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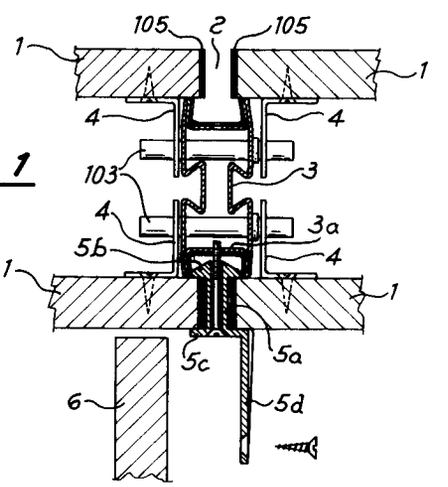
(54) Divider capable of being fitted with storage units, fixtures and similar by means of continuously movable slider fittings.

(57) A divider capable of being fitted with storage units of various types, consisting of two parallel facing walls formed of juxtaposed modular panels and supported by box-shaped stanchions located to match the vertical gaps between the pairs of adjoining panels, along such vertical gaps there being fitted freely movable brackets for securing the units to the walls, each of which has at one end a restraining head and, at the opposite end a plate, to be secured with a screw or similar to the flank of a unit. Attachment is achieved by inserting the head between the adjoining panels and the frontal plane of the stanchion, so as to enable the bracket to move by means of a slider within such vertical gaps, the bracket then being secured to the stanchion by means of pins or similar passing axially through such bracket and being secured against the frontal plane of the stanchion itself.

Fig. 1



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The object of this invention is a modular divider of the type capable of being fitted with various storage modules such as cupboards, shelving and similar, provided with continuous slider fittings to allow rapid attachment and perfect alignment of the various storage units, as well as the arrangement of such units in accordance with the requirements of the user and the spaces in the working environment.

As is known, by modular divider is meant a divider with counterposed panels supported by metal stanchions secured to the ceiling and to the floor, which, in addition to meeting all the needs required for the subdivision of space in rooms and being able to impart optimum qualities of static resistance and of heat and sound insulation, is also capable of accommodating, on either or both faces, supporting and storage units such as cupboards proper, hanging cupboards, shelves and similar.

Furthermore, a modular divider should be capable of meeting other requirements, such as for example ease and quickness of assembly of the units, easy and rapid shifting thereof in the event of changes arising from working requirements, and high stability in the course of time both as regards the divider itself and the units associated therewith. Normally, storage units such as full-height cupboards, hanging cupboards and shelving in general are technically integral with the dividers, thus taking advantage of the static resistance of the divider itself and using the panel of the divider as a rear wall or backboard. There are also known dividers provided with panels to which storage units, complete with all the peripheral walls, are attached in a stable manner. The dividers, both those acting as a simple divider of space and those capable of being fitted with various units, are normally obtained by vertically juxtaposing several coplanar panels of modular dimensions, using metal stanchions which support the two facing walls arranged to match the vertical lines of juxtaposition of each pair of panels; such stanchions are made in box form, for example quadrangular or of counterposed "H" or channel sections, or even of another form. The most widespread methods of attachment currently used to secure the storage units to the divider are principally based on the use of brackets inserted into the vertical gap between each pair of panels having one end secured to the walls of the unit and the other end shaped in such a way as to become attached by insertion (at varying heights) in a series of notches or projecting pins provided in the front face of the stanchion; such pins or notches are spaced at a constant pitch so as to constitute a sort of vertical rack. This type of attachment, however, poses in practice a number of serious disadvantages, among which may be included the fact that the fixed-pitch rack attachment makes it difficult to level the two facing attachments which support the unit and at the same time create a single body between the unit and the supporting wall; the same type of attachment, in making the connection rigid, does not allow any relative movement, whenever possible, between a divider subjected to changes in the height of the floor and a storage unit subjected to the load contained therein; and lastly, the application of notches and/or pins at intervals on the stanchion effectively alters the integrity thereof, although, to endeavour to lessen this disadvantage, the pitch between the teeth or notches of the rack may be made somewhat large, but this restricts the freedom of vertical positioning of the units and in particular of the hanging cupboards and shelving.

