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(72) Inventor: **Olsson, Bo**
41482 Göteborg (SE)

(74) Representative: **Louet Feisser, Arnold**
Arnold & Siedsma,
Sweelinckplein 1
2517 GK Den Haag (NL)

(71) Applicant: **Cardo Door Continental B.V.**
1704 RG Heerhugowaard (NL)

(54) **Door assembly and method for covering the edge of a door opening**

(57) A door assembly comprising guide rails (7) which can be mounted on both sides of a door opening (2), and a door (4) which can be moved in vertical direction and which is provided at its vertical edges with guide

members (6) which cooperate with said guide rails (7). A cover (10,25) is provided, which cover is mounted along the guide rail (7) and which extends to within the door opening (2). The cover (10,25) is at least partially flexible, so that the edge thereof can swing aside.

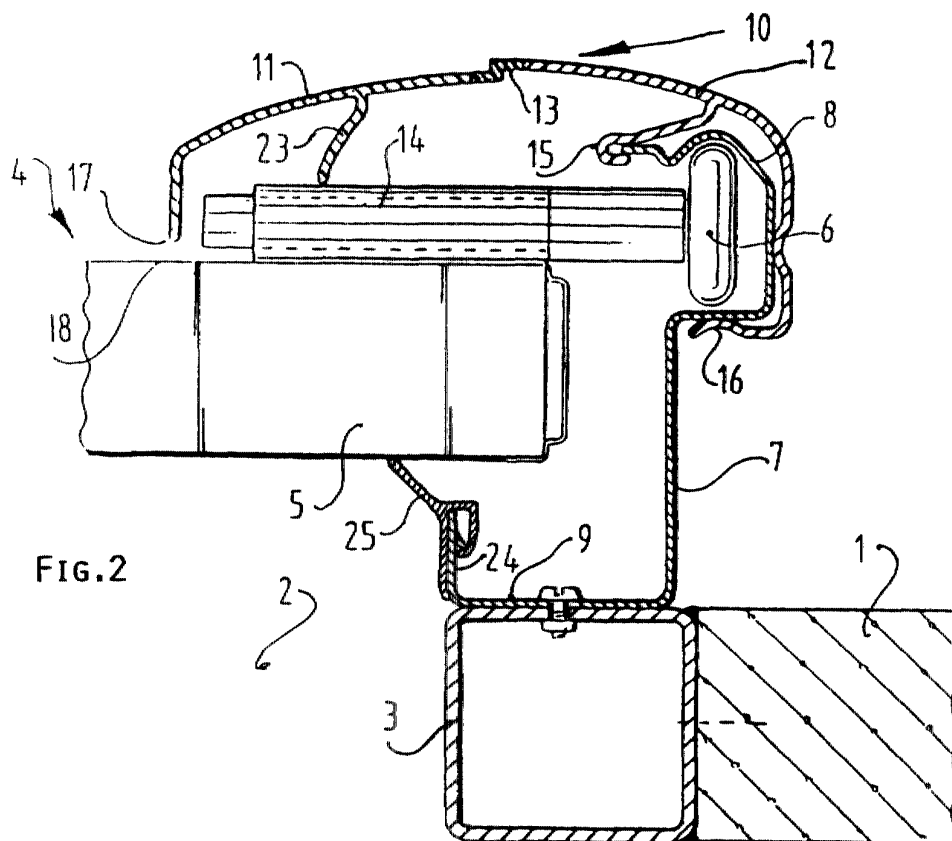


FIG. 2

Description

[0001] The invention relates to a door assembly comprising guide rails which can be mounted on both sides of a door opening, and a door which can be moved in vertical direction within the area of the door opening and which is provided at its vertical edges with guide members which cooperate with said guide rails.

[0002] The door may comprise a number of panels, extending in horizontal direction, the panels being pivotally interconnected. Within the area of the door opening the panels can move in vertical direction and outside that area the panels may move in another direction, for example in horizontal direction.

[0003] Doors of this kind can be used for closing larger openings, in particular openings through which vehicles are driven. The guide rail is usually mounted along the vertical edge of the door opening, on the wall in which the opening is present.

[0004] An object of the invention is to prevent people from being injured by moving parts of the door near said vertical edge.

[0005] Another object of the invention is to protect the guide rail and/or the guide members against dirt and/or objects which may cause malfunctioning of the door.

[0006] Another object of the invention is to provide an adequate sealing of the door in the door opening in the closed position of the door.

