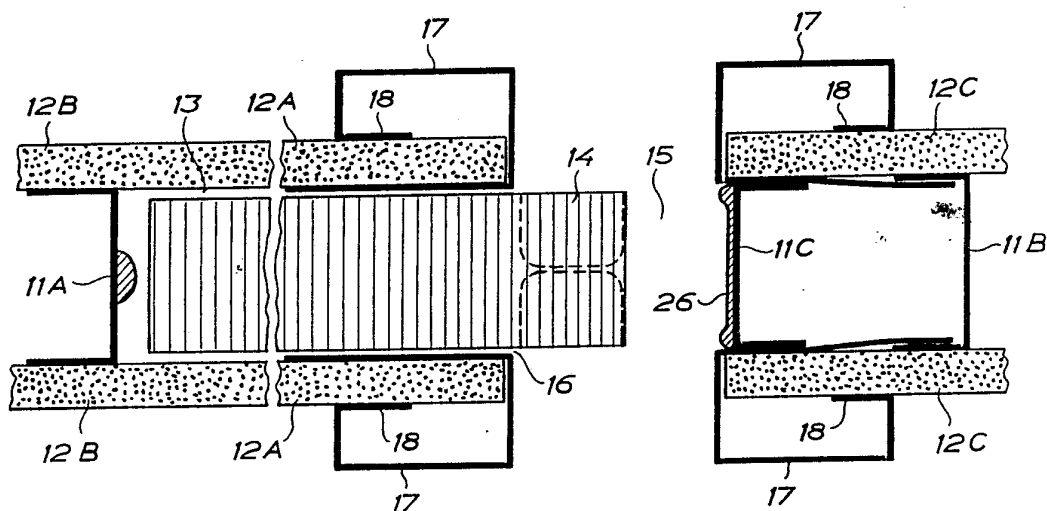




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(21) International Application Number: PCT/SE90/00282 (22) International Filing Date: 27 April 1990 (27.04.90) (30) Priority data: 8901606-7 5 May 1989 (05.05.89) SE (71) Applicant (for all designated States except US): GYPROC AB [SE/SE]; Box 505, S-201 25 Malmö (SE). (72) Inventors; and (75) Inventors/Applicants (for US only): ROSENBORG, Gunnar [SE/SE]; Alpstigen 6, S-181 62 Lidingö (SE). FRIDH, Lars [SE/SE]; Alstad 5, S-275 00 Sjöbo (SE). (74) Agents: STRÖM, Tore et al.; Ström & Gulliksson AB, P.O. Box 4188, S-203 13 Malmö (SE).		(81) Designated States: AT (European patent), BE (European + patent), CA, CH (European patent), DE (European patent), DK (European patent), ES (European patent), FI, FR (European patent), GB (European patent), IT (European patent), JP, LU (European patent), NL (European patent), NO, SE (European patent), US. Published <i>With international search report.</i> <i>With amended claims.</i> <i>In English translation (filed in Swedish).</i>

(54) Title: IMPROVEMENT IN WALL WITH A SLIDING DOOR



(57) Abstract

In a wall comprising a framework (10, 10A, 11A, 11B) with covering panels (12A, 12B, 12C, 12D) mutually spaced and covering the framework at both sides thereof, there is defined between the panels a free space (13) for receiving therein a sliding door (14) in the opened position thereof, said space terminating in a vertical slot (16) for the movement of the sliding door between opened and closed positions, said slot being located at one side of a door opening (15) to be closed by means of the sliding door. The panels are received at the edges thereof extending along the slot, in metal sheet box sections (17) provided as stiles of the door opening on the outside of the panels, said sections forming a supporting girder for the covering panels as well as farming and lining of the door opening.

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IMPROVEMENT IN WALL WITH A SLIDING DOOR

The invention relates to a wall construction comprising a framework with covering panels mutually spaced and covering the framework at both sides thereof.