The purpose of this invention is therefore to achieve a divider capable of being fitted with modular storage units designed in such a way as to allow the widest possible freedom of vertical positioning of the units, whether they are cupboards supported on the floor or hanging cupboards or shelving in general, to allow continuous adjustment, even micrometric, in a simple and rapid manner, as well as self-levelling between the supporting walls and the units, with obvious advantages for the utilization of room space and for the arrangement of the storage units themselves.

Another object of the invention is to achieve a modular divider designed in such a way as to take advantage, by means of special devices for attachment to the metal stanchions, of the static performance of the divider, as well as to make it possible to use the divider itself as a backboard at the rear of the storage units.

Not the least object is that of providing a modular divider which uses means of attachment for units of any type capable of allowing relative sliding action between the supporting walls, subjected to changes in height due to settlement of foundations and floors, and the unit filled with its own contents.

These and yet other objects are achieved by a divider capable of being fitted with various types of storage units, of the type consisting of two separate series of modular panels, juxtaposed in such a way as to constitute parallel walls supported by box-shaped metal stanchions, secured to the ceiling and to the floor and positioned to match the vertical gaps formed between the vertical edges of each pair of panels, such modular divider comprising means for the secure attachment of the units to at least one of such counterposed walls, each of which is comprised of a bracket at least partly flattened and shaped so as to have, at one end, a restraining head, and at the opposite end a drilled plate, shaped in such a way as to be capable of being secured to a flank of the storage unit, such

flattened bracket being fitted in a movable manner within the gap formed by the edges of the adjoining panels, with the restraining head inserted between the inner surface of the panel and the frontal plane of the stanchion so as to provide an attachment with a slider capable of moving freely in a continuous manner in a vertical direction, thus making possible, after securing such drilled plate to the flanks of a unit, rapid levelling of the unit itself. More particularly, such flattened bracket is comprised of a piece of quadrangular plate of length substantially equal to the thickness of the supporting panel and provided with a head substantially in the form of a triangular prism, while at the opposite end it has a length of transverse plate constituting a supporting plane against the panel; to such supporting plane there is then made integral a drilled plate, located parallel to the quadrangular plate supporting the head and intended to be secured with screws to the flank of the storage unit which is to be supported.

Further features and advantages of the invention will become more clearly apparent from the following detailed description of some of its forms of implementation, which description is made with reference to the attached set of drawings, given only by way of example, in which:

Figure 1
shows, in horizontal cross-section, a divider to which is secured a vertically movable bracket according to the invention;

Figure 1a
shows, also in cross-section, the same divider with a modified attachment bracket forming a further object of the invention;

Figure 2
shows, in perspective view, only the attachment bracket used to secure units to the divider of figure 1;

Figure 3
shows a partly cross-sectional plan view of the bracket of figures 1 and 2;

Figure 4
shows a side view of the bracket of figure 3;

Figures 5, 6 and 7
show, respectively, a perspective view, a front view and a side view of a bracket for the attachment of hanging cupboards, shelves and similar according to the invention;

Figure 8
shows a hanging cupboard of known type with connections on the rear edges of the flanks which can be used for attachment interposed with the brackets of figure 5;

Figure 9
shows the relative positioning of the brackets of two hanging cupboards juxtaposed horizontally, while

Figure 10
is an exploded view of a modular divider with an exploded representation of a full-height unit.

With reference to figures 1 and 1a, the modular divider according to the invention substantially consists of modular panels 1 juxtaposed vertically and supported in relation to vertical gaps 2 (figure 1) by metal stanchions 3 of box section which are shaped in such a way as to impart maximum static and bending strength. The attachment of the panels to the stanchions is then carried out by means of brackets 4, of "L" shape or similar, screwed to such panels and attached to pins 103 integral with the lateral flanks of stanchion 3. Additionally, between the two walls is interposed fireproof, soundproof and similar material. A divider of this type is easily made and can be variously equipped with storage units of different types (full height, hanging cupboards, shelves and similar) by means of a multiplicity of special attachment brackets forming an object of this invention.

