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EUROPEAN PATENT APPLICATION

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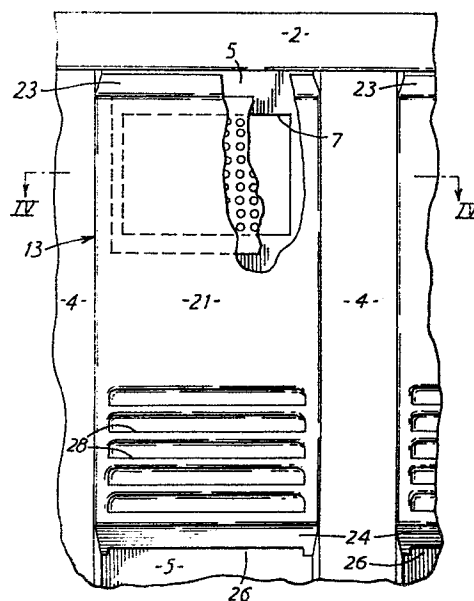
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⑤7) A ventilated container has corrugated side walls including flat panels (5) in which are formed upper and lower ventilation openings (7). After the container has been completely painted, galvanised panel members (21) are rivetted to the adjacent corrugations (4) to form ventilation chambers extending upwards, from a bottom opening (26) and louvres (28) in the lower part of the panel members, to a sloping roof flange (23) above the ventilation opening (7).



VENTILATED CONTAINERS FOR TRANSPORTING FREIGHT

The present invention relates to ventilated containers for transporting freight which must be kept dry but ventilated.

According to the present invention, there is provided a ventilated cargo container having a ventilated side or end wall, the ventilated wall having flat panel portions at intervals along the length of the wall, each flat panel portion having at least one ventilation opening therethrough, adjacent flat panel portions being separated by vertically corrugated wall portions, the crests of the corrugations projecting towards the outside from the plane of the flat panel portions, the width of the flat panel portions being at least twice the repeat spacing of the corrugations, the wall further including, on its outer surface, roofed ventilation chambers associated with each ventilation opening, each ventilation chamber comprising an outer panel member which is secured by fastener devices at its sides to the two adjacent corrugations spaced from the flat panel portion, the panel member extending downwards below the level of the ventilation opening in the panel portion to an external opening at the bottom of the ventilation chamber communicating with the atmosphere, the height of the panel member being greater than its width.

With this arrangement, the ventilated wall can be constructed by the same techniques as are used for conventional closed containers having corrugated sheet

metal side walls, the ventilated wall being assembled from corrugated and uncorrugated sheet portions which may be separate or integral as required, the sheet portions being welded together to form the side wall within a suitable frame formed by vertical posts at each end and upper and lower horizontal rails. The container wall thus formed can be prepared and painted in the normal manner employed when constructing conventional closed containers. The outer wall (conveniently incorporating the roof) of each ventilated chamber is constructed separately and can be electrolytically galvanized and/or painted as required and then be attached to the container wall, with the interposition of a suitable sealing strip if required, the fastening devices being conveniently in the form of rivets.

With this arrangement, there is assurance that the interior of each ventilation chamber will be protected against corrosion to the same standard as the rest of the container.

The opening at the bottom of the ventilation chamber may be formed partly by a gap between the bottom of the panel member and the panel portion and partly by louvres in the lower part of the panel portion.

Each ventilation chamber has a height greater than its width and acts somewhat as a chimney.

An embodiment of the invention will now be described by way of example with reference to the accompanying drawings, in which

Figure 1 is an elevational view of a side wall of a ventilated dry freight container;

Figure 2 shows the upper and lower portions of a vertical section on the line II-II of Figure 1 on an enlarged scale;

Figure 3 is an elevational view from the right of the upper part of Figure 2 with some portions broken away;

Figure 4 is a horizontal cross section on the line IV-IV of Figure 3,

Figure 5 is an exploded view of the components shown in Figures 3 and 4, and

Figure 6 shows a modified form of Figure 2.

