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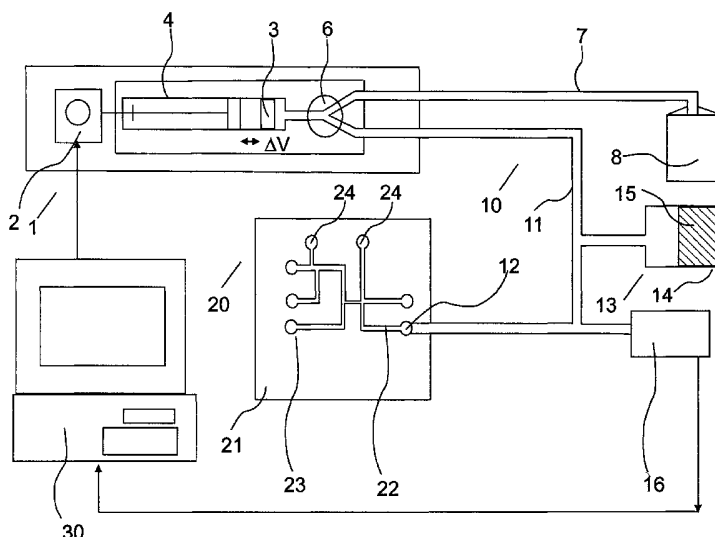
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[Continued on next page]

(54) Title: A LIQUID PUMPING SYSTEM



(57) Abstract: A liquid outlet link assembly (10) is provided for liquid delivery output rates below 10 µl per minute so as to smooth out the flow from a positive displacement pump (1) which has an immediate step pumping rate which is relatively substantially larger than the delivery rate required through liquid outlet means (20). Essentially, this liquid link assembly has a bubble of air (15) or some other pressure stabilizing means which initially contracts on the pump (1) such as a syringe pump operating to raise the liquid pressure in the liquid outlet link assembly (10). The expansion increases the available volume in the liquid outlet link assembly (10) and then gradually expands over time, allowing a steady output rate through the link assembly.



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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 9956052 A1 (HITACHI CONSTRUCTION MACHINERY CO., LTD), 4 November 1999 (04.11.99) --	1
A	DE 19842021 A1 (MITSUBISHI DENKI K.K.), 26 August 1999 (26.08.99) --	1
A	US 5656034 A (M.L. KOCHERSPERGER ET AL), 12 August 1997 (12.08.97) -- -----	1

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Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9956052 A1	04/11/99	NONE	
DE 19842021 A1	26/08/99	FR 2775024 A JP 2922488 B JP 11229983 A	20/08/99 26/07/99 24/08/99
US 5656034 A	12/08/97	AT 219246 T AU 700597 B AU 5365896 A CA 2216861 A EP 0871875 A,B JP 11502931 T WO 9630757 A	15/06/02 07/01/99 16/10/96 03/10/96 21/10/98 09/03/99 03/10/96