The attachment bracket according to the invention, comprehensively marked 5 in the figure, substantially consists of a plate shaped in such a way as to have a first length 5a of quadrangular shape and of thickness such as to be able to be freely inserted in a sliding manner into gaps 2 existing between each pair of adjoining panels. Such bracket is provided at a first end with a prism-like head 5b, substantially triangular, with a flat base and greater in length than the development in height of quadrangular plate 5a; at the opposite end of plate 5a is an integral plate of "L" section, of which (figs. 2, 4) side 5c is located parallel to the base of the head and side 5d is set 90° relative to plate 5c, so that it can be attached to a flank 6 of a storage unit by means of screws inserted in holes 7-7a of such side 5d. Side 5d is also stiffened by longitudinal ribbing 7b (figures 2 and 10). Furthermore, both central plate 5a and head 5b and the length of plate 5c are provided with a through hole 8 for the insertion of a pin or screw 9 intended to secure bracket 5 to stanchion 3, as will be explained more clearly below. Distance H between the base of head 5b and plate 5c at the opposite end is provided with a value such as to be slightly greater than thickness "S" of panel 1 in order that the bracket, following the insertion of its plate 5a into a gap 2 between the panels, with initial insertion from the lower end of such gap, may move freely and continuously within the gap and be locked at the desired height, without being restricted to preset heights. Following insertion of the bracket, the base of the head and outer plate 5c form two parallel planes which guide the bracket steadily along the facing planes of the adjoining panels.

Secure locking of the bracket at the required height from the positioning envisaged for the units,

particularly those of the hanging type, may be carried out by inserting a screw 9 into through-hole 8 and causing its threaded end to pass through plate 3a of stanchion 3.

The same result can also be obtained according to the alternative illustrated in figure 1a, that is, by making in frontal plane 3a of the stanchion a continuous vertical gap matching gap 2 between the panels and positioning behind plane 3b a slider or counterbracket 10 with a threaded central hole. By means of a screw passing through supporting bracket 5 and screwed into the hole of slider 10 (figure 1a) it is possible to achieve movement of the bracket and of the relevant slider 10 by maintaining loose the screw alone so that, after the locking position is reached, immediate attachment is achieved by firmly tightening screw 9 which will lock the slider against the internal surface of plane 3b, thus halting the stroke of bracket 5 regardless of its position; the use of the travelling slider together with bracket 5 also facilitates releasing of the bracket when minor or major adjustments or levelling need to be made between several juxtaposed units. It is moreover possible in the case of floor-standing units to avoid the locking of bracket 5 to bracket 3 so as to allow free relative adaptation between the wall and the unit in the event of changes of planarity due to settlement of the floor and/or of the units themselves as a result of the applied loads.

Still according to the invention, the units constituting the fixtures for dividers of the type described above may be advantageously applied without the frontal plane at the rear, since such plane is replaced by supporting plane 1; it is also possible, as shown in figure 10, to secure to the supporting wall the separate modules forming the unit, whether of full height or partial height.

In figure 10 aforesaid, the two flanks of a cupboard, marked 11-11a, provided with adjustable front feet 12, may be fitted at right angles to the wall by means of a series of vertically sliding brackets; thus, after inserting brackets 5 from the bottom of gaps 2 and after securing the same brackets to the facing flanks 11-11a of the unit, the alignment of the flanks is effected by means of feet 12. The unit is then completed by a top plane 13 and by a bottom plane 14 provided with an edging strip 14a and with edgings on the flanks, of known type.

The surfaces turned outward are moreover lined with further panels and edgings imparting an attractive finish.

The individual items 6 constituting the flanks of the units are provided with holes 15 located vertically and equidistantly to facilitate the positioning of the brackets; furthermore, part 5d of each bracket may be applied either to the inside or to the outside of flanks 6, since the same brackets may be rotated through 180° while always imparting the necessary stability of attachment.

