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(54) **FURNITURE SYSTEM**

MÖBELSYSTEM

SYSTEME D'AMEUBLEMENT

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(56) References cited:

EP-A2- 0 884 010 DE-A1- 4 235 764

DE-U1- 8 607 682 FR-A- 2 143 071

GB-A- 1 281 521 US-A- 3 132 609

US-A- 3 429 631 US-A- 6 086 172

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EP 1 471 809 B1

Description

[0001] The present invention relates to a furniture system which comprises at least one dimensionally stable, plate-shaped element with an opening array, a number of rigid and elongate connecting elements with a fastening element at each of their ends and a separate, threaded fastening means for releasably securing, in cooperation with said fastening element, each connecting element in the opening array of the plate-shaped element.

[0002] More specifically, the invention relates to a systems with a small number of different components, by means of which primarily various pieces of furniture can easily be assembled and later on, if required, easily disassembled. Examples of furniture that can be constructed with the system are cupboards, boxes, book cases and the like, drying racks, tables, benches, etc.

[0003] A system or a set with a relatively small number of different components for assembling various pieces of furniture, such as tables, chairs and sets of shelves, is already known from US-A-6,086,172. The system consists of elongate connecting elements with a transverse bore at each end and side elements formed with through-openings or through-holes in a row and column pattern. When assembling a piece of furniture by means of this system, the ends of the connecting elements are inserted into selected openings in the side elements and secured in the openings by means of a nail or a screw each, which is inserted into each bore and is nailed or screwed to the side wall of the opening. One disadvantage of this system is that it is difficult to assemble and disassemble the furniture. Moreover, the positions of the connecting elements are restricted to the positions of the openings, which means that these elements can only be moved stepwise in the vertical and the horizontal direction in the side elements and cannot be placed close to each other. The through-openings in the side elements are not aesthetically appealing. Finally, the side elements in this prior-art system can only be placed vertically, resting on a floor or the like, since otherwise the assembled piece of furniture would not be sufficiently stable.

[0004] DE 8607682U shows a sectional parcel shelf consisting of four uprights with vertical grooves housing slidable but not rotatable nuts. Each shelf is fastened to the four upright by means of separate bolts extending through holes in the rim of the shelf, through said vertical grooves and engaging said nuts. The shelves are not fastened to the upright by rotating the shelf, which would be impossible.

[0005] EP-A-0884010 is directed to a piece of furniture having a pair of profiles connected to each other by a crossbar having a bent portion at each end. A separate bolt extends through a hole in said bent portion, through a groove in the profile and is fastened to a nut inside the groove. Nor does this crossbar have fastening elements fixedly arranged at each end, one of said fastening being left-handed threaded and the other one being right-handed threaded.

[0006] The object of the present invention is thus to provide a furniture system, which allows easy assembling and disassembling of a piece of furniture, without requiring any tool.

[0007] It is further object of the invention to provide a furniture system which allows stepless positioning of the connecting elements, close to each other if desired, and optional orientation of the plate-shaped elements.

[0008] Another object is to provide a furniture system, by way of which a number of aesthetically attractive pieces of furniture can be made.

[0009] These objects are achieved by a furniture system as stated by way of introduction, which is characterised in that the fastening element has a cylindrical, threaded engagement surface, the centre axis of which extends along the longitudinal axis of the connecting element, that at least one substantially duct-shaped section is integrated in the plate-shaped element, which section has a bottom wall, a pair of oppositely arranged and parallel side walls and a top wall opposite the bottom wall with a groove-shaped opening which is parallel to the side walls, and that the fastening means has a cylindrical, threaded engagement surface for threaded engagement with the engagement surface of the fastening element and at least two parallel side edges, the distance between the side edges being somewhat shorter than the distance between the side walls of the section, which fastening means is arranged to be placed inside the section and brought into clamping engagement with the fastening element against the top wall, thereby securing the connecting element to the plate-shaped element with the projecting engagement surface of the fastening element or the fastening means positioned in the groove-shaped opening.

[0010] Further developments of the invention will appear from the features stated in the dependent claims.

