardly projecting member comprises two rearwardly projecting members extending rearwardly in a parallel plane as the second vertically extending member.

[0012] Preferably the shelving post further comprises a horizontal leg support which is connected to the first and second vertically extending members and wherein at least a lower portion of the second vertically extending member is connected along its length to the horizontal leg support.

[0013] More preferably the horizontal leg support has an upwardly projecting horizontal member which abuts the lower portion of the second vertically extending member.

[0014] In a second aspect of the invention there is provided an adjustable shelving system comprising one or more shelves and at least two shelving posts for supporting the one or more shelves therebetween wherein each shelving post has apertures formed therethrough for receiving and retaining engaging members of each shelf or of a support structure for each shelf characterised in that each shelving post comprises:

- (i) a first vertically extending member; and
- (ii) a second vertically extending member connected to the first vertically extending member such that the second vertically extending member extends from the first vertically extending member so as to divide the first vertically extending member into a first support surface and a second support surface;

and wherein the apertures formed in the at least two shelving posts are located on both the first support surface and second support surface.

[0015] Preferably the second vertically extending member extends perpendicularly from the first vertically extending member.

[0016] More preferably the first vertically extending member is planar.

[0017] Alternatively, the first and second support surfaces of the first vertically extending member and second vertically extending member are planar.

[0018] Preferably the first and second support surfaces of the first vertically extending member are coplanar and the first vertically extending member further comprises at least one projecting member that extends rearwardly from the coplanar first and second support surfaces.

[0019] Still more preferably the at least one rearwardly projecting member comprises two rearwardly projecting members extending rearwardly in a parallel plane with the second vertically extending member.

[0020] Preferably the shelving post further comprises a horizontal leg support which is connected to the first and second vertically extending members and wherein at least a lower portion of the second vertically extending member is connected along its length to the horizontal leg support.

[0021] More preferably the horizontal leg support has an upwardly projecting horizontal member which abuts the lower portion of the second vertically extending member.

BRIEF DESCRIPTION OF THE DRAWINGS

[0022]

- Fig. 1 is a perspective representation of a shelving system of the prior art;
- Fig. 2 is a perspective representation of a first embodiment of a shelving post according to a first aspect of the invention;
- Fig. 3 is a side view of the embodiment of the shelving post of Fig. 2;
- Fig. 4 is a front view of the embodiment of the shelving post of Fig. 2;
- Fig. 5 is a cross section of the shelving post taken along lines A-A of Fig. 3;
- Fig. 6 is a top view of the of the embodiment of the shelving post of Fig. 2;
- Fig. 7 is an exploded perspective view of a shelving system in a second aspect of the invention

wherein the shelving system incorporates the shelving post of the first aspect of the invention of Figs. 1 to 6;

Fig. 8 is a perspective view of the shelving system of Fig. 7;

Fig. 9 is a cross section of a shelving post according to a second embodiment of the first aspect of the invention;

Fig. 10 is a cross section of a shelving post according to a third embodiment of the first aspect of the invention;

Fig. 11 is a cross section of a shelving post according to a fourth embodiment of the first aspect of the invention;

Fig. 12 is a cross section of a shelving post according to a fifth embodiment of the first aspect of the invention;

Fig. 13 is a cross section of a shelving post according to a sixth embodiment of the first aspect of the invention;

BEST MODE FOR CARRYING OUT THE INVENTION

[0023] Fig. 1 depicts a prior art shelving system 10. The shelving system 10 suffers from the problems set out in the background to the invention. In particular it features large posts 12 which support two horizontal supports 14 which in turn support shelf or rack 16. Due to the width and depth of the posts 12 the width of the rear of shelf or rack 18 is significantly narrower than the width of the front of the shelf or rack 20. Further as prior art posts are not only wide but often deep, the impacted area of the shelf can be significant as the retailer cannot merchandise product all the way to the edge of the posts.

[0024] As mentioned in the background to the invention the size of the posts usually results in the retailer avoiding placing lines of goods stacked from front to rear in the portions of the rack or shelf 16 that are in front of the posts 12, or if product is placed in those portions, a reduced number of products is able to be placed in these positions.