The more and more increasing building costs in connection with new production of primarily dwellings have made architects and constructors increasingly aware of the need of utilizing in the most effective manner the space available such that there will be no spaces that cannot be used neither for furnishing nor for living. A typical example of a space of this kind is the space that must be available at each hinged door - the door type which is most common in dwellings - in order that there is room for the door to swing between opened and closed positions and the door can be operated between these positions fairly comfortably. If sliding doors are used instead this space which is of no use per se will be eliminated but the problem is that walls of the type referred to above, which are commonly used, do not allow mounting of sliding doors between the panels because the space therebetween contains the framework, and mounting of sliding doors on the outside of the wall is not appealing aesthetically.

The purpose of the invention is to provide in an elegant manner a space for a sliding door between the panels while maintaining a strong and stable wall construction and an appearance of the wall and the framing of the door opening, which is appealing from an aesthetic point of view.

For said purpose the invention provides a wall construction of the kind referred to above having the characterizing features of claim 1.

An embodiment of the invention will be described below with reference to the accompanying drawings in which

- 5 FIG 1 is a side view of a wall having a sliding door of the invention,
FIG 2 is a horizontal cross sectional view of the wall in FIG 1,
FIG 3 is a broken enlarged horizontal cross sectional view along line III-III in FIG 1,
10 FIG 4 is a broken enlarged vertical cross sectional view along line IV-IV in FIG 1,
FIG 5 is a broken enlarged vertical cross sectional view along line V-V in FIG 1,
FIG 6 is a perspective view of a spacer for attaching the sections on the outside of the wall,
15 and
FIG 7 is an exploded enlarged perspective view showing the interconnection of section and spacer.

20 The wall shown in the drawings is built up in the conventional manner of a framework including horizontal girders 10 consisting of channel metal sheet rails which are attached to the ceiling and the floor, and vertical uprights 11A and 11B also
25 consisting of channel metal sheet rails which are mounted vertically and are connected to the ceiling and floor girders. Moreover, further horizontal crossbars may be provided connected to said uprights, which consist also of channel metal sheet rails. On the outside of the framework thus constructed there are provided at both sides thereof
30 gypsum panels 12A, 12B and 12C, which are attached to the framework.

35 In order to provide in the wall a space 13 for a sliding door 14 for closing a door opening 15 the

space between the gypsum panels 12A bounding said space is free from rails. The space is bounded at the bottom of a horizontal girder 10 attached to the floor. At the top the space is bounded by a horizontal crossbar 10A while the upright 11A terminates the space 13 inside the wall (to the left in FIG 1). The space 13 forms a slot 16 at the door opening. The panels 12A preferably are of a stiffer quality than the other panels of the wall and can consist of so called hard gypsum panels, that is panels which have a higher density than common gypsum panels and are reinforced with glass fiber. The slot opening 16 is bounded by two metal sheet sections 17 (FIG 7) box-shaped in cross section, which define between an inwardly projecting flange 18 and one of the side walls parallel to the flange and extended outwards, an open pocket to receive therein the edge portion of the panel 12A the rest of the section being positioned on the outside of the panel. The panels 12A being terminated in this way imparts to the space 13 a width with small tolerances. The extension of the side wall forms an abutment for the edge portion of the panel 12A when it is being inserted into the pocket. The crossbar 10A at one end thereof is attached to the upright 11A, the other end and the central portion being inserted between bent out laps 17A on the sections 17 which at a predetermined distance from the floor are punched so that said laps can be bent out from the sections. The sections should be anchored at the top and bottom to the ceiling and the floor, respectively, and such anchoring is effected by means of a spacer of the embodiment shown in FIGS 6 and 7.

The spacer comprises a metal sheet rail 19 on the upper side of which there is attached by spot

welding or in another suitable way transverse rails 19A mutually spaced a distance corresponding to the width of the door opening 15. Two upstanding Ushaped yokes 20 are attached to the rails 19A, said yokes
5 being dimensioned and mutually spaced such that they can be inserted into the box-shaped sections 17 when the spacer is located with the rails 19A extending transversally of the wall.