[0011] Preferred embodiments of the invention are illustrated below by way of example and with reference to the accompanying drawings, in which

Fig. 1 is a top plan view illustrating the principle of the invention;

Fig. 2 is a view corresponding to that in Fig. 1 showing a composite section used in the conference cabinet according to Figs 9 and 10;

Figs 3-5 are the same views as in Figs 1 and 2 but on a smaller scale and illustrate examples of variants of the sections according to Figs 1 and 2;

Fig. 6 is an end view of a bench/a table constructed with the furniture system according to the invention; Fig. 7 is a side view of a set of storage shelves constructed with the furniture system according to the invention;

Fig. 8 is a vertical cross-sectional view illustrating how a drying rack can be constructed with the furniture system;

Fig. 9 is a front view illustrating a conference cabinet assembled by the components included in the furni-

ture system according to the invention;

Fig. 10 is the same view as in Fig. 9 showing how to assemble the lower portion of the conference cabinet according to Fig. 9, before the mounting of the door leaves;

Fig. 11 illustrates, on a much smaller scale an alternative embodiment of the section in Fig. 2; and

Fig. 12 is a partial perspective view illustrating an example of a hinge for mounting the door leaves on the conference cabinet according to Fig. 9.

[0012] The invention will primarily be presented in connection with a mountable conference cabinet, but is also applicable to other types of furniture as mentioned above and as illustrated by way of example in some of the accompanying Figures.

[0013] A conference cabinet is a product containing AV equipment such as a writing board, a flip chart and, in most cases, a film screen for showing films or pictures by means of a projector. The cabinet has doors which can be closed to conceal what has been written for reasons of secrecy and/or for aesthetical reasons. Today's commercially available conference cabinets are composed of a frame and doors made of wood or a similar material. They all have much the same appearance and are available in an assembled state in fixed sizes.

[0014] For almost 30 years, conference cabinets have been a solution for easy provision of AV equipment in a meeting room. As a result, there is an increasing downward pressure on the price of traditional construction solutions including a frame of wood, hinges, door leaves and a film screen, which in turn makes the product difficult to sell at a profit if a reasonable quality level is to be offered. But the solution is still attractive on the market. Traditional solutions are also bulky and heavy, which yields high transport costs. In addition, heavy cabinets are unergonomic and may cause occupational injuries. Furthermore, the cabinets available on the market are environmentally unsuitable. If the use of glue, chipboards and chromium-plated hinges can be replaced or reduced, it would mean an important environmental benefit.

[0015] Reference is first made to Fig. 1, which best illustrates the inventive idea. The furniture system according to the invention mainly consists of three kinds of components, of which the first one is a dimensionally stable, plate-shaped element 1 which is preferably an extruded section of plastic material, aluminium or a metal alloy known in connection with extrusion. The plate-shaped element 1 comprises at least one integrated, substantially duct-shaped section 2 extending in the longitudinal direction of the plate-shaped element. In Fig. 1, three duct-shaped sections 2 are shown, but the element 1 can have one duct-shaped section only (Fig. 3), two sections (Fig. 4) or more (Fig. 8). Each duct-shaped section 2 has a bottom wall 3, a pair of oppositely arranged and parallel side walls 4 and 5 and a top wall 6 located opposite the bottom wall 3. In the top wall 6 and substantially halfway between the side walls 4 and 5, there is a

groove-shaped opening 7, which thus extends in the longitudinal direction of the plate-shaped element 1, parallel to the side walls 4, 5 (cf. Fig. 10).

[0016] The second type of component in the furniture system is an elongate and rigid connecting element 8 preferably having a circular circumference, such as a round bar or a tube, although other cross-sectional surfaces are conceivable, e.g. polygonal. At each of the two ends of the connecting element 8, there is a fastening element 9 having a cylindrical, threaded engagement surface, the centre axis of which extends along the longitudinal axis of the connecting element. The fastening element 9 is, in other words, a threaded pin, as shown in Fig. 1, or a nut means fixedly arranged inside the end of the connecting element. It should be noted that the fastening element 9 at the left end of the connecting element 8 in Fig. 10 is right-hand threaded and that the fastening element 9 at the right end of the connecting element 8 is left-hand threaded for reasons that will be explained below.

[0017] The third type of component in the system is a fastening means 11, which has a cylindrical, threaded engagement surface, which is complementary to the engagement surface of the fastening element 9 for threaded engagement therewith. Therefore the fastening means 11 is shown as a nut means in Fig. 1, but it is a bolt when the fastening element 9 is a nut means. Naturally, the fastening means 11 which is to engage said left fastening element 9 is right-hand threaded and the other, opposite fastening means is left-hand threaded. The fastening means 11 has dimensions such that it can be positioned in the duct-shaped section 2, as clearly seen in Fig. 1. The fastening means 11 also has at least two parallel side edges 12 and 13. The distance between the side edges is somewhat shorter than the distance between the side walls 4 and 5 of the section 2, so as to enable the fastening means 11 to be moved along the section 2, but not to be turned therein.