[0007] According to the invention, a cover is provided to this end, which cover is mounted along the guide rail and which extends to within the door opening. Preferably the cover consists at least partially of a flexible material, so that at least part of the cover can yield under elastic deformation of at least a portion of the cover.

[0008] In the closed position of the door, the cover can extend to quite near the door surface with its edge, so that an adequate sealing of the door can be achieved. Therewith avoiding that for example a hand or fingers of a person can contact the guiding parts of the door assembly. In the open position of the door the cover is capable of protecting the guide rail and/or the edge of the door opening against damage and against being fouled.

[0009] Preferably, the cover comprises a flexible central portion, seen in cross-sectional view, which is positioned between two parts which are less flexible or inflexible. The cover may be attached by a less flexible or inflexible part, whilst the other less flexible or inflexible part extends to within the door opening. When the part that extends to within the door opening is hit by a vehicle, for example, it will yield, so that it will not be damaged. Thereafter the cover part will return to its original position.

[0010] Preferably, the cover is capable of yielding to the extent that the yielding part of the cover is positioned practically entirely outside the door opening. As a result of this, the door opening will not be reduced in spite of the fact that the cover extends to within the door opening.

ing. The entire door opening will remain available, therefore.

[0011] Preferably, the cover is attached to the guide rail. In a preferred embodiment, the cover comprises clamping means by which the cover can be clampingly attached to the guide rail. In a preferred embodiment the clampingly attached cover can easily be attached and detached without using special tools. Thus it is readily possible to detach the cover temporarily, for example in order to provide access to the guide rail or to replace the cover.

[0012] Preferably, the cover is capable of yielding in two directions, for example when the cover is hit by vehicles which drive through the door opening in two directions.

[0013] Preferably, the guide rail is mounted, at least substantially, at the inner side of the wall in which the door opening is formed, and in the closed position of the door the cover is present on the side of the door remote from the wall. The cover can thereby extend to near the door surface with its edge, thus providing an adequate sealing of the door.

[0014] In a preferred embodiment two covers are present, one at each side of the door in the closed position of the door. Therewith the edge of the door is covered at the inner side as well as at the outer side of the door.

[0015] In a preferred embodiment the guide members are attached to the door, near the edge thereof, by means of fixing elements, and the cover extends over, preferably beyond, said fixing elements in the closed position of the door. Thus also the fixing elements are covered in the closed position of the door. The cover may comprise a portion which contacts said fixing elements. By resting against the fixing elements the cover is supported at only some locations by the door. The cover can be held in a predetermined position by such support.

[0016] The invention furthermore relates to a cover which can be provided along guide rails which are mounted on both sides of a door opening, which cover extends to within said door opening.

[0017] The invention furthermore relates to a method of covering an edge of a door opening, wherein a cover is attached to the guide rail which is mounted along the aforesaid edge for guiding the door, which cover extends to within the door opening.

[0018] In order to explain the invention more fully, an exemplary embodiment of a door assembly will be described in more detail hereafter with reference to the drawing.

Figure 1 shows a door assembly mounted in a wall; Figure 2 is a sectional view along line II-II in Figure 1; and

Figure 3 is the same sectional view, with the door in the open position.

[0019] The figures are merely schematic representa-

tions of the embodiment.

[0020] Figure 1 shows a wall 1 in which a door opening 2 is present. The edge of the door opening 2 is made up of a hollow metal section 3 of square cross-section, which is attached to wall 1 by means not shown.

[0021] The door opening 2 can be closed by a door 4, which consists of a number of pivotally interconnected panels 5 which extend in horizontal direction.

[0022] Mounted on the end of each panel 5 are guide members in the form of a guide wheel 6, which can be moved in a guide rail 7. Guide rail 7 extends vertically along the edge of door opening 2 and bears off towards a horizontal direction perpendicularly to wall 1 near the upper side of door opening 2, so that the panels 5 will first move in upward direction and then in horizontal direction upon opening of the door, as is illustrated in dashed lines in Figure 1.

[0023] Each guide wheel 6 is rotatably mounted on one of the panels 5 of door 4 by means of fixing elements 14.

[0024] As is shown in Figures 2 and 3, the vertical part of the guide rail 7 includes a guide portion 8, in which the guide wheel 6 can move, and an attachment portion 9, which can be attached to wall 1 near the edge of the door opening 2. In the illustrated embodiment the attachment portion 9 of guide rail 7 is attached to the metal section 3 that forms the edge of door opening 2 by means of bolts.

[0025] As is shown in Figures 2 and 3, a cover 10 is attached to guide portion 8 of guide rail 7. Cover 10 is shown in cross-sectional view and is made of an extruded polymeric material, with less flexible parts 11, 12 on either side, seen in vertical longitudinal direction, and a more flexible central portion 13 positioned therebetween.

