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(54) **Electromechanical barrier**

(57) This invention concerns an electromechanical barrier comprising a movable bar (14) attached at one end (13') of a rotating shaft (13) of a control gear reduction unit (12) fixed to a supporting structure or column (11) and at least one elastic means (15) associated with the rotating shaft (13) for balancing the bar during its opening and closing movements. The rotating shaft is supported in the body of the reduction unit (12) in two parallel parts by means of bearings, and has an end (13'') opposite the one supporting the bar (14) to be controlled supported on a fixed additional means of support (20) outside and at a distance from the reduction unit.

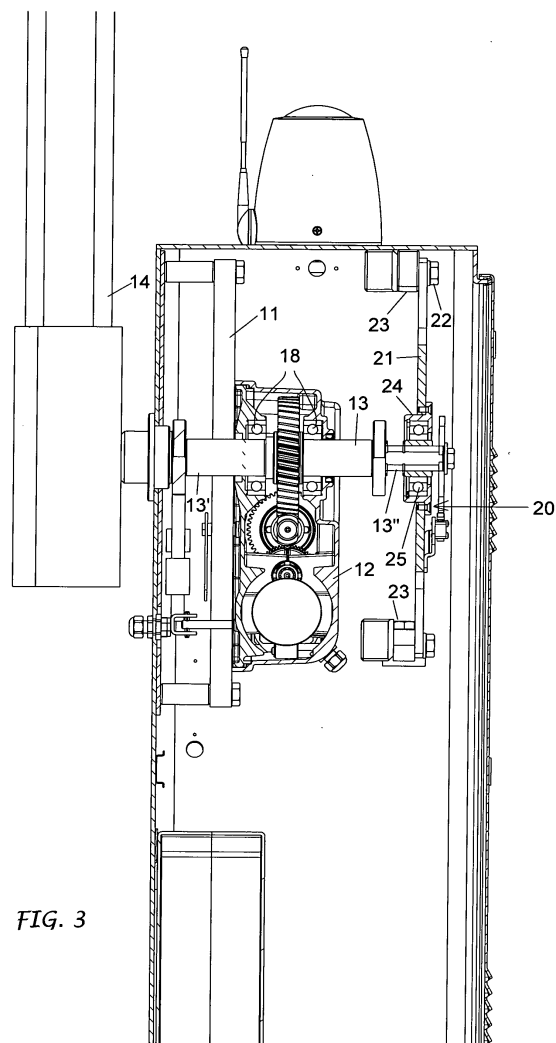


FIG. 3

Description

[0001] This invention relates to an electromechanical barrier with a movable bar powered by a gear reduction unit, and refers in particular to an innovative supporting device of the shaft of the gear reduction unit controlling the bar.

[0002] An electromechanical barrier of the type taken into consideration usually comprises a movable bar attached to and rotating with the shaft of a reduction unit fixed in a structure or supporting column, and at least one elastic means associated with said shaft for balancing of the bar in its movements. The elastic means is loaded when the bar moves from the open to the closed position cooperating then with the opening of the bar, and it can be made up of one or more spiral, helical or leaf springs, with one end connected to the rotating shaft and the other end fixed to the supporting structure or column.

[0003] In the most common embodiment, the body of the gear reduction unit is fixed in the structure or supporting column with a disposition that is basically projecting, and the shaft to be connected to the bar to be controlled is supported only in two parts of the body of the gear reduction unit with interposition of bearings. This condition however, seems to be mechanically unfavourable in that the shaft, when it is under stress, tends to oscillate together with the body of the gear reduction unit, in particular if the bar to be controlled is very long and subject to significant inertia.

[0004] One of the objectives of this invention is to effectively remedy such a drawback by using a more correct and rigid support for the shaft designed to control the opening and closing movements of a bar.

[0005] A further objective of the invention is to provide an electromechanical barrier where the rotation axis of the bar is stabilised by the use of simple additional means which are to a large extent irrelevant to the traditional configuration of the device, so that it does not feel the effects of the stress deriving from the movements of the bar, even if the latter is particularly long and heavy.

[0006] These objectives and implicit advantages deriving from them are achieved, according to the invention, with an electromechanical barrier according to the characterizing part of claim 1.