Brackets 5, as illustrated in figures 2 to 4, may also be used for fixing at various heights hanging cupboards, shelves, ledges and similar. Thus, for example, two hanging cupboards 16-16a-16b (fig. 9) may be applied to the juxtaposed walls and secured by means of brackets 5 alternately inverted (that is, with the plates 5d staggered in height and counterposed). Also, according to the invention, when a conventional hanging cupboard 17 (fig. 8) is to be applied to the divider, the attachment brackets are made with the outer plate 5c still parallel to the wall but provided with a rod-like supporting plate 5e parallel to the supporting wall (figures 5-6-7) the ends 5f of which are featheredged so that they may be inserted in a known manner into plates 18 provided with quadrangular cavities 18a and secured to the rear edge of the flanks of the hanging cupboard. When it is required to secure to the wall two hanging cupboards 17 juxtaposed in a manner similar to that described for fig. 8, the quadrangular cavities are caused to be staggered in height to enable the brackets to be secured at two different heights within vertical gap 2, thus allowing for reciprocal alignment of the hanging cupboards.

Lastly, the individual brackets for securing the units, hanging cupboards and shelving may be made, not only of metal, but also of rigid plastic, consistent with the mechanical strength required in keeping with the loads to be to be applied to the divider.

According to the invention provision is also made for the application of strips 105 (figure 1) along the edges of panels 1 in order to ensure the necessary mechanical strength of the edges during handling.

Claims

1. A modular divider consisting of a series of modular panels. juxtaposed vertically in a coplanar manner so as to constitute two parallel facing walls set apart depthwise and vertically supported by box-shaped metal stanchions, secured to the ceiling and to the floor and positioned to match the juxtaposed edges of each pair of adjoining panels so as to form a vertical gap, characterized in that means are provided for the secure attachment of furniture or similar units to such counterposed walls, such means consisting of a bracket at least partly flattened and shaped so as to have, at one end, a restraining head, and at the opposite end a drilled plate capable of being secured to a flank of the storage unit, such

flattened bracket being capable of sliding within the gap formed by the edges of the adjoining panels, with such restraining head being inserted between the inner surface of the panel and the frontal plane of the stanchion so as to provide an attachment with a slider capable of moving freely in a continuous manner in a vertical direction, thus making possible, after securing such plate to the flanks of a unit, rapid levelling of the unit itself and if necessary locking thereof at the required height, by securing such bracket to the stanchion.

2. A modular divider according to claim 1, characterized in that such bracket is comprised of a first piece of preferably quadrangular plate, of length substantially equal to the thickness of the panel and provided at one end with a head in the form of a substantially triangular prism, while at the other end it is integral with a substantially "L" shaped plate, the smaller side of which is parallel to the base of the head while the larger side is set parallel to such piece of quadrangular plate, such larger side forming a flange for attachment with a screw or similar to the flank of a storage unit.

3. A modular divider according to claims 1 and 2, characterized in that such length of quadrangular plate supporting such head is provided with an axial through hole to allow the insertion of a screw and the tightening of such screw against the stanchion for the secure locking of the bracket to the frontal plane of the stanchion.

4. A divider according to claims 1 to 3, characterized in that such vertically movable brackets are preferably inserted into the appropriate gap between the panels at the lower end of such gap.

5. A divider according to one or more of the previous claims, characterized in that the units comprising the fixtures for the divider are applied without any rear wall or backboard, the backing function being provided by the actual wall supporting the unit.

6. A divider according to the previous claims, characterized in that such attachment brackets are provided with a length of plate parallel to the base of the head and to the supporting wall itself, such plate having featheredged or similar ends to enable it to be inserted in plates with quadrangular cavities provided on the rear edges of the hanging cupboards, shelves and similar.

7. A divider according to the previous claims, characterized in that such brackets are capable of being secured to the appropriate stanchion by means of a screw, inserted in the axial hole of such bracket and having its threaded end screwed into a moving-plate slider inside the box-shaped body of the stanchion and capable of being locked by the drawing action achieved by screwing against the inside plane of the latter at any required height.

8. A divider according to claim 1 characterized in that such modular panels are provided throughout their perimeter with strips made of hard material for protection against impacts and against frontal stresses applied to the edges.

