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(54) **Improvement regarding the flushing reliability of a urinal**

(57) This invention relates to a method for maintaining the reliable operation of a sensor detecting a need for flushing a urinal (10). According to the invention, urine stone and/or other such dirt adhered over the area of the flushing-need detecting sensor within the liquid basin of the urinal (10) is removed by means of a vibrator

operating over this particular area. In a preferred case, the sensor comprises for example a piezoelectric crystal. In one embodiment of the invention, the sensor is adapted to vibrate by means of a piezoelectric crystal. In a second preferred embodiment, said piezoelectric crystal is set in the immediate vicinity of the sensor, thereby removing the dirt.

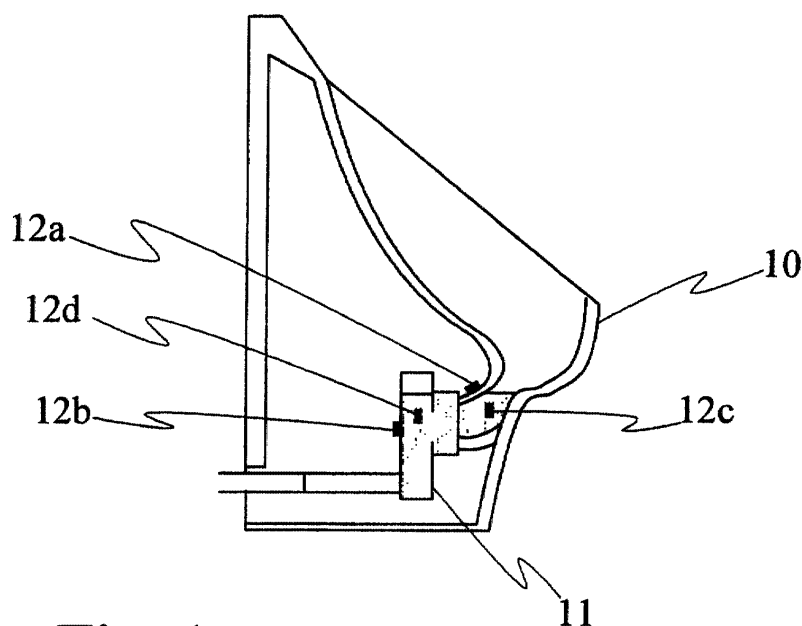


Fig. 1

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EUROPEAN SEARCH REPORT

Application Number
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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	US 5 035 140 A (DANIELS JAMES W ET AL) 30 July 1991 (1991-07-30) * column 1, line 16 - line 57 * * column 2, line 40 - column 3, line 13 * * figures 1,2 *	6,9,13	E03D13/00 E03D5/10
A	---	1,3,5	
X	US 5 889 209 A (PIEDRAHITA RAUL H ET AL) 30 March 1999 (1999-03-30) * column 3, line 24 - line 64 * * figure 1 *	6,10,11	
A	PATENT ABSTRACTS OF JAPAN vol. 017, no. 244 (M-1410), 17 May 1993 (1993-05-17) -& JP 04 366241 A (HONDA ELECTRON CO LTD), 18 December 1992 (1992-12-18) * abstract; figures *	1,6	
A	US 4 893 361 A (BURNS PAUL H) 16 January 1990 (1990-01-16) * column 1, line 8 - line 11 * * column 3, line 11 - line 65 * * figures 1-3 *	1,3-7, 10-12	TECHNICAL FIELDS SEARCHED (Int.Cl.7) E03D B08B G01D E03C
A	DE 43 06 457 A (KUHFS JUERGEN) 8 September 1994 (1994-09-08) * column 1, line 37 - line 65 * * figure 1 *	1,4-7, 11,12	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 2 August 2001	Examiner Urbahn, S
<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</p> <p>& : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03/82 (P04C01)

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

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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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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5035140	A	30-07-1991	NONE	
US 5889209	A	30-03-1999	NONE	
JP 04366241	A	18-12-1992	NONE	
US 4893361	A	16-01-1990	NONE	
DE 4306457	A	08-09-1994	NONE	