The general construction of the container, parts of which are shown in the drawings, is that of a standard dry freight container which does not require detailed description. Thus, the side wall shown in Figure 1 has a bottom rail 1, a top rail 2 and panelling 3 interconnecting, and extending the full height between the top and bottom rails. The panelling 3 is formed with corrugations 4. However, instead of the corrugations being uniformly distributed along practically the whole of the length of the wall, some portions of the wall are uncorrugated and form flat panels 5 of width greater than that of the channels 6 in the corrugations 4, this width being at least 200 mm and preferably at least 210 mm.

At the upper end of each flat panel 5 and near the lower end thereof are formed rectangular ventilation

opening 7, preferably at least 210 mm wide.

At this stage of construction, all of the surfaces of the structure are readily accessible for shot blasting and spray painting in the normal manner.

To complete ventilation chambers over the opening 7, louvred panel members 13 are riveted to corrugations 4, with suitable sealing means where required.

Each panel member 13 is formed from a piece of sheet steel and has an outer vertical wall 21 (about 460 mm high and 230 mm wide), flanges 22 along each side of the wall 21 and sloping top and bottom flanges 23 and 24, the top flange having a fastening lip 23a. The side flanges 22 are bent inwards at an angle such that they sit flat against the side walls 25 of the corrugations 4. The bottom flange 24 is cut away by about 6 mm over most of its width to form a ventilation opening 26. Further ventilation openings 27 are formed by five louvres 28 in the lower part of the vertical front wall 21. The panel member is electrolytically galvanised.

To secure the panel member 13 in position, blind rivets or monobolts inserted from within the container are passed through holes predrilled in the corrugation side walls and panels 5 into corresponding holes in the side flanges and lip 23a and are then expanded or fastened. The vertical wall is then flush

with the outer walls 29 of the corrugations 4.

The panel member 13 and flat panel portions 5 thus define vertical ventilation chambers about 220 mm wide and 38 mm deep.

5 The vertical distance between the centre louvre 28 and the centre of the opening 7 is about 340 mm (and preferably at least 300 mm).

 Prior to installing the panel member 13, plates 16 may be secured over the ventilation opening
10 7. The plates 16 are perforated with the required number of holes to obtain the required total flow area through the plate 16, While meeting internationally agreed Customs (TIR) requirements. These holes are conveniently formed by a set of punches arranged in a
15 grid, only the required number of such punches are used.

 The ventilation chambers do not have any internal sloping deflector baffles. Accordingly, fragments of cargo are much less likely to be caught
20 in inaccessible locations within the chambers. Thus the risk of infestation is correspondingly reduced.

 In the modified construction shown in Figure 6, the roof 23' of each ventilation chamber is separate from the panel 13' and is welded (at 23a')
25 to the container wall during fabrication and is accessible for preparation and painting with the remainder of the basic container.

The roof 23' terminates in a downwardly extending flange 61 to which the top margin of the panel 13' is subsequently fastened by rivets.

5 The lower edge of each plate 16 may be extended and bent outwardly and downwardly to form a water rejecting lip (as shown at 62 in Figure 6).

Further ventilation openings 18 of any desired shape may be formed in the walls 10 at the level of the opening 7.