[0025] Figs 2 to 6 depict a shelving post 22 according to a first embodiment of a first aspect of the invention. The shelving post 22, when incorporated into a shelving system, obviates or significantly reduces the problems associated with prior art shelving systems. It does this by dispensing with RHS or SHS shaped vertical members and replacing it with a vertical member that has a planar protrusion or fin 24 that provides structural support whilst at the same time, minimises the width and depth of the remaining elements that make up the post 22, thereby minimising the usual dead space associated with prior art posts 12.

[0026] Referring to Figs. 2 to 6 the post 22 also features a low profile rear support comprising front facing surface 26 and lug guard 28. The front facing surface has apertures 30 either side of fin 24 through which lugs on the shelf arms are supported and maintained for holding the

shelf. Lug guards 28 are preferably utilised so as to prevent the shelf post from being pressed up against a wall thereby causing the inserted lugs from being dislodged. However in other embodiments such as the embodiment depicted in Fig. 13 the post 22 may be simply comprised of front facing surface 26 and fin 24 which forms a simple T shape. In addition to the vertical members, the post 22 also has horizontal leg portion 32 which is in turn comprised of a leg fin 34 mounted upon a planar leg base 36. The fin 24 and leg fin 34 abut each other to provide further structural support.

[0027] Turning to Figs. 7 and 8 which depict a first embodiment of the second aspect of the invention there is depicted shelving system 40 which incorporates post 22 of Figs. 2 to 6. The system is depicted with one post 22 in Fig 7 for simplicity however when assembled, as depicted in Fig. 8, two posts 22 are utilised in the provision of adjustable shelving. The components of shelving system 40 include bracing members 42 which are made from roll formed steel in a U shape with an open bottom and a planar top surface 44. The bracing members 42 further feature downwardly projecting tabs 46 which are adapted to extend over and be secured on leg fin 34. When bracing members are fitted over the leg fins 34 of two posts the top surfaces 44 create a flat surface for the support of a shelving surface 48 which can be fixed to the bracing members 42 in any number of conventional ways including screwing or gluing to form a bottom shelf.

[0028] There is also depicted in Figs. 7 and 8 an shelf 50 that has a number of lugs 52 for insertion and retention within apertures 30. The lugs 52 are located on support arms 54 which are kept spaced apart by a plurality of shelf supports 56 in a similar fashion to the bracing members 42 of the bottom shelf. The shelf 50 also has a front fascia 58 that extends vertically beyond the support arms 54 such that when shelf surface 48 is overlaid, the top of the fascia 58 and shelf surface 48 form a level surface. Front fascia 58 can also be used as a ticket or signage holder.

[0029] It should be noted that persons skilled in the art would appreciate that the shelving system 40 can incorporate many different types of shelving including angled shelving where product slides or rolls (including those shelves that have small rollers) to the front of the shelf. The invention also incorporates shelves that are provided in modular form where separate arm brackets are used to support separate shelves (that is not integrally formed as in the case of shelf 50). Further the surface of the shelves may not be planar and may in fact be formed from wire or steel mesh or other materials or are otherwise adapted to have dividers and/or other retailing aids inserted or attached onto them.

[0030] Referring to Fig. 8 there is also depicted back panels 60 which also feature lugs 52 at their vertical edges. The back panels are inserted between two posts 22 when a retailer does not wish for the customer to see beyond the rear of the shelves in the shelving system 40. The back panels 60 also provide some structural integrity

to the assembled shelving system as they brace the posts 22. When not utilised, they are often replaced by structural bracing members (not shown).

[0031] Shelving system 40 is designed such that a plurality of posts 22 can be utilised side by side creating extended shelf surfaces. By utilising posts 22 in the shelving system 40 it is now possible to have a shelf surface 48 which is the same width at the rear of the shelf as it is at the front of the shelf, eliminating dead space on the shelf. No unsightly indents are required to be formed into the shelf surface 48 in shelving system 40 as shown in Fig. 8 and wherein shelf surface 48 is maximised as compared to prior art shelving systems.

[0032] Reference is now made to Figs. 9 to 13 in which cross sections of second through fifth embodiments of posts 22 are depicted. The embodiments differ with regard to the length and width of fin 24. The depicted embodiments are not exhaustive of the embodiments of the invention that fall within the scope of the invention and are provided for illustrative purposes only. In terms of ratios of fin length to fin width the depicted figures show a ratios of between 8:1 for Fig 9 and 15:1 for Fig 12. In terms of absolute widths and lengths, the invention encompasses fins of the following dimensions: 4mm x 60mm, 6mm x 60mm, 6mm x 80mm, 6mm x 100mm, 8mm x 80mm, 8mm x 100mm, 8mm x 120mm. The longer the fin 24, the greater weight can be accommodated on the supported shelves. In terms of the weight that can be supported by shelf 50 as depicted in Fig. 8 a minimum of 300KG can be supported using a 8mm x 80mm sized fin 24.

