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(54) **Method of erecting a partition wall integrated with a concrete floor**

Verfahren zur Montage einer im Betonboden integrierten Trennwand

Procédé de montage d'une Cloison intégrée dans un sol en béton

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US-A- 3 195 698
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Description

OBJECT OF THE INVENTION

[0001] The object of the present invention is a procedure for construction of partitions using siding boards, as well as the partitions obtained by this procedure. The materials used for the siding boards in the construction of the partitions may be various, including conglomerate panels, wood and layered plaster boards or molding plaster. Partitions constructed from layered plaster boards or other materials require, prior to mounting the layered plaster boards, to dispose a frame made of metal profiles to define a support for said boards.

[0002] Layered plaster boards used to construct partitions comprise a plaster frame covered with two layers of special multiple-sheet cellulose, and are provided as boards of different thickness.

[0003] At building sites, after the floor slabs are built and cleared, the inner partitions must be set out. When the partitions are made of layered plaster boards or wooden boards the setting out must be performed placing the partition frame, made of metal profiles. Finally, after the partition frames are secured in place the layered plaster boards or wooden boards are attached. Such a partition wall is disclosed for example by CA-A-2 432 245.

[0004] The present invention of a construction procedure for partitions using siding boards is characterised in that this is performed in a conceptually different manner than currently and conventionally performed, resulting in reduced labour in the setting out of the partition and in the subsequent work on the various installations.

[0005] Therefore, the present invention lies in the field of civil works and specifically in construction of partitions formed from layered plaster or wooden boards.

BACKGROUND OF THE INVENTION

[0006] Hitherto, the construction of partitions with siding boards required setting out the frame or structure that supports said boards prior to any other work.

[0007] The setting out begins from the ceiling, placing the metal profiles on which the vertical posts will be placed later. After said profiles are attached to the ceiling, the various trades may begin their installation work, albeit only partially.

[0008] For example, after the partitions are set out on the ceiling the electricians may begin to lay out corrugated tubes, trays and the like, and to attach distribution boxes, using as a guide the profiles attached to the ceiling. Tubes leave from the distribution boxes to the approximate areas where electrical sockets, data connectors or switches will be placed, all of these only in an approximate position.

[0009] A similar situation occurs with the remaining trades, such as plumbers. Not all trades can work simultaneously, nor finish their installations completely. After the tubes and the like are first set in place the vertical posts are installed, placing only one of the partition sides so that the trades may continue their work; finally, the partition installers must place the siding boards and the various trades must finish their installations.

[0010] It is therefore necessary to coordinate the partition installers and the various trades, as they must alternate.

[0011] The construction procedure disclosed herein intends to avoid all of the aforementioned drawbacks, and more specifically to:

- Improve the setting out of the partitions by constructing the entire frame of the partitions at once, instead of in several stages;
- Prevent having to coordinate the work of the partition installers and the installers of the various trades;
- Allow the installers of the various trades to perform almost all of their work at one time, except for the final touches;
- Allow the installers of the various trades to perform their installations in a much more accurate manner, leaving the connection points at their exact location instead of at an approximate one;
- Allow the installers of the various trades to operate simultaneously instead of consecutively.

[0012] It is known from the State of the Art, the existence of procedure for construction of partitions walls as the ones described in US 3195698 and NL-8603201. In US 3195698 is disclosed a partition wall construction of random type which is distinguished by placing on the floor of duct-like parts in accordance with the previously determined pattern of division, lying of lines of various types in these duct-like parts and on the rough floor of a finishing layer. The duct-like parts serve as a basis for the partition walls to be placed on them. The upper surfaces of the elements are provided with markings, such as the peripheral edge or a relief, such that the markings on the elements together form a matrix.

[0013] In US 3195698 it is disclosed a procedure for construction partition walls wherein the partitions walls is based on the use of hollow base members, hollow corner posts and hollow door jambs. As it is stated in the description the partitions walls seeks to provide structures which are in low cost, simple and sturdy construction, it also allows to fabricate any desired type of inside construction, wherein additionally the structural elements serves to several functions.

DESCRIPTION OF THE INVENTION

[0014] The object of the invention of a procedure for construction of partitions with siding boards comprises the following stages:

- Setting out in a cleared floor slab partition walls;
- Laying out and attaching the attachment profiles to the floor;

- Attaching the vertical posts from the floor to the ceiling; these vertical posts will be attached at strategic points;
- Laying out and attaching the raised support profiles placed between two end vertical posts; these support profiles will be placed at a height equivalent to the height of the mortar, so that the profiles will rest on the mortar or cement and can be accessed from the top;
- Laying out and attaching the raised profiles of the vertical posts; the vertical posts will be evenly spaced.

