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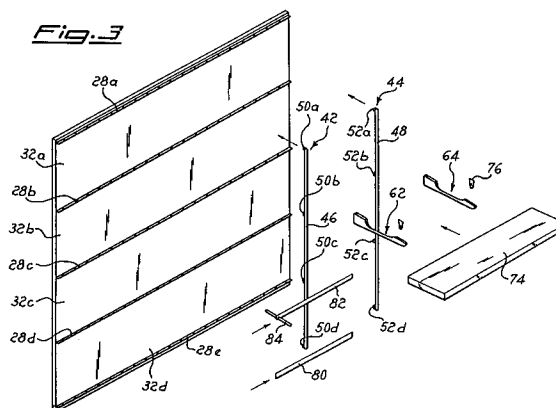
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I-20122 Milano (IT)(54) **Panel wall structure for vending articles.**

(57) Equipped wall structure comprising a metal frame (10) including at least two parallel and each other aligned uprights (12, 14) defining a vertical plane, being each of the uprights (12, 14) interconnected to the adjacent upright by at least two cross-bars (16) and resting between each of at least two uprights (12, 14) and crossbars (16) at least a panel (32) of wood or similar material. This structure serving to manufacture both simple face walls (40) leaning against a room wall and double face or center walls (140) leaning, with a first edge thereof, against a room wall or the back of a simple face wall (40) and with a second edge against a foot (150) resting on floor. Are also described means (42, 44) to fasten to the above described equipped walls various fittings comprising brackets (62, 64), support planes (74), hanger means (80, 82) etc.

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The present invention regards a wall structure provided with modular and repeated fastening means to which can be clamped means cooperating to form the fitting out of a shop, such as for example, shelves, brackets, hangers, displayers and the like.

In the practice of fitting shop-windows, shops and the like are largely used equipped walls suitable to house fitting means such as brackets, shelves, hanging means, cantilever beams and the like having the purpose to show the exhibited goods.

These equipped walls could be prepared time-by-time, according to specific requirements, through craftman methods, involving high costs and causing a general propension to postpone any changement, because said changement could require such money and time expenses to be justified only by absolute need.

Many times it happens, in buildings housing shows, exhibitions, or markets, that the same room must house, within a short time, the exhibition of goods and articles so different in nature to require substantial fitting differences.

As a consequence, there is the need of having at hand equipped walls, of modular kind, on which it is possible to operate changements both of backgrounds and fittings through fast and simple operations asking for a minimum of tools, or better, for none specific tool.

The above mentioned need is satisfied using an equipped wall structure comprising a metal frame including at least two parallel aligned uprights locating a vertical plane, each of said uprights being interconnected with the contiguous upright by at least two crossbars and at least a panel of wood or like materials being seated between each assembly consisting of said at least two uprights and crossbars characterized in that said crossbars have a "T" shaped section with a vertically placed head centrally and perpendicularly provided with a rib wider than the thickness of said panel or plate having two opposite edges respectively resting onto the heads of said at least two crossbars said two edges being fastened to said two heads by fastening means.

Preferably, each of said at least two crossbars is provided with at least an opening in the rib and said openings of each crossbar are vertically aligned to form at least a pair of openings.

More preferably, there are at least two openings for each rib to form at least two pairs of vertically aligned openings.

In addition, said openings of each crossbar are equally spaced from each other.

Further, said crossbars are each other equally spaced in vertical direction.

Particularly, said fastening means between panels and crossbars comprise at least a perma-

nent magnet internally positioned on each one of said two edges of the panel.

Preferably, said magnets are embedded in the panel.

5 More preferably, said magnets are at least two for each of said two opposite edges of the panel and each magnet is positioned near to respective opposite corners of the panel.

10 In addition the wall structure furthermore comprises at least a vertically lying rectilinear member having two hooks engaged with said at least one pair of openings. Preferably, there are at least two said rectilinear members each of them being engaged with one of said at least two pairs of open-

15 Particularly, said at least two rectilinear members are provided with a plurality of slits on the opposite side with respect to said hooks and each slit of each said at least two rectilinear members is horizontally aligned with a corresponding slit of the second one of said rectilinear members to form in this way pairs of horizontally aligned slits.

20 More particularly, the structure of equipped wall comprises at least two brackets each of them having an end suitable for being respectively engaged with one slit of said pairs.

25 Preferably, said at least two brackets are shaped so that they support a shelf.

30 More preferably, the free ends of said at least two brackets are provided with respective openings parallelly extending to the crossbars, a hanger being inserted therein.

35 Particularly, the free end of each of said at least two brackets is provided with an opening parallel extending with respect to the uprights, wherein a flattened wedge shaped member is inserted from above so as to be secured within said opening with an end downwardly projecting from the bracket said end being provided with a slit extending in the direction of the crossbars and a hanger being inserted in both slits of said at least two brackets.

40 In practice, said uprights have an "L" shaped profile with a first rib resting against the profile of the crossbars and a second rib resting onto the heads of the same crossbars the crossbars being joined to the uprights by fastening means.

45 Particularly, said fastening means comprise bolts to connect the ribs of the crossbars to the second rib of the upright.

50 Alternatively, the structure comprises a second frame similar to the first frame and placed in a specular way with respect to the heads of said crossbars.