INDUSTRIAL APPLICABILITY

[0033] The present invention has industrial applicability in the field of retail display shelving for use in displaying and retailing goods including heavy goods.

Claims

1. A shelving post for use in supporting a shelf of an adjustable shelving system **characterised in that** the shelving post comprises:

- (i) a first vertically extending member; and
- (ii) a second vertically extending member connected to the first vertically extending member such that the second vertically extending member extends from the first vertically extending member so as to divide the first vertically extending member into a first support surface and a second support surface;

and wherein the first and second support surfaces each have a plurality of apertures formed there-through and which are configured to receive engaging members of the shelf or of a support structure

for the shelf.

2. The shelving post of claim 1 wherein the second vertically extending member extends perpendicularly from the first vertically extending member. 5
3. The shelving post of claim 2 wherein the vertically extending members are planar.
4. The shelving post of claim 2 wherein the first and second support surfaces of the first vertically extending member are coplanar and the second vertically extending member is planar. 10
5. The shelving post of claim 4 wherein the first vertically extending member further comprises at least one projecting member that extends rearwardly from the coplanar first and second support surfaces. 15
6. The shelving post of claim 5 wherein the at least one rearwardly projecting member comprises two rearwardly projecting members extending rearwardly in a parallel plane with the second vertically extending member. 20
7. The shelving post of any of claims 1 to 6 wherein the shelving post further comprises a horizontal leg support which is connected to the first and second vertically extending members and wherein at least a lower portion of the second vertically extending member is connected along its length to the horizontal leg support. 25
8. The shelving post of claim 7 wherein the horizontal leg support has an upwardly projecting horizontal member which abuts the lower portion of the second vertically extending member. 30
9. An adjustable shelving system comprising one or more shelves and at least two shelving posts for supporting the one or more shelves therebetween, wherein each shelving post has apertures formed therethrough for receiving and retaining connecting engaging members of each shelf or of a support structure for each shelf **characterised in that** each shelving post comprises: 35
- (i) a first vertically extending member; and
- (ii) a second vertically extending member connected to the first vertically extending member such that the second vertically extending member extends from the first vertically extending member so as to divide the first vertically extending member into a first support surface and a second support surface; 40

and wherein the apertures formed in the at least two shelving posts are located on both the first support

surface and second support surface.

10. The adjustable shelving system of claim 9 wherein the second vertically extending member extends perpendicularly from the first vertically extending member.
11. The adjustable shelving system of claim 10 wherein the vertically extending members are planar.
12. The adjustable shelving system of claim 10 wherein the first and second support surfaces of the first vertically extending member are coplanar and the second vertically extending member is planar.
13. The adjustable shelving system of claim 12 wherein the first and second support surfaces of the first vertically extending member are planar and the first vertically extending member further comprises at least one projecting member that extends rearwardly from the coplanar first and second support surfaces.
14. The adjustable shelving system of claim 13 wherein the at least one rearwardly projecting member comprises two rearwardly projecting members extending rearwardly in a parallel plane with the second vertically extending member.
15. The adjustable shelving system of claim 14 wherein the shelving post further comprises a horizontal leg support which is connected to the first and second vertically extending members and wherein at least a lower portion of the second vertically extending member is connected along its length to the horizontal leg support.
16. The adjustable shelving system of claim 15 wherein the horizontal leg support has an upwardly projecting horizontal member which abuts the lower portion of the second vertically extending member. 45

