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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 :
E04G 21/26, E04B 2/74, E04F 19/06

A1

(11) International Publication Number: **WO 98/33995**

(43) International Publication Date: 6 August 1998 (06.08.98)

(21) International Application Number: PCT/NL98/00031

(22) International Filing Date: 19 January 1998 (19.01.98)

(30) Priority Data:
1005145 31 January 1997 (31.01.97) NL

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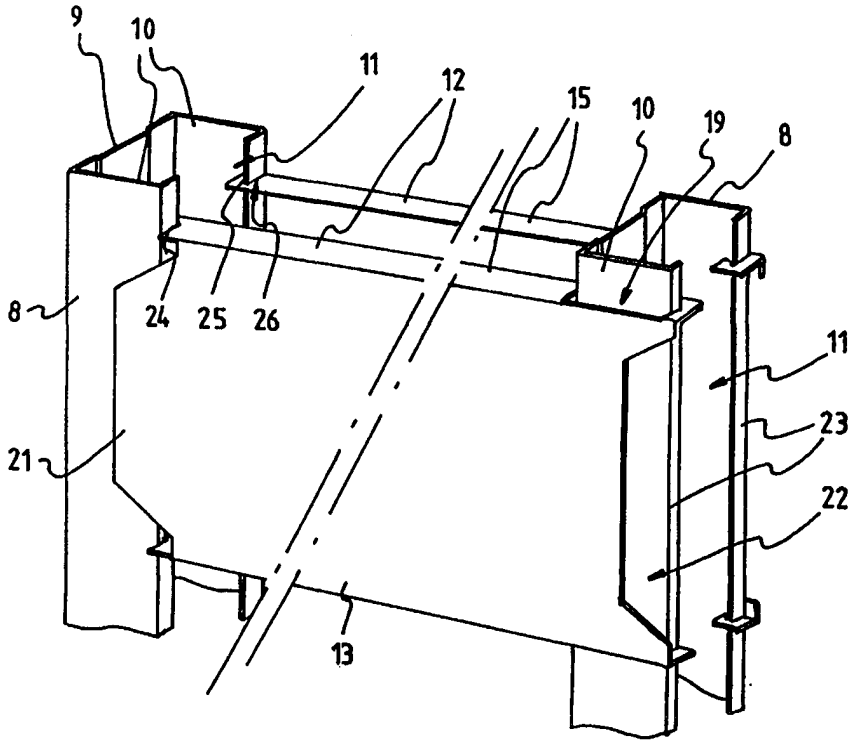
(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).

Published
With international search report.

(54) Title: MOUNTING PLATE FOR A PARTITION SYSTEM

(57) Abstract

Reinforcement plate or mounting plate (12) for locally reinforcing a partition system, which wall comprises a number of uprights or pillars (8), and each pillar (8) of which comprises a C–shaped profile part, to which pillars (8) are attached wall parts, such as for example plasterboards, in order in this way to form a partition (1). The reinforcement plate (12) comprises a planar metal plate which is provided with connecting means, with which the plate (12) can be connected with a clamping fit both to a first pillar (8), on one side, and to a successive pillar (8) on the other side. The connecting means comprise, on the one hand, hook–like members (17) and, on the other hand, gripping members (20), which hook members (17) can interact with an upright (8) and the gripping members (20) can interact with the next, second pillar (8), which is placed adjacent to the first pillar (8).



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Short title: Mounting plate for a partition system

The invention relates to a reinforcement plate or mounting plate for locally reinforcing an assembled wall or partition system, comprising a number of pillars, which are placed at a specific distance from one another and each pillar of which comprises a C-shaped profile part, to which pillars are attached for example plasterboards, in order in this way to form a partition.

Large areas in buildings, houses, etc., frequently have to be split up into smaller areas. Partitions are put in position for this purpose. A known partition which can be put in position easily and rapidly comprises one or more U-shaped profile parts, which serve as joists and are placed on the floor where the partition is to be placed. Uprights or pillars, which comprise C-shaped profile parts, are then placed at regular distances from one another in the upwardly directed, open U-shape of the joist. Each pillar is placed with the opening on the same side. Panels, for example plasterboards, are then attached to the frame of the uprights or pillars. After one side of the wall has been provided with plasterboards, rock wool is arranged in the wall as a filling, whereupon the other side of the wall is covered with plasterboards.