55 Further alternatively, a wall structure is characterized in that a frame is formed by two uprights with a "T" shaped profile having a head perpendicularly positioned with respect to the crossbars

and resting thereagainst and a central rib positioned between the heads of the crossbars of said frame, said crossbars being fastened to the uprights by fastening means.

Preferably, said fastening means comprise bolts to secure the heads of the crossbars to the rib of the upright.

More preferably, at least a "T" shaped fitting, provided with a head and a rib connecting the ribs of the crossbars, can be housed in at least one upright.

In addition, the ribs of the crossbars are provided with extensions for the precision joining to the rib of the fitting.

Further, said fitting is provided with at least an opening in the rib for the engagement with fittings for the equipment of the same wall.

To complete the structure of equipped wall, a panel is mounted between said at least two crossbars.

The features of the present invention will be particularly defined in the claims forming the conclusive part of the present description. However, other features and advantages thereof will appear more selfevident from the following detailed description of embodiments, having exemplifying and not limiting meaning, and provided with the enclosed drawings, wherein:

- figure 1 is a perspective view, partially broken away, of a frame for an equipped wall, having simple face, according to the present invention;
- figure 2 is a cross-section view of the simple face wall itself showing how filling boards of the frame can be fastened to it;
- figure 3 is a perspective view of a simple face wall according to the present invention;
- figure 4 is a depiction of enlarged parts of fittings to be fastened to the wall for equipping it;
- figure 5 is a perspective view, partially broken away, of a frame for equipped wall, having double face, or central wall, also according to the present invention;
- figure 5a depicts a fitting to head-finish the equipped wall according to figure 5, if desired;
- figure 6 is a partial view in cross-section of the free end of a central wall using the frame of figure 5;
- figure 7 is a complete perspective view of the same central wall resting against the back of a simple face equipped wall.

Referring first to figures 1 and 2, it is seen that a frame 10 for an equipped wall structure according to the invention consists of two uprights 12 and 14, having "L" shape, each other connected by crossbars 16a-e, having "T" shape, joined to the

uprights 12 and 14 by per se known means, such for example bolts and nuts 18, 20 and 22, 24 (see figure 2).

As it is particularly well seen in figure 1 for the crossbar 16b, said crossbars have "T" shape with a head 26 and a leg or rib 28, at least the rib 28 showing a polished and inalterable finish, such as an external chromium-plating layer. Further, through the rib 28 are pierced regular openings 30, for example square openings, having the purpose of fastening fittings which cooperate for the equipment of the wall.

According to the requirements of the equipped wall to be prepared, a square defined between the two uprights 12 and 14 and two adjacent crossbars, for example 16b and 16c, can be left either empty or filled with a board 32 which can be of different materials, such as raw wood, polished, painted or coated wood, plastic materials, plaster and the like, so sized to be exactly inserted in the squares defined by the two uprights and the adjacent crossbars. The board 32 is provided with means providing a fast clamping to the metal portions of the frame 10, which conveniently is made of iron, said means consisting for example, even if not limitedly, of permanent magnets 34a-c, having substantial shape of coins, housed in proper rear recesses 36a-c and faced against the head 26 of the crossbars 16a-e. Although it is not obviously possible to be limited to permanent magnets as fastening means of the boards 32, the choice of permanent magnets is particularly preferred because allows fast assemblies and disassemblies of said boards without using any special tool.

Referring to figures 3 and 4, it is seen that a simple face equipped wall 40 comprises a plurality of rectangular boards 32a-d having along their horizontal sides protruding ribs 28a-e, corresponding to the ribs 28 of the crossbars 16a-e. Said ribs 28a-e are provided with rows of regular openings 30 suited to house fingers or hooks of means to be insertion fastened to said ribs. An example of said means consists of so called racks 42 and 44 formed by rectangular pipes 46 and 48 provided, on a rear face, with fingers or hooks 50a-d and 52a-d suitable to be inserted into the above mentioned openings 30 and, on a front face 54 and 56, with vertical window or slits 58 and 60 suited to engage portions of fittings to be connected to said racks 42 and 44.

A particular fitting to be fastened to said racks 42 and 44 are some brackets 62 and 64 embracing with an internal enlarged portion 66 thereof (figure 4) the pipes 46 and 48, making enter their tangs, such as the tang 68 depicted in figure 4, into one or more of the windows or slits 58 of the racks. The brackets 62 and 64 are fastened to the racks 42 and 44, resisting to bending moments thereto ap-

plied without allowing the exit of their tangs 68 from the windows 58, while a traction provided along an axial direction according to an arrow 69 allows an easy removal of the brackets themselves from the racks 42 and 44.

These brackets are fore terminated by a thinned portion 70 provided with a vertical slit 72 connecting the upper and lower faces thereof or, alternatively, with a slit 72a connecting lateral faces thereof.

The brackets 62 and 64 can provide many and different support tasks, for example, for a support plane 74 in the form of a table of wood or equivalent materials or for coupling fittings, such as the so called hangers herebelow discussed.

Referring first to figure 4, it is seen that the slits 72 can house flat wedge members 76 provided with a vertical slit 78 which, when inserted protrude under the bracket for engaging a bar 80 or 82, called "hanger" of simple kind 80, or of telescoping kind 82 with an end provided with support members 84 to allow the hanging of further articles to be exhibited.