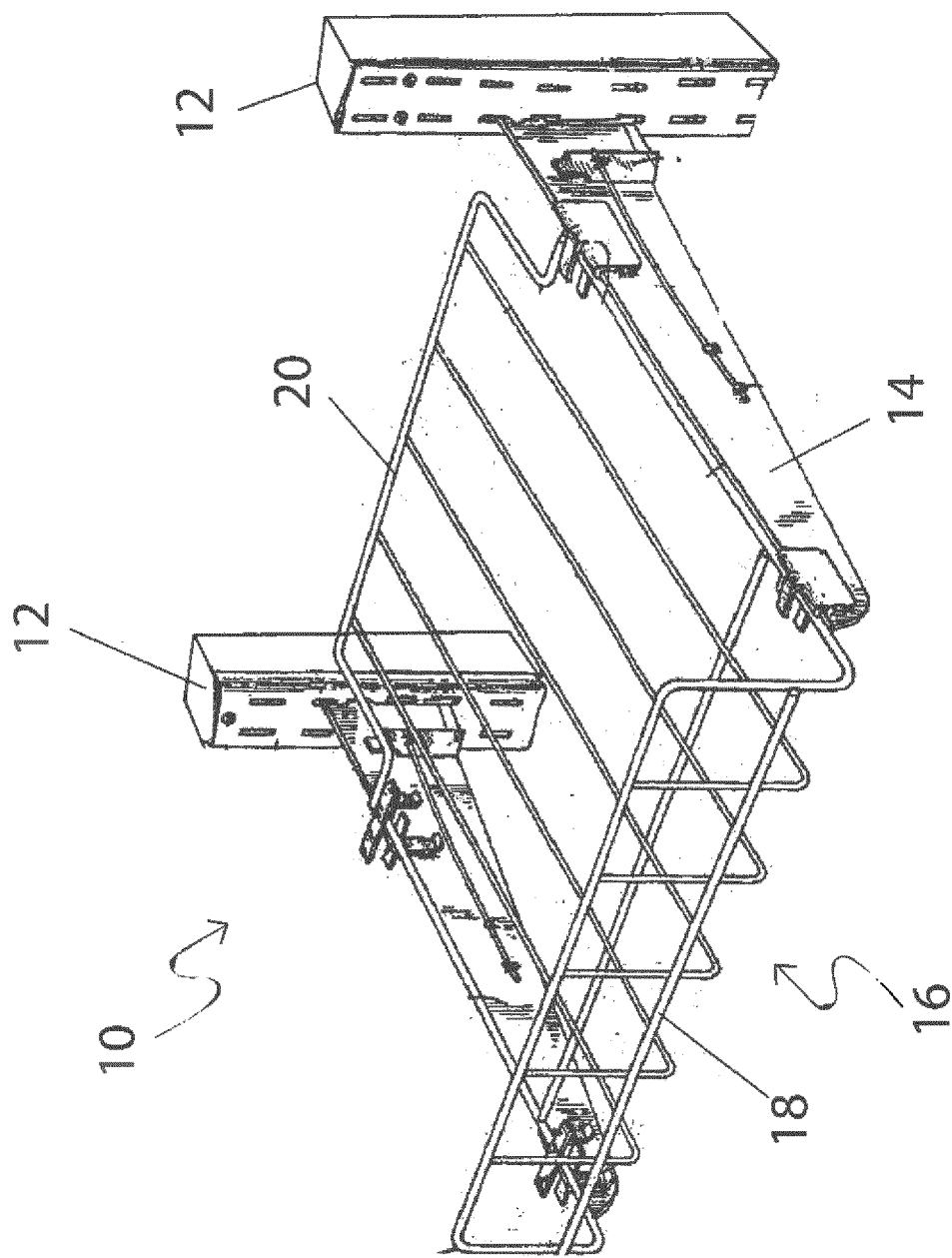