[0007] The features of the invention will however become evident from the following description made in reference to the enclosed indicative and not limitative drawings, in which:

Fig. 1 shows a view in perspective of a functional part of the electromechanical barrier;

Fig. 2 shows a front view of the additional means of support of the rotating shaft of the bar;

Fig. 3 shows a vertical section according to arrows A-A in Fig.2.

[0008] As shown, the barrier proposed herein comprises

a column supporting structure 11, a gear reduction unit 12 connected to the supporting structure 11 and provided with an exit rotating shaft 13, a movable bar 14 controlled by said rotating shaft 13 for its opening and closing movements, and one or more springs 15 balancing the movements of the bar.

[0009] The supporting structure 11 is anchored to the ground and normally enclosed in a casing 16. The gear reduction unit 12 is fixed, through its body 17, to the supporting structure 11 as shown in the drawings, so that its rotating shaft 13 extends horizontally. This shaft 13 is supported in the body 17 of the reduction unit in two parallel parts, by means of rolling bearings 18, and has one of its ends 13' facing towards one side of the supporting structure 11 where it is fixed to the bar 14 to be controlled. The balancing spring/springs 15 have one of their ends connected to at least one lever arm 19 fixed to rotating shaft 13 and an opposite end -not shown- attached to the supporting structure.

[0010] In compliance with the invention, the other end 13" of the rotating shaft 13, opposite to the one supporting the bar 14 to be controlled, extends out of the body 17 of the gear reduction unit towards an additional supporting means 20, outside said reduction unit.

[0011] The additional supporting means 20 consists of a vertical plate 21 fixed, by means of bolts 22, to at least two crosspieces 23 associated with and connected to the supporting structure 11. The plate 21 has a housing 24 in one of its intermediate parts designed to receive at least one rolling bearing 25, and the end 13" of the rotating shaft is coupled to and supported by said rolling bearing 25 as shown above all in Fig. 3.

[0012] In this way, and advantageously, the rotating shaft 13 designed to control the opening and closing movements of the bar 14, is supported, other than by the bearings in two internal parts at a distance from the reduction unit, also by a third part by a stiffening of the functional system.

[0013] In addition the supporting plate 21 may also be used as a means for accepting the electric end of stroke devices 26 designed to set the opening and closing positions of the bar.

Claims

1. Electromechanical barrier comprising a movable bar (14) attached at one end (13') of a rotating shaft (13) of a control gear reduction unit (12) fixed to a supporting structure or column (11), and at least one elastic means (15) associated with the rotating shaft (13) for balancing the bar during its opening and closing movements, and where said rotating shaft is supported in the body of the reduction unit (12) in two parallel parts by means of bearings, **characterized in that** an additional means of support (20) is provided for an end (13") of the rotating shaft (13) opposite the one supporting the bar (14) to be controlled.

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2. Electromechanical barrier according to claim 1, wherein said additional means of support (20) is fixed to the supporting structure or column (13) and provided with means for supporting the rotating shaft (13) in its third part (13'') outside and at a distance from the gear reduction unit, in addition to the two parallel parts supported by the bearing in the body of the same reduction unit. 5 10
3. Electromechanical barrier according to claim 1 or 2, wherein said additional means of support (20) includes a vertical plate (21) rigidly fixed to at least two crosspieces (23) associated and connected to the structure or supporting column (11) and wherein said plate (21) has a housing (24) in an intermediate part for at least one bearing (25) designed to receive and support the end (13'') of the rotating shaft opposite to the one supporting the bar (14) to be controlled. 15 20
4. Electromechanical barrier according to claim 3, wherein said plate (21) also acts as a means for accepting the electric end of stroke devices (26) designed to establish the opening and closing positions of the bar. 25