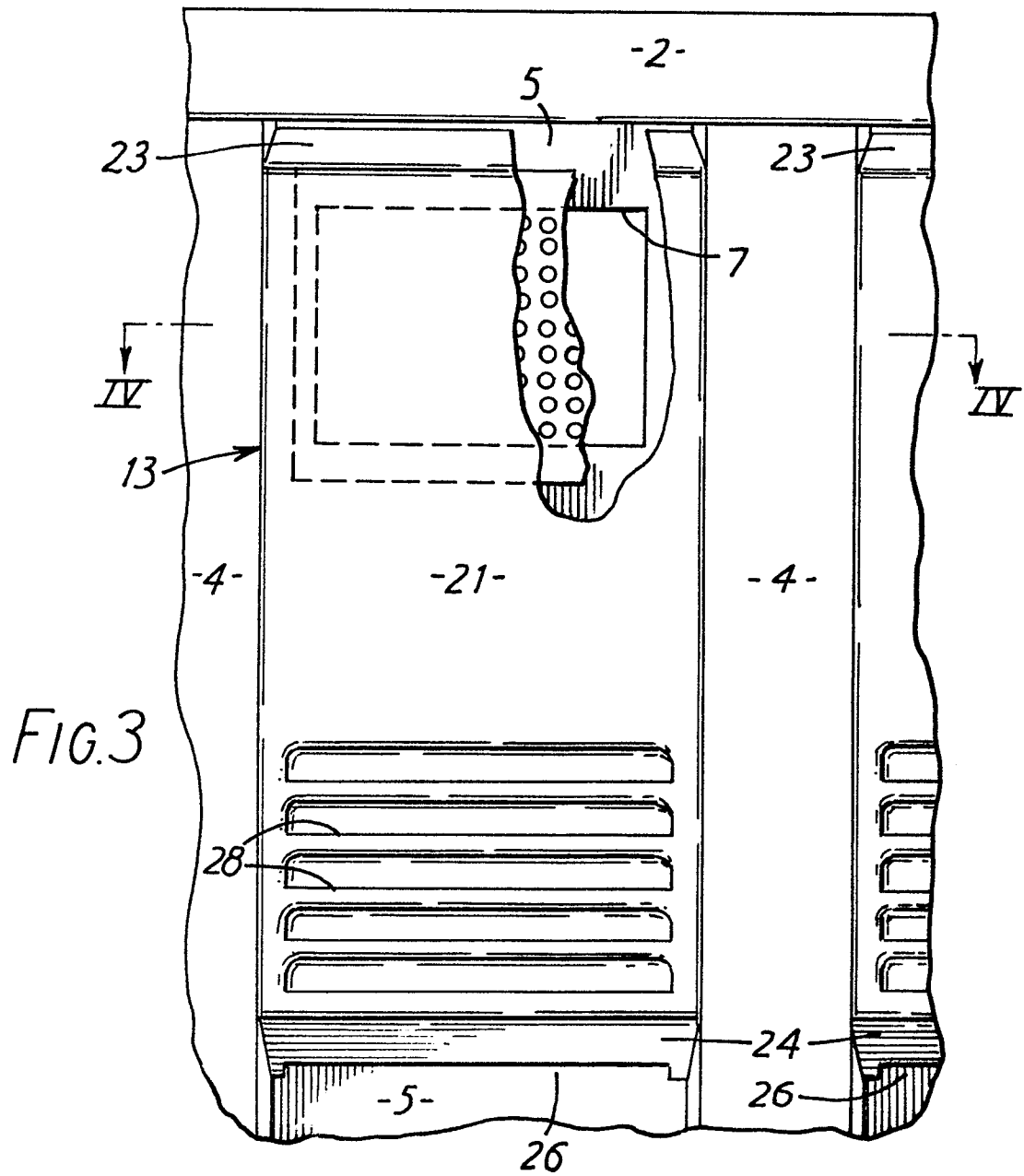
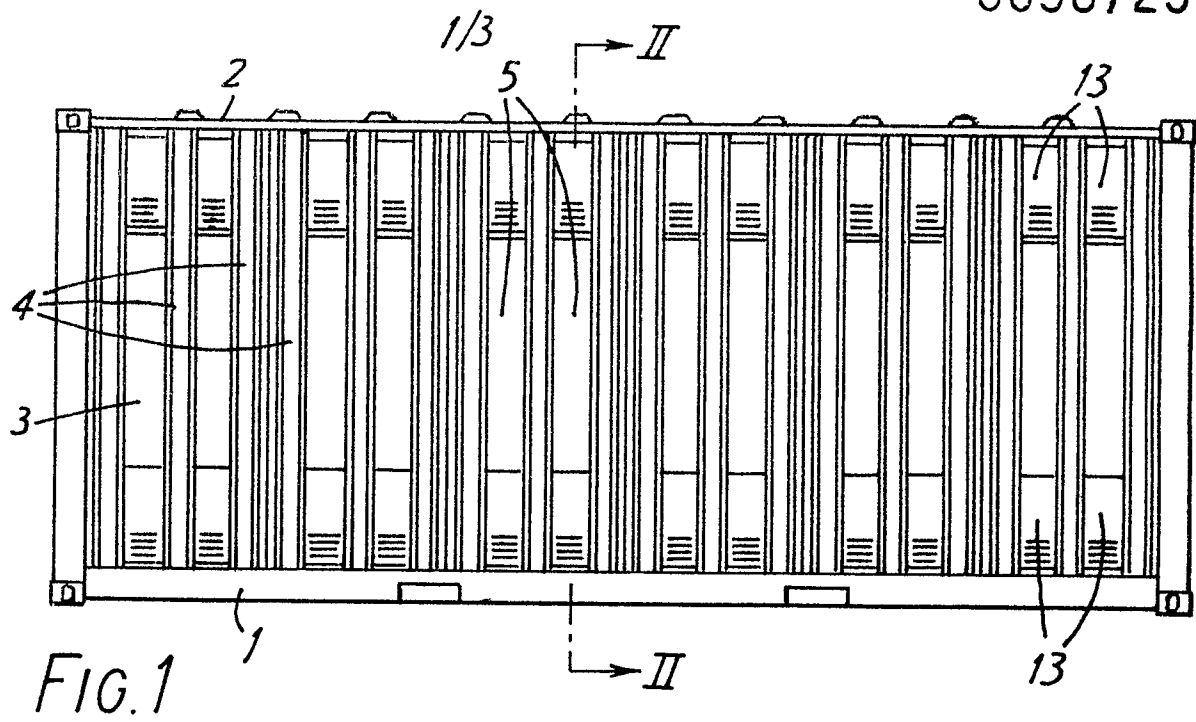
10 The container shown in Figure 1 is a standard length of 20 foot (6058 mm) and each side wall has 12 upper and 12 lower ventilation chambers, i.e. one upper chamber and one lower chamber for about 500 mm of side wall length.

