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(54) **Modular internal partition forming a container.**

(57) The modular internal partition forming a container of the invention is formed by a plurality of uprights and cross-bars (6) connected in the form of a lattice within a perimetral metal profile, which uprights and cross-bars (6) are formed by bearing panels transverse to the extension of the wall, closure panels (7,8,9) and the like, either fixed or movable, supported by the panels of the vertical uprights being disposed between these uprights and cross-bars (6), in which a plurality of shelves, forming a shelving unit designed to receive various materials, may also be disposed between the successive uprights, in which the transverse vertical and horizontal panels (6) are provided on their edges with gaskets sealing them against the closure panels (7,8,9) which gaskets also comprise the reference surfaces for the machining operations on the panels themselves after the gaskets have been assembled.

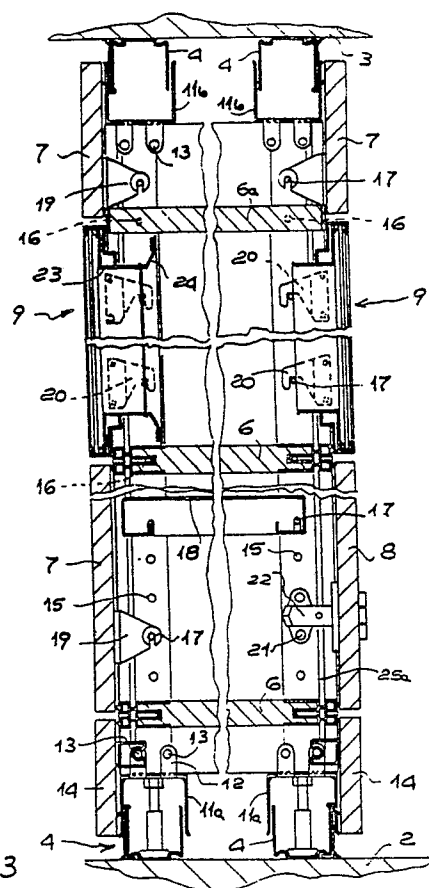


Fig. 3

EP 0 309 033 A1

MODULAR INTERNAL PARTITION FORMING A CONTAINER

The present invention relates to a modular internal partition forming a container designed to sub-divide rooms of large dimensions.

Internal partitions designed to allow a single large room to be divided into smaller portions, so that a number of offices, or internal areas with different uses and so on, can, for instance, be separated, are very widely used in many building applications, particularly in the case of offices and the like.

These internal partitions are normally produced with a modular structure so that they can be erected at any time after the construction of the walls of the room in which they are located and can be readily dismantled if the internal sub-division is moved or modified.

Partitions of this type must have specific properties, including effective insulation against sound, dust and so on and must be able to house doors, transparent components, openings and the like and to support brackets or must be thick enough to house shelves and the like thereby acting as a container as well as a partition.

A basic requirement in the production of partitions which are thick enough to form a container, known also as fitted partitions, is the need to construct these partitions in a particularly economic manner, reducing the machining operations needed on the components which make them up and enabling their automatic production without this entailing reductions of quality or limitations of the versatility of the partition itself.

Partitions forming a container are also required to have an attractive appearance which fits in with the furnishings of the rooms which they bound both in the blind areas and in the areas provided with transparent components, doors and the like.

This leads to the need to provide a partition forming a container whose aesthetic features and range of uses are very good and which can be produced very advantageously from the economic point of view and adapted to a large number of structural forms.

These results are achieved by the present invention, which provides a modular internal partition forming a container, which is formed by a plurality of uprights and cross-bars connected in the form of a lattice within a perimetral metal profile, which uprights are formed by bearing panels transverse to the extension of the wall, closure panels, either fixed or movable, supported by the panels of the vertical uprights being disposed between these uprights and cross-bars, in which a plurality of shelves, forming a shelving unit designed to re-

ceive various materials, may also be disposed between the successive uprights, in which the transverse vertical and horizontal panels are provided on their edges with gaskets sealing them against the closure panels, which gaskets also comprise the reference surfaces for the machining operations on the panels themselves after the gaskets have been assembled.

The transverse panels forming the uprights are provided with a plurality of aligned holes disposed along a line parallel and close to the edge of the panel along its larger dimension, designed to house through pins for the connection of the uprights to the perimetral profile and connecting the uprights and cross-bars and further designed to form the means for connecting shelves and the like to the uprights of closure panels of any type, these holes being formed on the panels forming the uprights by machining after the gaskets have been fitted on the panels.