Fig.1

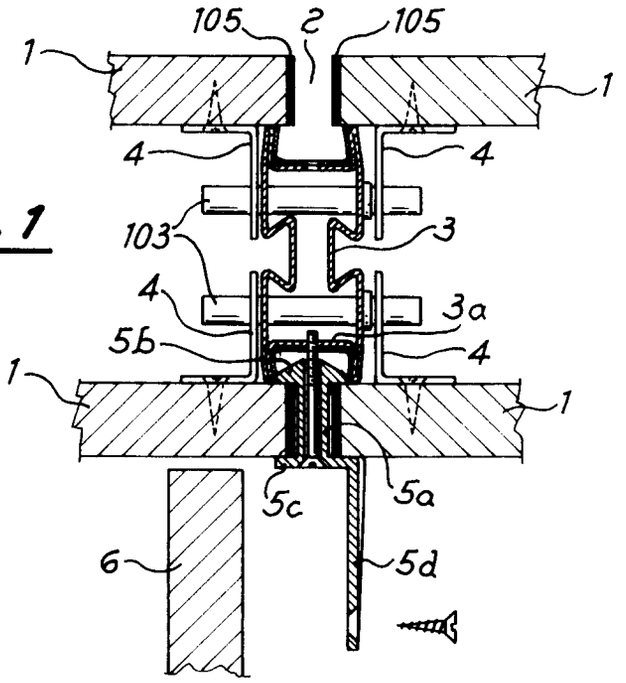
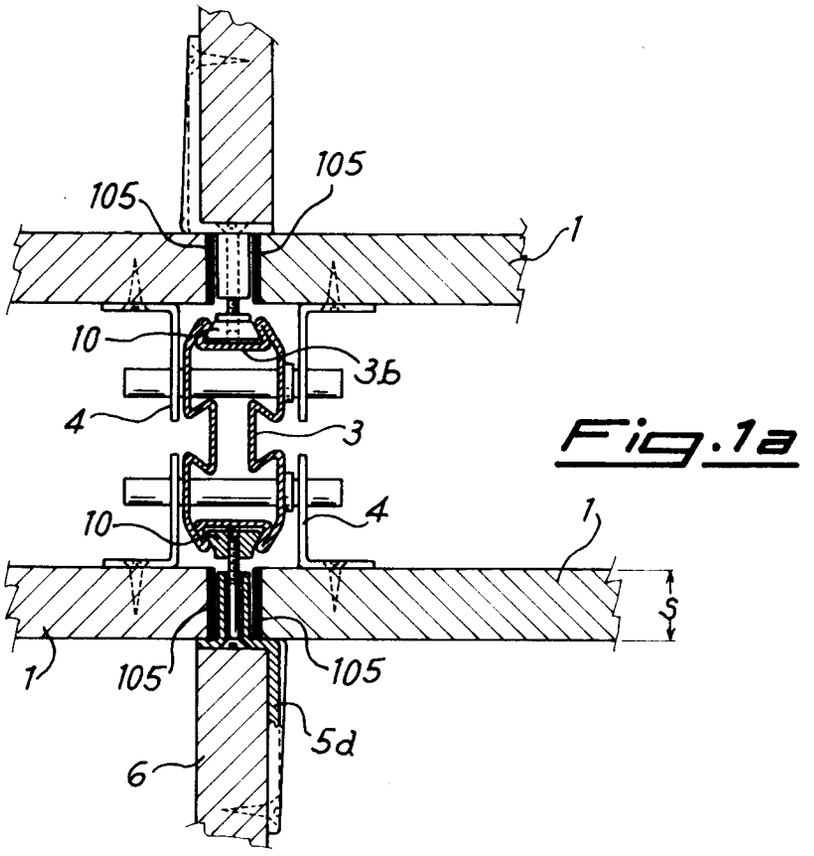

105
2
105
1
1
4
4
103
3
4
3a
5b
4
1
1
5c
5a
6
5d

Fig.1a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105
1
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3b
4
3
10
4
1
S
1
105
105
5d
6