At the side of the door opening which is opposite to the slot opening 16 the gypsum panels 12
10 are terminated in the same manner as at the opening 16 but there is provided between the gypsum panels a vertical upright 11C closing the space between the panels 12C towards the door opening. The upright 11B
15 is pressed over the sections 17, the upright 11C in turn being pressed in between the sections 17 and is clamped therebetween.

The sections 17 thus form not only part of the framework but also stiles and lining at each side of
20 the opening, and they can be shaped as shown, preferably with curved outer corners, but they can also be given another shape based on aesthetic considerations provided they have a sufficient inertia factor to stiffen the two panels 12A as is necessary at the
25 free edges thereof at the slot 16.

Inside the space 13 the sliding door is suspended from a roller rail 21 riveted to the crossbar 10A, in the conventional manner by the sliding door running with rollers 22 on the roller rail, the
30 connection between the sliding door and the rollers being provided by means of an adjustment screw 23.

The gypsum panels 12D forming the wall covering above the door opening, which do not extend up to the ceiling are provided at the lower edges thereof
35 with an edge lining 24 as reinforcement of the lower

edge of the gypsum panels. This edge lining can comprise a standard section.

On the upright 11A bounding the space 13 inside the wall there are provided one or more stop pins 25
5 of some soft or elastic material as abutments for the door when it is opened and displaced to the inner end position in the wall. At the opposite side of the door opening there is mounted to the upright
10 11C a ceiling strip 26 also of a soft and elastic material, the sliding door abutting said strip when it is displaced to the completely closed position.

It is of course possible to use the construction described with metal sheet sections on the outside
15 of the wall also in case the wall is made up of a wooden framework and has covering panels of another type than gypsum panels.

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CLAIMS

1. Wall construction comprising a framework
(10, 10A, 11A, 11B) with covering panels (12A, 12B,
5 12C, 12D) mutually spaced and covering the framework
at both sides thereof c h a r a c t e r i z e d in
that a free space (13) is defined between the panels
to receive therein a sliding door (14) in the opened
position thereof, said space terminating in a ver-
10 tical slot (16) for the movement of the sliding door
between opened and closed positions, said slot being
located at one side of the door opening (15) to be
closed by means of the sliding door, and that the
panels at the edges thereof extending along the
15 slot, are received in metal sheet sections (17)
provided on the outside of the panels as stiles of
the door opening.

2. Wall construction as in claim 1 wherein the
metal sheet sections (17) comprise box-shaped sec-
20 tions.

3. Wall construction as in claim 2 wherein the
box sections form an open pocket to receive therein
the edge portion of the panel.

4. Wall construction as in claim 3 wherein the
pocket is defined between a side wall of the box
25 section and an inwardly extending flange (18).

5. Wall construction as in claim 4 wherein the
said wall projects from the inwardly extending
flange to form an abutment for the edge portion of
the panel when inserted into the pocket.
30

6. Wall construction as in any of claims 1 to 5
wherein a fitting for fixedly mounting the ends of
the box section comprises an element (20) to be in-
serted into the box section, said element being con-
35 structed for mounting to the floor or the ceiling,
respectively.

7. Wall construction as in claim 6 wherein the fittings at one side and the other of the wall are interconnected by means of a rail (19A) to be connected to the floor or the ceiling, respectively.

5 8. Wall construction as in claim 7 wherein the rails (19A) at opposite sides of the door opening are interconnected by means of a spacer rail (19).

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AMENDED CLAIMS

[received by the International Bureau on 20 September 1990 (20.09.90); original claim 2 cancelled; original claim 1 amended; other claims unchanged but renumbered as claims 2-7 (2 pages)]

1. Wall construction comprising a framework
(10,10A,11A,11B) with covering panels
5 (12A,12B,12C,12D) mutually spaced and covering the
framework at both sides thereof, a free space (13)
being defined in the wall to receive therein a slid-
ing door (14) in the opened position thereof, said
space terminating in a vertical slot (16) for the
10 movement of the sliding door between opened and
closed positions, said slot being located at one
side of a door opening (15) to be closed by means of
the sliding door, vertical stiles (17) bounding the
door opening along said slot, c h a r a c t e r -
15 i z e d in that said space (13) is bounded by the
covering panels (12A,12B) projecting freely from the
framework one at each side of the space, the edges
of the covering panels extending along the slot (16)
being received in metal sheet box sections (17)
20 which are provided on the outside of the covering
panels as said stiles and are fixedly mounted at the
lower and upper ends thereof.

