



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**07.10.2009 Bulletin 2009/41**

(51) Int Cl.:  
**B26D 1/08 (2006.01)**

(21) Application number: **08425211.3**

(22) Date of filing: **31.03.2008**

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR**  
Designated Extension States:  
**AL BA MK RS**

(72) Inventor: **Campanini, Alberto**  
**43040 Fidenza (Parma) (IT)**

(74) Representative: **Paolini, Elena**  
**Ufficio Internazionale Brevetti,**  
**INIP,**  
**Via Ruggi 5**  
**40137 Bologna (IT)**

(71) Applicant: **Custom Engineering SpA**  
**43010 Fontevivo (Parma) (IT)**

(54) **Fastener with cutting blade for roller printer**

(57) The device consists of an electric motor (1) with connection to the check and on/off card and with a shaft (2) connected to an eccentric cam (3) having a pin (4) to be inserted into a shutter (6) with blade (7). Counterposed to the blade (7) an immovable blade (8) is present, onto

staggered planes, with said blades (7,8) place near a slot (9) of getting out of the printed ticket so to cut the same ticket. A body (10) then determines an anti-breaking and containment structure of the shutter (6), which is kept inside a sliding seat by a spring (11).

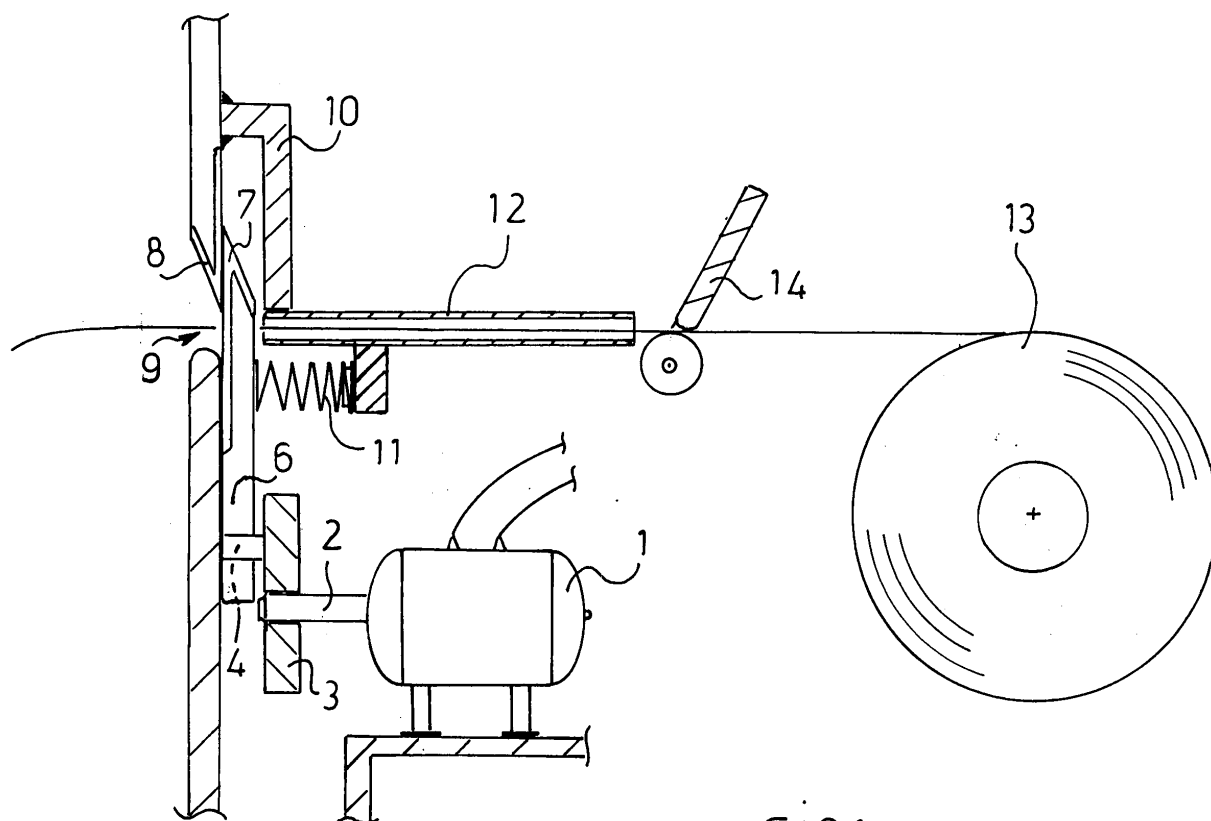


FIG.1

## Description

**[0001]** In the field of the roller printers with print of vouchers and tickets are known opening shutters placed onto the slots from which the paper goes out toward the user. These opening shutters are driven by means of an electromechanical device that, when necessary, opens the printer shutter from which the voucher or the printed ticket goes out, to be taken. Said shutters have the aim to avoid that vandal acts, like the introduction of different materials or objects inside the printer slot from which the vouchers or similar coming out, prevent the coming out of said vouchers in sequence and so to prevent the correct working of the printer. In the known art the devices to print vouchers with roller printers consists of a cutting device placed downstream of the printing head. In presence of a printer to be placed in public places or for automatic working, where the user directly provides to take the voucher or the ticket, said printer is equipped