A drawback of walls of this kind which comprise uprights covered with plasterboards is that it is not possible to attach anything to the wall between the pillars, since the plasterboards are only able to sustain a very light load.

To counteract this drawback, it is known to reinforce the wall in advance, before the plasterboards are attached, at the location where a washbasin, a tap or some other heavy item is later to be attached. For this purpose, a wooden panel is attached to the two successive uprights with the aid of bolts or screws. Attaching such panels entails considerable work and hence considerable extra cost.

The object of the invention is to provide a reinforcement plate for a wall composed of uprights to which a number of panels, such as plasterboards, are attached, which plate can easily be arranged between two successive pillars or uprights of a partition without having to use auxiliary means, such as bolts, screws or the like, with the result that objects such as a washbasin or the like can be attached to the wall at the location where the reinforcement plate is arranged.

This object according to the invention is achieved using a reinforcement plate by the fact that the reinforcement plate comprises a planar metal plate which is provided with connecting means, with which the plate can be connected with a clamping fit both to a first pillar, on one side, and to a successive pillar, on the other side.

Using a reinforcement plate of this kind according to the invention, it is possible to attach a metal plate to the desired locations to be reinforced after the uprights have been put in position or while the uprights are being put in position, it being possible to clamp or click this metal plate between two successive pillars using only clamping means. After the metal reinforcement plate has been attached, it is covered with the plasterboards and it is then possible to attach, for example, a washbasin, a tap or other items to the wall at the location where the reinforcement plate is arranged without the risk of the plasterboards crumbling on the outside wall of plasterboards.

In a preferred embodiment according to the invention, the connecting means which fasten the reinforcement plate to the uprights comprise, on the one hand, hook-like members and, on the other hand, gripping members, which hook members can interact with an upright and the gripping members can interact with the next, second pillar, which is placed adjacent to the first pillar. A reinforcement plate or mounting plate of this kind can be arranged between two pillars very quickly and without great difficulty, without

using further auxiliary means.

Numerous other designs of reinforcement plates according to the invention are possible. Some of these are illustrated in the drawing.

The invention will be explained in more detail with reference to the drawing, in which:

Fig. 1 shows the frame of a wall with a number of reinforcement plates according to the invention;

Fig. 2 shows a preferred embodiment of a reinforcement plate according to the invention;

Fig. 3 shows another possible embodiment of a reinforcement plate according to the invention;

Fig. 4 shows a third possible embodiment of a reinforcement plate according to the invention;

Fig. 5 shows a fourth possible embodiment of a reinforcement plate according to the invention;

Fig. 6 shows the preferred embodiment as illustrated in Figure 2 of the reinforcement plate according to the invention in the unfolded state;

Fig. 7 shows a detail of the reinforcement plate in accordance with Figure 6;

Fig. 8 shows another detail of the reinforcement plate in accordance with Figure 6;

Fig. 9 shows two uprights of a partition, with reinforcement plates in accordance with Figure 2 placed between them.

Figure 1 shows a partition 1 to be constructed, comprising a U-shaped joist 2, which is attached to the floor 4 with the open side 3 facing upwards, and a U-shaped longitudinal joist 5, which is attached to the ceiling 7 with the open side 6 facing downwards. The upper joist 5 is placed directly above the lower joist 2, the open sides 3, 6 of the two joists 2, 5 facing towards one another. A number of

uprights or pillars 8, which are formed from C-shaped section, are placed between the two U-shaped longitudinal joists 2 and 5, at a mutual distance which depends on the width of the panels which are to be attached to the uprights 5. The C-shaped section of the uprights 8 comprises a rear wall 9, which is provided on both sides with side walls 10 and with an open side 11 situated opposite the rear wall. The open side 11 of all the uprights 8 always faces in the same direction. A number of reinforcement plates or mounting plates 12 according to the invention are arranged at the same height between in each case two successive uprights 8. These mounting plates 12 are made from sheet metal, for example sheet steel. Wall panels, for example plasterboards, are attached to the uprights 8 on both the front and the rear sides. After the wall panels have been attached to one side of the wall, a layer of insulating material, such as rock wool, is placed in the wall, after which the other side of the wall is covered with wall panels. Relatively heavy objects, such as for example a washbasin can be attached to the wall at the location of the mounting plate 12.