[0018] When assembling a piece of furniture, such as the conference cabinet shown in Figs 9 and 10, an adequate number of fastening means 11 are inserted into the associated sections 2 in the two plate-shaped elements 1 and both fastening elements 9 of each connecting element 8 are brought into threaded engagement with a fastening means 11 each in the two elements 1 by the connecting element being rotated in the direction of the arrow 14, thereby causing the pin of the fastening element 9 or the shank of the fastening means (not shown) to extend through the associated groove-shaped opening 7, which is easily understood by a person skilled in the art. Subsequently, the connecting element 8 is moved together with the two fastening means 11 along the groove-shaped opening 7 to a desired position, after which the connecting element 8 is rotated further so as to be locked on the two plate-shaped elements 1. The rotary motion causes the end of the connecting element 8 to approach the fastening means 11, and finally they are brought into clamping engagement against the top

wall 6. As the two fastening elements of the connecting element are, respectively, right-hand threaded and left-hand threaded, the clamping engagement is achieved practically simultaneously in the two plate-shaped elements 1. If desired, an plastic washer or a locking washer may be placed between the end of the connecting element and the plate-shaped element 1 (not shown).

[0019] By positioning the connecting elements 8 at the same level in all the duct-shaped sections 2, they will form, respectively, the upper and the lower side walls of the conference cabinet, as illustrated in Figs 9 and 10. They can also form shelves in a set of storage shelves, as schematically shown in Fig. 7. By fastening the respective connecting elements 8 on different levels relative to each other, a drying rack is, for example, provided. (see Fig. 8).

[0020] In the above-mentioned furniture pieces, the plate-shaped elements 1 are vertically oriented. However, in Fig. 6 the plate-shaped element is horizontally oriented and a connecting element 8 is arranged in each corner, which results in a bench or a table. In that case, the fastening means 11 or a similar "floor protector" is screwed on the fastening element 9 at the free end of the connecting element 8.

[0021] When the furniture system according to the invention is intended to be used for the construction of a cabinet or a box, the plate-shaped element 1 has a mounting 15 at one of its ends for fastening a rear element 16 in the form of a chipboard, writing board or the like, which is secured by screws 17, as shown in Fig. 2. The mounting 15 is oriented at an angle (preferably perpendicularly) to the plate-shaped element 1 and is integrated therewith. When a rear element is part of the furniture piece which is to be constructed with the system according to the invention, it is sometimes sufficient to provide one duct-shaped section 2 only in each plate-shaped element 1 at its end opposite the mounting 15 to make the furniture piece stable. This is illustrated in Figs 3 and 5, which show different locations of the section 2 and the mounting 15 in relation to the plane of the element 1.

[0022] In cases when the furniture system is intended for the construction of cabinets and the like, the plate-shaped element 1 has at its end opposite the above-mentioned mounting 15 a securing device 18 for door leaves 19 (see Figs 2 and 9). The securing device is preferably formed as a rail (Fig. 2), which, extends along the entire length of the element 1, parallel to the mounting 15, and which is integrated with the plate-shaped element. An L-shaped hinge 26 is fastened to the lower end of the duct-shaped securing device 18 (see Fig. 12) by a nut means (not shown), for example, a plate which is formed with threaded holes or a nut, whose width is greater than the width of the through-slit 27 of the securing device extending in the longitudinal direction of the securing device in a manner similar to that of the groove-shaped opening 7 of the duct-shaped section 2 but which slit is narrower than the width of the duct. The nut means is inserted into the securing device 18 and one or more

screws 28 is/are inserted into an associated bore (or bores) in the hinge 26 and in the slit 27 to be tightened in the nut means, thereby bringing the hinge into clamping engagement with the area adjacent to the slit 27. The hinge has in a manner known per se a hinge pin 29. The door leaf 19 has a blind bore 31 at its two opposite corners with a diameter adapted to the diameter of the pin 29. When mounting each door leaf 19, the door leaf is moved from the top downwards along the plate-shaped element 1 until the pin 29 is inserted into the bore 31. Then the upper hinge 26 is fastened in analogous manner to the securing device, the hinge pin being inserted into the upper blind bore of the door leaf.

[0023] In the above method of mounting the door leaves, use if made of a special duct-shaped securing device. But this device is not critical. Instead, when using a plate-shaped element formed as in Fig. 11, which does not have any securing device 18, the outermost duct-shaped section 2 can serve as a securing device, as will easily be understood by a person skilled in the art. As a result, the hinge 29 will not be positioned at the short side of the plate-shaped element 1 but at its long side, i.e. perpendicularly to the plane of the plate-shaped element; ef. the orientation of the connecting elements 8 relative to the plate-shaped element 1. The hinge pin 29 can, however, be positioned at the short side of the plate-shaped element 1, as in the embodiment according to Fig. 12, by the hinge being fitted with an angled portion which projects sideways and in which said bores are made.