The gaskets of the transverse bearing panels comprise a portion of rigid material having at least one surface transverse to the plane of extension of the panel, designed to form a dimensional reference surface for machining of the panel, and one or more portions of flexible material, projecting with respect to the surface of the portion or rigid material and designed to form a seal against the closure panels adjacent thereto, which flexible portions may be deformed with a small force into a position which does not interfere with the contact of the reference surface(s) against the planes of abutment.

The portions of flexible material of the gasket are formed by flanges of flexible material rigid with the portion(s) of inflexible material and adjacent to recesses or cavities whose base surface extends rearwardly with respect to the reference surface(s), wherein a small force is sufficient to house these flanges in a deflected position entirely within the recesses or cavities.

The transverse bearing panels are provided along their visible edges at least with metal finishing profiles, these profiles being provided with locking seats for the housing and connection of corresponding snap-locking components projecting from the gasket sealing against the closure panels.

The metal finishing profiles are provided with longitudinal recesses in the vicinity of their outwardly facing edges designed to form seats for the assembly and locking of covering walls of smaller thickness.

The metal finishing profiles are also provided with lateral fastening flanges extended such that they overlap the surfaces of the panel on which

they are mounted and provided with projections for retention on the panel, on whose surface the aligned holes close to the edge of the panel and designed to house the through connection pins are provided.

As an alternative, the transverse bearing panels comprise, on their visible edges at least, a gasket applied directly to the panels by glueing.

In this case the gasket has portions of rigid material substantially of rectangular section with recesses designed to house the portion(s) of flexible material, designed to be wound in a spool so that it can be applied, using glue, to the edges of the panels by automatic edging machines.

The transverse bearing panels provided with metal finishing profiles and the transverse bearing panels provided with directly applied gaskets are dimensionally and functionally interchangeable.

The metal members for assembling the structure and anchoring the covering components are formed by components passing through the thickness of the panel designed to be applied on a single surface of the panel and operating on both surfaces of the panel.

Further details are set out in the following description with reference to the attached drawings, in which:

Fig. 1 is a front view of a partition forming a container of the invention,

Fig. 2 is a section along the line II-II of Fig. 1,

Fig. 3 is a section along the line III-III of Fig. 1,

Fig. 4 is a detail of the end of a transverse panel, in the position assembled to form the partition,

Fig. 5 shows the panel of Fig. 4 during the machining stage,

Fig. 6 shows an alternative embodiment of a transverse panel of the partition which is interchangeable with the previous panel.

As shown in Figs. 1 and 2, the partition forming a container of the invention extends, for instance, between a pair of walls 1 facing one another, a floor 2 and a ceiling 3 in order to separate a room of large size into two portions.

The partition forming a container substantially comprises a perimetral frame 4 connected to the walls 1, floor 2 and ceiling 3 to which frame there is connected a plurality of transverse vertical panels 5 bearing respective transverse horizontal panels 6 forming compartments of various sizes within which there are disposed covering panels 7, shutters 8 which may be opened, transparent components 9 which may be fixed or openable, communicating doors 10 and the like.

As shown in further detail in Fig. 3, the fitted

partition is provided with a double perimetral frame 4 to which there are connected, via respective upper and lower brackets 11a, 11b, the transverse vertical panels 5, advantageously of composite materials provided with a surface finish covering, connected to the flanges 12 of the brackets via respective pins 13, of which those disposed most externally in the partition support the skirting panels 14 connected with relative resilient members.

The transverse vertical panels are further provided with a plurality of uniformly spaced holes 15 in the vicinity of the vertical edges of the panels themselves, within which there may be inserted pins 16 supporting the transverse horizontal panels 6 whose structure is similar to that of the vertical panels and pins 17 designed to enable intermediate shelves 18 of the fixed solid partition panels 7 to be supported via relative hook plates 19 and of the transparent components 9 via relative hook panels 20; the holes 15 also house the fastening means 21 for hinges 22 bearing openable panels 8 and any other component which may be required.

An auxiliary cover profile 24 is also provided for the frames 23 of the transparent components so that the relative fastening members can be concealed from view.

As shown in detail in Fig. 4, the panels 5, 6 may be provided with finishing profiles 25 of metal material, such as aluminium alloy, disposed along the visible edges of the panel at the junctions between the adjacent closure panels 7, 8, 9 at the compartments for the assembly of the doors 10 and so on.