Figures 2, 3, 4 and 5 show a number of possible embodiments of reinforcement plates 12 according to the invention. Figure 2 shows a preferred embodiment of the reinforcement plate 12 according to the invention. The plate 12 comprises a surface 13 with a projecting upper edge 14 and a projecting lower edge 15, which are flanged at a right angle. The lower edge 15 and the upper edge 14 project in the same direction, so that the mounting plate 12 is planar on one side. One end 16 of both the upper edge 14 and the lower edge 15 is provided with a hook-like member or part 17. An L-shaped opening 19 is made in the region of the other end 18 of both the upper edge 8 and the lower edge 9, leaving a gripping member in the form of an L-shaped part 20, which serves to hook around the edge of the side wall 10 on the open side 11 of a C-shaped upright 8. Between the ends 16 of the upper edge 14 and the lower edge 15, the surface 13 comprises a trapezoidal widening 21. A cutout 22, the

periphery of which essentially corresponds to the periphery of the widening 21, is made in the surface 13 at the side situated opposite to this widening 21. This embodiment is illustrated in more detail in Figures 6 to 9. As illustrated in Figure 9, the open side 11 of the upright 8 is bordered on either side by a flanged edge 23 of the side walls 10. Two mounting plates 12 are arranged on either side of two adjacent uprights 8. The side wall 10 of one of the uprights 8 is accommodated in the L-shaped openings 19 at the end 18 of the upper edge 14 and the lower edge 15. The L-shaped part 20 thus engages around the flanged edge 23 of the upright 8. At the other end of the mounting plate 12, the side wall 10 of the upright 8 is clamped between, on the one hand, the widening 21, which is situated on the outside of the upright 8, and the flanged hook-like part 17. This hook-like part 17 comprises an extension 24 of the upper and lower edges 14, 15, respectively. This extension 24 has a narrowed end 25. A small cutout 26 is made between the narrowed end 25 and the remaining part of the extension 24. When the side wall 10 of an upright is pushed between the widening 21 and the narrowed end 25 of the hook-like part 17, the flanged edge 23 of the upright 8 is received in the cutout 26 and is enclosed between the hook-like part 17 and the widening 21.

Figure 6 shows a blanked plate 27, from which a mounting plate 12 can be produced by flanging the edges 14, 15. Figure 7 shows in detail the L-shaped part 20 and the adjacent L-shaped opening 19, in the unfolded state of the mounting plate 12. In order to attach the side wall 10 of an upright 8 in the L-shaped opening 19, the flanged edge 23 of the upright 8 is first pushed into the opening 19 until it lies behind the L-shaped part 20. To simplify this operation, the L-shaped part 20 is provided with a bevel 28. The side wall 10 of the upright 8 is then rotated in the opening 19 until the side wall 10 strikes the edge of the surface 13. The upper edge 14 and the lower edge 15 are provided with an inclined side 29 on the sides which adjoin the openings 19. After the side wall 10 has been attached

in the L-shaped opening 19, the end of the inclined side 29 clamps against the rear wall 9 of the upright 8. As shown in Figure 9, the rear wall of the upright 8 is often slightly recessed locally, in order to provide the upright 8 with greater rigidity. The inclined side 29 should therefore be matched to the shape of the rear wall 9 of the upright 8, and should project sufficiently far into the L-shaped opening 19 for the corner of the inclined side 29 to bear against the rear wall 9 after the mounting plate 12 has been attached, even if this rear wall is set back slightly at that location.

The hook-like part 17 is illustrated in detail in Figure 8. The extension 24 comprises a bevelled side 30 just in front of the cutout 26. The narrowed end 25 is rounded slightly, in order to avoid sharp corners.

Figure 3 shows another embodiment of a reinforcement plate according to the invention. This plate 12 too comprises a surface 13 with an upper edge 14 and a lower edge 15 which are flanged at a right angle. According to this embodiment, the reinforcement plate 12 comprises a flanged edge 31, 32 on both side edges. The outer edge 33 of the edge 31 is flanged again at an angle of greater than 90 degrees. Openings 34, 35 are left between the two ends of the flanged upper edge 14 and the lower edge 15 and the two flanged side edges 31, 32, in which openings the side wall 10 of an upright 8 can be received. By flanging the edges 31, 32 at an angle of more than 90 degrees, the edges can clamp firmly against the uprights 8. However, this embodiment has the drawback that it is no longer possible to place a plurality of plates at the same height between successive uprights 8.