[0024] Finally, the furniture system can also be equipped with means for providing the constructed furniture piece with an aesthetically attractive surface and/or finish. An example of this is shown in Fig. 2, in which the plate-shaped element 1 has a hook lip 21 at each of its two opposite ends, in the illustrated example adjacent to the mounting 15 and the securing device 18, said hook lips extending parallel to the mounting 15 and the securing device 18 and being integrated with the element 1. The hook lips 21 project from the side of the plate-shaped element 1 opposite the groove-shaped openings 7 and they each have a channel or recess 22, which channels are facing away from each other and into which the ends of a cover panel 23 with corresponding hook means 24 are to be fitted, as clearly seen in Fig. 2.

[0025] The plate-shaped element can optionally also comprise a reinforcing integrated box structure 25 (cf. Figs 4 and 6). A preferred embodiment of the plate-shaped element 1 is illustrated in Fig. 11. Furthermore, the plate-shaped element 1 is shown in different embodiments in the Figures, and it is obvious that the individual components of the various embodiments can be combined in a number of ways which are not illustrated, without departing from the scope of the invention as defined in the appended claims.

[0026] A conference cabinet which is constructed by means of a furniture system according to the present invention offers the following advantages over prior-art

conference cabinets:

1. Shorter manufacturing time results in lower manufacturing costs.
2. Cheaper material results in lower manufacturing costs.
3. A more flexible construction, a knock-down solution, allows the use of better logistics.
4. The knock-down construction allows thinner packing which implies cheaper transport.
5. Lower weight implies cheaper transport.
6. Lower weight results in better working ergonomics/environment.
7. A frame of aluminium is a more environment-friendly material.
8. Since the construction is more flexible it is possible, while keeping the same frame, to mount door leaves made of different kinds of wood, which makes it possible to alter the appearance at will.
9. A multiconstruction makes it possible to easily connect various types of equipment, such as a film screen, according to need.

Claims

1. A furniture system, comprising at least one dimensionally stable, plate-shaped element (1) with one or more groove-shaped openings(7), a number of rigid and elongate connecting elements (8) with a fastening element (9) at each of their ends and a separate, threaded fastening means (11) for releasably securing, in cooperation with said fastening element (9), each connecting element (8) in an associated groove-shaped opening (7) of the plate-shaped element (1), wherein at least one substantially duct-shaped section (2) is integrated in the plate-shaped element (1), which section (2) has a bottom wall (3), a pair of oppositely arranged and parallel side walls (4,5) and a top wall (6) opposite the bottom wall (3) with a groove-shaped opening (7) which is parallel to the side walls 4,5), and wherein the fastening means (11) has a cylindrical, threaded engagement surface for threaded engagement with the engagement surface of the fastening element (9) and at least two parallel side edges (12,13), the distances between the side edges (12, 13) being somewhat shorter than the distances between the side walls (4, 5) of the section (2), which fastening means (11) is arranged to be placed inside the section (2) and brought into clamping engagement with the fastening element (9) against the top wall (6), thereby securing the connecting element (8) to the plate-shaped element (1) with the projecting engagement surface of the fastening element (9) or the fastening means (11) positioned in the groove-shaped opening (7), **characterised in that** each connecting element (8) has a left-handed threaded fastening element (9) at one of its ends and a right-hand threaded fastening element (9) at its other, opposite end and **in that** each fastening element (9) has a cylindrical, threaded engagement surface, the centre axis of which extends along the longitudinal axis of the connecting element (8).

2. A furniture system as claimed in claim 1, **characterised in that** the plate-shaped element (1) comprises two or more parallel, duct-shaped sections (2) integrated therein.
3. A furniture system as claimed in any one of claims 1-2, **characterised in that** each plate-shaped element (1) has a mounting (15) at one of its ends for fastening a board or the like (16), which mounting (15) extends along the entire length of the element (1) and is oriented at an angle to the plate-shaped element (1) and integrated therewith.
4. A furniture system as claimed in claim 3, **characterised in that** each plate-shaped element (1) has a securing device (18) for securing a door leaf (19), which securing device is integrated with the plate-shaped element's (1) end opposite the end with the mounting (15) and extends along the entire length of the element (1).
5. A furniture system as claimed in any one of the preceding claims, **characterised in that** the plate-shaped element (1) has a hook lip (21) at each of its two opposite ends, which hook lips are integrated with the plate-shaped element (1) and which project from the plate-shaped element's (1) side opposite said groove (7) and extend along the entire length of the element (1), into which lips (21) a panel (23) is intended to be hooked.
6. A furniture system as claimed in any one of claims 3-5, **characterised in that** the mountings (15), the securing devices (18) and the lips (21) extend along the entire length of the plate-shaped element (1) and are parallel to said groove (7).
7. A furniture system as claimed in any one of the preceding claims, **characterised in that** the plate-shaped element (1) is an extruded product of plastic or aluminium material.
8. A furniture system as claimed in any one of the preceding claims, **characterised in that** the elongate connecting elements (8) are aluminium tubes with a threaded pin element (9) projecting from the respective ends, said pin element having a symmetry axis coinciding with that of the tube.