[0015] Then, to continue mounting the installations, the following is carried out:

- Laying out and attaching the ducts of all the installations on the floor: electrical, communications, heating, etc.;
- Making orifices on the raised profile;
- Passing the ducts through the orifices made on the base of the raised profile;
- Pouring the mortar or concrete to a height such that the raised support profile rests on the concrete, so that all ducts are immersed in the mortar;
- Attaching the raised profile to the mortar or concrete after it has set using screws or the like.

The construction procedure for partition frames described above provides a number of advantages:

- The setting out of the partitions in much easier as it is performed directly on the floor
- Installers can lay out their ducts faster, more easily and with greater security regarding the location of the connection points;
- After the installation has been set out the installers can work simultaneously;
- The installers can leave the installations ready except for the final touches;
- 20% saving in the labour cost of constructing the partitions with siding boards;
- Similar 20% savings in the labour costs of trade installers;
- It is not necessary to plan a sequence of work for the installers and siding board mounters, so that the execution time of the work is substantially reduced.

DESCRIPTION OF THE DRAWINGS

[0016] To complete the description being made and in order to aid a better understanding of its characteristics, the present descriptive memory is accompanied by a set of drawings with figures representing the most significant details of the invention, for purposes of illustration only and in a non-limiting manner.

Figure 1 shows a perspective representation of the bottom part of the frame of the partitions made with siding boards.

Figure 2 shows an enlarged view of a right-angle union of two raised profiles.

PREFERRED EMBODIMENT OF THE INVENTION

[0017] A preferred embodiment of the invention taught is described below with reference to the figures.

[0018] Figure 1 shows the parts and components that conform the frame of the partition for partition boards, with a different arrangement of the profiles compared to what is commonly used, as well as the manner in which said partition frame is used and interferes the assembly of the partition itself and the remaining installations.

[0019] The frame made with conventional profiles has some bottom support profiles (1) on which vertical profiles or posts (3) are placed and attached, therefore resting on the floor slab and laid out reaching the ceiling, where they are attached by other profiles similar to those on the floor.

[0020] The vertical profiles (3) resting on the floor are placed at strategic points such as wall changes or very long segments. Between each two vertical posts (3) an raised profile (2) is attached at a distance (8) from the floor slab.

[0021] The raised profiles (2) can be attached to the vertical profiles (3) in various manners, such as a flat L-plate (5) attached to the flanges of both profiles by screws (10).

[0022] The profiles acting as vertical posts (4) are attached to the inside of the raised profiles (2). The attachment of said vertical posts (4) to the flanges of the raised profile (2) is performed by passing fixing screws (6) that attach both flanges of the profiles.

[0023] The height (8) at which the raised profile (2) is placed with respect to the floor slab is the same as the thickness or depth of the mortar, so that after the latter is poured the raised profile (2) will rest on the mortar.

[0024] After the mortar of concrete poured has set, the raised profile (2) is secured by screws (7) or the like.

[0025] As mentioned above, before the mortar is poured the installers of the various trades will lay out the ducts and tubes on the ground, so that they jut out at the base of the raised profile (2) where required with great accuracy, as the base of said profiles has been previously drilled.

[0026] In this manner, after the mortar or concrete has been poured it is possible to place both faces of the siding boards, so that the installers can then finish their installations easily, as the ducts have been laid out accurately.

[0027] The siding boards may be made of layered plaster, molding plaster, solid wood or conglomerate covered in melamine, etc.

[0028] Figure 2 shows how two segments of raised profile (2) at an angle to each other are connected and attached by angle plates (9) secured by screws (11) to

the flanges of both profiles.

[0029] Although the constructive end product is the same, the mounting process is different and has significant constructive consequences when mounting the partition and when carrying out installation work of the various trades, such as electricians or plumbers. In summary, this process provides a clearly different conception that implies savings of labour on the order of 20% for the partition mounters, as well as labour savings of also 20% for the trade installers.