However, with the embodiments of the reinforcement plates 12 which are illustrated in Figures 4 and 5 it is possible to attach the same reinforcement plates at the same height between a plurality of successive uprights 8. The mounting plate 12 in accordance with Figure 4 essentially corres-

ponds to the mounting plate 12 in accordance with Figure 3. However, instead of the flanged edge 32 the mounting plate in accordance with Figure 4 comprises two flanged parts 36 which are parallel to the flanged edges 14, 15 and lie in line with these flanged edges. The opening 35, in which the side wall 10 of an upright 8 can be received, is situated between the flanged edges 14, 15 and the flanged part 36. Two mounting plates 12 of this kind can be placed next to one another between successive uprights 8, the flanged parts 36 of one mounting plate 12, after they have been arranged around an upright 8, partially overlapping the upper edge 14 and the lower edge 15 of the adjacent mounting plate 12.

The embodiment in accordance with Figure 5 also largely corresponds to the embodiment in accordance with Figure 3. However, in the case of this mounting plate 12 in accordance with Figure 5, the flanged edge 31 is divided into two parts 37, which are each arranged in the region of one corner of the mounting plate 12. The edge 32 on the other side of the mounting plate 12, together with the adjoining part 38 of the surface 13, is narrowed to a width which essentially corresponds to the distance between the parts 37 on the opposite side. Parallel to the flanged parts 37, a slot 39 is made in the surface 13, at a distance from the edge 31. This distance corresponds to the width of a side wall 10 of an upright 8. The length of the slot 39 essentially corresponds to the length of the flanged edge 32. The distance from the slot 39 to the upper edge 14 and lower edge 15, respectively, essentially corresponds to the distance from the flanged edge 32 to the upper and lower edges, respectively. By hooking the flanged edge 32 of one mounting plate 12 into the slot 39 of the adjacent mounting plate 12, it is possible to suspend a plurality of mounting plates 12 on a plurality of adjacent uprights 8 of a wall.

CLAIMS

1. Reinforcement plate or mounting plate for locally reinforcing an assembled wall or partition system, which wall comprises a number of uprights or pillars, which are placed at a specific distance from one another and each pillar of which comprises a C-shaped profile part, to which pillars are attached wall parts, such as for example plasterboards, in order in this way to form a partition, characterized in that the reinforcement plate comprises a planar metal plate which is provided with connecting means, with which the plate can be connected with a clamping fit both to a first pillar, on one side, and to a successive pillar, on the other side.

