



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 1 158 131 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

28.11.2001 Bulletin 2001/48

(51) Int Cl.7: **E06B 3/48**

(21) Application number: **00401485.8**

(22) Date of filing: **26.05.2000**

(84) Designated Contracting States:

**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**

Designated Extension States:

AL LT LV MK RO SI

(72) Inventor: **Juneau, Pierre**

Repentigny,, Québec, J6A 5H9 (CA)

(74) Representative: **Jaunez, Xavier et al**

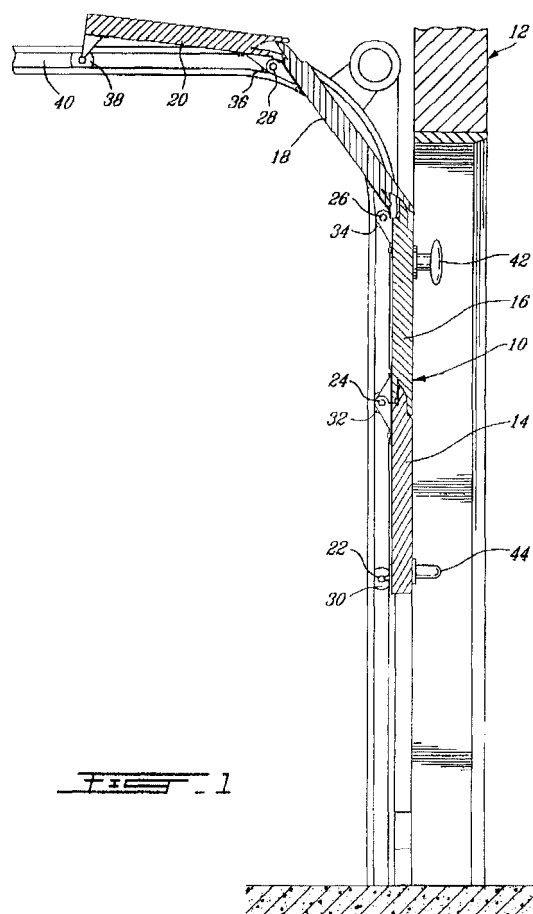
**Cabinet Boettcher,
22, rue du Général Foy
75008 Paris (FR)**

(71) Applicant: **Juneau, Pierre**

Repentigny,, Québec, J6A 5H9 (CA)

(54) Finger protecting arrangement in a sectional roll-type door

(57) In a rolled-type door, such as a sectional garage door, wherein a plurality of horizontal vertically adjacent are hingedly connected together at their adjacent inside edges, a series of finger protecting joint members are disposed longitudinally between the adjacent panels. Each end face of an adjacent panel is formed of a front and rear section defining a gap therebetween in which is lodged a longitudinal sealing member. The end faces of adjacent panels include complementary convex and concave sides which, when the panels are angularly hinged relative to one another, eliminates the presence of a gap usually present in conventional doors thereby preventing accidental wedging of the fingers of the door operator.



EP 1 158 131 A1

Description

FIELD OF THE INVENTION

[0001] The present invention pertains to a protective configuration in the longitudinal end faces of panels of a roll type door, such as a sectional garage door, wherein a plurality of horizontal vertically adjacent panels are hingedly connected together at their adjacent inside edges and are adapted to cooperate with tracks to slide from a vertical close position to a horizontal overhead open position, and vice-versa.

BACKGROUND OF THE INVENTION

[0002] When door constructions of the type described above are moved from a horizontal open position to a vertical close position, a V-shape gap is created between adjacent front edges of each pair of cooperating panels during the period when the panels move around the curved portions of the tracks. Hence, some danger exists to the door operator fingers during the time the gaps are closed when the door approaches a vertical planar position during the door closing operation.

[0003] Protection to the operator is therefore important and some protecting devices have been devised, one of which for example is described in applicant's co-pending Canadian patent application serial number 2,256,662 filed December 18, 1998 in the name of Pierre Juneau wherein a protective strip is provided between the facing adjacent edges of the panels and partially covers both inner and outer faces of the panel.