The insertion of the hangers 80 or 82 can occur according to two alternative ways:

- a) two wedge members 76 are inserted into the slits 72 of the thinned portions 70 of the brackets, making descend them till their slits 78 appear completely free under the brackets themselves and then one of the bars 80 or 82 is inserted into the slits 78 of the members 76;
- b) one of the bars 80 or 82 is directly inserted into the slits 72a alternatively provided in the thinned portions 70 themselves.

The bars or hangers 80 or 82 have at their ends notches 86 and 88 in the upper and lower edges, respectively, to allow the fastening of the hangers to the members 76 and housing some kind of clamp to prevent accidental slipping of the hangers themselves.

Reference is now made to the alternative embodiment depicted in the figures 5 to 7 for an equipped double face or central wall, having boards and ribs provided with engaging openings on both opposed faces.

For said central wall is provided a frame 110 formed by two uprights 112 and 114 having "T" shape each other connected by cross bar pairs 116a-c and 117a-c, having "T" shape, connected to the uprights 112 and 114 by per se well known means, as for example screws or bolts 118 (figure 6).

As it is particularly well seen in figure 5, for the crossbars 116b and 117b, said crossbars have T shape with heads 126 and 127 and legs or ribs 128, 129, where at least the legs 128 and 129 have a polished and inalterable finish, such as an external chromium-plating layer. Further, through the

legs 128 and 129 are pierced regular openings 130 and 131, for example square openings, having the purpose to fasten fittings cooperating to the equipment of the wall.

According to the requirements of the equipped wall to be prepared, a square defined between the two uprights 112 and 114 and two adjacent crossbars, for example 116b and 116c, or 117b and 117c, can be left empty or filled by boards 132 and 133 which can be of different materials, such as raw wood, polished, painted or coated wood, plastic materials, plaster and the like, so sized to be exactly inserted in the squares defined by the two uprights and the adjacent crossbars. The boards 132 and 133 are provided with means allowing them a fast clamping to the metal portions of the frame 110, which conveniently is made of iron, said means consisting for example, even if not limitedly, of permanent magnets 134 and 135, having substantial shape of a coin, housed in rear suitable recesses 136 and 137 and faced against the head 126 of the crossbars 116a-c. Although it is not obviously possible to be limited to permanent magnets as fastening means of the boards 132, the choose of permanent magnets is particularly preferred because allows fast assemblies and disassemblies of said boards without using any special tool.

For the complete finishing of a central wall, in order to house equipments to be hung on both the two faces and the free end, is used a fitting depicted in figure 5a, allowing to finish the head of the wall for having the same appearance of the lateral faces. This fitting is formed by a profiled member 116' comprising a head 126' and a leg 131' provided with at least a square opening 130'. This fitting is inserted, as depicted in figure 6, between extensions 128' and 129' of the heads 128 and 129 of crossbars 116 and 117, so that externally the polished ribs appear substantially each other continuous between the faces of the wall and its free end. The fitting 116' is covered by a coating strip 132' of the same material of the boards 132 and 133 (for example wood) fastened against the head 126' of the fitting 116' by one or more permanent magnets 134' housed in corresponding recesses 136'. The strip 132' is extended by two lateral wings 138' and 139' to assure appearance continuity with respect to the boards 132 and 133.

Of course, the fitting 116' is provided with means for fastening it to the upright 114, for example screws or bolts which cross corresponding holes in the head 126' of the fitting 116' and the upright 114.

Referring to figure 7, it is seen that a central wall 140 according to the present invention comprises a plurality of rectangular boards 132a-e and

head strips 132'a-e having along their horizontal sides protruding ribs 128a-f and 131'a-f corresponding to the ribs 128 of the crossbars 116a-c. Said ribs 128a-f and 131'a-f are provided with rows of regular openings 130 and 130' suited to house fingers or hooks of means to be inserted in said ribs. Of course, the ribs 132a-f are extended in corresponding boards on the opposed face of the central wall 140.

It is realized that the wall 40, resting against the central wall 140, can be identical to the equipped wall 40 of figure 3 with a similar kind of ribs 28a-f and similar boards 32a-f. For a stable support thereof, the free end of the wall 140 rests on a foot 150 which, of course, must be deemed connected to the upright 114 of the frame 110 depicted in figure 5.

What has been hereabove disclosed depicts just some embodiments of the present invention not to be intended as limiting the scope thereof which must be appreciated from the enclosed claims.

Those skilled in this art will devise obviously similar and equivalent provisions to be all considered as here covered. For example, the crossbars 16a-e of the frame 10 could be formed by "L" shaped irons instead of the here depicted "T" shaped irons. The crossbars 116a-c and 117a-c of the frame 110 could be replaced by cross shaped irons, even if that can cause some complications in connecting the crossbars to the uprights and in housing the head fittings 116'. At last, a double face equipped wall could also be formed by joining two simple face walls depicted in the figures 1 to 4.

Claims

1. Equipped wall structure comprising a metallic frame (10) including at least two parallel aligned uprights (12,14) locating a vertical plane, each of said uprights (12,14) being interconnected with the contiguous upright by at least two crossbars (16) and at least a panel (32) of wood or like materials being seated between each assembly consisting of said at least two uprights (12,14) and crossbars (16), characterized in that said crossbars (16) have a "T" shaped section with a vertically placed head (26) centrally and perpendicularly provided with a rib (28) wider than the thickness of said panel or plate (32) having two opposite edges respectively resting onto the heads (26) of said at least two crossbars (16), said two edges being fastened to said two heads (26) by fastening means (34).
2. Equipped wall structure, according to claim 1, characterized in that each of said at least two

crossbars (16) is provided with at least an opening (30) in the rib (28) and said openings (30) of each crossbar (16) are vertically aligned to form at least a pair of openings (30).