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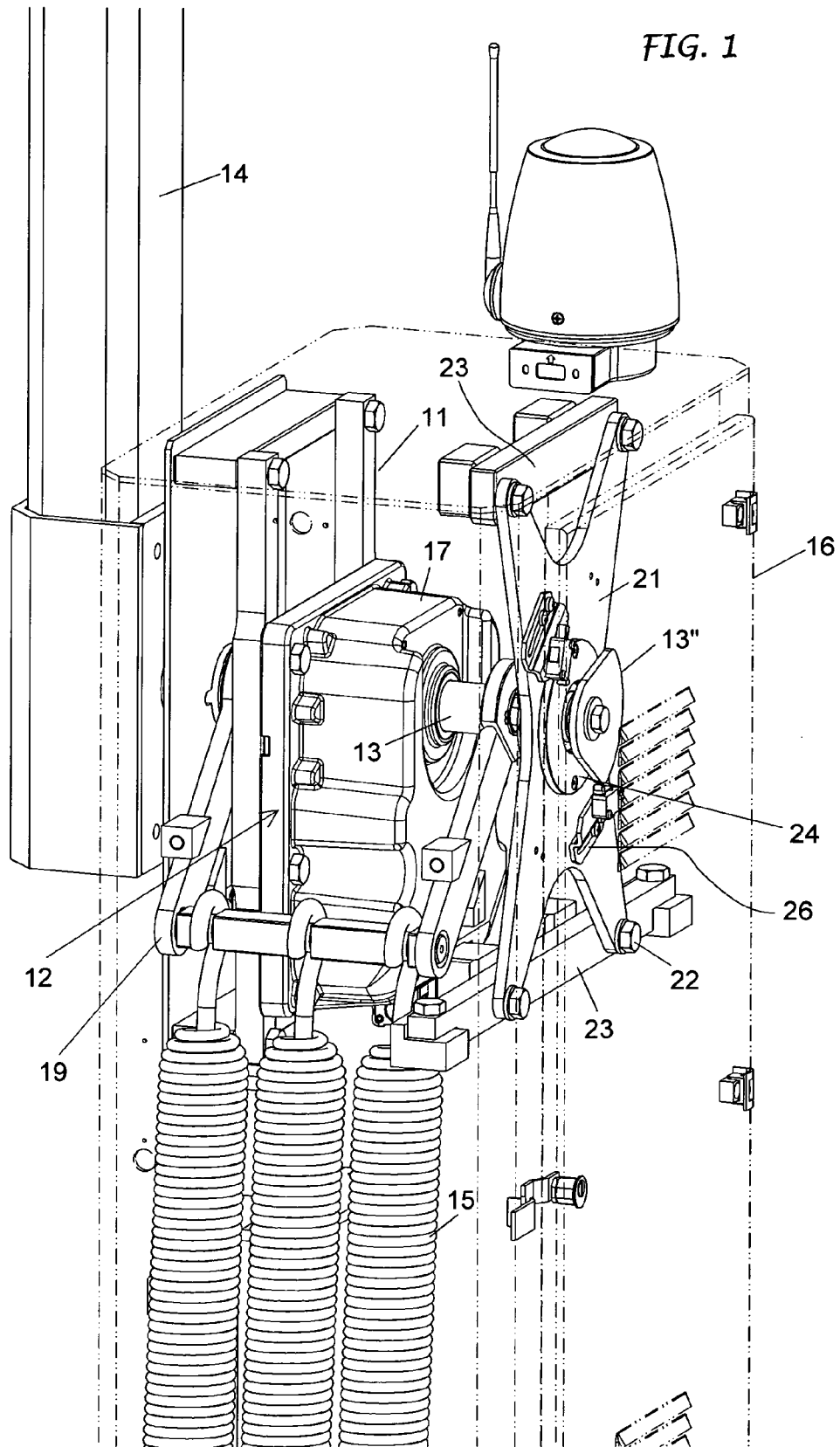