These finishing profiles have a coupling portion 26 with lateral flanges 27a formed with sawteeth projections designed to allow their connection to the panel, and a central projection 27b, also provided with sawteeth projections designed to be inserted in a corresponding seat provided on the edge of the panel for the centering of the profile on the panel, and an external portion 28 having undercut recesses 29 designed to receive the hooking flanges 30 of a gasket 31.

The lateral flanges 27a are also designed to house the holes 15, thereby enabling the pins inserted therein to rest on metal surfaces at the surfaces of the panel and providing the pins with a high degree of accuracy and strength.

The finishing profile 25 also has lateral grooves 25a designed to form locking seats for the connection of closure panels of smaller thickness, as an alternative to the panels 7 in the case, for example, that the structure of the invention is used as a cupboard backing onto another wall, in which case panels with reduced aesthetic and insulating qualities can be used for the surface which is concealed, thereby obtaining a saving of space as well.

The gasket 31, as shown diagrammatically in

Fig. 4, is provided to seal against the surface of the closure panels 7, 8, 9 or the like, by means of its flexible flanges 32 preventing the penetration of dust into the inner space of the partition and also guaranteeing insulation between the opposite surfaces of the overall partition.

The gasket 31, whose thickness determines the external dimension of the finished panel, is designed to be mounted in its seat prior to the final machining operations to be carried out on the panel at very precise heights, for instance the provision of the holes 15 which need to be precisely aligned with the edges of the panel so that the closure panels can subsequently be correctly assembled.

The gasket 31 comprises for this purpose the plane reference portions 33 whose front surfaces are designed to form, as shown in Fig. 5, the abutment surfaces resting against an abutment device 34 with respect to which the holes 15 are drilled at the distance "d".

In this condition the sealing flanges 32 are bent following the pressure of the panel being machined against the abutment device 34 and are contained in their entirety, in this bent position, within the rearwardly extending spaces 35 adjacent to the plane reference portions 33 without therefore interfering with the machining.

For this purpose the gasket 31 may be made of co-extruded plastic materials, for instance polyvinyl chloride (PVC), with various degrees of rigidity, the sealing flanges 32 in particular being made of flexible material, while the remaining parts of the gasket, in particular the portions 33, are made of rigid material.

As an alternative, the gasket may also be made in two pieces, one rigid and one flexible, connected together with connection means selected in respect of the properties of the materials used.

As shown in the upper part of Fig. 3, and in greater detail in Fig. 6, the transverse panels 5, 6 may be constructed in a more economic form by applying a sealing profile 36 directly to the edges of the panel 5, 6 so as to form both its finishing component and the component which seals it against the closure panels similarly to the gasket 31.

The sealing profile thus has a portion of rigid plastic material forming the edges 37 and the central reference portion 38 and has its sealing flanges 39 of flexible plastic material co-extruded with the previous portion or connected thereto adjacent to the recessed spaces 40.

The panel constructed in this way can thus be subjected to machining operations such as the provision of the holes 15 after the application of the sealing profile since, as shown in the right-hand portion of Fig. 6, when the panel bearing the profile

36 rests against the abutment device 34 for machining, the sealing flanges 39 bend easily and are housed in the relative spaces 40 without interfering with the correct support of the abutment surfaces of the portions 37, 38 disposed in the same plane and defining the external dimensions of the panel.

The sealing profile 36 may be advantageously applied by glueing, using suitable adhesive materials and materials for preparing the surfaces so as not to require machining operations on the edges of the panels 5, 6 to provide locking seats or the like in which the gasket can be housed.

Application by glueing can also be carried out automatically using appropriate glues, for example by conventional edging machines on which the sealing profile 36 can be disposed in spools.

This is enabled by the shape of the profile 36 with a substantially rectangular section whose flexibility, for the purposes of production in spools, is not greatly affected by the sealing flanges 39 of relatively flexible material.

The partition may therefore be constructed in two different qualities, either using metal finishing profiles for the transverse vertical and horizontal panels which cost more and are of higher quality, as described above, or using directly supporting transverse panels with the sealing gasket and peripheral finish connected by glueing, in a more economic embodiment; these solutions may be used at the same time in different positions on the partition, as required, since they are fully interchangeable.