3. Equipped wall structure, according to claim 2, characterized in that there are at least two openings (30) for each rib (28) to form at least two pairs of vertically aligned openings.
4. Equipped wall structure, according to claim 3, characterized in that said openings (30) of each crossbar (16) are equally spaced from each other.
5. Equipped wall structure, according to anyone of the preceding claims, characterized in that said crossbars (16) are equally spaced in vertical direction.
6. Equipped wall structure, according to anyone of the preceding claims, characterized in that said fastening means between panels (32) and crossbars (16) comprise at least a permanent magnet (34) internally positioned on each one of said two edges of the panel (32).
7. Equipped wall structure, according to claim 6, characterized in that said magnets (34) are embedded in the panel (32).
8. Equipped wall structure, according to claims 6 or 7, characterized in that said magnets (34) are at least two for each of said two opposite edges of the panel (32) and each magnet is positioned near to respective opposite corners of the panel (32).
9. Equipped wall structure, according to anyone of the claims 2 to 8, characterized in that it furthermore comprises at least a vertically lying rectilinear member (42,44) having two hooks (50,52) engaged with said at least one pair of openings (30).
10. Equipped wall structure, according to anyone of the preceding claims 3 to 9, characterized in that there are at least two said rectilinear members (42,44), each of them being engaged with one of said at least two pairs of openings (30).
11. Equipped wall structure, according to claim 10, characterized in that said at least two rectilinear members (42,44) are provided with a plurality of slits (58) on the opposite side with respect to said hooks and each slit (58) of each said at least two rectilinear members (42,44) is horizontally aligned with a corre-

sponding slit (58) of the second one of said rectilinear members (42,44) to form in this way pairs of horizontally aligned slits (58).

12. Equipped wall structure, according to claim 11, characterized in that it comprises at least two brackets (62,64) each of them having an end suitable for being respectively engaged with one slit (58) of said pairs. 5
13. Equipped wall structure, according to claim 12, characterized in that said at least two brackets (62,64) are shaped so that they support a shelf (74). 10
14. Equipped wall structure, according to claims 12 or 13, characterized in that the free ends of said at least two brackets (62,64) are provided with respective openings (72,72a) parallelly extending to the crossbars, a hanger (80,81) being inserted therein. 15
15. Equipped wall structure, according to anyone of the claims from 1 to 13, characterized in that the free end (70) of each of said at least two brackets (62,64) is provided with an opening (72) parallelly extending to the uprights, wherein a flattened wedge shaped member (76) is inserted from above so as to be secured within said opening with an end downwardly projecting from the bracket (62,64), said end being provided with a slit (78) extending in the direction of the crossbars (16) and a hanger (80,82) being inserted in both slits (72) of said at least two brackets (62,64). 20
16. Equipped wall structure, according to anyone of the preceding claims, characterized in that said uprights (12,14) have an "L" shaped profile with a first rib resting against the profile of the crossbars (16) and a second rib resting onto the heads (26) of the same crossbars (16), the crossbars (16) being joined to the uprights by fastening means. 25
17. Equipped wall structure, according to anyone of the preceding claims, characterized in that said fastening means comprise bolts (18,20) to connect the ribs (28) of the crossbars to the second rib of the upright (12,14). 30
18. Equipped wall structure, according to anyone of the claims 1 to 15, characterized in that it comprises a second frame similar to the first frame and placed in a specular way with respect to the heads of said crossbars. 35
19. Equipped wall structure, according to claim 1, characterized in that a frame (110) is formed by two uprights (112,114) with a "T" shaped profile having a head perpendicularly positioned with respect to the crossbars (116,117) and resting thereagainst and a central rib positioned between the heads (126,127) of the crossbars (116,117) of said frame (110), said crossbars (116,117) being fastened to the uprights (112,114) by fastening means. 40
20. Equipped wall structure, according to claim 19, characterized in that said fastening means comprise bolts (128) to secure the heads (126,127) of the crossbars to the rib of the upright (112,114). 45
21. Equipped wall structure, according to claim 19 or 20, characterized in that at least a "T" shaped fitting (116') provided with a head (126') and a rib (131') connecting the ribs (128,129) of the crossbars (116,117) can be housed in at least one upright (114). 50
22. Equipped wall structure, according to claim 21, characterized in that the ribs (128,129) of the crossbars (116,117) are provided with extensions (128',129') for the precision joining to the rib (131') of the fitting (116'). 55
23. Equipped wall structure, according to claim 21, characterized in that said fitting (116') is provided with at least an opening (130') in the rib (131') for the engagement with fittings for the equipment of the same wall.
24. Equipped wall structure, according to claim 21, characterized in that a panel (132,133) is mounted between said at least two crossbars (116,117).
25. Equipped wall structure, according to claim 24, characterized in that the space between two adjacent "T" shaped fittings (116') is covered by a strip (132') joined to the panels (132,133) by two lateral lips (138',139').
26. Equipped wall structure, according to anyone of the claims 19 to 24, characterized in that the crossbars (116,117) are joined to each other to form cross shaped bars.