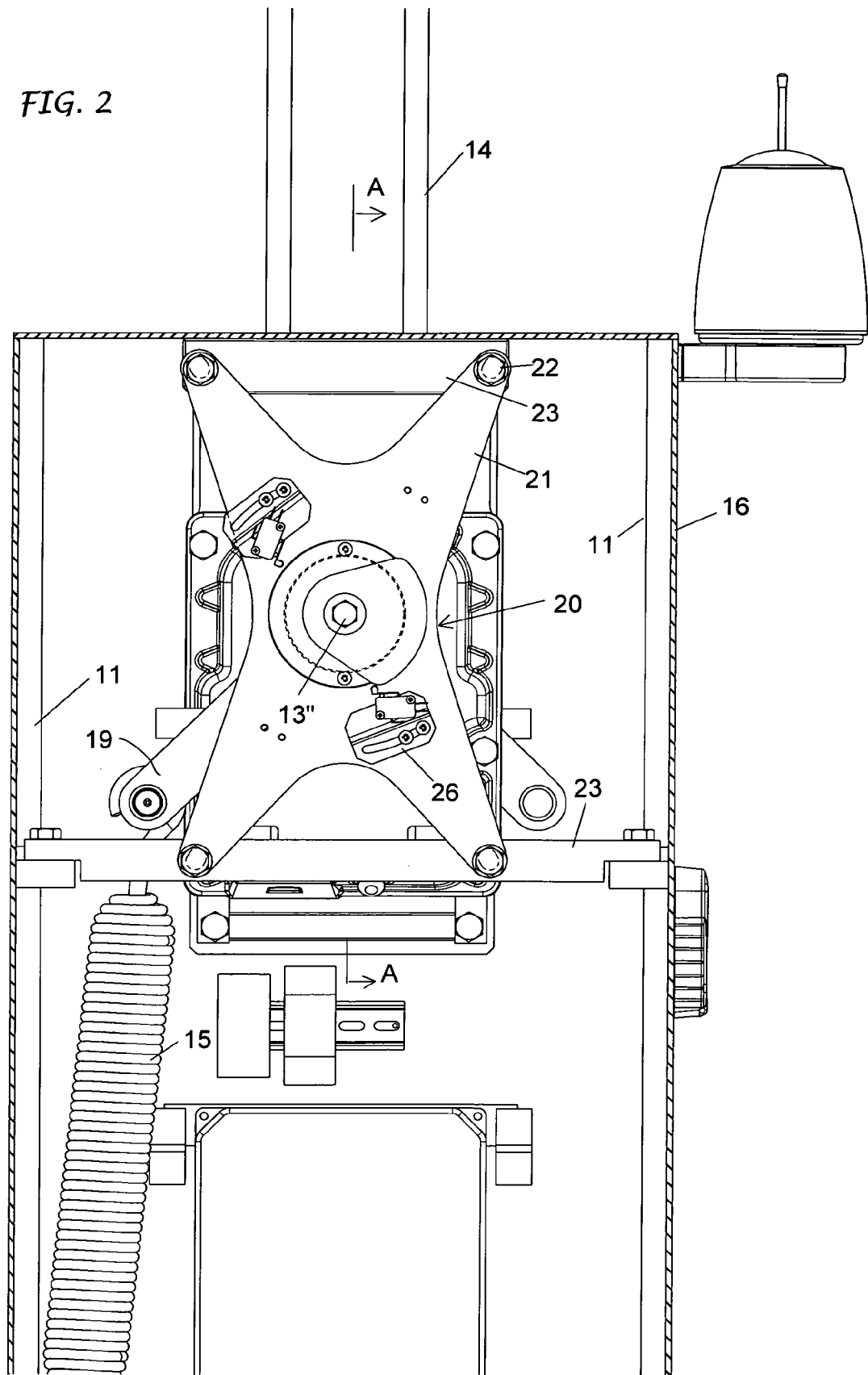
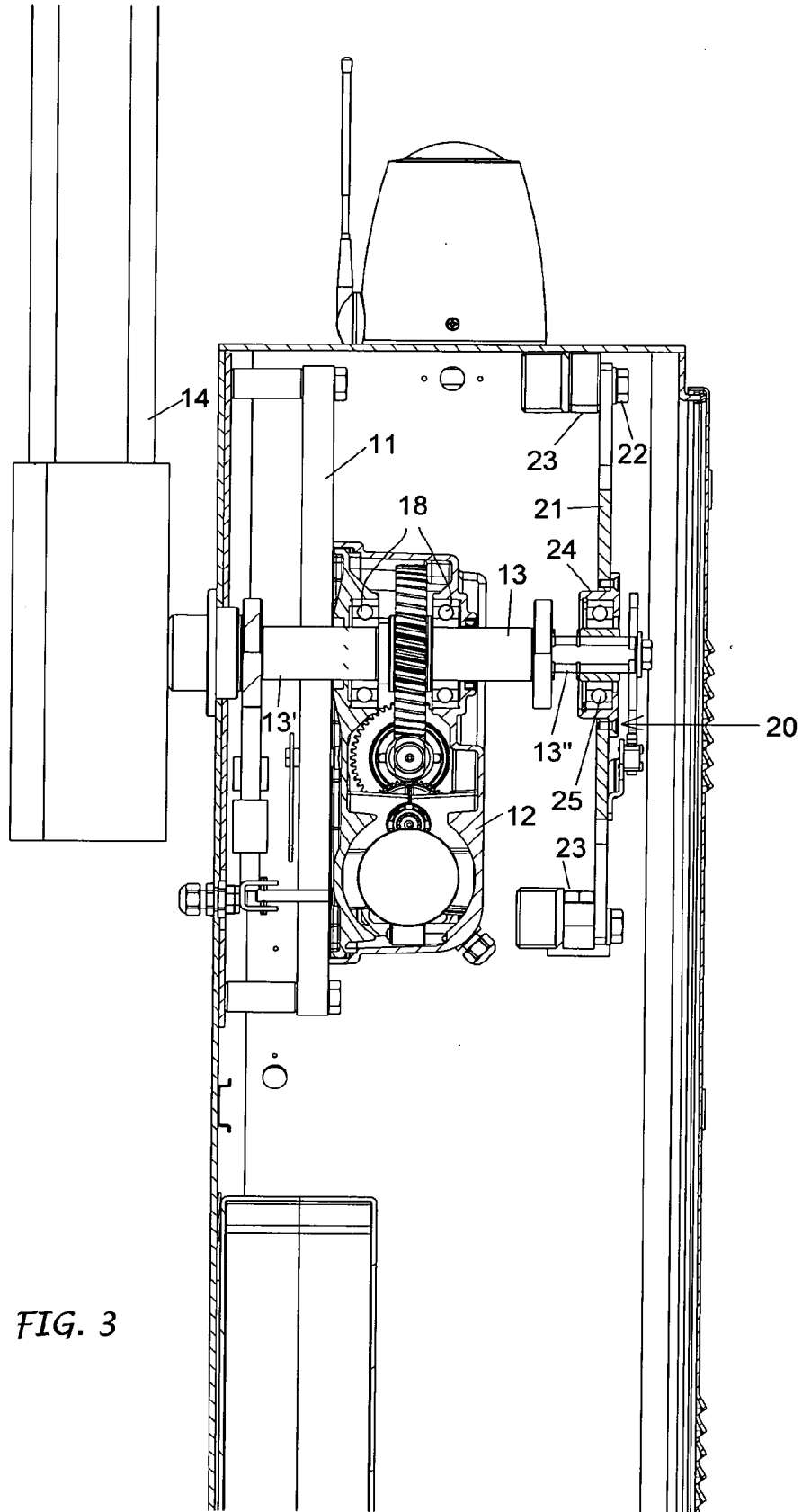