Fig.2

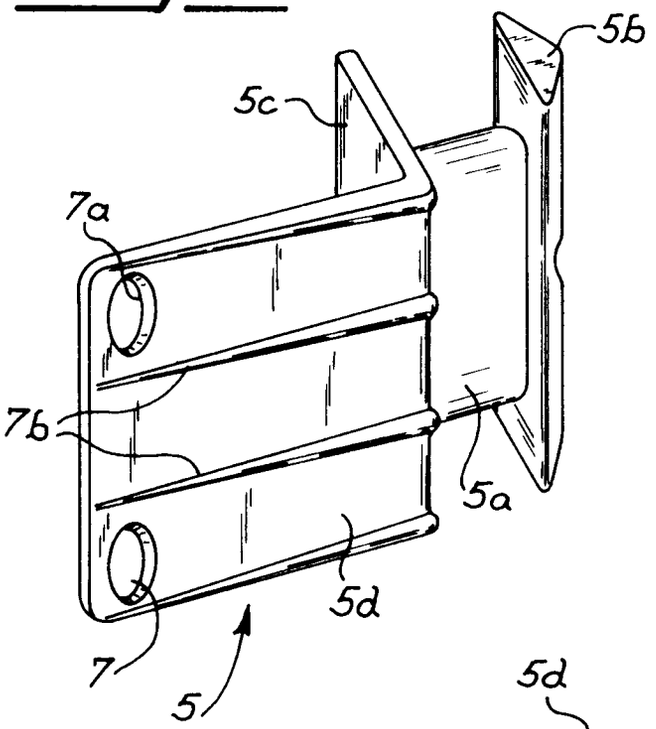


Fig.3

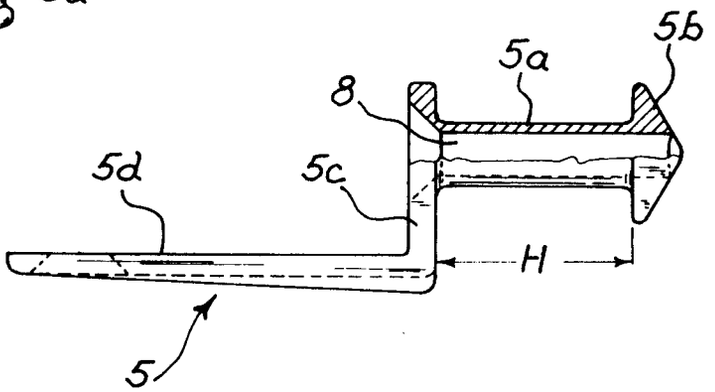


Fig.4

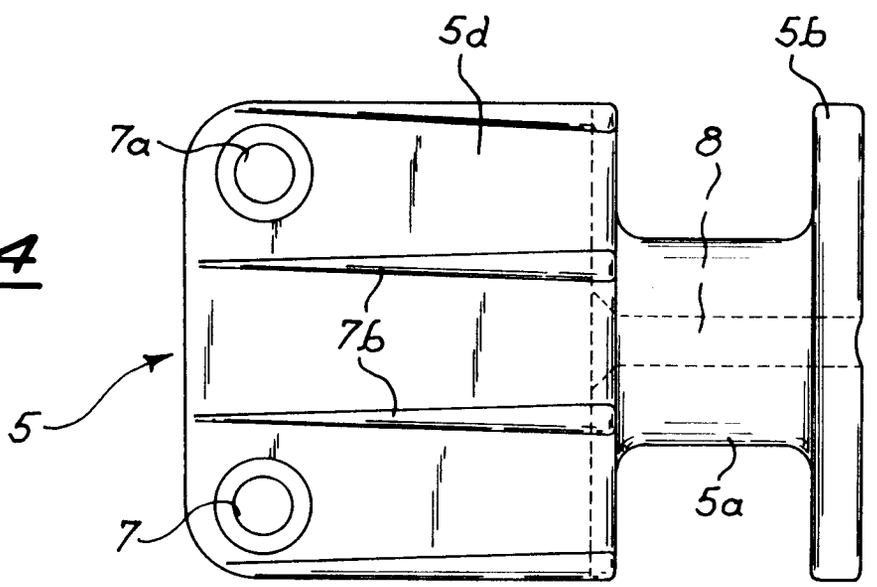


Fig.5