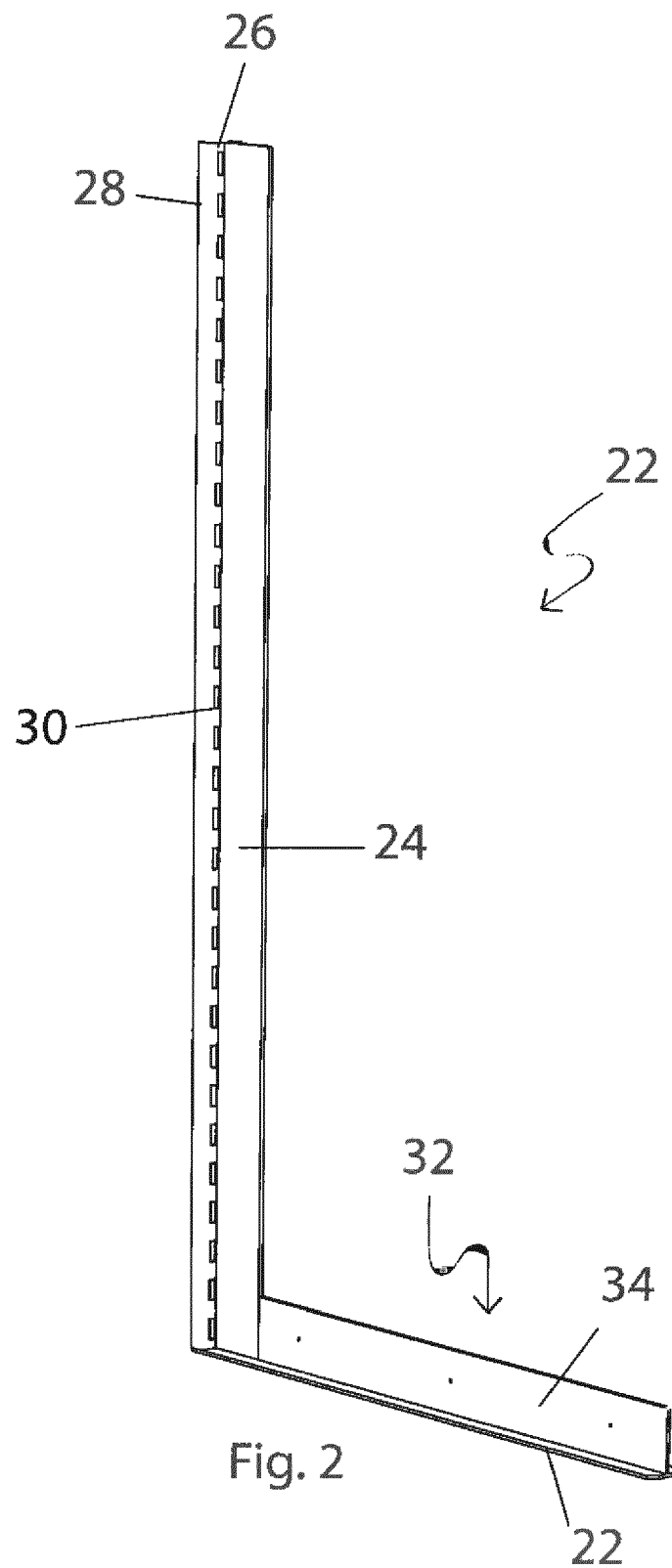