Claims

1. Procedure for construction of partitions with siding boards, said partitions having a frame made with metal profiles on which siding boards are attached, comprising the following stages:

- setting out in a cleared floor slab the partition walls;
- laying out and attaching bottom support profiles (1) to the floor;
- attaching vertical profiles (3) from the floor to the ceiling; these vertical profiles (3) being attached at strategic points;

characterised in that said procedure further comprises:

- laying out and attaching raised profiles (2) placed between two end vertical profiles (3);
- laying out and attaching vertical posts (4) on the raised profiles (2); the vertical posts (4) being evenly spaced subsequently, to continue mounting the installations, the following is carried out:
- laying out and attaching ducts of all the installations on the floor: electrical, communications, heating, etc.;
- making orifices on the raised profiles (2);
- passing the ducts through the orifices made on the base of the raised profile (2);
- pouring mortar or concrete to a height such that the raised profiles (2) rest on the concrete, so that all ducts are immersed in the mortar or concrete;
- attaching the raised profiles (2) to the mortar or concrete after it has set using screws or the like.

2. Procedure for construction of partitions with siding boards according to claim 1, **characterised in that** the height at which said raised profiles (2) are placed is equivalent to the height of the mortar, so that said raised profile rests on the mortar and is accessible from its top.

3. Procedure for construction of partitions with siding boards according to claim 1, **characterised in that** the raised profiles (2) are attached to the vertical profiles (3) by an L-plate (5) attached to the flanges of both said profiles by screws.

4. Procedure for construction of partitions with siding boards according to claim 1, **characterised in that** the vertical posts (4) are attached to the raised profiles (2) on which they are placed by means of through screws that attach both flanges of the raised profiles (2) with flanges of the vertical posts (4).

5. Procedure for construction of partitions with siding boards according to claim 1, **characterised in that** to link and attach two raised profiles (2) that are at an angle to each other angle plates (9) are used attached by screws (11) to the flanges of both profiles.

6. Procedure for construction of partitions with siding boards according to any of the previous claims, **characterised in that** the siding boards used are layered plaster boards.

7. Procedure for construction of partitions with siding boards according to any of the previous claims, **characterised in that** the siding boards used are wood boards.

8. Partition made with siding boards, said partition obtainable by the procedure according to claim 1 and consisting of:

- bottom supporting profiles (1) attached to a floor slab;
- vertical profiles (3) disposed on and attached to said bottom support profiles (1), reaching the ceiling, where the vertical profiles (3) are attached to other profiles similar to the bottom support profiles (1) on the floor;

characterised in that said partition further comprises:

- raised profiles (2) attached between two vertical profiles (3) at a height (8) above the surface of the floor slab, whereby the raised profiles (2) rest on mortar or concrete which has been poured on the floor stab;
- vertical posts (4) which are attached to the raised profiles (2) with a regular spacing, and siding boards which enclose the entire assembly.

9. Partition made with siding boards according to claim 8, **characterised in that** the means of attachment of the raised profiles (2) to the vertical profiles (3) is an L-plate (5).

Patentansprüche

1. Verfahren zur Konstruktion von Trennwänden mit Verkleidungsbrettern, wobei die Trennwände einen Rahmen aufweisen, der aus Metallprofilen hergestellt ist, auf denen Verkleidungsbretter befestigt werden, umfassend die folgenden Schritte:

- Anordnen der Trennwände auf einer freigeräumten Bodenplatte;
- Anbringen und Befestigen der unteren Stützprofile (1) an den Boden;
- Befestigen von vertikalen Profilen (3) vom Boden zur Decke; wobei diese vertikalen Profile (3) an strategischen Punkten befestigt werden;

dadurch gekennzeichnet, dass das Verfahren weiter umfasst:

- Anbringung und Befestigung von erhöhten Profilen (2), die zwischen zwei vertikalen Endprofilen (3) angebracht sind;
- Anbringung und Befestigung von vertikalen Pfosten (4) auf den erhöhten Profilen (2); wobei die vertikalen Pfosten (4) gleichmäßig beabstandet sind

dann wird, um mit der Montage der Installationen fortzufahren, Folgendes durchgeführt:

- Anbringung und Befestigung von Rohren für alle Installationen auf dem Boden; Elektrik, Kommunikationen, Heizung usw.;
- Anbringung von Löchern in den erhöhten Profilen (2);
- Durchführung der Rohre durch die Löcher, die auf der Basis des erhöhten Profils (2) gemacht sind;
- Gießen von Mörtel oder Beton bis zu einer Höhe, dass die erhöhten Profile (2) auf dem Beton ruhen, so dass alle Rohre in den Mörtel oder den Beton eingetaucht sind;
- Befestigung der erhöhten Profile (2) auf dem Mörtel oder dem Beton, nachdem er sich verfestigt hat, unter Verwendung von Schrauben oder Ähnlichem.