Patentansprüche

1. Möbelsystem, umfassend mindestens ein formstabiles plattenförmiges Element (1) mit einer oder mehreren rillenförmigen Öffnungen (7), eine Anzahl von starren und länglichen Verbindungselementen (8) mit einem Befestigungselement (9) an jedem ihrer Enden und ein getrenntes, mit Gewinde versehenes Befestigungsmittel (11) zum lösbaren Befestigen, in Zusammenarbeit mit dem Befestigungselement (9), jedes Verbindungselements (8) in einer zugeordneten rillenförmigen Öffnung (7) des plattenförmigen Elements (1), wobei mindestens ein im Wesentlichen kanalförmiger Abschnitt (2) in das plattenförmige Element (1) integriert ist, wobei dieser Abschnitt (2) eine untere Wand (3), ein Paar von einander gegenüberliegend angeordneten und parallelen Seitenwänden (4, 5) und eine der unteren Wand (3) gegenüberliegende obere Wand (6) mit einer rillenförmigen Öffnung (7), die zu den Seitenwänden (4, 5) parallel verläuft, aufweist, und wobei das Befestigungsmittel (11) eine zylindrische mit Gewinde versehene Eingriffsfläche für Gewindeeingriff mit der Eingriffsfläche des Befestigungselements (9) und mindestens zwei parallele Seitenkanten (12, 13) aufweist, wobei die Abstände zwischen den Seitenkanten (12, 13) etwas kürzer sind als die Abstände zwischen den Seitenwänden (4, 5) des Abschnitts (2), wobei das Befestigungsmittel (11) ausgebildet ist, um in dem Abschnitt (2) angeordnet und mit Befestigungselement (9) gegen die obere Wand (6) in Klemmeingriff gebracht zu werden, wodurch, mit der vorstehenden Eingriffsfläche des Befestigungselements (9) oder dem Befestigungsmittel (11) in der rillenförmigen Öffnung (7) positioniert, das Verbindungselement (8) an dem plattenförmigen Element (1) befestigt wird, **dadurch gekennzeichnet, dass** jedes Verbindungselement (8) an einem seiner Enden ein mit Linksgewinde versehenes Befestigungselement (9) aufweist und an seinem anderen, entgegengesetzten Ende ein mit Rechtsgewinde versehenes Befestigungselement (9) aufweist, und **dadurch**, dass jedes Befestigungselement (9) eine zylindrische mit Gewinde versehene Eingriffsfläche aufweist, deren Mittenachse sich die Längsachse des Verbindungselements (8) entlang erstreckt.
2. Möbelsystem nach Anspruch 1, **dadurch gekennzeichnet, dass** das plattenförmige Element (1) darin integriert zwei oder mehrere parallele kanalförmige Abschnitte (2) umfasst.
3. Möbelsystem nach einem beliebigen der Ansprüche 1-2, **dadurch gekennzeichnet, dass** jedes plattenförmige Element (1) an einem seiner Enden eine Aufnahme (15) zum Befestigen einer Platte oder dergleichen (16) aufweist, wobei sich die Aufnahme (15) die gesamte Länge des Elements (1) entlang erstreckt und in einem Winkel zu dem plattenförmigen Element (1) ausgerichtet und damit integriert ist.
4. Möbelsystem nach Anspruch 3, **dadurch gekennzeichnet, dass** jedes plattenförmige Element (1) eine Befestigungsvorrichtung (18) zum Befestigen eines Türblatts (19) aufweist, wobei die Befestigungsvorrichtung mit dem Ende des plattenförmigen Elements (1), das dem Ende mit der Aufnahme (15) entgegengesetzt ist, integriert ist und sich die gesamte Länge des Elements (1) entlang erstreckt.
5. Möbelsystem nach einem beliebigen der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** das plattenförmige Element (1) an jedem seiner beiden entgegengesetzten Enden eine Hakenlippe (21) aufweist, wobei die Hakenlippen mit dem plattenförmigen Element (1) integriert sind und von der Seite des plattenförmigen Elements (1), die der Rille (7) entgegengesetzt ist, vorstehen und sich die gesamte Länge des Elements (1) entlang erstrecken, wobei in die Lippen (21) ein Paneel (23) eingehakt werden soll.
6. Möbelsystem nach einem beliebigen der Ansprüche 3-5, **dadurch gekennzeichnet, dass** sich die Aufnahmen (15), die Befestigungsvorrichtungen (18) und die Lippen (21) die gesamte Länge des plattenförmigen Elements (1) entlang erstrecken und parallel zu der Rille (7) verlaufen.
7. Möbelsystem nach einem beliebigen der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** das plattenförmige Element (1) ein extrudiertes Produkt aus Kunststoff oder Aluminiummaterial ist.
8. Möbelsystem nach einem beliebigen der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die länglichen Verbindungselemente (8) Aluminiumrohre mit einem Gewindestiftelement (9), das von den jeweiligen Enden vorsteht, sind, wobei das Stiftelement eine Symmetrieachse aufweist, die jener des Rohres entspricht.