The panels of the invention require the machining operations and the application of the metal members for the assembly of the structure, for anchoring the covering components and for connecting hinges and like housed in the holes 15, to be carried out on one side of the panel; these metal members are formed by components passing through the thickness of the panel and may project, where necessary, on both surfaces so as to allow the assembly of various components on both sides of the panel.

This is particularly advantageous both from the economic point of view, as a result of the reduction of the machining operations carried out and the total number of components assembled, and from the point of view of the higher resistance achieved since each of these assembly members passes through the entire thickness of the panel and is not therefore inserted in a blind hole of limited depth in the panel provided with a forced bushing as is commonly the case in the prior art.

The partition of the invention may be associated, without any aesthetic discontinuity, with partitions of other types, for instance partitions which are not as thick, designed merely for separation purposes, with which they may have many compo-

nent parts in common, such as the perimetral profiles for connection to the wall structures, the closure panels, the transparent panels and so on and may also form a cupboard so as to obtain, together with these partitions and further furnishings, appropriately designed for use in this combination, an internal dividing, furnishing and storage structure suited to a very wide range of applications and methods of use.

Many variants may be introduced without departing from the general scope of the invention.

Claims

1. Modular internal partition forming a container, characterized in that it is formed by a plurality of uprights and cross-bars connected in the form of a lattice within a perimetral metal profile, which uprights and cross-bars are formed by bearing panels transverse to the extension of the wall, closure panels and the like, either fixed or movable, supported by the panels of the vertical uprights being disposed between these uprights and cross-bars, in which a plurality of shelves, forming a shelving unit designed to receive various materials, may also be disposed between the successive uprights, in which the transverse vertical and horizontal panels are provided on their edges with gaskets sealing them against the closure panels, which gaskets also comprise the reference surfaces for the machining operations on the panels themselves after the gaskets have been assembled.

2. Modular internal partition forming a container as claimed in claim 1, characterized in that the transverse panels forming the uprights are provided with a plurality of aligned holes disposed along a line parallel and close to the edge of the panel along its larger dimension, designed to house through pins for the connection of the uprights to the perimetral profile and connecting the uprights and cross-bars and further designed to form the means for connecting shelves and the like to the uprights of closure panels of any type, these holes being formed on the panels forming the uprights by machining after the gaskets have been fitted on the panels.

3. Modular internal partition forming a container as claimed in claim 1, characterized in that the gaskets of the transverse bearing panels comprise a portion of rigid material having at least one surface transverse to the plane of extension of the panel, designed to form a dimensional reference surface for machining of the panel, and one or more portions of flexible material, projecting with respect to the surface of the portion of rigid material and designed to form a seal against the

closure panels adjacent thereto, which flexible portions may be deformed with a small force into a position which does not interfere with the contact of the reference surface(s) against the planes of abutment.

4. Modular internal partition forming a container as claimed in claim 3, characterized in that the portions of flexible material of the gasket are formed by flanges of flexible material co-extruded with the portion(s) of rigid material and adjacent to recesses or cavities whose base surface extends rearwardly with respect to the reference surface(s), wherein a small force is sufficient to house these flanges in a deflected position entirely within these recesses or cavities.

5. Modular internal partition forming a container as claimed in one or more of claims 1 to 4, characterized in that the transverse bearing panels are provided along their visible edges at least with metal finishing profiles, these profiles being provided with locking seats for the housing and connection of corresponding snap-locking components projecting from the gasket sealing against the closure panels.

6. Modular internal partition forming a container as claimed in claim 5, characterized in that the metal finishing profiles are provided with longitudinal recesses in the vicinity of their outwardly facing edges designed to form seats for the assembly and locking of covering walls of smaller thickness.

7. Modular internal partition forming a container as claimed in claim 5, characterized in that the metal finishing profiles are provided with lateral fastening flanges extended such that they overlap the surfaces of the panel on which they are mounted and provided with projections for retention on the panel, on whose surface the aligned holes close to the edge of the panel and designed to house the through connection pins are provided.

8. Modular internal partition forming a container as claimed in one or more of claims 1 to 4, characterized in that the transverse bearing panels are provided, on their visible edges at least, with a gasket applied directly to the panels by glueing.

9. Modular internal partition forming a container as claimed in claim 8, characterized in that the gasket has portions of rigid material substantially of rectangular section with recesses designed to house the portion(s) of flexible material, designed to be wound in a spool so that it can be applied, using glue, to the edges of the panels by automatic edging machines.