2. Verfahren zur Konstruktion von Trennwänden mit Verkleidungsbrettern nach Anspruch 1, **dadurch gekennzeichnet, dass** die Höhe, in der die erhöhten Profile (2) angebracht sind, gleich der Höhe des Mörtels ist, so dass das erhöhte Profil auf dem Mörtel ruht und von oben zugänglich ist.

3. Verfahren zur Konstruktion von Trennwänden mit Verkleidungsbrettern nach Anspruch 1, **dadurch gekennzeichnet, dass** die erhöhten Profile (2) durch eine L-Platte (5), die auf die Flansche von beiden Profilen durch Schrauben befestigt ist, an die vertikalen Profile (3) befestigt sind.

4. Verfahren zur Konstruktion von Trennwänden mit Verkleidungsbrettern nach Anspruch 1, **dadurch gekennzeichnet, dass** die vertikalen Pfosten (4) an die erhöhten Profile (2) befestigt sind, auf denen sie mithilfe von Durchsteckschrauben angebracht sind, die beide Flansche der erhöhten Profile (2) an Flansche der vertikalen Pfosten (4) befestigen.

5. Verfahren zur Konstruktion von Trennwänden mit Verkleidungsbrettern nach Anspruch 1, **dadurch gekennzeichnet, dass**, um zwei erhöhte Profile (2), die zueinander in einem Winkel stehen, zu verbinden und zu befestigen, Spannwinkel (9) verwendet werden, die mit Schrauben (11) an die Flansche beider Profile befestigt sind.

6. Verfahren zur Konstruktion von Trennwänden mit Verkleidungsbrettern nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Verkleidungsbretter, die verwendet werden, Bretter aus geschichtetem Putz sind.

7. Verfahren zur Konstruktion von Trennwänden mit Verkleidungsbrettern nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Verkleidungsbretter, die verwendet werden, Bretter aus Holz sind.

8. Trennwand, hergestellt aus Verkleidungsbrettern, wobei die Trennwand durch das Verfahren nach Anspruch 1 erhalten werden kann und aus Folgendem besteht:

- untere Stützprofile (1), die an eine Bodenplatte befestigt sind;
- vertikale Profile (3), die auf den unteren Stützprofilen (1) angebracht und daran befestigt sind und zur Decke reichen, wo die vertikalen Profile (3) an andere Profile befestigt sind, die ähnlich den unteren Stützprofilen (1) auf dem Boden sind;

dadurch gekennzeichnet, dass die Trennwand weiter umfasst:

- erhöhte Profile (2), die zwischen zwei vertikalen Profilen (3) auf einer Höhe (8) über der Fläche der Bodenplatte befestigt sind, wobei die erhöhten Profile (2) auf Mörtel oder Beton ruhen, der auf die Bodenplatte gegossen wurde;
- vertikale Pfosten (4), die an den erhöhten Profilen (2) in regulären Abständen befestigt sind, und Verkleidungsbretter, die den gesamten Aufbau umfassen.

9. Trennwand, hergestellt aus Verkleidungsbrettern nach Anspruch 8, **dadurch gekennzeichnet, dass** das Mittel zur Befestigung der erhöhten Profile (2) an die vertikalen Profile (3) eine L-Platte (5) ist.

Revendications

1. Procédure pour la construction de cloisons à panneaux latéraux, ces cloisons disposant d'un châssis fait en profils métalliques, dans lesquels sont assemblés les panneaux latéraux, procédure comprenant les étapes suivantes :

- fixation des cloisons de séparation sur une petite dalle de sol dégagée;
- fixation et assemblage des profils de support inférieurs (1) au sol ;
- assemblage des profils verticaux (3) du sol au plafond, ces profils verticaux (3) étant assemblés à des points stratégiques

se caractérisant en outre, par le fait que cette procédure comprend aussi :

- de déposer et assembler des profils en relief (2) situés entre deux profils verticaux aux extrémités (3) ;
- de déposer et assembler des supports verticaux (4) dans les profils en relief (2), ces supports verticaux (4) étant uniformément espacés et ensuite, continuer le montage des installations, en réalisant ce qui suit :
- déposer et assembler des conduits de toutes les installations dans le sol : électriques, de communications, chauffage, etc. ;
- réaliser des orifices dans les profils en relief (2) ;
- faire passer les conduits à travers les orifices réalisés sur la base du profil en relief (2) ;
- verser le mortier ou le béton à une hauteur suffisante pour que les profils en relief (2) s'appuient sur le béton, de sorte que les conduits soient enfouis dans le mortier ou le béton ;
- assembler les profils en relief (2) au mortier ou béton, après les avoir fixés à l'aide de vis ou d'éléments similaires.