CLAIMS

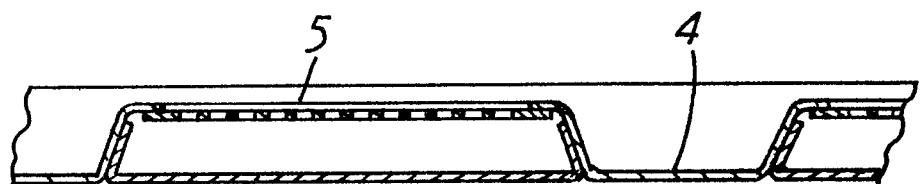
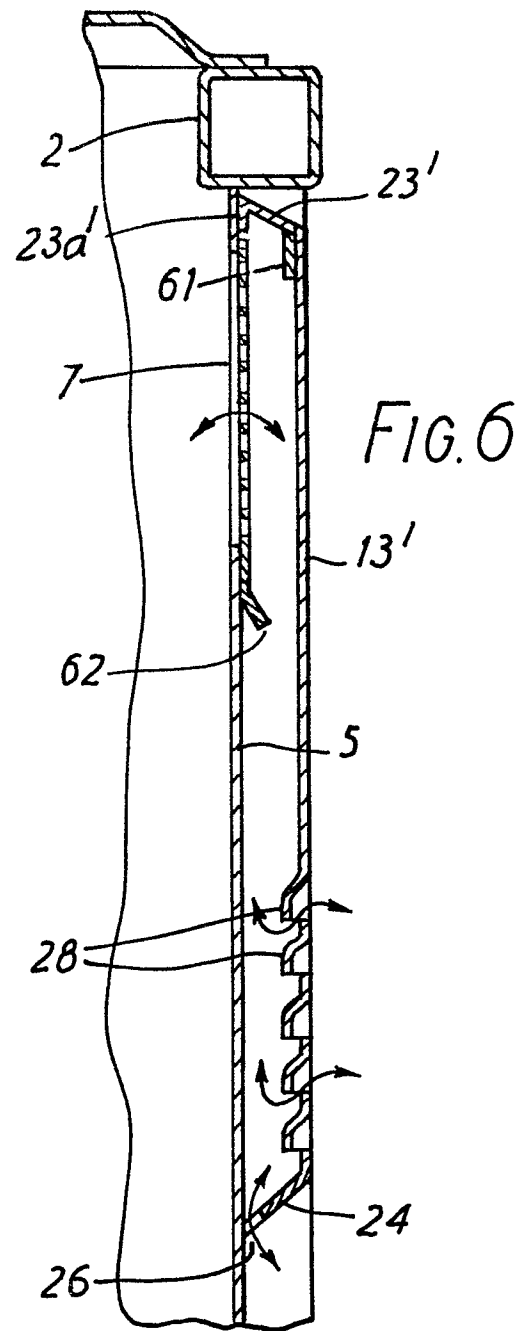
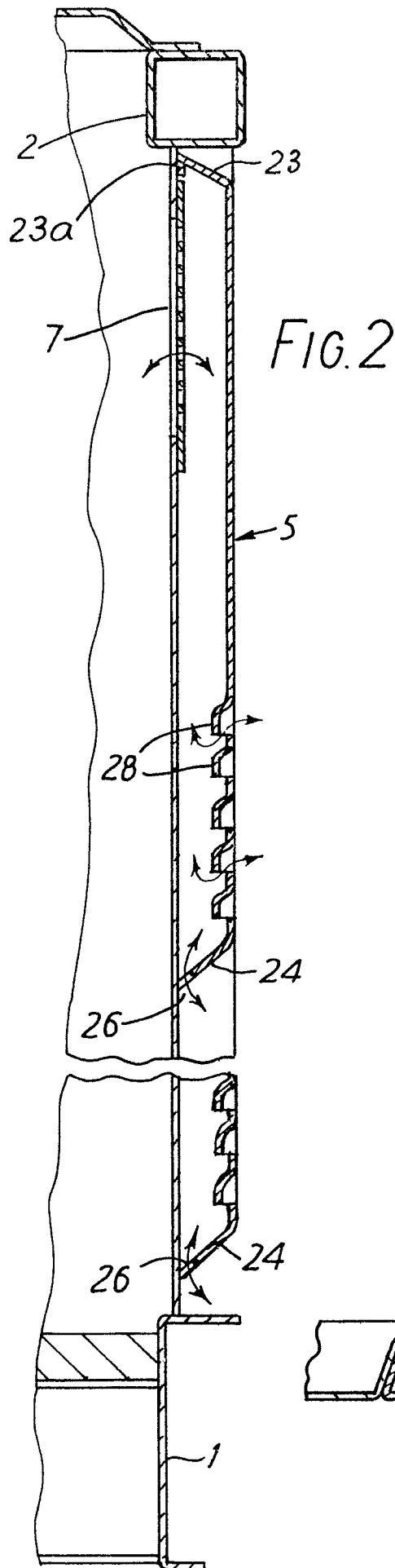
1. A ventilated cargo container having a ventilated side or end wall, the ventilated wall having flat panel portions at intervals along the length of the wall, each flat panel portion having at least one ventilation opening therethrough, adjacent flat panel portions being separated by vertically corrugated wall portions, the crests of the corrugations projecting towards the outside from the plane of the flat panel portions, the width of the flat panel portions being at least twice the repeat spacing of the corrugations, the wall further on its outer surface, including roofed ventilation chambers associated with each ventilation opening, each ventilation chamber comprising an outer panel member which is secured by fastener devices at its sides to the two adjacent corrugations spaced from the flat panel portion, the panel member extending downwards below the level of the ventilation opening in the panel portion to an external opening at the bottom of the ventilation chamber communication with the atmosphere, the height of the panel member being greater than its width.

2. A container according to claim 1, wherein the roof of each ventilation chamber is formed by a top flange on the panel member.

3. A container according to claim 1, wherein the roof of each ventilation chamber is formed by an element permanently secured to the container wall.
4. A container according to claim 1, wherein the lower portion of each panel member is louvred in a region spaced below the ventilation opening.
5. A container according to claim 1, wherein the width of each ventilation chamber is about 210 mm.
6. A container according to claim 5, having upper ventilation chambers and lower ventilation chambers arranged in each long wall with one upper and one lower chamber for approximately each 500 mm of wall length.