[0026] The less flexible part 12 of cover 10 is clampingly attached to guide rail 7, as is shown in Figures 2 and 3. Said part 12 is to that end provided with two clamping members 15, 16, which clampingly engage the guide rail 7.

[0027] As is shown in Figure 2, cover 10 extends from guide 7 to beyond the fixing elements 14 by means of which the guide wheel 6 is mounted on panel 5 of door 4. The edge 17 of the less flexible part 11 of cover 10 extends to near the surface 18 of door 4. The less flexible part 11 is furthermore provided with a portion 23 which contacts fixing elements 14. By resting against fixing elements 14 part 11 of the cover is kept in a predetermined position whereby the edge 17 is located at a desired small distance from the surface 18 of the door 4.

[0028] Since the central portion 13 is more flexible, the part 11 of cover 10 is capable of pivoting movement, for example to a position 19 or 20 as illustrated in dashed lines in Figure 3. Said pivoting movement is indicated by arrows 21, 22.

[0029] When the door 4 is open, the part 11 of cover 10 extends to within the door opening 2 and would thus

reduce the opening if part 11 if it were not for the fact that part 11 can pivot, and that to such an extent that part 11 can be positioned outside the door opening 2, that is, beyond the position which is indicated in Figure 3.

[0030] Figure 2 shows a second cover 25 made of flexible material. Cover 25 is clampingly attached to portion 24 of guide 7. Flexible cover 25 rests against the outer surface of door 4. So, figure 2 shows two covers 10, 25, one at each side of the door 4.

[0031] The illustrated embodiment is merely an example, also many other embodiments of the door assembly are possible.

Claims

1. A door assembly comprising guide rails (7) which can be mounted on both sides of a door opening (2), and a door (4) which can be moved in vertical direction and which is provided at its vertical edges with guide members (6) which cooperate with said guide rails (7), wherein a cover (10, 25) is provided, which cover is mounted along the guide rail (7) and which extends to within the door opening (2).
2. A door assembly according to claim 1, **characterized in that** the cover (10, 25) consists at least partially of a flexible material, so that at least part (11) of the cover (10, 25) can yield under elastic deformation of at least a portion (13) of the cover (10, 25).
3. A door assembly according to any one of the preceding claims, **characterized in that** the cover (10) comprises a flexible central portion (13), seen in cross-sectional view.
4. A door assembly according to any one of the preceding claims, **characterized in that** the cover (10, 25) is capable of yielding to the extent that the respective part (11) of the cover (10, 25) is positioned practically entirely outside the door opening (2).
5. A door assembly according to any one of the preceding claims, **characterized in that** the cover (10, 25) comprises clamping means (15, 16) by which the cover (10, 25) can be clampingly attached to the guide rail (7).
6. A door assembly according to any one of the preceding claims, **characterized in that** the cover (10, 25) is capable of yielding in two directions.
7. A door assembly according to any one of the preceding claims, **characterized in that** the guide rail (7) is mounted on the inner side of the wall (1) in which the door opening (2) is formed, and in the

closed position of the door (4) the cover (10) is present on the side of the door (4) remote from the wall (1).

8. A door assembly according to any one of the preceding claims, **characterized in that** in the closed position of the door (4) two covers (10,25) are present one at each side of the door (4). 5
9. A door assembly according to any one of the preceding claims, **characterized in that** the guide members (6) are attached to the door (4), near the edge thereof, by means of fixing elements (14), and the cover (10) extends over, preferably beyond, said fixing elements (14) in the closed position of the door (4). 10 15
10. A door assembly according to any one of the preceding claims, **characterized in that** the guide members (6) are attached to the door (4), near the edge thereof, by means of fixing elements (14), and that the cover (10) comprises a portion (23) which contacts said fixing elements (14). 20
11. A cover which can be provided along guide rails (7) which are mounted on both sides of a door opening (2), which cover (10,25) extends to within said door opening (2). 25
12. A method of covering an edge (3) of a door opening (2), wherein a cover (10,25) is attached to the guide rail (7) which is mounted along the aforesaid edge (3) for guiding the door (4), which cover (10,25) extends to within the door opening (2). 30