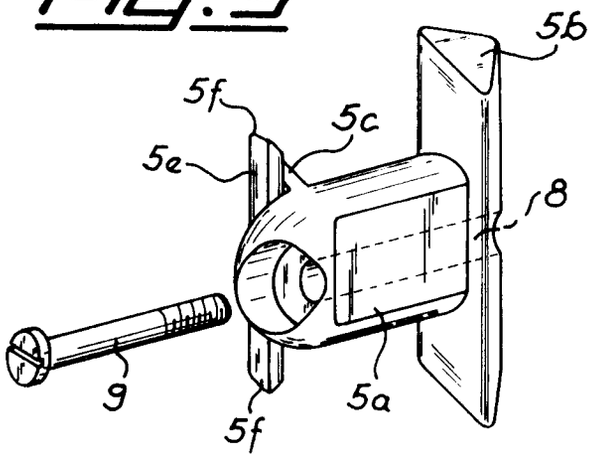


Fig.6

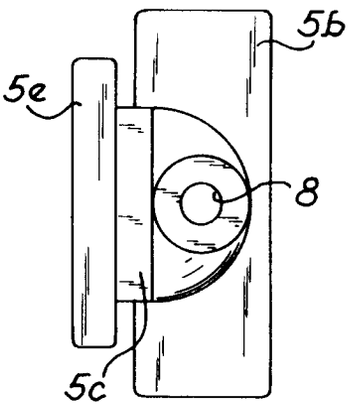


Fig.7

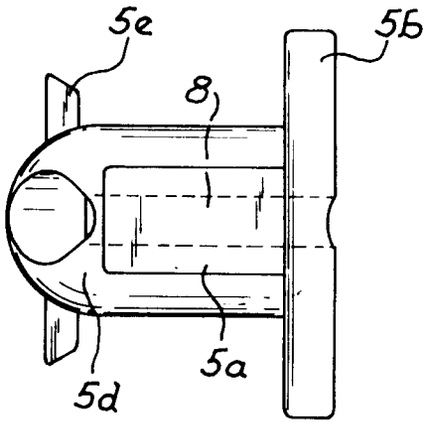
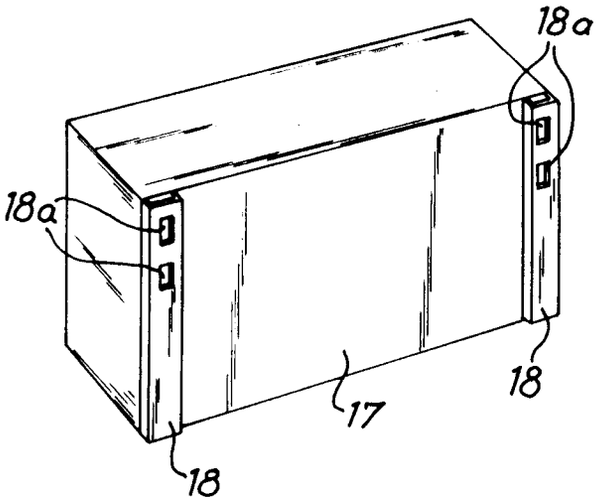