Revendications

1. Système de meuble, comprenant au moins un élément en forme de plateau de dimensions stables (1) comprenant une ou plusieurs ouvertures en forme de rainure (7), des éléments de connexion rigides et allongés (8) avec un élément de fixation (9) sur chacune de leurs extrémités et un moyen séparé et fileté de fixation (11) pour fixer en pouvant les séparer, en coopération avec ledit élément de fixation (9), chaque élément de connexion (8) dans une ouverture en forme de rainure (7) correspondante de l'élément

en forme de plateau (1), dans lequel au moins une section essentiellement en forme de tuyau (2) est intégrée dans l'élément en forme de plateau (1), laquelle section (2) présente un fond (3), une paire de parois latérales (4, 5) placées de manière opposée et parallèles, et un haut (6) opposé au fond (3) avec une ouverture en forme de rainure (7) qui est parallèle aux parois latérales (4, 5), et dans lequel le moyen de fixation (11) présente une surface d'engagement cylindrique et fileté pour l'engagement fileté avec la surface d'engagement de l'élément de fixation (9) et au moins deux bords latéraux parallèles (12, 13), les distances entre les bords latéraux (12, 13) étant quelque peu inférieures aux distances entre les parois latérales (4, 5) de la section (2), lequel moyen de fixation (11) est disposé pour être placé à l'intérieur de la section (2) et mis en engagement par serrage avec l'élément de fixation (9) contre le haut (6), fixant ainsi l'élément de connexion (8) à l'élément en forme de plateau (1) avec la surface d'engagement en saillie de l'élément de fixation (9) ou du moyen de fixation (11) positionnée dans l'ouverture en forme de rainure (7), **caractérisé en ce que** chaque élément de connexion (8) présente un élément de fixation fileté gauche (9) sur l'une de ses extrémités et un élément de fixation fileté droit (9) sur son autre extrémité opposée et **en ce que** chaque élément de fixation (9) présente une surface d'engagement cylindrique fileté, dont l'axe central s'étend le long de l'axe longitudinal de l'élément de connexion (8).

2. Système de meuble selon la revendication 1, **caractérisé en ce que** l'élément en forme de plateau (1) comprend deux ou plusieurs sections (2) parallèles en forme de tuyau intégrées dans celui-ci.

3. Système de meuble selon la revendication 1 ou 2, **caractérisé en ce que** chaque élément en forme de plateau (1) présente un montage (15) sur l'une de ses extrémités pour fixer un tableau ou similaire (16), lequel montage (15) s'étend le long de toute la longueur de l'élément (1) et est orienté à un angle par rapport à l'élément en forme de plateau (1) et intégré avec celui-ci.

4. Système de meuble selon la revendication 3, **caractérisé en ce que** chaque élément en forme de plateau (1) présente un dispositif de sécurisation (18) pour sécuriser un vantail de porte (19), lequel dispositif de sécurisation est intégré avec l'extrémité de l'élément en forme de plateau (1) opposée à l'extrémité avec le montage (15) et s'étend le long de toute la longueur de l'élément (1).

5. Système de meuble selon l'une quelconque des revendications précédentes, **caractérisé en ce que** l'élément en forme de plateau (1) présente une lèvre

de crochet (21) sur chacune de ses deux extrémités opposées, lesquelles lèvres de crochet sont intégrées avec l'élément en forme de plateau (1) et font saillie du côté de l'élément en forme de plateau (1) opposé à ladite rainure (7) et s'étendent le long de toute la longueur de l'élément (1), lèvres (21) dans lesquelles un panneau (23) est prévu d'être croché.