with two specific and different devices: a device for the cutting of the voucher or the ticket to the paper roll after that the printing is made and a second shutter device that, in opening, permits the getting out of the printed voucher, preventing the introduction of foreign matters inside the printer. The shutter device is to be opened only to permit the getting out of the voucher or the ticket and it comes to immediately close by means of automatisms and electric motor that drives its working and they permit the opening and the closing of the shutter in the scheduled times for the working. It is obviously that, to have a cutting device and a opening/closing shutter device creates high manufacturing industrial costs, so as high are the costs determined to the working management of the two devices used in the present art. Moreover, the paper blocks up along the shutter way can put out of order the roller printer with increase of the maintenance costs for the reset. Besides, the complexity of the known printers with two different devices determines a bigger possibility of breakdowns or jamming of one of the two devices with consequent impossibility of working of the automating device for printing tickets. Object of the present invention is a shutter for automatic printers, driven by an electric motor, to be opened for permitting the ticket getting out and with a blade integrated in the same shutter. In this way, following to the ticket getting out from the automatic printer, the shutter comes to close again and it is able to cut the final part of the paper onto which the ticket is printed. To realize a scissors cut, other to the shutter with blade is present a counter-blade, mounted onto the frame of the printer, in such a way that the ticket in passing onto the two blades is cut. With the cutting device integrated into the shutter a minor manufacturing cost and a minor complexity of the automatic printer are determined, integrating in a sole device the cutting and the opening/closing steps. The invented device, moreover, permits energetic saving in the working of the same printer. Others aims and advantages of the invention are better pointed out to the following description of a preferred but not ex-