OBJECTS AND STATEMENT OF THE INVENTION

[0004] An object of the present invention is to provide an improved safety configuration on the longitudinal end faces of adjacent panels of the type of door described.

[0005] This is achieved by providing a configuration which will prevent an operator's fingers to be inserted in the gap formed by two angularly disposed panels during the closing or opening of the door.

[0006] The present invention therefore relates to an overhead sectional door which comprises a number of panels successively hinged to one another by means of hinge connections whose hinge axles are arranged close to the inner side of the door, each panel being arranged between two adjacent panels having first and second longitudinal end faces; a first joint member at the first longitudinal end face, the joint member having a pair of front and rear longitudinal sections distanced from one another to define a gap therebetween; a first longitudinal sealing member in the gap; the rear section defining a U-shape with inner and outer planar sides and an intermediate side connecting the inner and outer sides; the front section defining a planar outer side, a concave inner side and a rounded intermediate side connecting the planar outer side and the concave inner

side; the intermediate side of the front section extending below the hinge axle when the door is in a planar position; a second joint member at the second longitudinal end face; the second joint member having a pair of front and rear longitudinal sections distanced from one another to define a gap therebetween; a second longitudinal sealing member in the gap; the rear section of the second joint member defining a U-shape with inner and outer planar sides and an intermediate side connecting the inner and outer sides; the front section of the second joint member defining a V-shape with a planar inner side and a convex front side and an inwardly rounded portion whereby, when the door is in the planar position, the planar inner side and the convex outer side of the second joint section are received within a recess formed by the inner side of the rear section of the first joint member and the concave inner side of the front section of the first joint member; contact between the first and second joint members being mainly effected on the first and second sealing members.

[0007] In one form of the invention, both sealing members are made of a flexible plastic material.

[0008] Other objects and further scope of applicability of the present invention will become apparent from the detailed description given hereinafter. It should be understood, however, that this detailed description, while indicating preferred embodiments of the invention, is given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art.

IN THE DRAWINGS

[0009] Figure 1 is a cross-sectional view of a garage door showing some panels extending between a vertical close position and a horizontal open position;

[0010] Figure 2 is a cross-sectional view of a panel used in the door illustrated in figure 1;

[0011] Figure 3 is an enlarged sectional view showing the longitudinal end face configuration of two adjacent panels;

[0012] Figure 4 is a view similar to that illustrated in figure 3, but illustrating the hinge axle; and

[0013] Figure 5 is a schematic view showing adjacent panel ends in an angularly hinged position relative to one another.

DESCRIPTION OF PREFERRED EMBODIMENTS

[0014] Referring to figure 1, a door 10 closing a garage front wall 12 comprises a plurality of horizontal vertically disposed panels 14, 16, 18 and 20. These panels are hingedly connected by means of hinges 22, 24, 26 and 28 which are attached respectively adjacent the upper and lower edges of each pair of adjacent panels. These hinges are preferably connected to the panels in usual manner, that is to their inside surfaces by means of screws or the like so that the panels respectively are

free to hinge inwardly in the manner shown in figure 1, that is to permit them to move to an overhead horizontal position when the door is opened. Mounted at each vertical side edge of each of the panel, rollers 30, 32, 34 and 36 and 38 are provided in cooperating engagement with tracks, one of which is shown as 40, so that the door as a whole is free to follow the tracks to be moved up and down for opening and closing the door opening. Handles 42 and 44 are provided to an operator on the front side of the door for opening and closing the door.

[0015] The present invention is concerned with providing an improved configuration of the longitudinal end faces of the adjacent panels. Referring to figure 2, one example of such panel is shown as 18 and comprises a front side 50 and a rear side 52 with opposite longitudinal joint members 54 and 66.