FIG. 2







European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 08 42 5122

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 4 848 175 A (WEISS ADRIAN U [CH]) 18 July 1989 (1989-07-18) * column 6, line 13 - column 10, line 3; figure 4 *	1-3	INV. E01F13/06
X	EP 1 295 992 A (RIB S R L [IT]) 26 March 2003 (2003-03-26) * paragraph [0005] - paragraph [0013]; figure 5 *	1-3	
A	US 4 681 479 A (WAGNER RICHARD H [US] ET AL) 21 July 1987 (1987-07-21) * column 2, line 28 - column 5, line 24; figure 2 *	1-4	
P,X	FR 2 893 335 A (ERO IND SA [FR]) 18 May 2007 (2007-05-18) * page 2, line 13 - page 7, line 20; figure 4 *	1,2	
			TECHNICAL FIELDS SEARCHED (IPC)
			E01F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 8 July 2008	Examiner Geiger, Harald
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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EPO FORM 1503 03/82 (P04C01)

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

EP 08 42 5122

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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08-07-2008

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4848175	A	18-07-1989	DE 3715936 A1	01-12-1988
			DE 8706868 U1	09-07-1987
			EP 0290957 A1	17-11-1988

EP 1295992	A	26-03-2003	IT BS20010079 U1	24-03-2003
			US 2004182005 A1	23-09-2004

US 4681479	A	21-07-1987	NONE	

FR 2893335	A	18-05-2007	NONE	