2. Wall construction as in claim 1 wherein the
box sections form an open pocket to receive therein
25 the edge portion of the panel.

3. Wall construction as in claim 2 wherein the
pocket is defined between a side wall of the box
section and an inwardly extending flange (18).

4. Wall construction as in claim 3 wherein the
said wall projects from the inwardly extending
30 flange to form an abutment for the edge portion of
the panel when inserted into the pocket.

5. Wall construction as in any of claims 1 to 4
wherein a fitting for fixedly mounting the ends of
35 the box section comprises an element (20) to be in-

serted into the box section, said element being constructed for mounting to the floor or the ceiling, respectively.

5 6. Wall construction as in claim 5 wherein the fittings at one side and the other of the wall are interconnected by means of a rail (19A) to be connected to the floor or the ceiling, respectively.

10 7. Wall construction as in claim 6 wherein the rails (19A) at opposite sides of the door opening are interconnected by means of a spacer rail (19).

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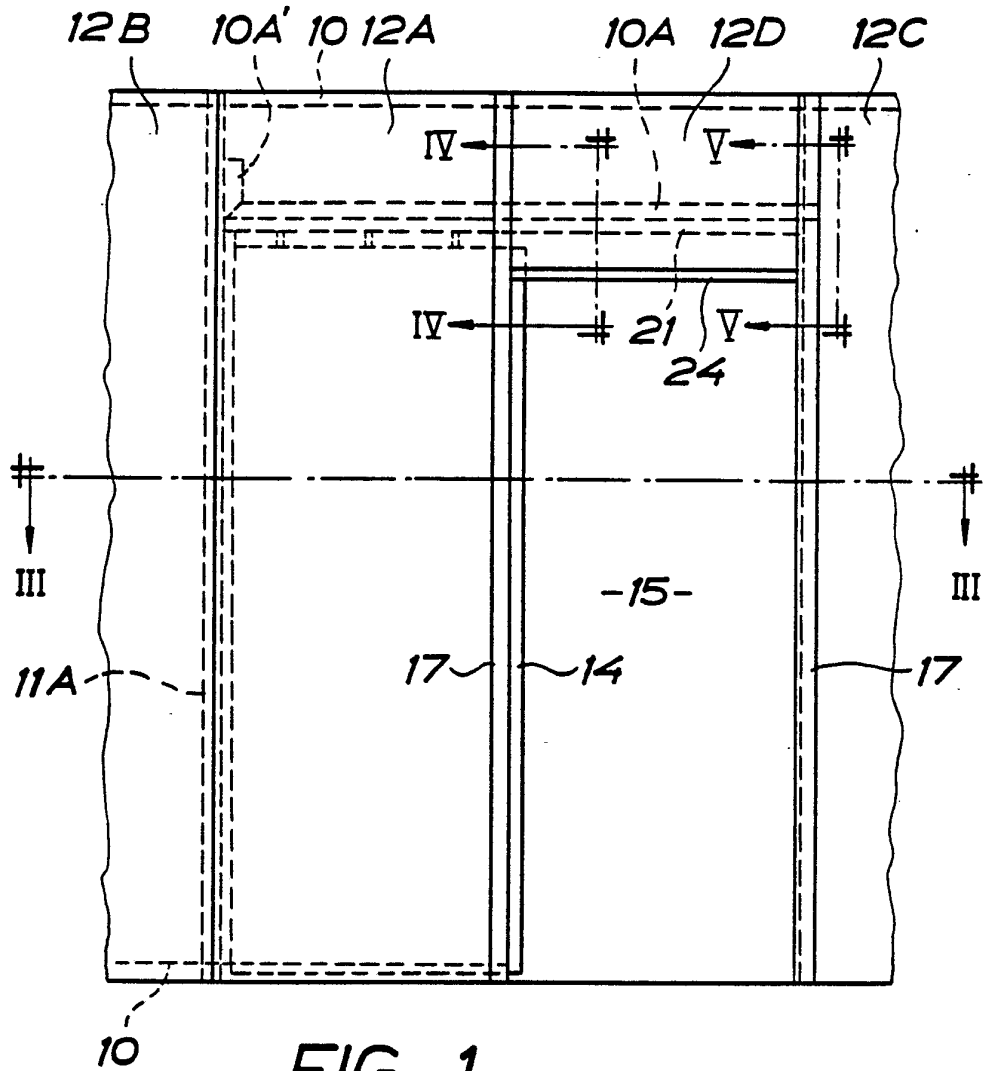