[0016] Referring also to figures 3, 4 and 5, the joint member 54 is formed of a pair of front and rear longitudinal sections 58 and 60 which are distanced from one another to define a gap in which is lodged a Y-shaped sealing member 62. The rear section defines a U-shape with inner and outer planar sides 64 and 66 and an intermediate side 68 connecting the inner and outer sides. The front section 58 defines a planar outer side 70, a concave inner side 72 and a rounded intermediate side 74 which extends below the hinge axle 76 by a distance "x" when the door is in a planar position, either closed or opened. The second joint member 56 has a pair of front and rear sections 80 and 82 which are distanced from one another so as to define in a gap in which is lodged a sealing member 84. The rear section 80 defines a U-shape with inner and outer planar sides 86 and 88 and an intermediate side 90 connecting the inner and outer sides. The front section defines an inverted V-shape with a planar inner side 92 and a convex front side 94 which displays in its lower part an inwardly rounded portion 96. As can be seen, in figure 3, in the planar vertical or horizontal position, the rounded side 74 is lodged in the inwardly rounded portion 96. However, in the vertical position, the load is supported mainly by the two sealing members 62 and 84 which are formed of a flexible plastic material such as PVC.

[0017] As can be seen in figure 5, in the most extreme angularly hinged position of two adjacent panels, there is no gap existing in which an operator's fingers could be inserted.

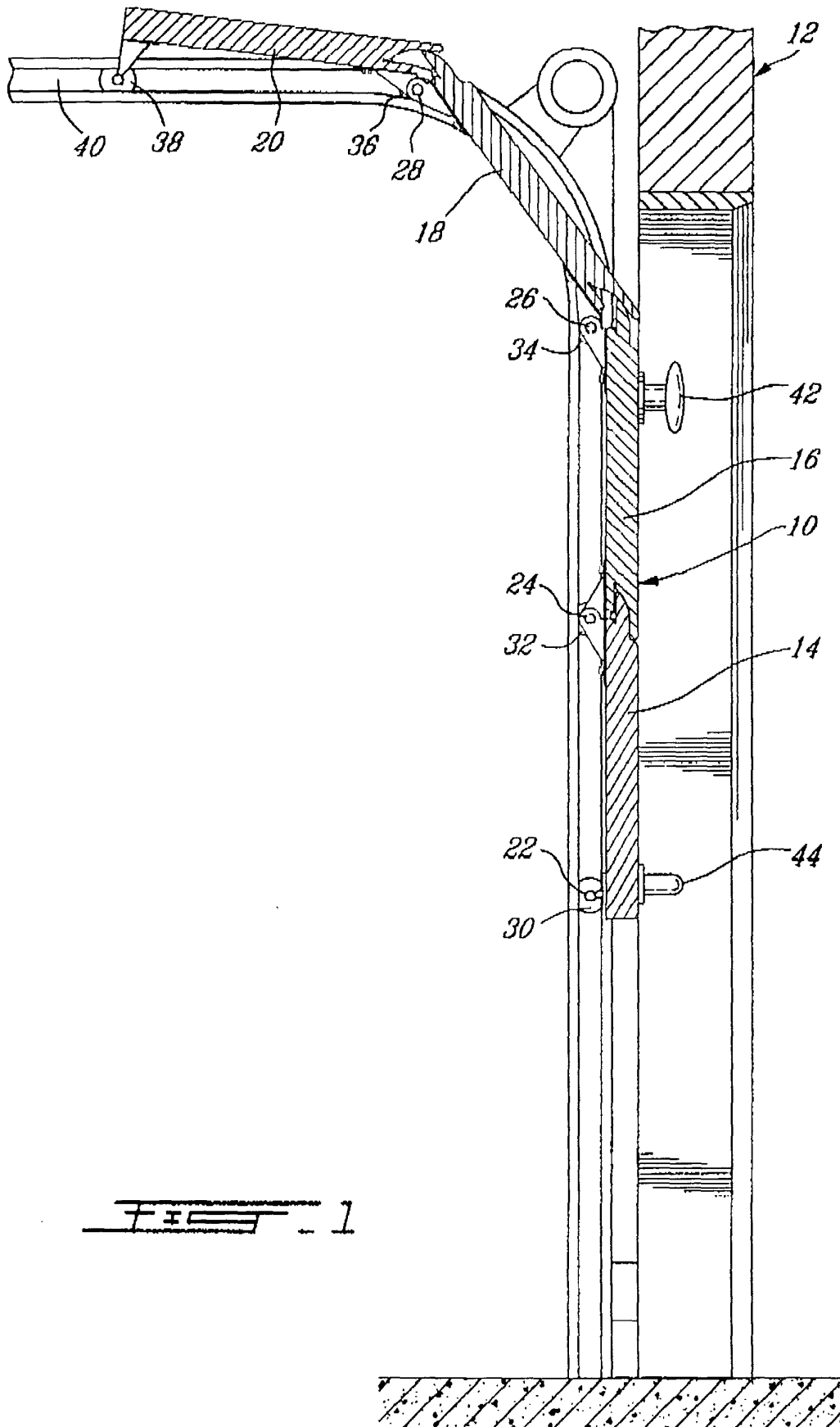
[0018] Although the invention has been described above with respect with one specific form, it will be evident to a person skilled in the art that it may be modified and refined in various ways. It is therefore wished to have it understood that the present invention should not be limited in scope, except by the terms of the following claims.