Fig. 1

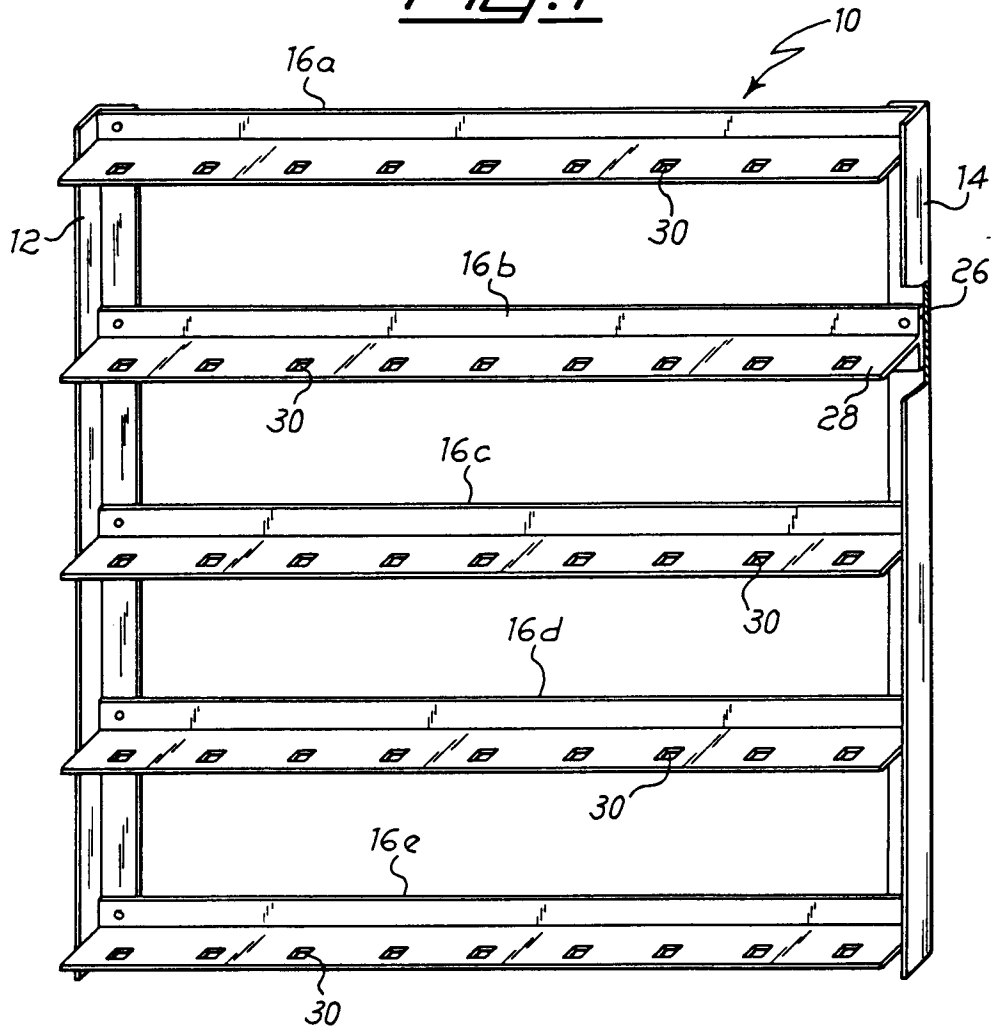