clusive embodiment, together with the drawings of the sheets 1, 2 and 3 showing an indicative but not limiting version. In particular in sheet 1 figure 1 is transversal section view of part of the roller printer with blade closing shutter. In sheet 2 figure 2 is frontal view of the shutter provided with upper blade. In sheet 3 figure 3 is perspective view of an application form of the blade shutter mounted onto an automatic printer for printing tickets. The blade closing shutter for roller printer consists of an electric motor 1 with connections to the check and on/off card with a shaft 2 connected to an eccentric cam 3 having a pin 4. The pin 4 is inserted into a hole 5 of a shutter 6, with this shutter 6 having an upper placed blade 7 with cutting edge along the direction way of the shutter. In counterposed position to the blade 7, fixed onto the frame of the roller printer, is present an immovable blade 8 with cutting edge placed on vertical plane not coinciding with the plane of the blade 7. Said blades 7 and 8 with counterposed cutting edges onto staggered planes are positioned near a slot 9 of getting out of the printing ticket, with sizes of the slot 9 such to permit the getting out of the printed ticket but not having a space to introduce the fingers inside it. Near the immovable blade 8, along the inside wall, is present a body 10 suitable to house the shutter 6 with the blade 7. Said body 10 drives the shutter 6 with the blade 7 and it forms an anti-breaking support structure when the shutter 6 with the blade 7 is kept inside the sliding seat by a spring 11, placed between the inside part of the shutter 6 and part of the printer frame. Moreover, a suitable passage 12 is present, inside which the ticket, coming to the paper roll 13, pulled to paper drawing roll and printed to the printing head 14, arrives to the opening/closing shutter 6. In working step the normal advancing of the paper coming to the paper roll 13 by means of the paper drawing roll with print by the head 14 is actuated. The printed paper passes inside the suitable passage 12. At the getting out of the printed paper to passage 12 the control and start devices drive the rotation of the electric motor 1. The rotation of the shaft 2 of the electric motor 1, connected with the eccentric cam 3 by means of the pin 4, transmits the motion to the shutter 6. Said shutter in closing position during the non use step, i.e. in upper position inside the body 10, lowers, following of the rotation given to the electric motor 1 and with times and ways provided to the control device which drives the electric motor 1. Following to the rotation of the shaft 2 the eccentric cam 3 reaches the position in where the pin 4 is in the lower point, permitting to the paper to get out from the passage 12. At the end of the printed ticket getting out, in the times and ways provided to the control and starting devices of the electric motor 1, the rotation of the shaft 2 is completed put again the shutter 6 in the upper position. During the ascent step the blade 7, helped in the cutting work to the immovable blade 8, cuts the paper in the end part with the print. After to have actuated the cutting of the paper, the shutter 6 with the blade 7 is in upper position closing the slot 9 from which is got out the printed ticket to be put to the user. The closing ar-

ranged to the shutter 6 with blade 7, so, other to actuate the cutting of the printed paper coming the paper roll 13, prevents that dust, dirty of other can go into the inside part of the printer damaging the head, the paper or other parts inside the printer. The invented device is possible of changing and modifications all entering in the present inventive step. Moreover, all the technical details are to be changed with equivalent others.

10

## Claims

1. Fastener with cutting blade for roller printer **characterized in that** to consists of an electric motor (1), with connection to the check and on/off card, with a shaft (2) connected to an eccentric cam (3) having a pin (4) inserted into a hole (5) of a shutter (6) with a blade (7), upper placed with cutting edge along the direction way of the shutter, and with an immovable blade (8) in conterposed position to the blade (7) and fixed onto the frame of the roller print, so that the blades (7, 8) with counterposed cutting edges onto staggered planes are to be placed near a slot of getting out of the printed ticket; and **in that** to have a body (10) that drives the shutter (6) with blade (7) and it forms an anti-breaking support structure when the shutter (6) with blade (7) is kept inside a sliding seat by a spring (11) placed between the inside part of the shutter (6) and part of the printer frame.