Claims

1. An overhead sectional door comprising a number

of panels successively hinged to one another by means of hinge connections whose hinge axes are arranged close to the inner side of the door, each panel being arranged between two adjacent panels having first and second longitudinal end faces; a first joint member at said first longitudinal end face, said joint member having a pair of front and rear longitudinal sections distanced from one another to define a gap therebetween; a first longitudinal sealing member in said gap; said rear section defining a U-shape with inner and outer planar sides and an intermediate side connecting said inner and outer sides; said front section defining a planar outer side, a concave inner side and a rounded intermediate side connecting said planar outer side and said concave inner side; said intermediate side of said front section extending below said hinge axle when said door is in a planar position; a second joint member at said second longitudinal end face; said second joint member having a pair of front and rear longitudinal sections distanced from one another to define a gap therebetween; a second longitudinal sealing member in said gap; said rear section of said second front joint member defining a U-shape with inner and outer planar sides and an intermediate side connecting said inner and outer sides; said front section of said second front member defining a V-shape with a planar inner side and a convex front side and an inwardly rounded portion whereby, when said door is in said planar position, said planar inner side and said convex outer side of said second joint member are received within a recess formed by said inner side of said rear section of said first joint member and said concave inner side of said front section of said first joint member; contact between said first and second joint members being mainly effected on said first and second sealing members.

2. An overhead sectional door as defined in claim 1, wherein said rounded intermediate side of said front section of said first joint member is partially received in said inwardly rounded portion of said front section of said second joint member.
3. An overhead sectional door as defined in claim 1 or 2, wherein both said sealing members are made of a flexible plastic material.
4. An overhead sectional door as defined in claim 1, 2 or 3, wherein both said sealing members have a Y-shaped section.