2. Procédure pour la construction de cloisons à panneaux latéraux selon la revendication 1, **caractérisée par le fait que** la hauteur à laquelle sont disposés ces profils en relief (2) est égale à la hauteur du mortier, de sorte que le profil en relief s'appuie sur le mortier et est accessible par sa partie supérieure.

3. Procédure pour la construction de cloisons à panneaux latéraux selon la revendication 1, **caractérisée par le fait que** les profils en relief (2) sont assemblés aux profils verticaux (3) à l'aide d'une plaque en L (5) unie aux brides de ces profils au moyen de vis.

4. Procédure pour la construction de cloisons à panneaux latéraux selon la revendication 1, **caractérisée par le fait que** les supports verticaux (4) sont assemblés aux profils en relief (2) sur lesquels ils sont placés, au moyen de vis passantes qu'unissent les deux brides des profils en relief (2) à l'aide des brides des supports verticaux (5).

5. Procédure pour la construction de cloisons avec des panneaux latéraux selon la revendication 1 **caractérisée par** le fait de relier et d'unir deux profils en relief (2) formant un angle entre eux, se l'on utilise d'autres plaques en angle (9) assemblées au moyen de vis (11) aux brides des deux profils.

6. Procédure pour la construction de cloisons à panneaux latéraux selon l'une des revendications précédentes, **caractérisée par le fait que** les panneaux latéraux utilisés sont des panneaux en plâtre en couches.

7. Procédure pour la construction de cloisons à panneaux latéraux selon l'une des revendications précédentes, **caractérisée par le fait que** les panneaux latéraux utilisés sont des panneaux en bois.

8. Cloison obtenue avec des panneaux latéraux, cette cloison étant créée au moyen de la procédure selon la revendication 1, **caractérisée par le fait qu'**elle consiste en :

- des profils de support inférieurs (1) assemblées à une petite dalle du sol;
- des profils verticaux (3) disposés sur, et assemblés à ces profils de support inférieurs (1), qui atteignent le plafond, dans lesquels les profils verticaux (3) sont assemblés à d'autres profils similaires aux profils de support inférieurs (1) au sol comprenant ces cloisons, et en plus :
- des profils en relief (2) assemblés entre deux profils verticaux (3) à une hauteur (8) supérieure à la surface de la dalle de sol, de sorte que les profils en relief (2) s'appuient sur le mortier ou le béton qui aura été versé sur la dalle du sol
- supports verticaux (4) qui sont assemblés aux profils en relief (2) avec un espace régulier et des plaques latérales qui referment l'ensemble complet

9. Cloison fabriquée avec des panneaux latéraux, selon la revendication 8, **caractérisée par le fait que** les dispositifs d'union des profils en relief (2) aux profils verticaux (3) est constitué par une plaque en forme de L (5).