30

35

40

45

50

55

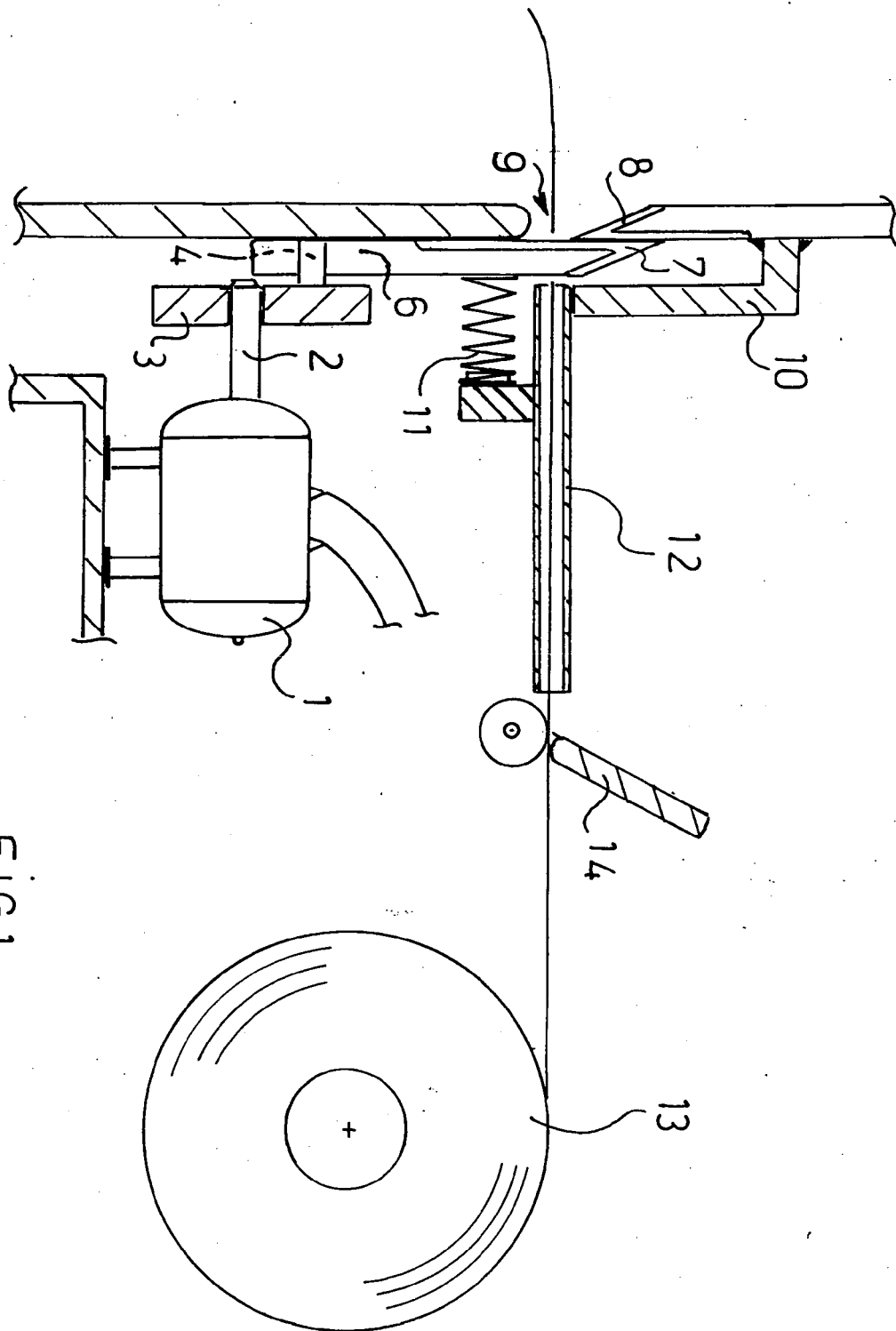


FIG. 1

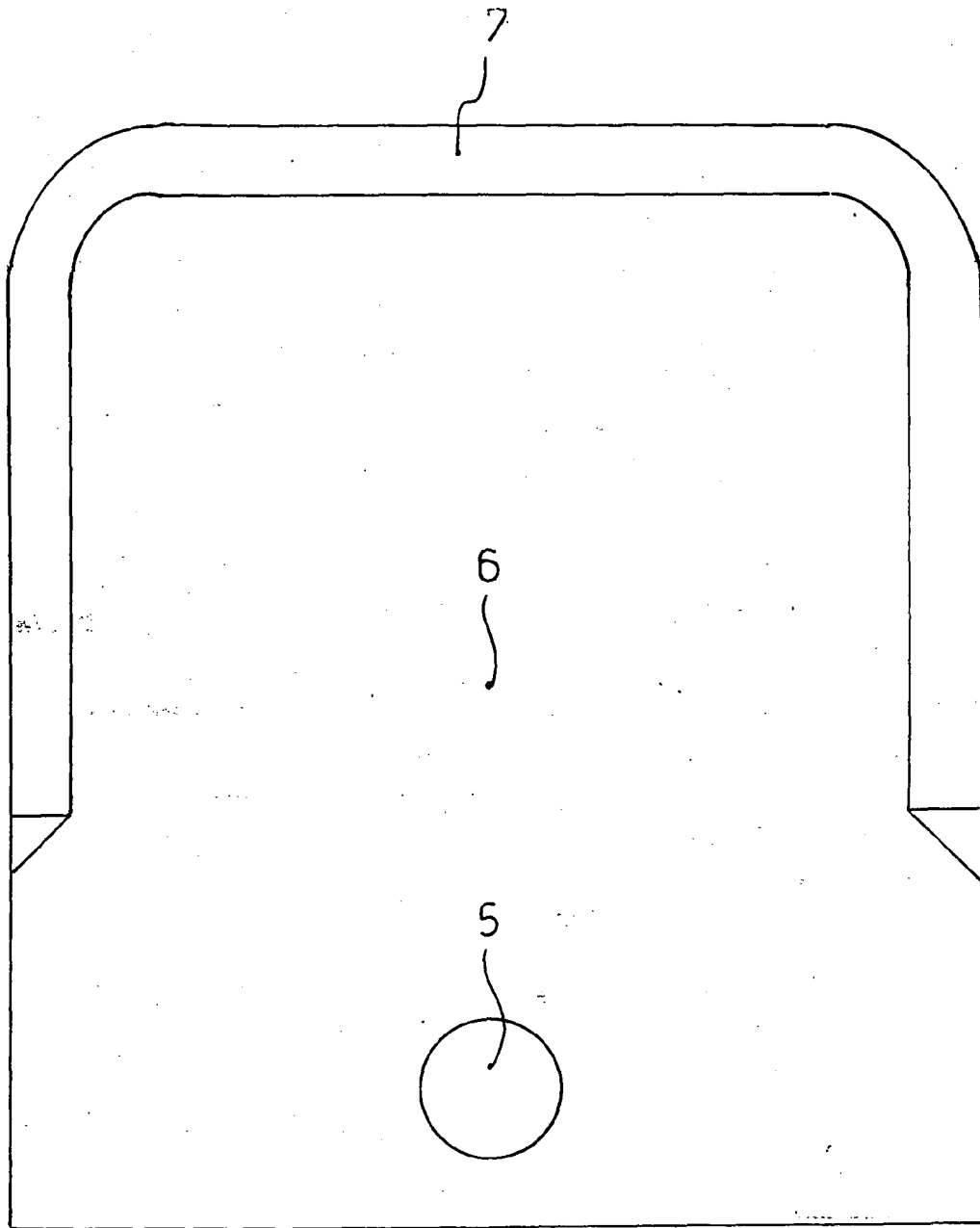


FIG. 2

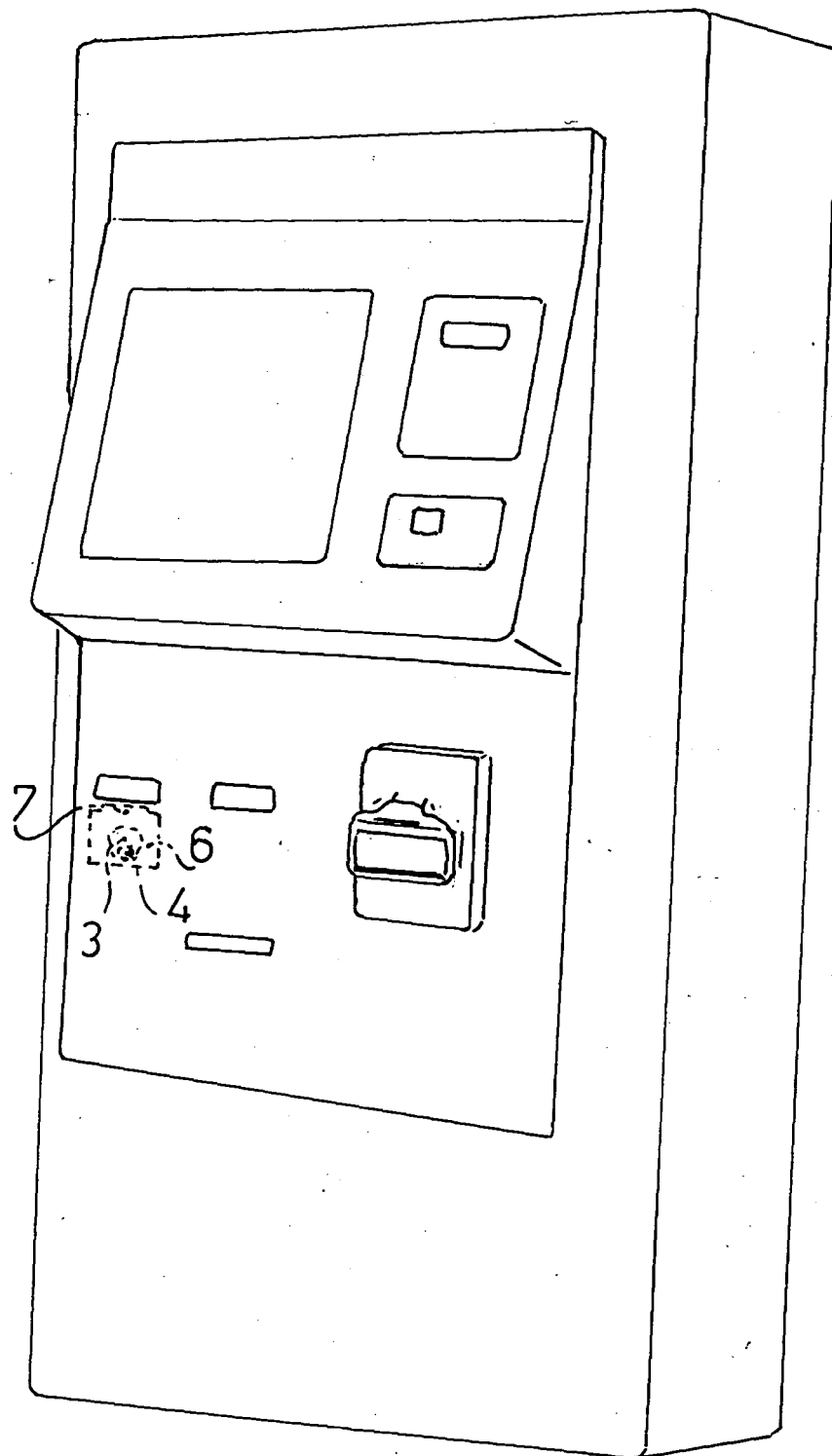


FIG.3



European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number  
EP 08 42 5211

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 4 936 177 A (OZAWA YOSHIO [JP] ET AL) 26 June 1990 (1990-06-26) * column 2, line 56 - column 7, line 41; figures 1-8 *	1	INV. B26D1/08
X	EP 1 095 782 A (STAR MFG CO [JP]) 2 May 2001 (2001-05-02) * the whole document *	1	
X	EP 0 519 102 A (SCHEIDT & BACHMANN GMBH [DE]) 23 December 1992 (1992-12-23) * the whole document *	1	