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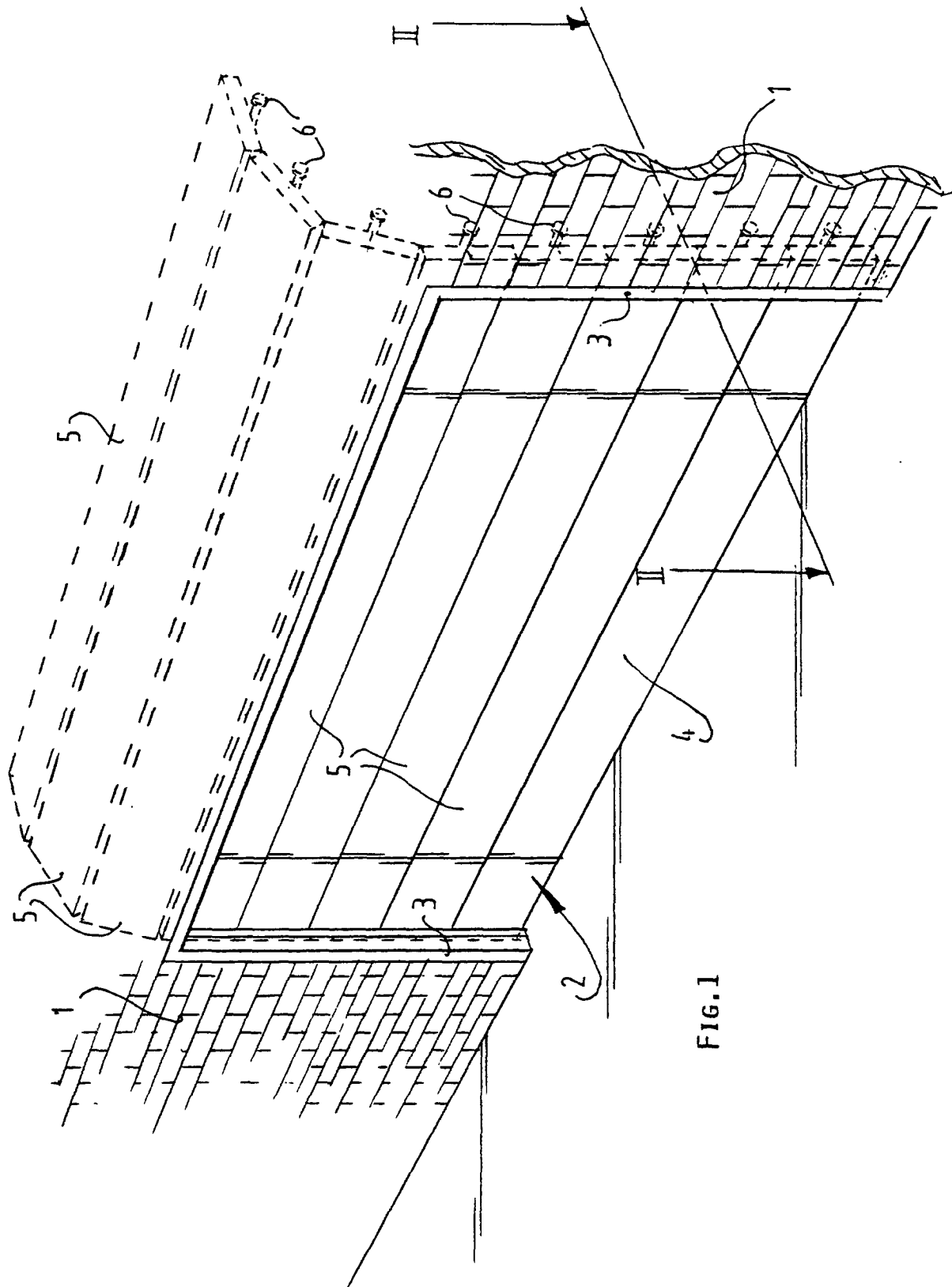
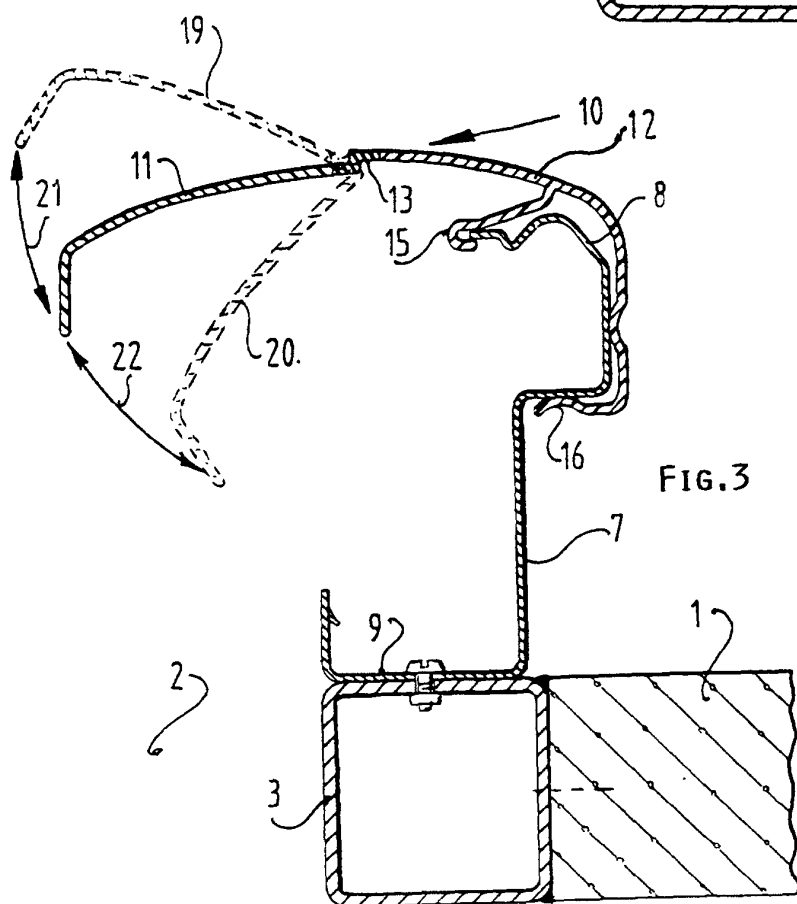
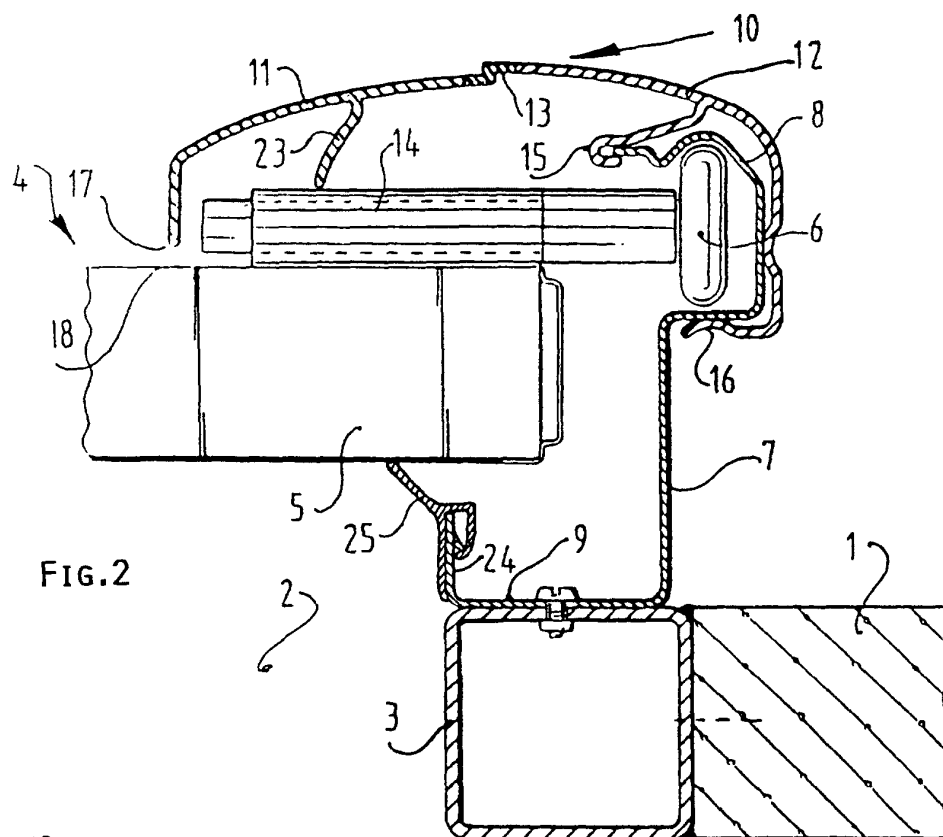


FIG. 1





European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 00 20 1633

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.7)
X	FR 2 746 841 A (CARDO DOOR FRANCE) 3 October 1997 (1997-10-03) * the whole document *	1,2,5,6, 11,12	E06B9/58 E06B1/52
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E06B E05D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 25 September 2000	Examiner Fordham, A
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			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 20 1633

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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25-09-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2746841 A	03-10-1997	NONE	
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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82