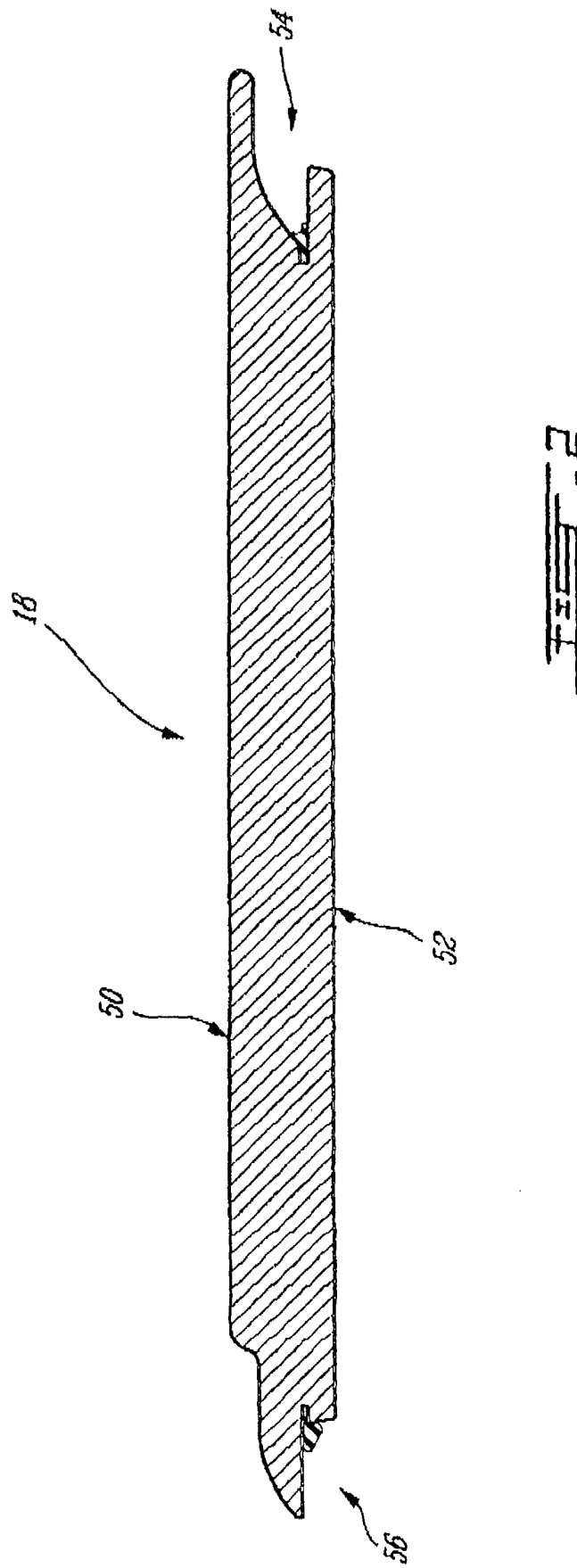
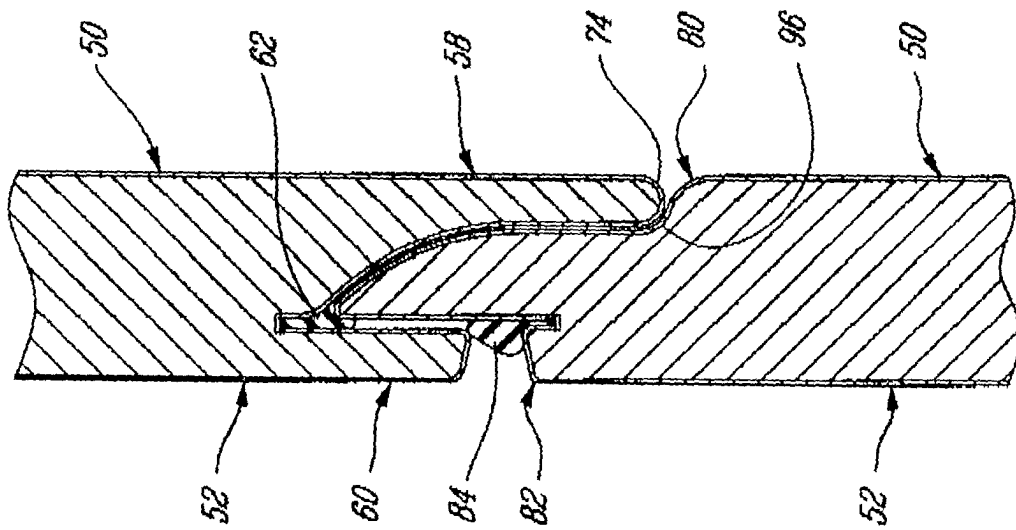