A	US 2003/146232 A1 (YANG WEN-FU [TW]) 7 August 2003 (2003-08-07) * abstract; figures *	1	
A	EP 0 798 254 A (RUHLATEC INDUSTRIEPRODUKTE [DE]) 1 October 1997 (1997-10-01) * abstract; figures *	1	
A	US 5 584 218 A (SCHOENDIENST RUDOLPH [US]) 17 December 1996 (1996-12-17) * abstract; figures *	1	TECHNICAL FIELDS SEARCHED (IPC) B26D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 17 September 2008	Examiner Canelas, Rui
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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 &amp; : member of the same patent family, corresponding document</p>			

2  
EPO FORM 1503 03.82 (P04C01)

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

EP 08 42 5211

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.

17-09-2008

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4936177	A	26-06-1990	US 5000070 A	19-03-1991
EP 1095782	A	02-05-2001	DE 60019872 D1	09-06-2005
			DE 60019872 T2	23-02-2006
			JP 3800891 B2	26-07-2006
			JP 2001121764 A	08-05-2001
			US 6508600 B1	21-01-2003
EP 0519102	A	23-12-1992	AU 635871 B2	01-04-1993
			AU 8789391 A	24-12-1992
			DE 59104813 D1	06-04-1995
			ES 2069777 T3	16-05-1995
			FI 914816 A	21-12-1992
			NO 913460 A	21-12-1992
US 2003146232	A1	07-08-2003	NONE	
EP 0798254	A	01-10-1997	DE 19612897 A1	02-10-1997
			JP 10029192 A	03-02-1998
US 5584218	A	17-12-1996	EP 0687531 A1	20-12-1995