FIG. 1

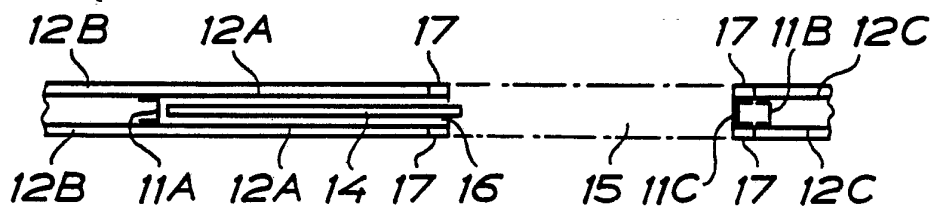


FIG. 2

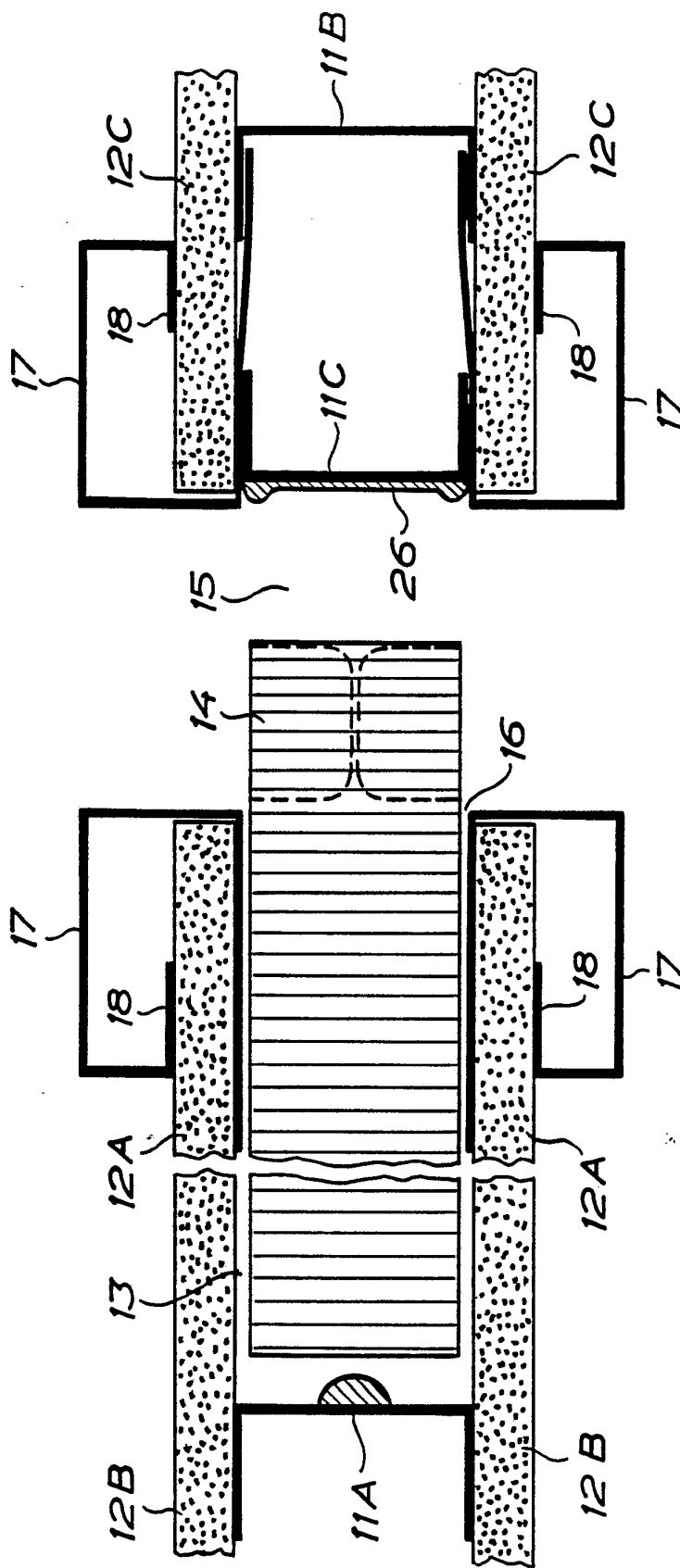


FIG. 3

SUBSTITUTE SHEET

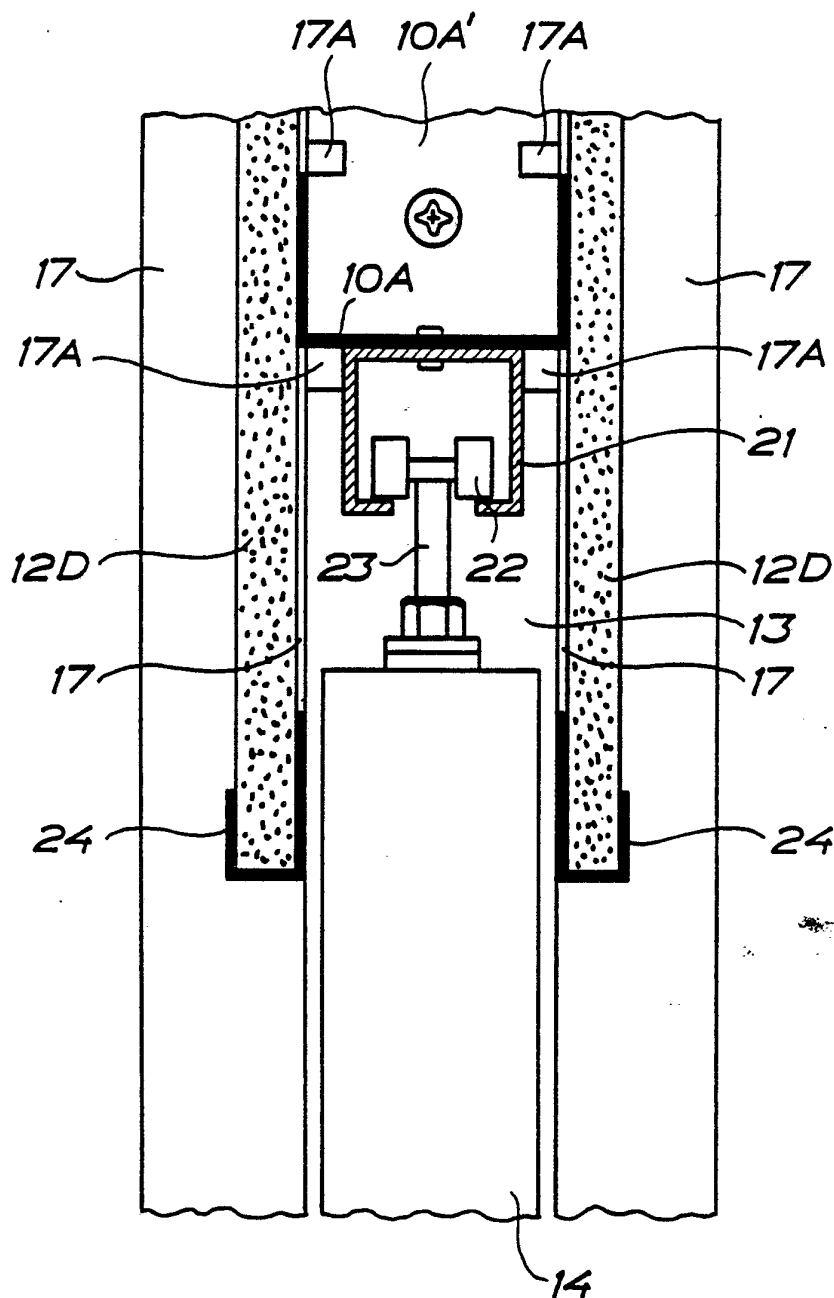


FIG. 4

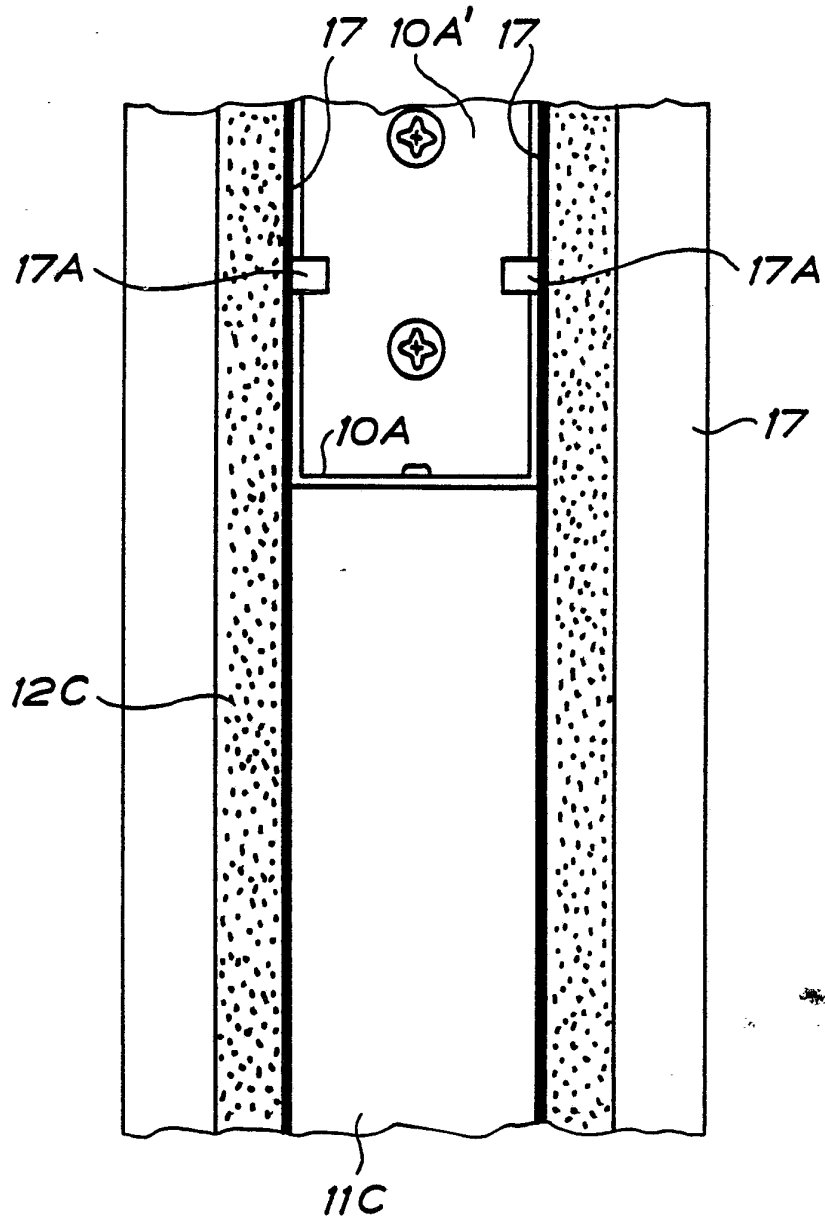


FIG. 5

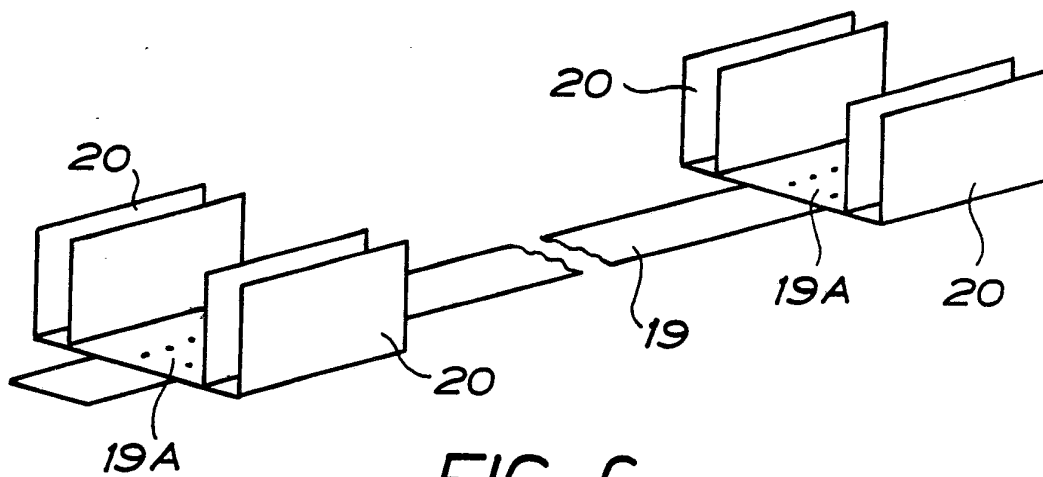


FIG. 6

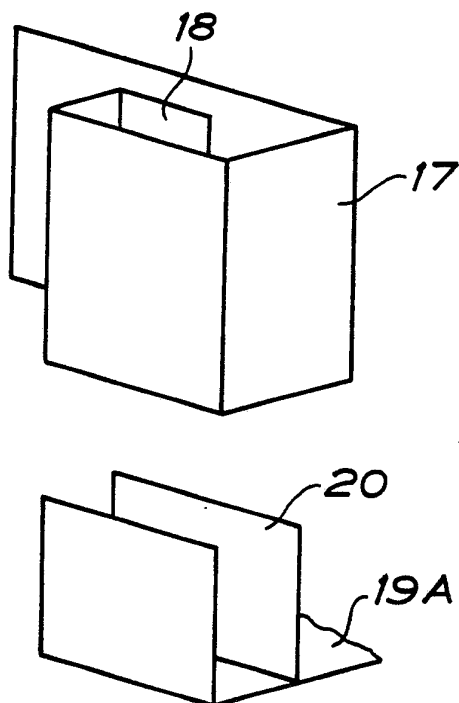
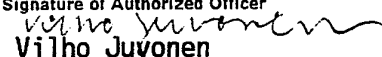


FIG. 7

INTERNATIONAL SEARCH REPORT

International Application No PCT/SE 90/00282

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
IPC5: E 06 B 3/46		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
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IPC5	E 06 B	
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SE,DK,FI,NO classes as above		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category *	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	SE, B, 443397 (L/L VOSS MÖBEL- OG TREVAREVERKSTAD) 24 February 1986, see figure 1 ---	1
A	EP, A2, 0225675 (J.J.M. KOMPIER) 16 June 1987, see figure 2 --	
A	GB, C, 894977 (ELLARD SLIDING DOOR GEARS LIMITED) 26 April 1962, see figure 3 -- -----	
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5th July 1990		1990 -07- 16
International Searching Authority		Signature of Authorized Officer
SWEDISH PATENT OFFICE		 Vilho Juvonen

ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.PCT/SE 90/00282

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the Swedish Patent Office EDP file on **90-05-24**.
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
SE-B- 443397	86-02-24	GB-A-B- 2062734	81-05-28
		SE-A- 8007917	81-05-14
EP-A2- 0225675	87-06-16	NL-A- 8503437	87-07-01
		US-A- 4754573	88-07-05
		NL-A- 8601740	88-02-01
GB-C- 894977	62-04-26	NONE	