FIG. 2



五. 总结

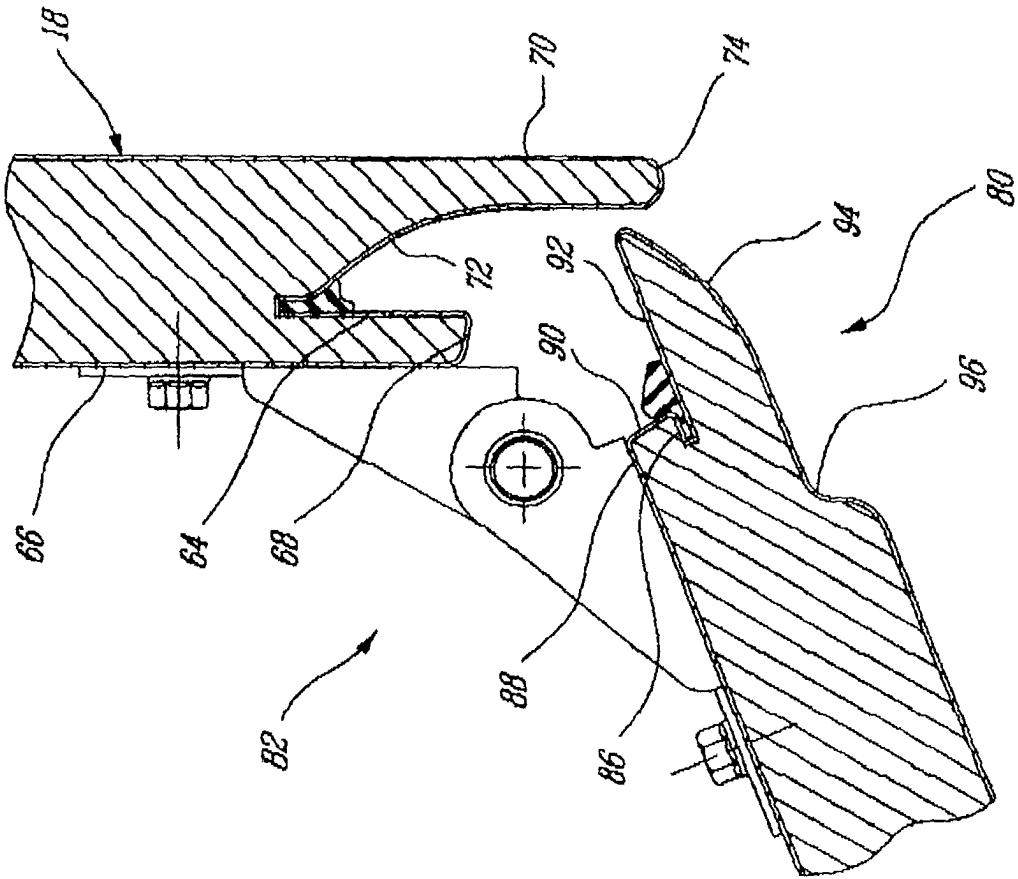


Fig. 5

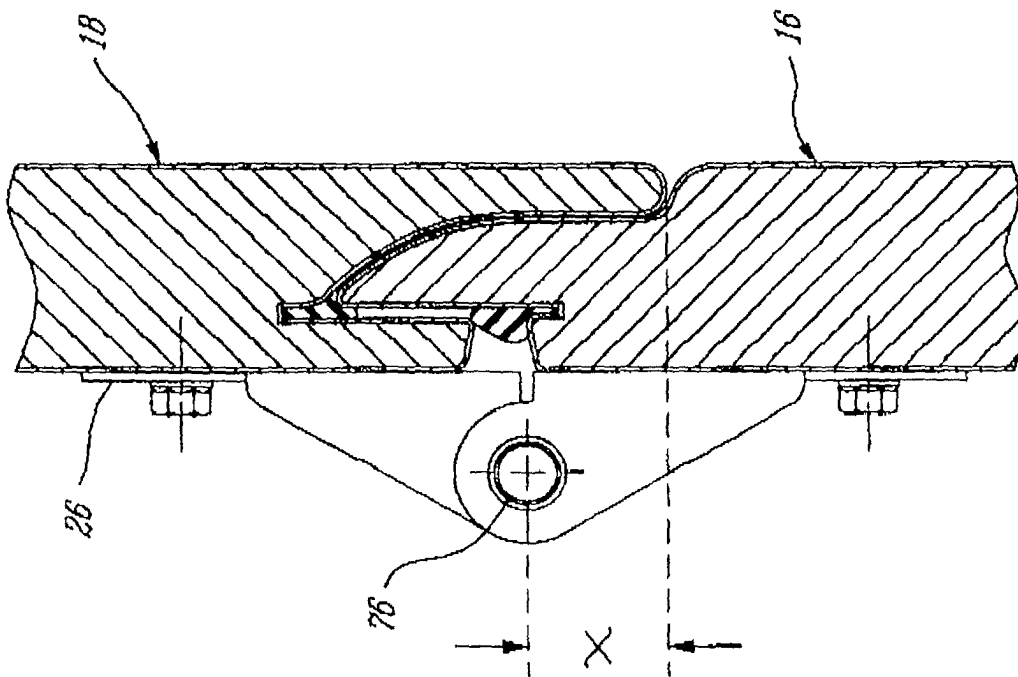


Fig. 4



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 40 1485

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)
A	DE 92 06 018 U (WALTER TECKENTRUP) 3 June 1993 (1993-06-03) * claims 2,7; figure 3 * ---	1,3	E06B3/48
A	WO 99 16997 A (NASSAU DOOR) 8 April 1999 (1999-04-08) * claim 4; figures 2-7 * ---	1,3	
A	EP 0 304 642 A (HÖRMANN) 1 March 1989 (1989-03-01) * claims 10,13-16; figures 5-7,11-14 * ---	1,3	
A	DE 89 15 709 U (NIEMETZ TORSYSTEME) 29 May 1991 (1991-05-29) * page 10, paragraph 4; figures 8,9 * ---	1-3	
A	EP 0 787 881 A (ALUMA SHIELD INDUSTRIES) 6 August 1997 (1997-08-06) * claim 10; figures 3,4 * ---	1	
A	DE 297 08 001 U (G. MÜLLER) 10 July 1997 (1997-07-10) * claim 1; figure 1 * ---	1	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A	EP 0 394 691 A (NIEMETZ TORSYSTEME) 31 October 1990 (1990-10-31) * claim 5; figures 1,2,4-8 * -----	1	E06B
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 30 October 2000	Examiner Krabel, 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	