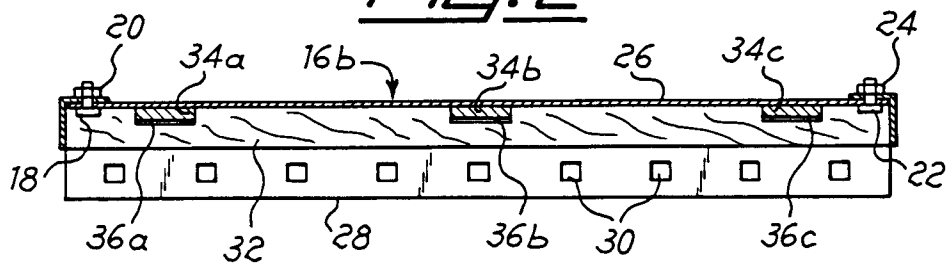
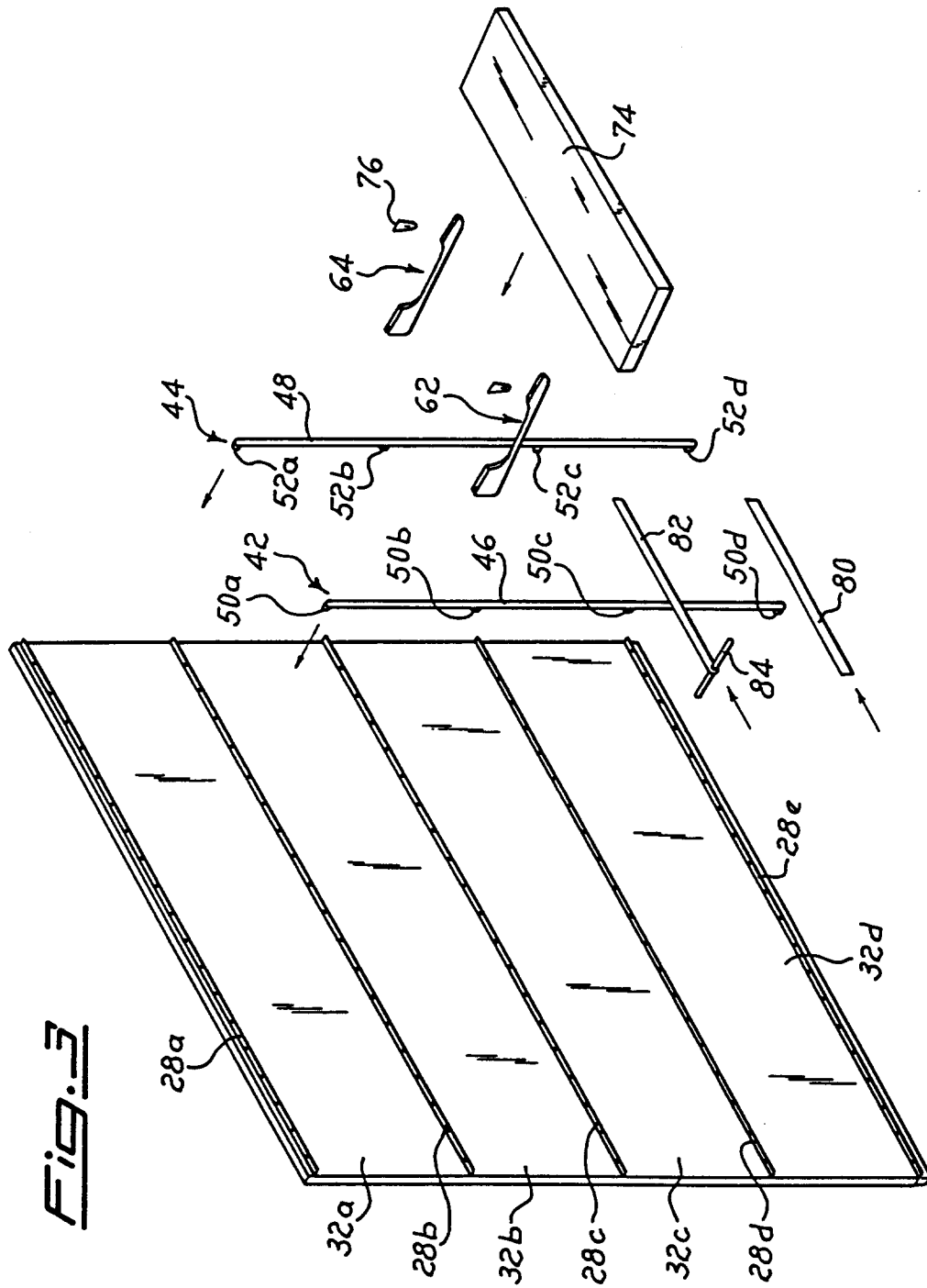