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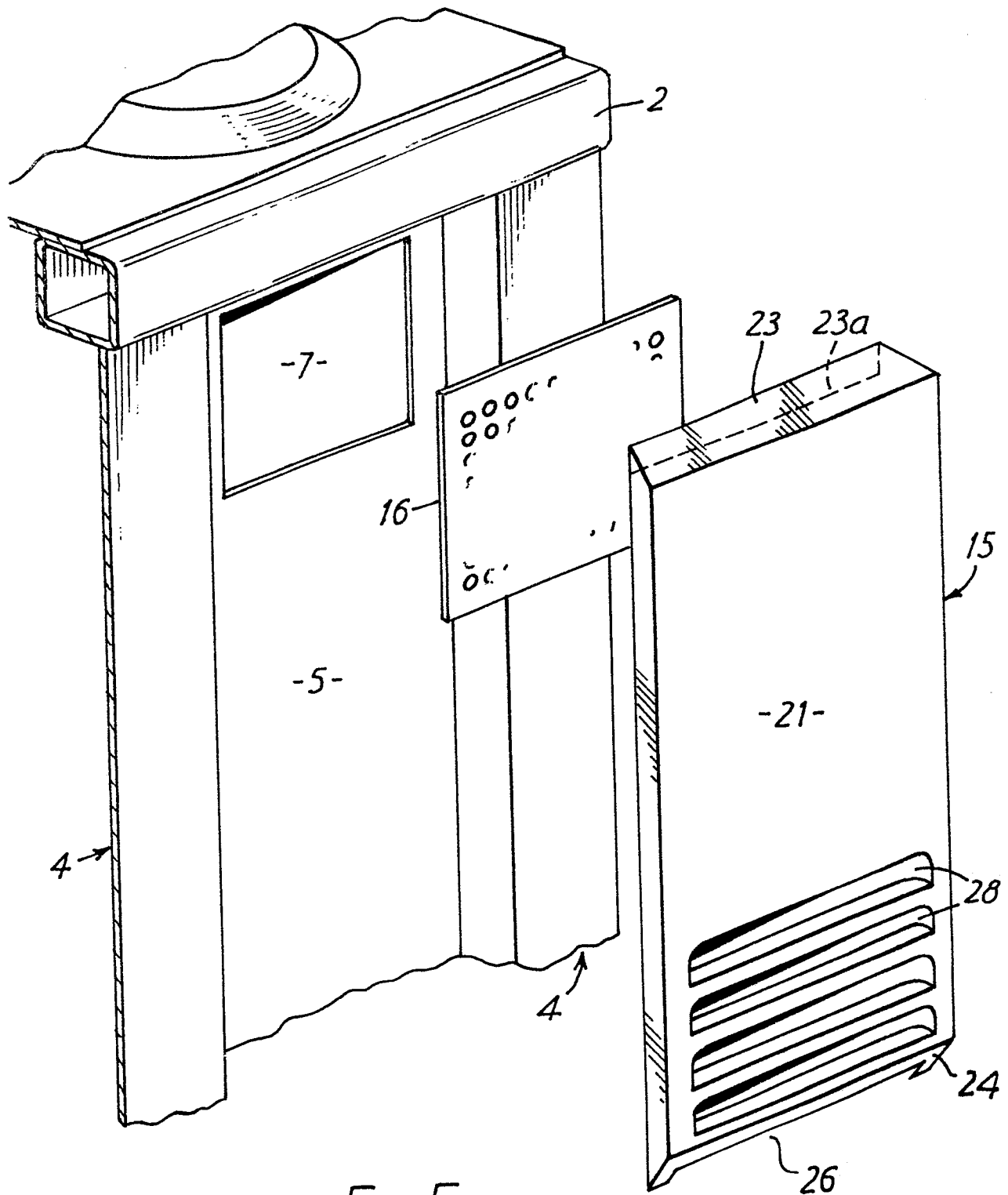


FIG. 5



European Patent
Office

EUROPEAN SEARCH REPORT

0098725

Application number

EP 83 30 3704

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
A	GB-A-2 068 900 (THOMPSON) * Page 2, lines 49-62; figures 1,2 *	1	B 65 D 88/12 B 65 D 88/74
P,X	--- US-A-4 351 230 (BRICKNER) * Whole document * -----	1-4	
			TECHNICAL FIELDS SEARCHED (Int. Cl. ³)
			B 65 D B 60 H E 24 F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 30-09-1983	Examiner OSTYN T.J.M.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	