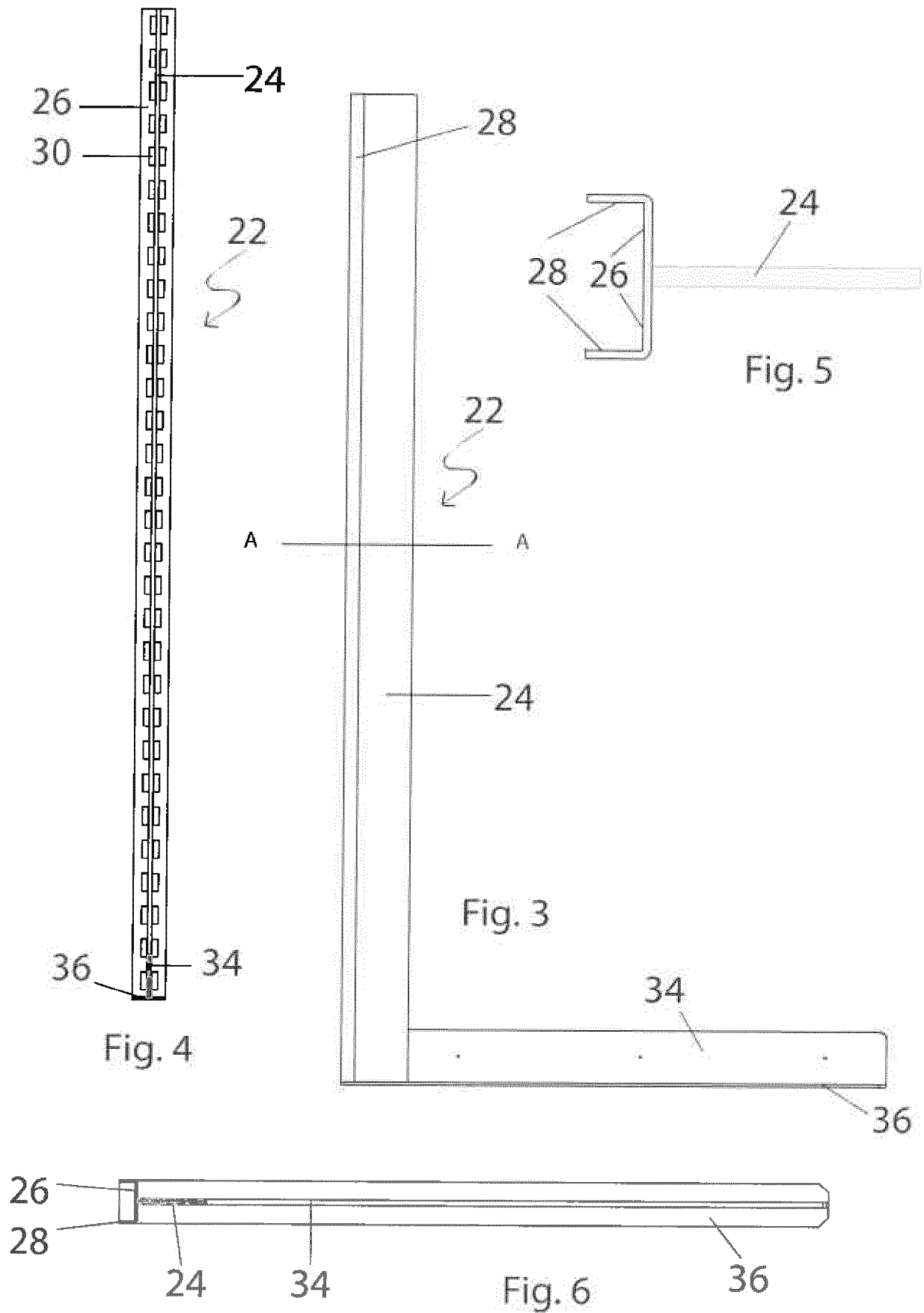