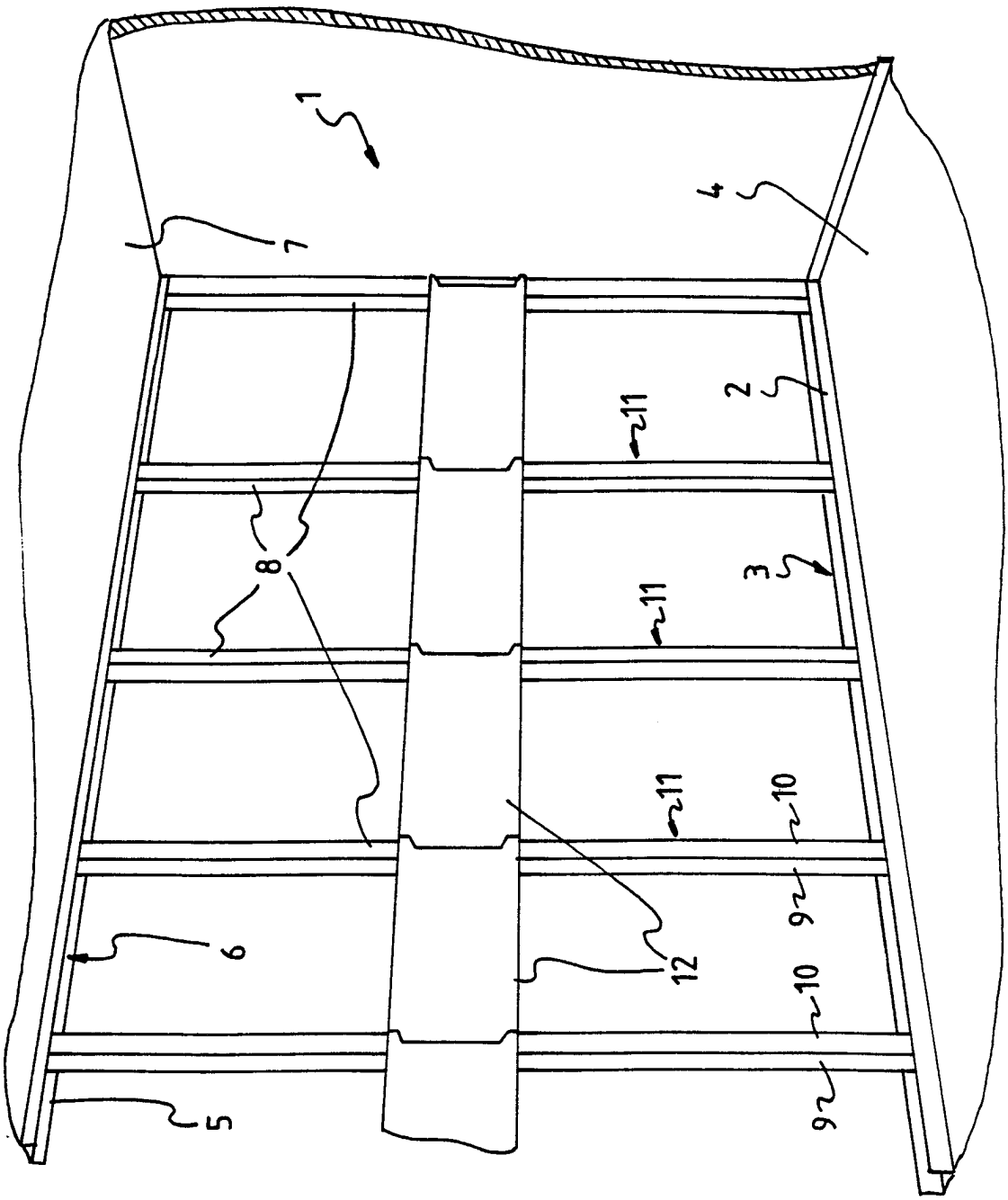
2. Mounting plate according to Claim 1, characterized in that the connecting means comprise, on the one hand, hook-like members and, on the other hand, gripping members, which hook members can interact with an upright and the gripping members can interact with the next, second pillar, which is placed adjacent to the first pillar.

3. Mounting plate according to Claim 1 or 2, characterized in that the plate comprises a rectangular planar part, of which two opposite edges, which form the top and bottom edges of the plate, are bent over at a right angle of approximately 90 degrees, and in that in the region of one of the two other side edges of the plate an L-shaped opening is made in both the bent-over upper edge and the bent-over lower edge, so that an L-shaped part of the bent-over edges remains, which L-shaped opening can interact with a side wall of a C-shaped upright and can be placed with a clamping fit around the latter, thus forming the two gripping members, and the other side of both the upper edge and the lower edge are provided with a tapered extension, in which there is a small hollow which hooks behind one edge of the C-shaped profile of an upright, thus forming the hook members.

4. Reinforcement plate according to Claim 1 or 2, characterized in that the plate comprises a rectangular planar part, of which two opposite edges, which respectively form the upper and lower edges of the plate, are bent over, over a length which corresponds to the distance between two uprights, at approximately a right angle of 90 degrees, and the remaining part of the bent-over edge is removed, and in that the two other, remaining sides are likewise bent over at approximately a right angle of 90 degrees, the mutual distance between the two bent-over edges corresponding to the distance between two uprights together with twice the width of a C-shaped upright.

5. Reinforcement plate according to Claim 1 or 2, characterized in that the plate comprises a rectangular planar part, of which parts of the two opposite edges which respectively form the upper and lower edges of the plate are bent over at a right angle of approximately 90 degrees, and in that in the region of one of the two other side edges of the plate an opening is made in both the bent-over upper edge and the bent-over lower edge, and in that the bent-over part of both the upper edge and the lower edge between, on the one hand, the opening and, on the other hand, the other end of the bent-over edge corresponds to the distance between two uprights, and in that the other side is bent over at approximately a right angle of 90 degrees.