Fig.8



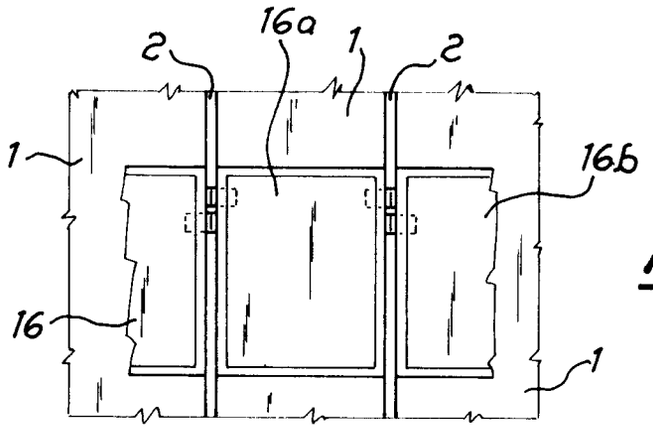
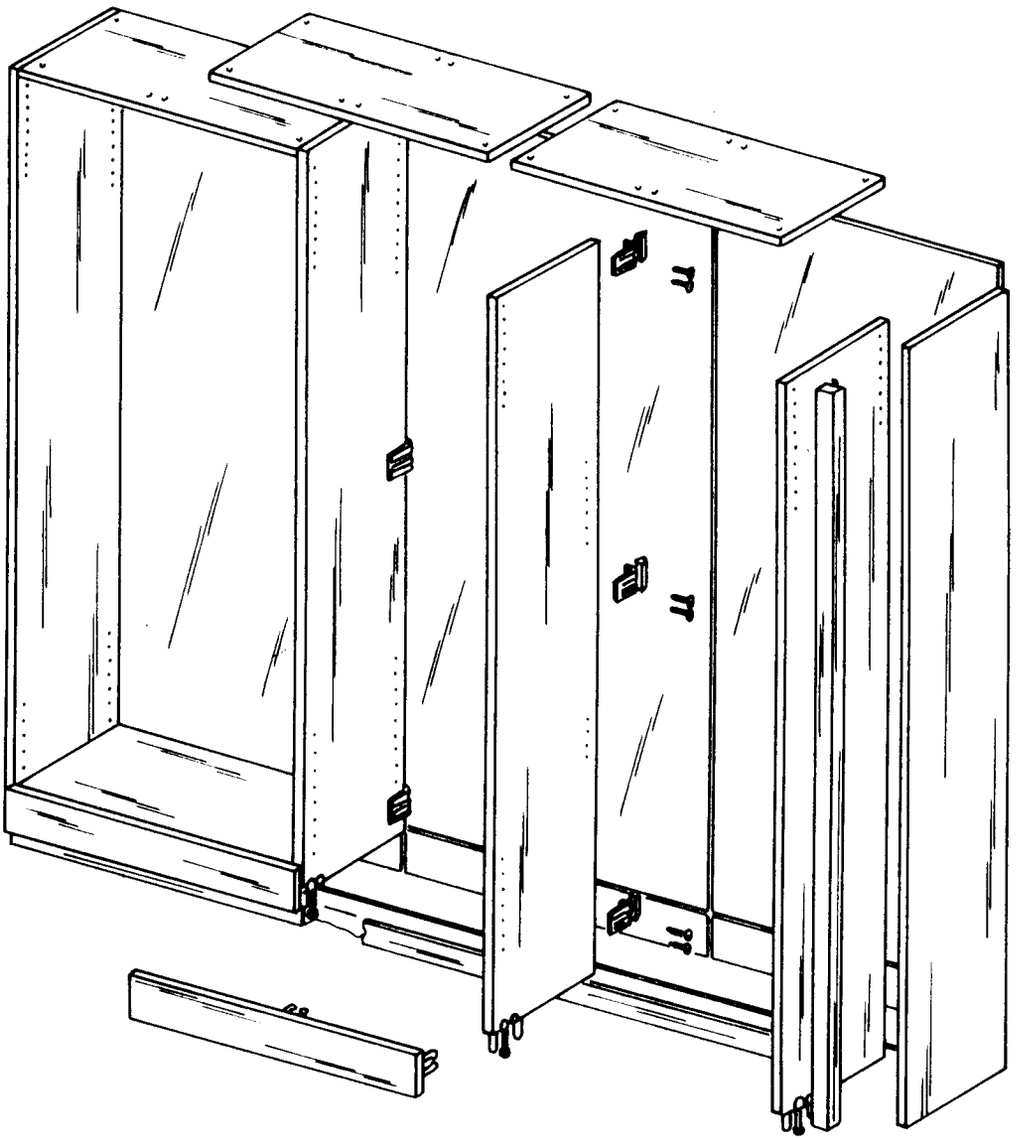


Fig.9

Fig.10



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EUROPEAN SEARCH REPORT

Application Number

EP 92 20 0598

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)
X	DE-A-2 102 834 (TROWBRIDGE) * claim 1; figures 1-3 *	1	A47B57/56 A47B96/00
A	DE-A-2 752 580 (THOME) * claim 1; figures 2,3,7 *	2,3,7	
A	GB-A-2 082 893 (DOVELINE TIMBER DISPLAY SYSTEMS LTD.) * abstract; figures 1-3 *	2,3,7	
A	US-A-4 040 588 (PAPSCO ET AL.) * abstract; figures 1,2,5 *	6	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)
A47B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	09 JUNE 1992	JONES C.T.

CATEGORY OF CITED DOCUMENTS

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