10. Modular internal partition forming a container as claimed in claims 5 and 8, characterized in that the transverse bearing panels provided with metal finishing profiles and the transverse bearing panels provided with directly applied gaskets are dimensionally and functionally interchangeable.

11. Modular internal partition forming a container as claimed in claim 1, characterized in that the metal members for assembling the structure and anchoring the covering components are formed by components passing through the thickness of the panel designed to be applied on a single surface of the panel and operating on both surfaces of the panel.

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Fig. 1

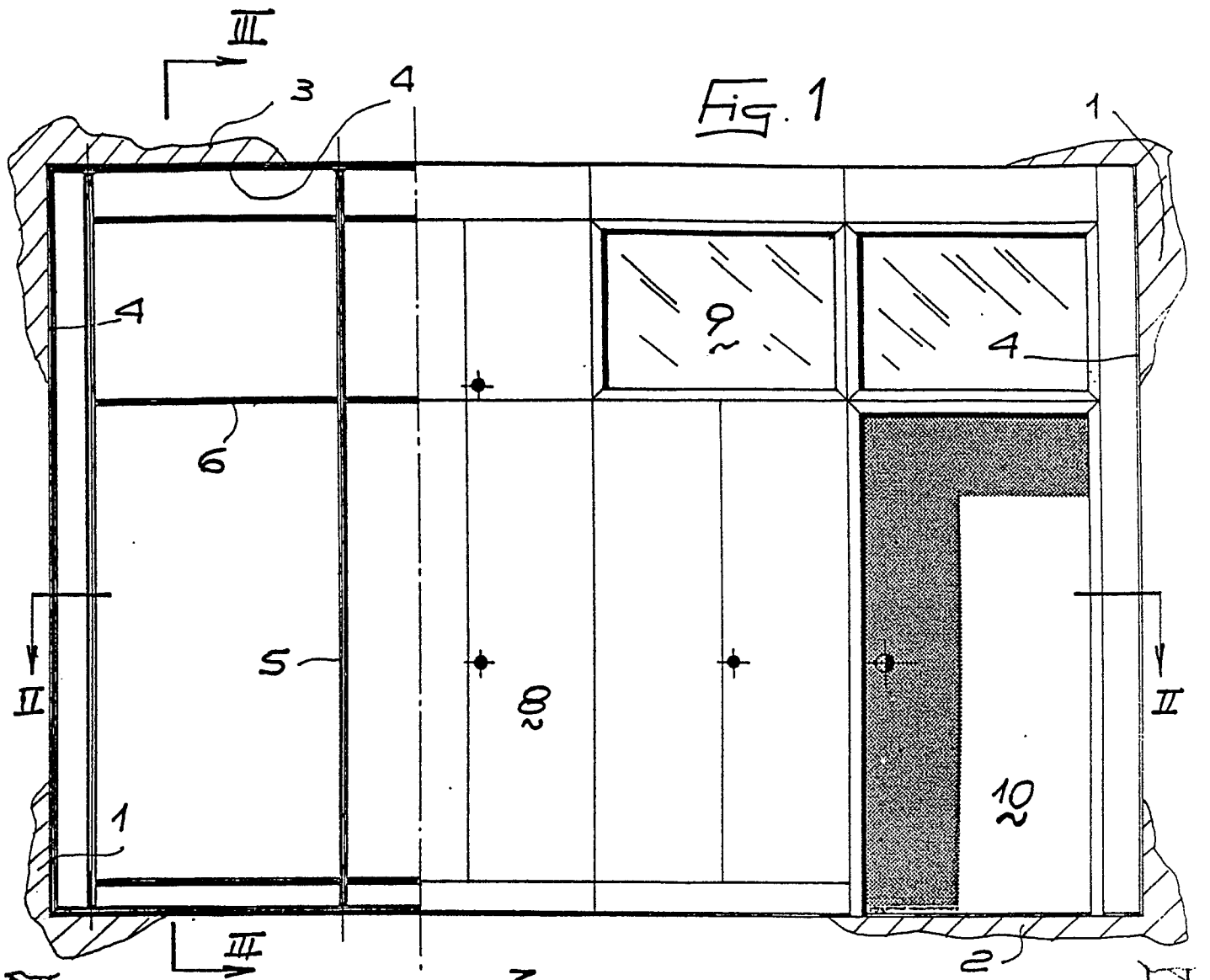
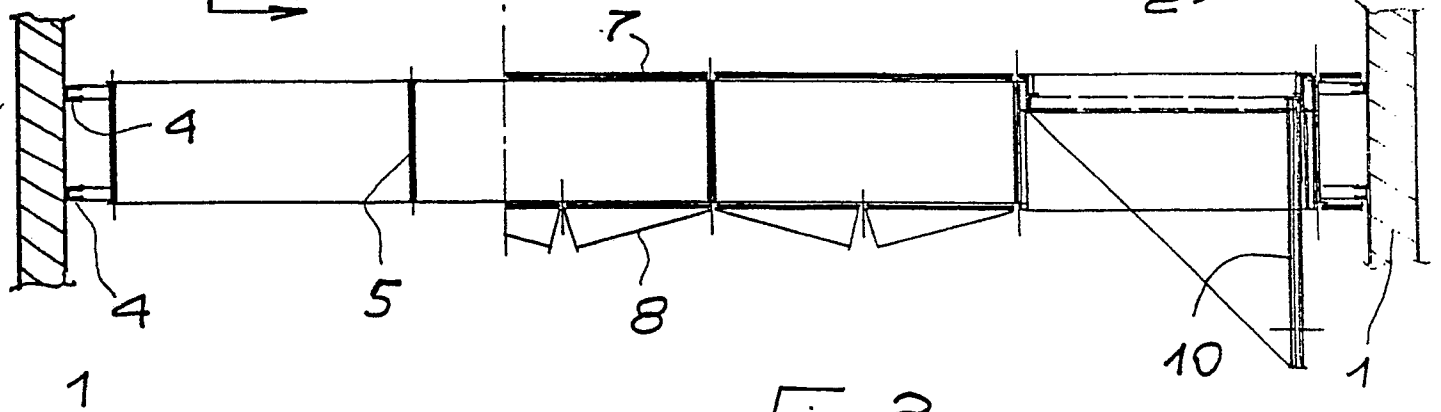
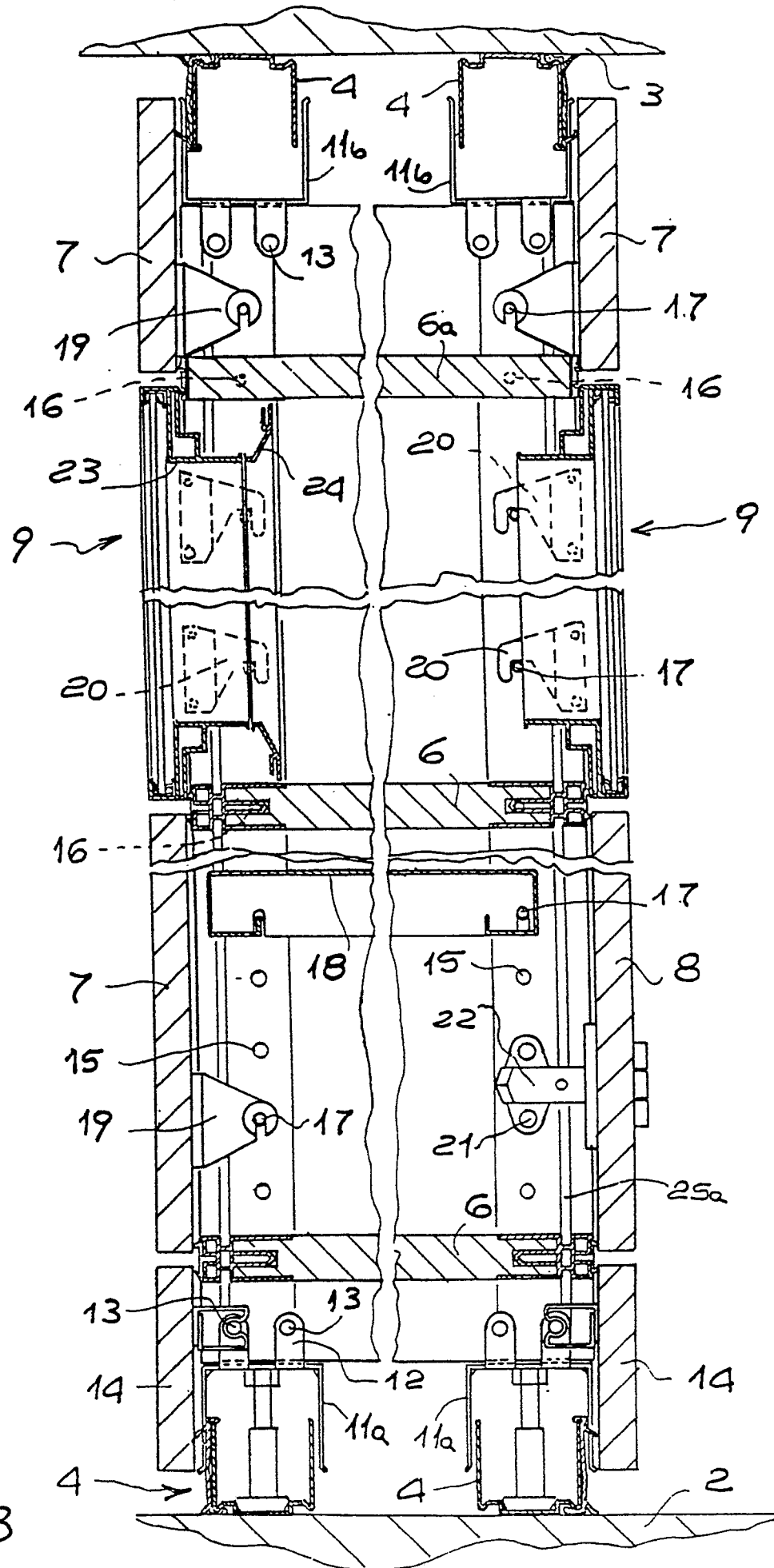