Fig. 2





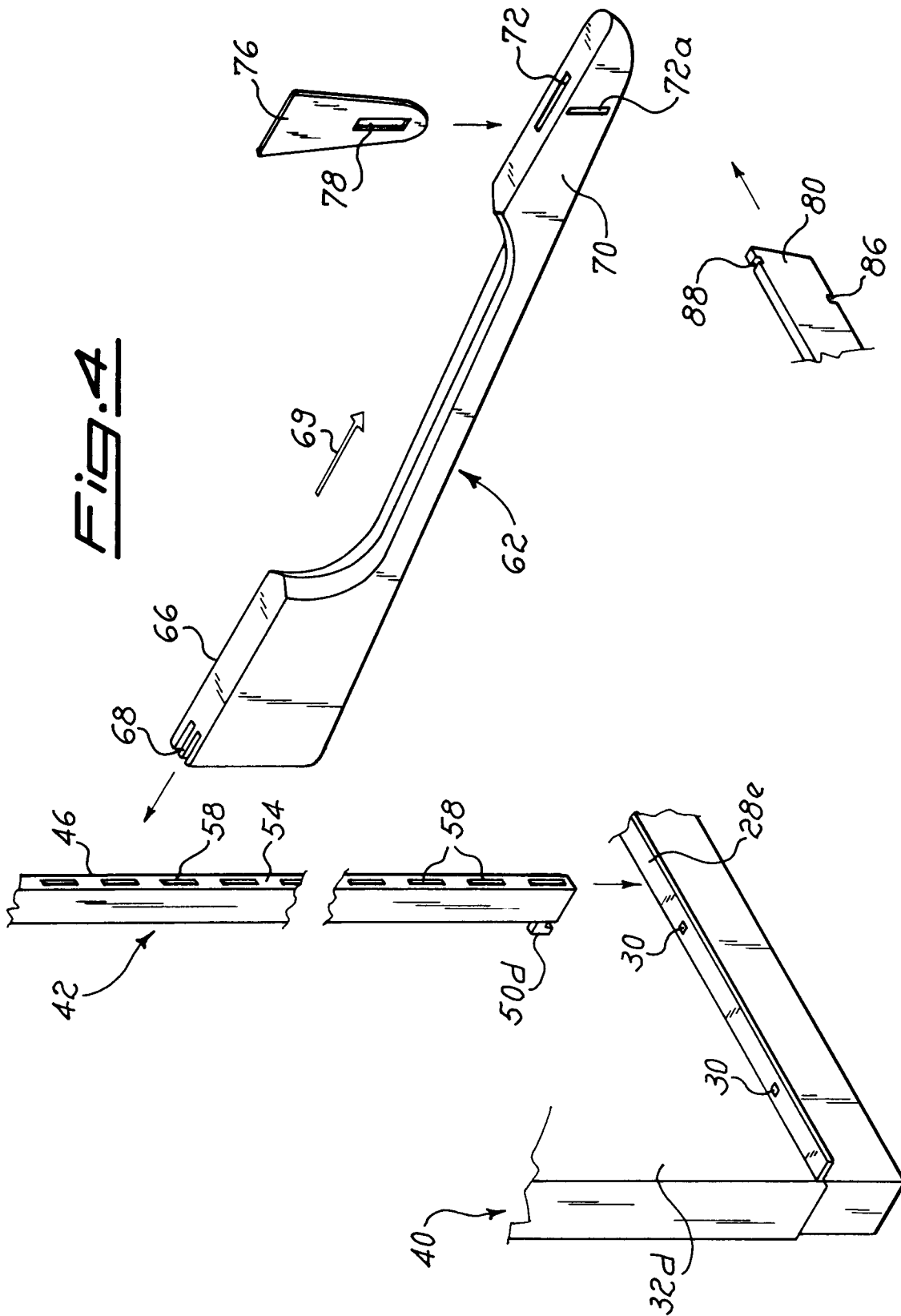


Fig. 5

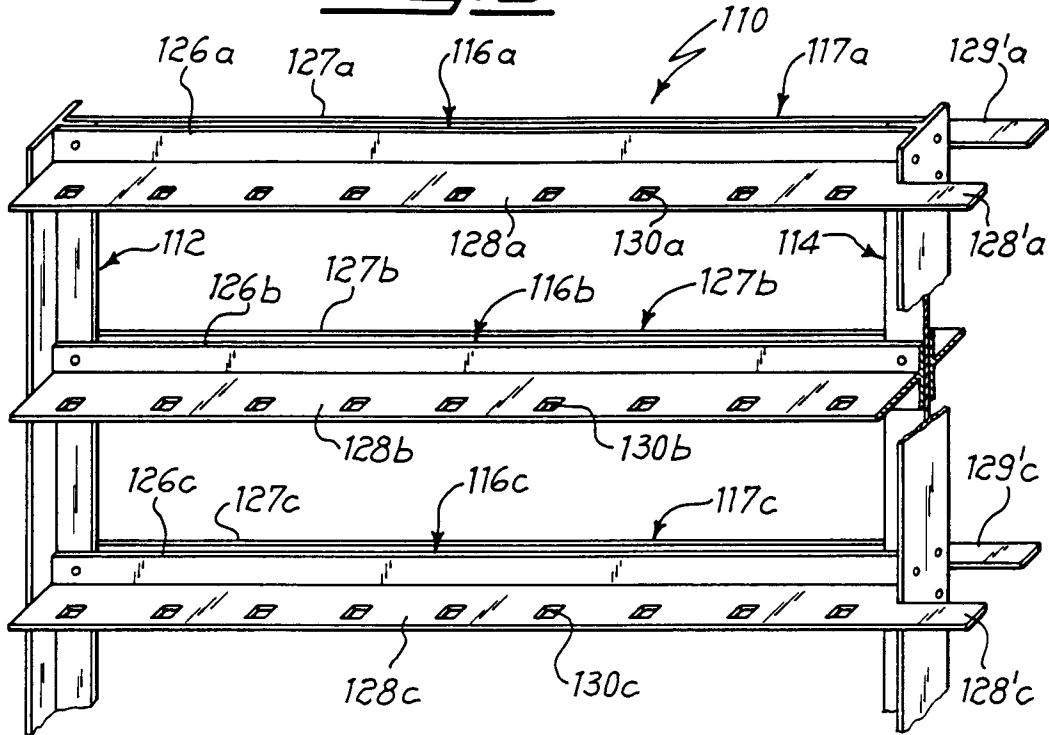


Fig. 6

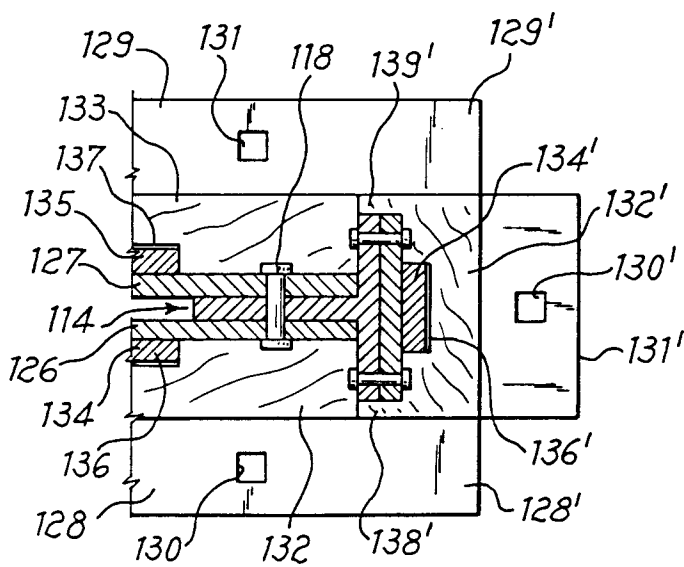


Fig. 5a

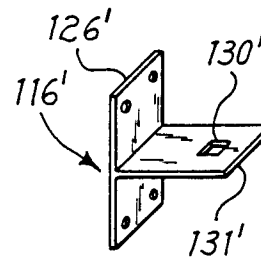
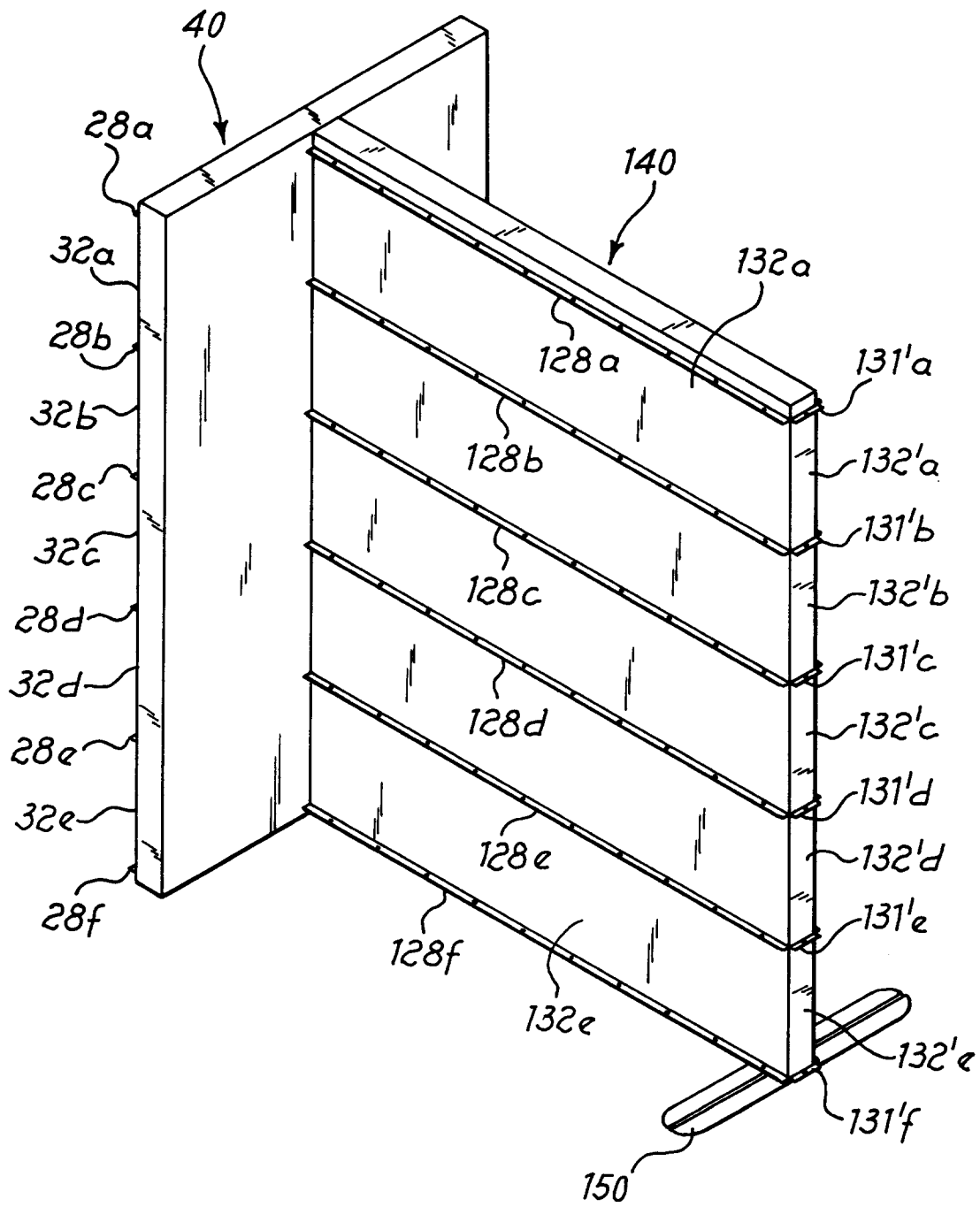


Fig. 7





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EUROPEAN SEARCH REPORT

Application Number
EP 94 20 1573

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
A	GB-A-1 023 074 (SHELL) * page 2, line 73 - page 3, line 111; figures 1,2 *	1	A47F5/10 A47B57/42
A	US-A-4 805 783 (MAYER) * column 1, line 55 - column 3, line 60; figures 1-5 *	1	
A	DE-A-37 05 282 (WING) * column 10, line 5 - column 11, line 35; figure 14 *	1	
A	FR-A-2 348 669 (ISOPOL) * page 7, line 10 - line 34; figure 10 *	1	
A	AU-B-627 345 (HANCOCK SHOPFITTERS) * page 4, line 36 - page 7, line 34; figures 1,2 *	1	
A	FR-A-2 341 290 (SOCIETE D'ETUDES ET DE FABRICATIONS INDUSTRIELLES)		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.5) A47F A47B
Place of search THE HAGUE		Date of completion of the search 25 August 1994	Examiner De Groot, R
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