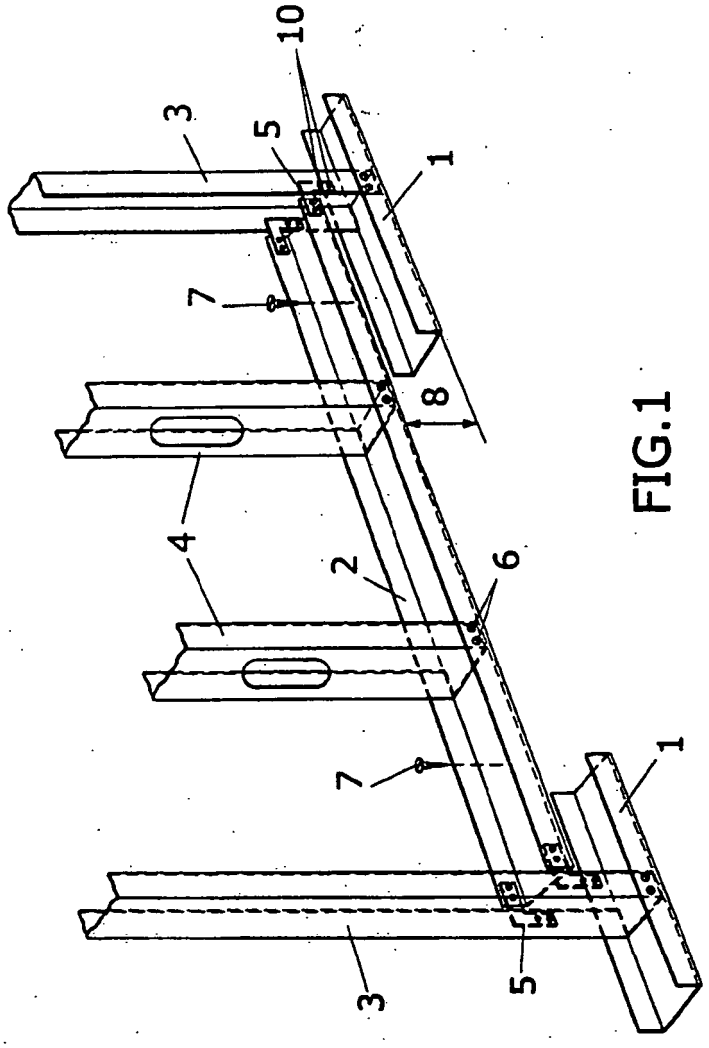

FIG.1

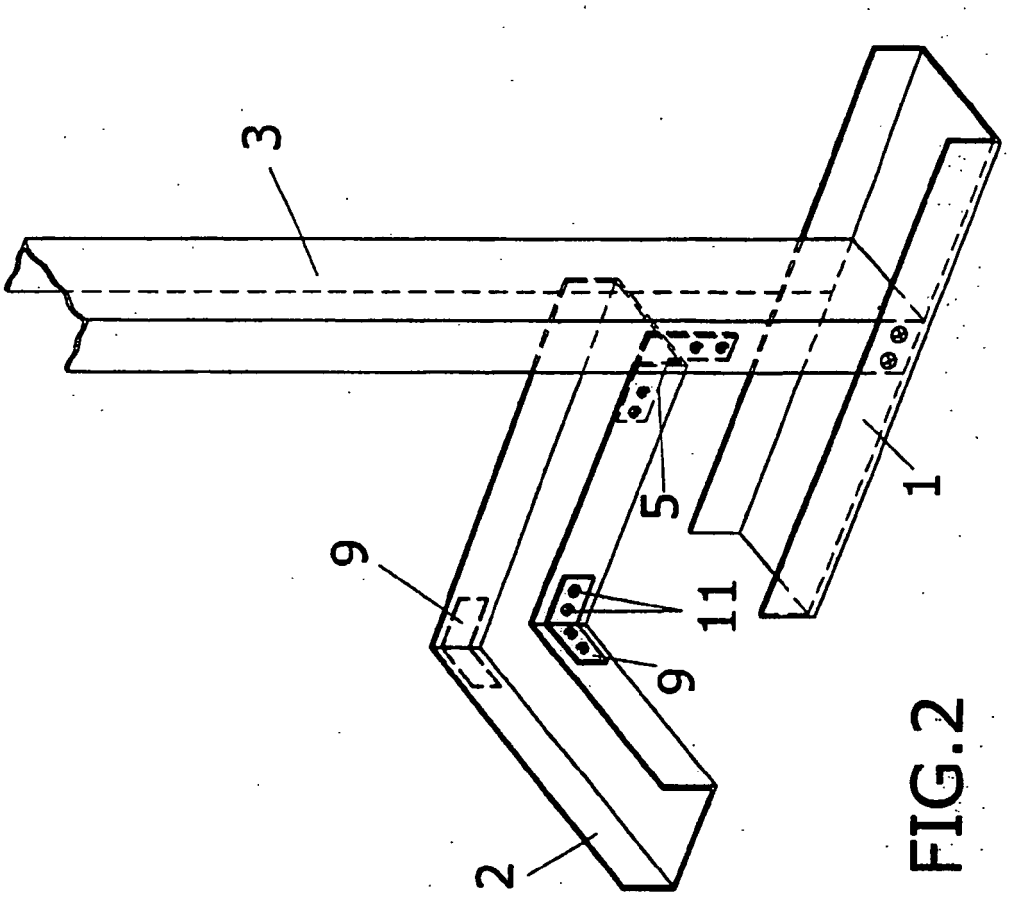

FIG.2

REFERENCES CITED IN THE DESCRIPTION

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- US 3195698 A **[0012] [0012] [0013]**
- NL 8603201 **[0012]**