EPO FORM 1503 03.82 (P04C01)

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

EP 00 40 1485

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

30-10-2000

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 9206018	U	03-06-1993	NONE	
WO 9916997	A	08-04-1999	AU 9338098 A EP 1017922 A NO 20001565 A	23-04-1999 12-07-2000 24-03-2000
EP 304642	A	01-03-1989	DE 3726699 A DE 3816985 A AT 75518 T DE 3870542 A DE 3870542 D DK 170350 B ES 2031186 T FI 883724 A,B, GR 3005052 T JP 1142188 A JP 2109471 C JP 8019813 B NO 172299 C US 4893666 A	23-02-1989 30-11-1989 15-05-1992 04-06-1992 04-06-1992 07-08-1995 01-12-1992 12-02-1989 24-05-1993 05-06-1989 21-11-1996 28-02-1996 12-01-1995 16-01-1990
DE 8915709	U	29-05-1991	DE 8800956 U AT 87705 T DE 58903902 D EP 0326131 A	19-05-1988 15-04-1993 06-05-1993 02-08-1989
EP 787881	A	06-08-1997	US 5669431 A CA 2196147 A IT MI961931 A US 5915444 A	23-09-1997 31-07-1997 19-03-1998 29-06-1999
DE 29708001	U	10-07-1997	NONE	
EP 394691	A	31-10-1990	DE 3913804 A	31-10-1990