Fig. 1
(Prior Art)





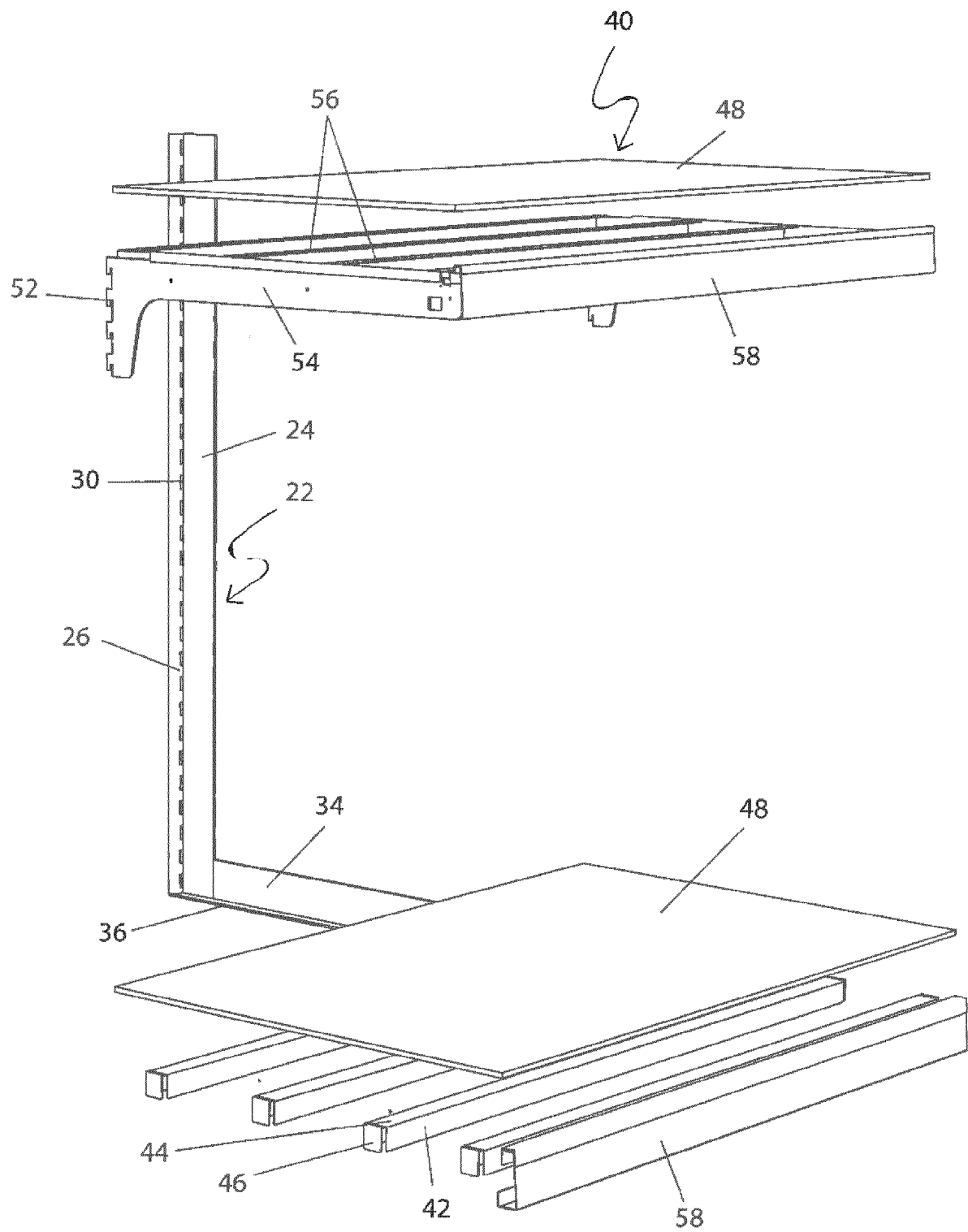


Fig. 7

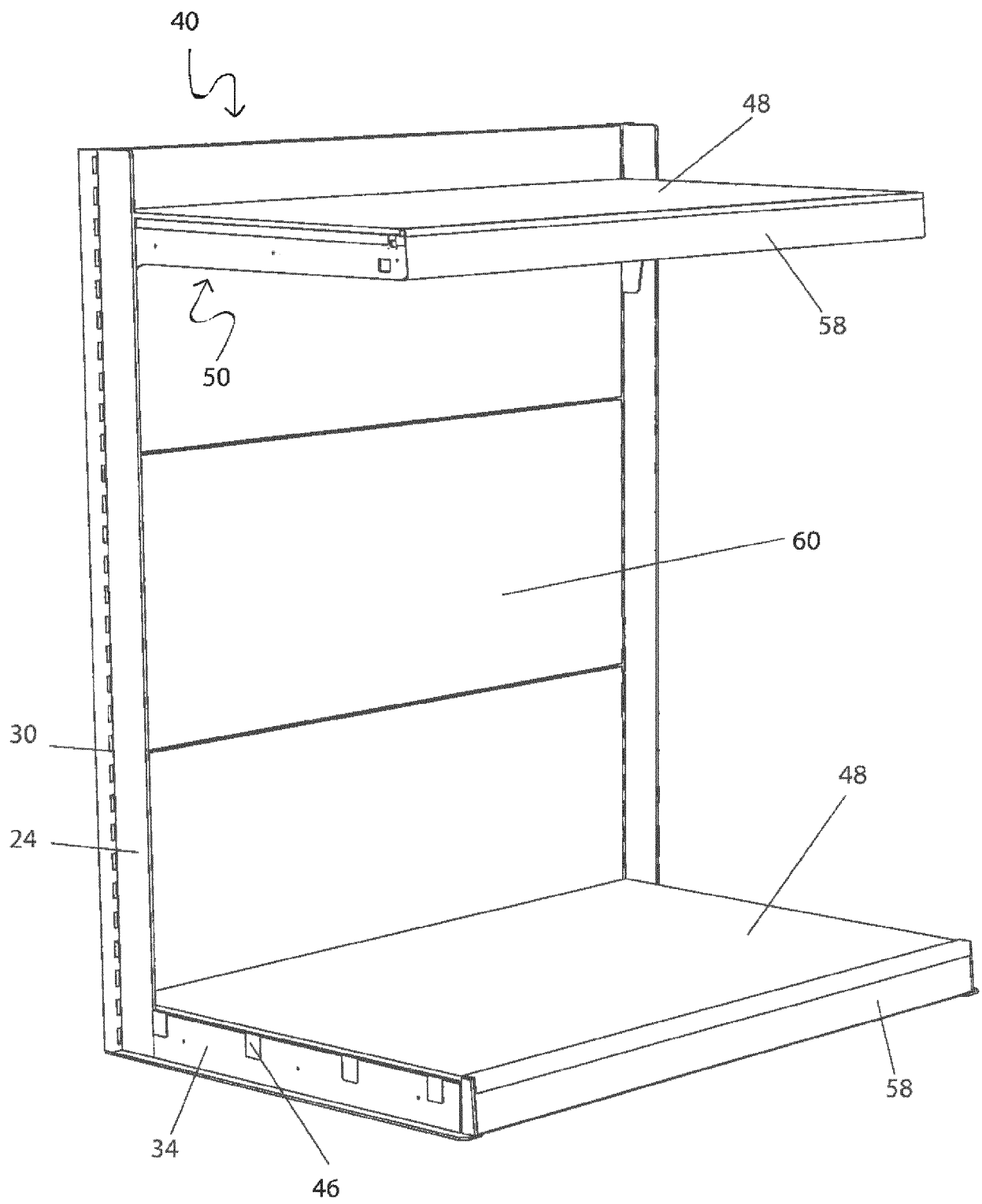
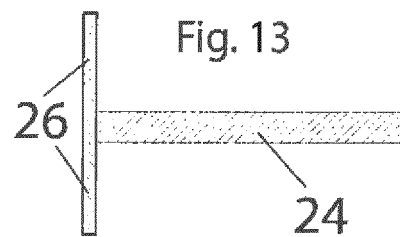
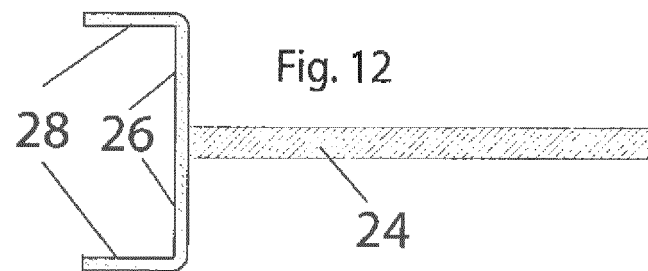
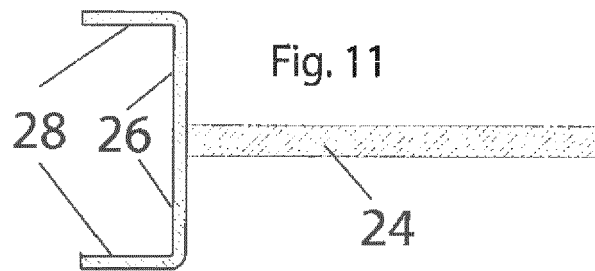
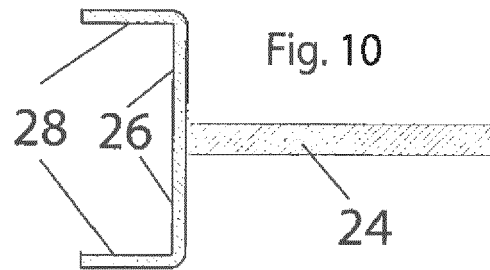
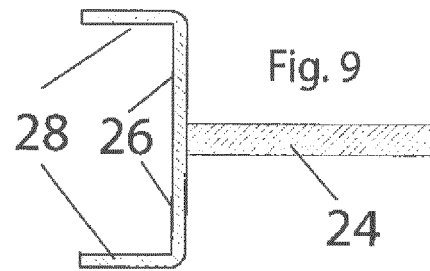


Fig. 8





EUROPEAN SEARCH REPORT

Application Number
EP 17 15 0317

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	NL 2 006 242 C (G H ROELOFS HOLDING B V) 20 August 2012 (2012-08-20) * page 5, line 1 - page 7, line 25; figures 1-3C *	2,4-6,9, 10,12-14	INV. A47F5/10 A47B96/14 A47B57/16
X	US 5 415 301 A (BRUTON JOHN [CA] ET AL) 16 May 1995 (1995-05-16) * column 1, line 56 - column 6, line 47; figures 1-10 *	1,2,4,6, 9,10, 12-14	
			TECHNICAL FIELDS SEARCHED (IPC)
			A47B A47F
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 27 June 2017	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			

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EPO FORM 1503 03.02 (P04C01)

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

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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
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27-06-2017

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