6. Système de meuble selon l'une quelconque des revendications 3 à 5, **caractérisé en ce que** les montages (15), les dispositifs de sécurisation (18) et les lèvres (21) s'étendent le long de toute la longueur de l'élément en forme de plateau (1) et sont parallèles à ladite rainure (7).

7. Système de meuble selon l'une quelconque des revendications précédentes, **caractérisé en ce que** l'élément en forme de plateau (1) est un produit extrudé en matériau plastique ou aluminium.

8. Système de meuble selon l'une quelconque des revendications précédentes, **caractérisé en ce que** les éléments de connexion allongés (8) sont des tubes aluminium avec un élément de tige fileté (9) faisant saillie des extrémités respectives, ledit élément de tige ayant un axe de symétrie coïncidant avec celui du tube.

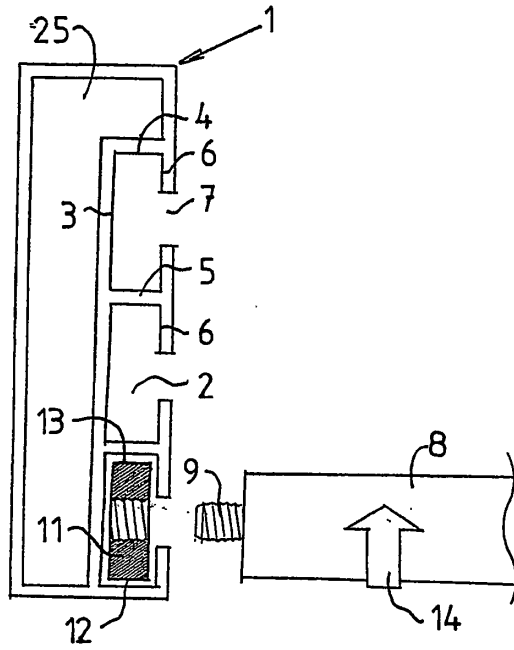


FIG 1

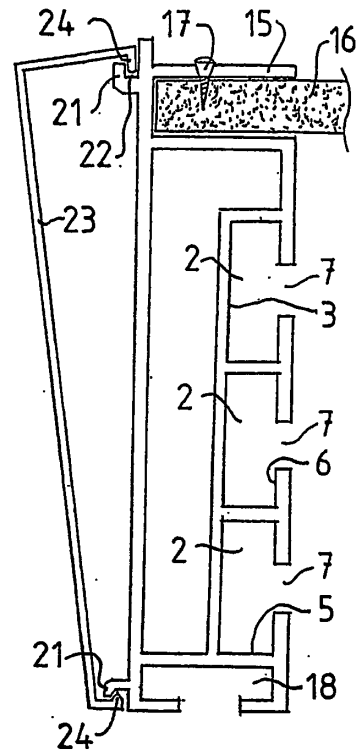


FIG 2

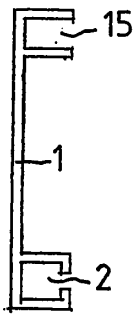


FIG 3

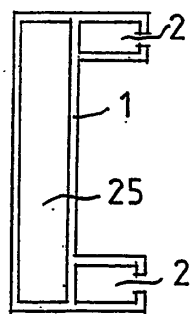


FIG 4

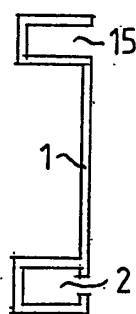


FIG 5

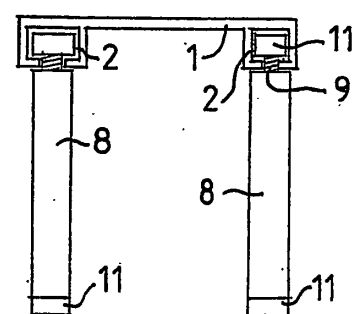


FIG 6

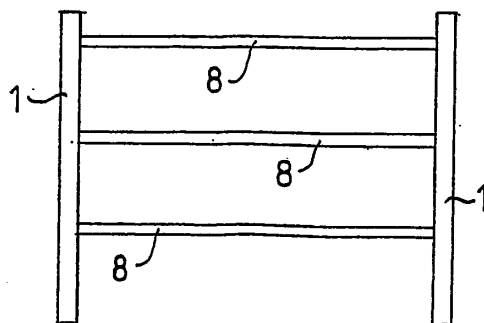


FIG 7

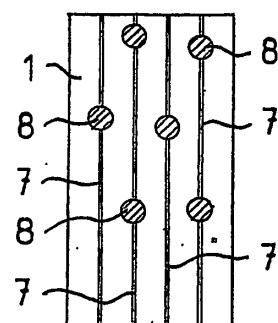


FIG 8

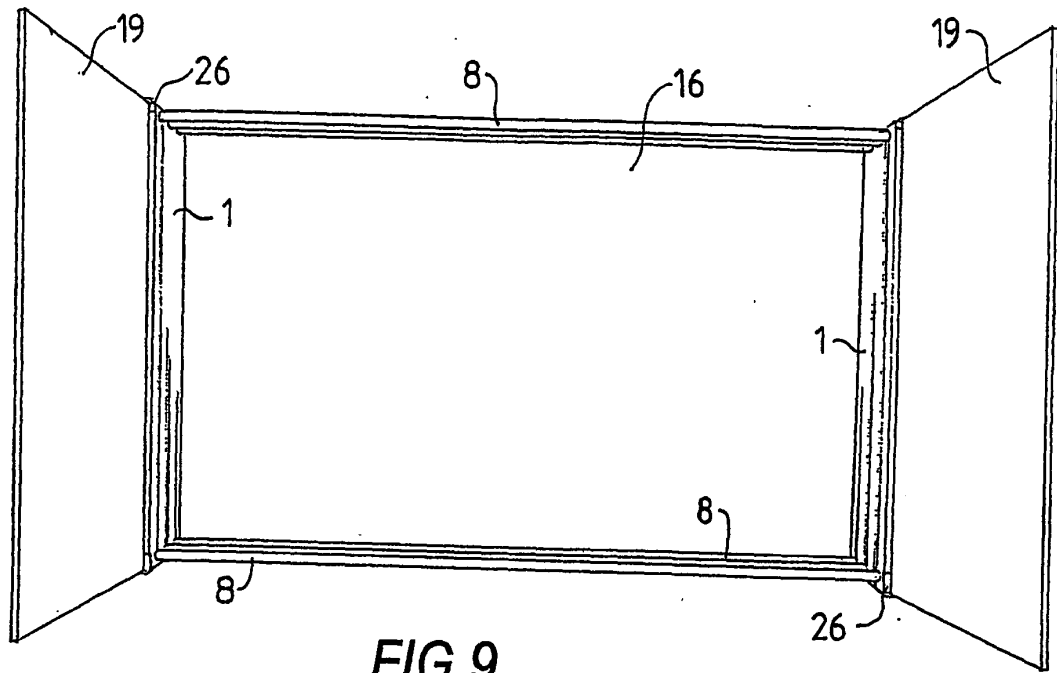


FIG 9

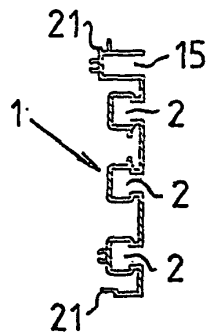


FIG 11

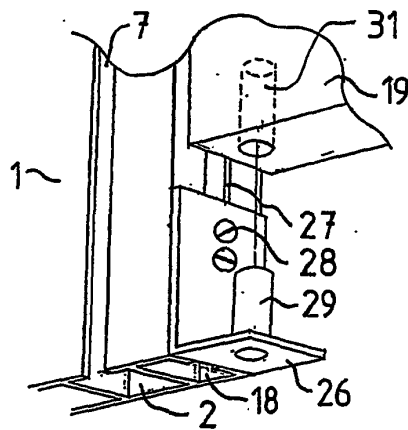


FIG 12

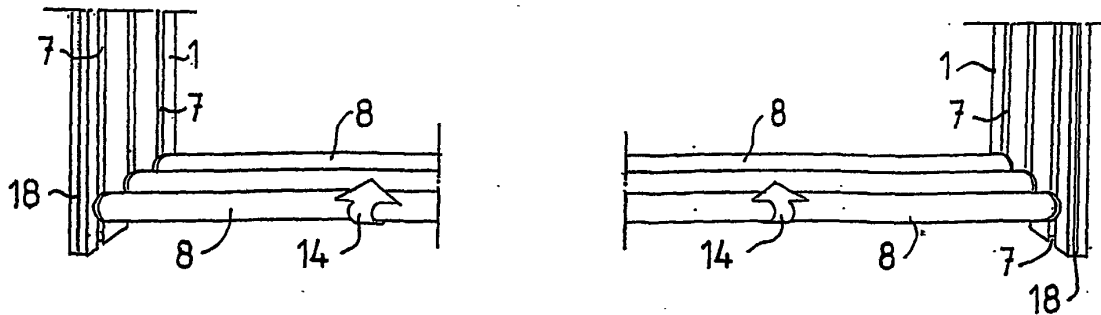


FIG 10

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 6086172 A [0003]
- DE 8607682 U [0004]
- EP 0884010 A [0005]