FIG. 1



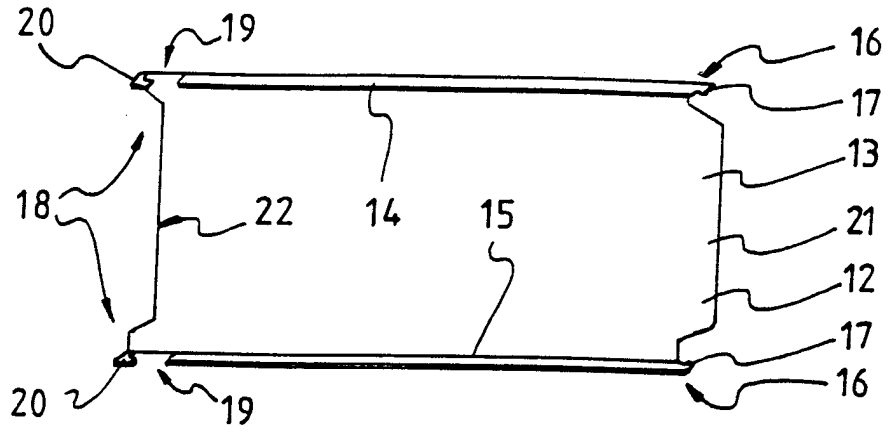


FIG.2

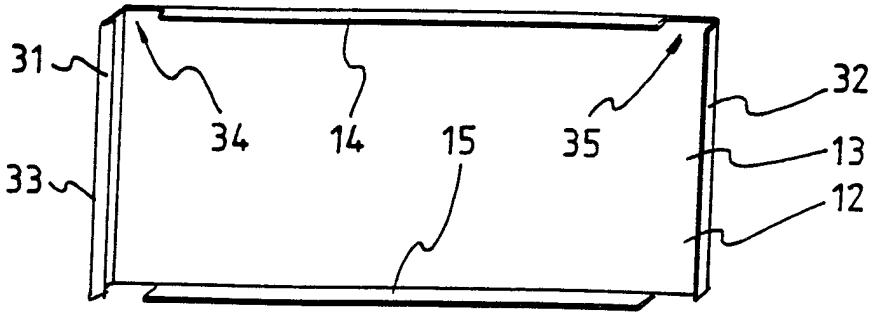


FIG.3

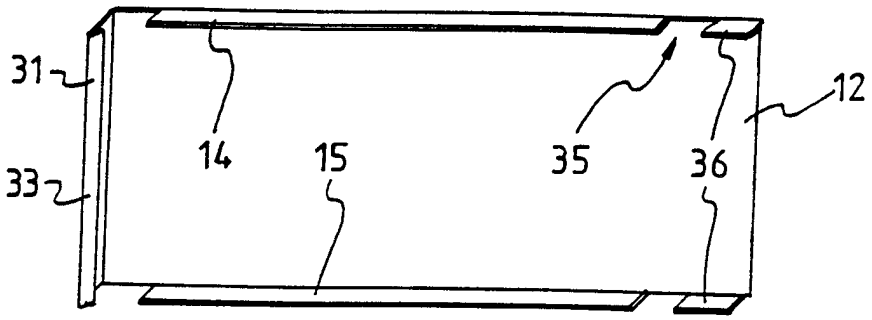


FIG.4

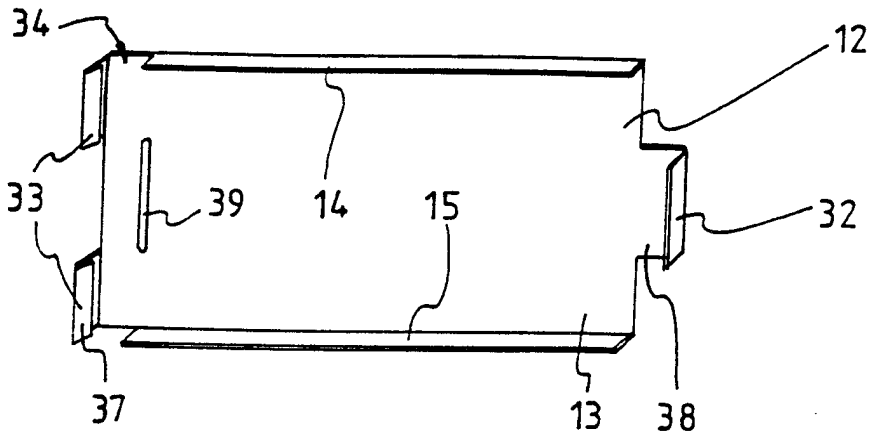


FIG.5

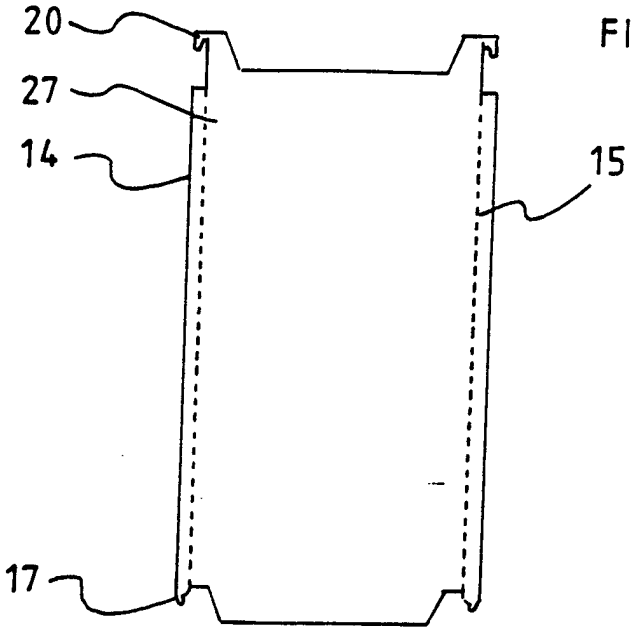


FIG. 6

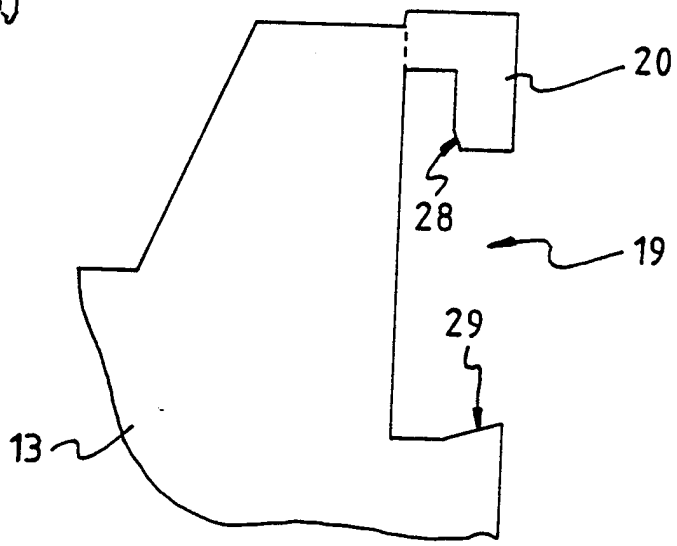


FIG. 7

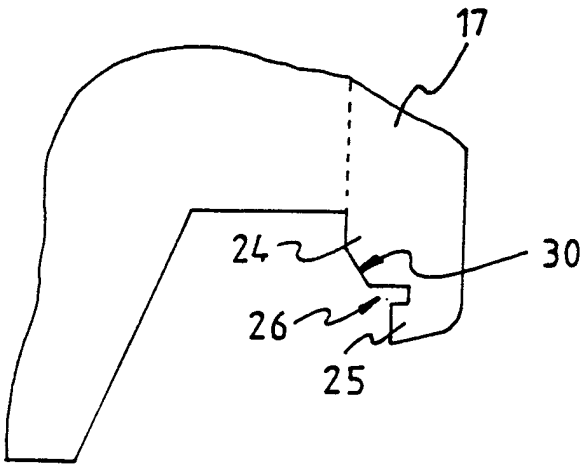


FIG. 8

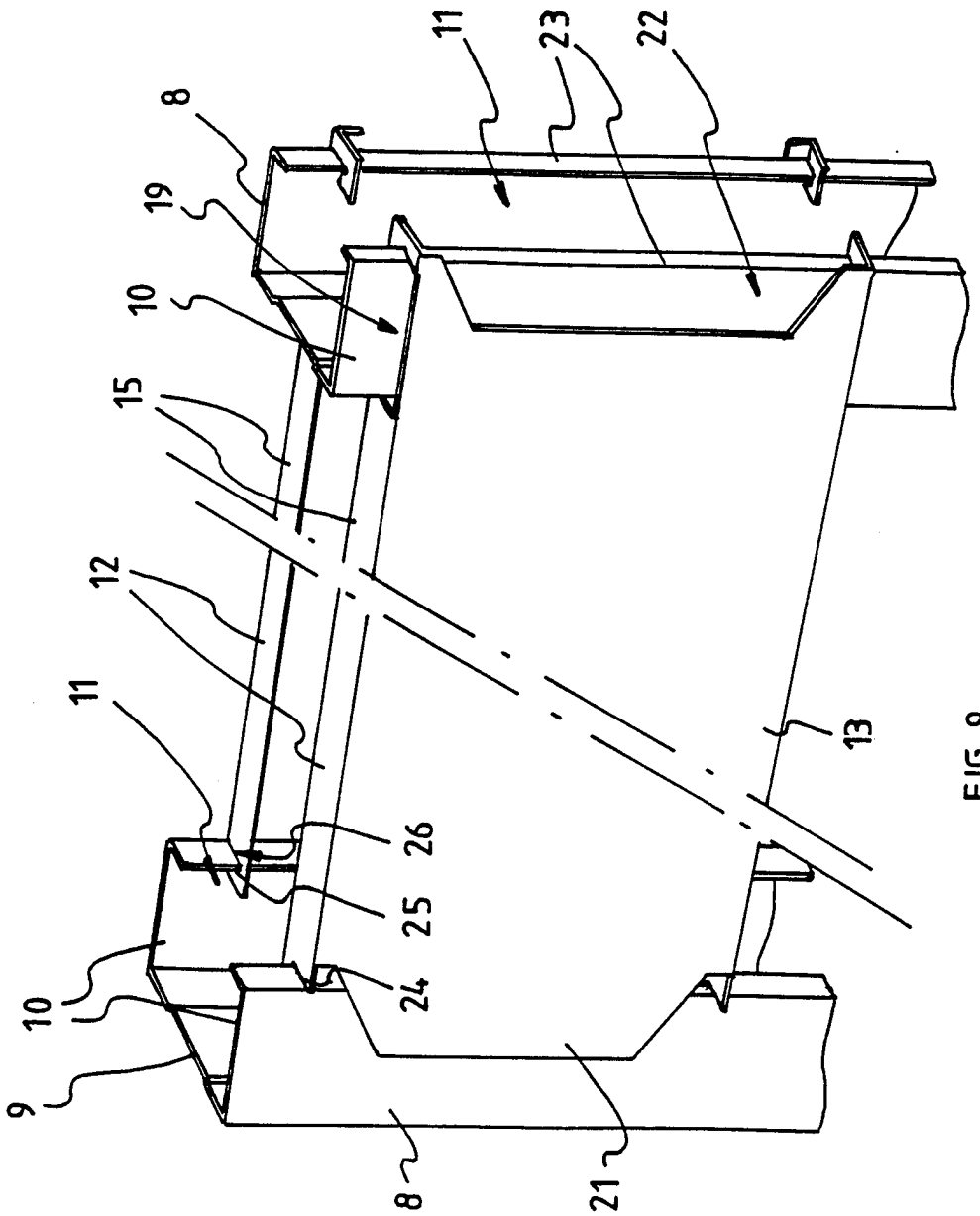


FIG. 9

INTERNATIONAL SEARCH REPORT

Int tional Application No
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A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 E04G21/26 E04B2/74 E04F19/06

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document. with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 255 386 A (METSEC PLC) 4 November 1992 see page 3, line 9 - page 5, paragraph 1; figures 1-3,5	1
Y		2
A		3

X	US 4 453 362 A (RODGERS ALDEN E) 12 June 1984 see column 2, line 45 - column 4, line 20; figures	1
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X	DE 94 13 917 U (RIGIPS GMBH) 3 November 1994 see page 4, paragraph 5 - page 5, paragraph 3; figures	1
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A	DE 94 01 102 U (RICHTER SYSTEM GMBH & CO KG) 10 March 1994 -----	

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Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2255386 A	04-11-92	NONE	
US 4453362 A	12-06-84	NONE	
DE 9413917 U	03-11-94	NONE	
DE 9401102 U	10-03-94	AT 154410 T	15-06-97
		DE 59500292 D	17-07-97
		EP 0664364 A	26-07-95