Fig. 2





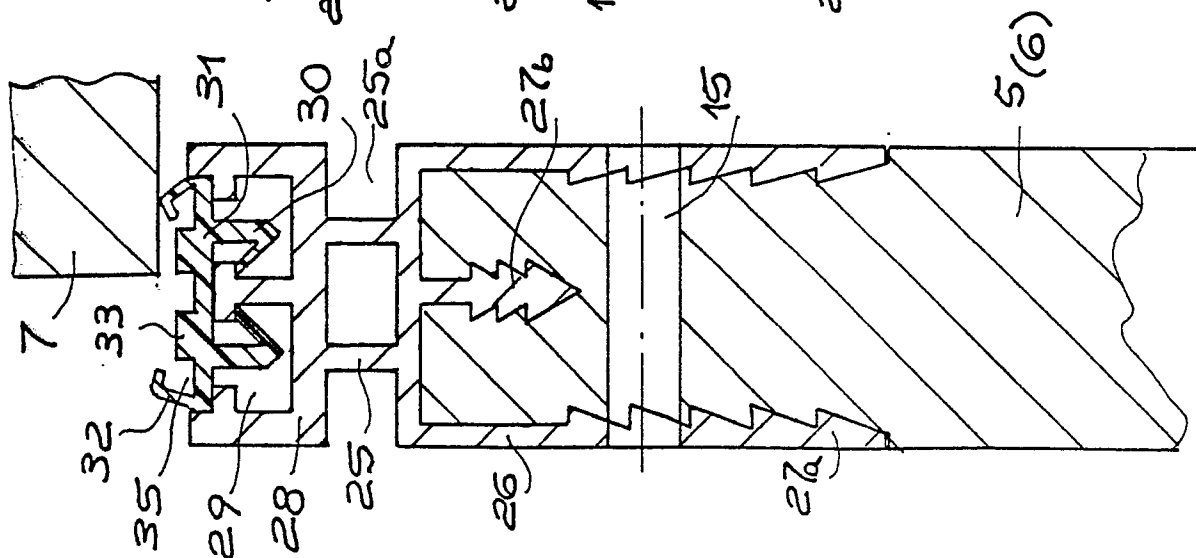


Fig. 4

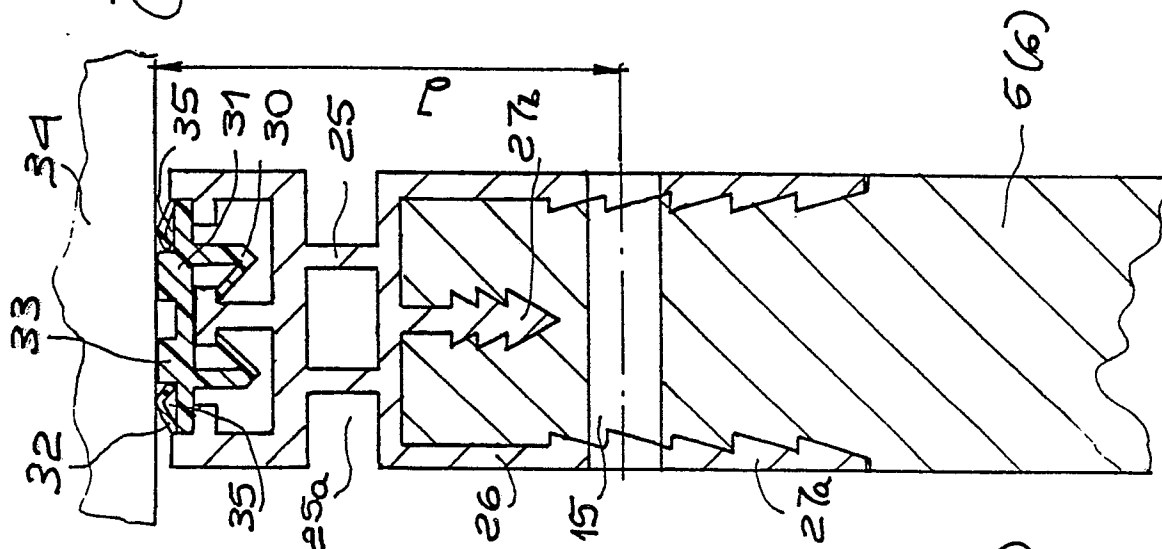


Fig. 5

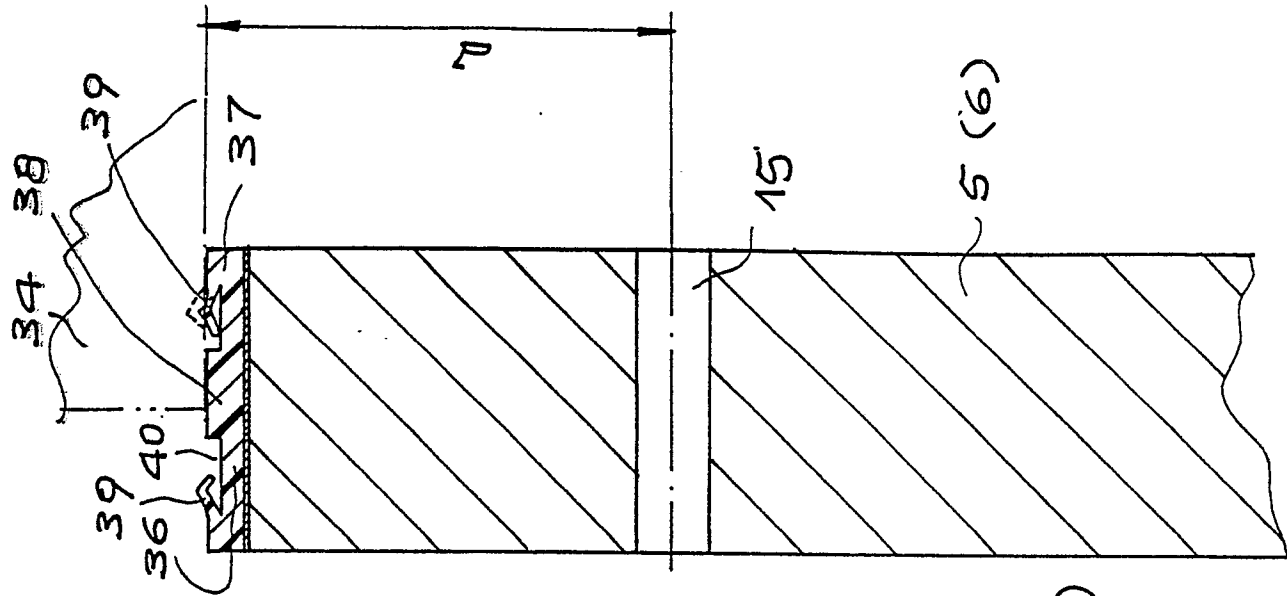


Fig. 6



EP 88 20 1985

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. 4)
A	EP-A-0 146 932 (NIHON SHUNO SYSTEM K.K.) * Page 5, line 6 - page 10, line 4; page 14, lines 14-20; figures 1-7, 17 *	1	E 04 B 2/74
A	DE-A-2 260 650 (DREYER) * Page 4, line 21 - page 6, line 18; figures 1, 2 *	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
			E 04 B A 47 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 05-12-1988	Examiner PORWOLL H. P.
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			