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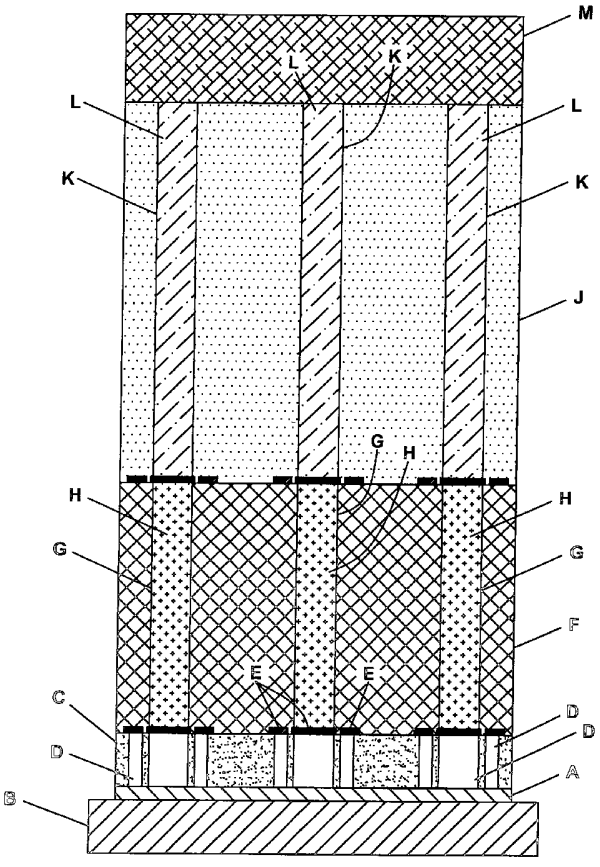
[Continued on next page]

(54) Title: DUAL STAGE MICROVALVE AND METHOD OF USE



(57) Abstract: A micro-machined drug delivery device (32a) and method of use for the delivery of labile drugs is disclosed. A micro-machined sensing device (25a) and method of use is also disclosed. A micro-machined drug delivery and sensing device (37a) is additionally disclosed. All three devices are intended to be inserted into a patient's body. The drug delivery devices allow for the mixing of drug components prior to the release of the mixture into the patient's body where the mixture is labile. The micro-machined sensing device is suitable for monitoring the concentration of a specific chemical in a patient's body fluids when the monitoring requires a labile reagent that must be mixed prior to introduction of the body fluid into the sensing device. The micro-machined drug delivery and sensing devices is especially applicable in situations where the prompt delivery of labile drugs is necessary.

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INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61K 9/22
US CL : 604/891.1

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)
U.S. : 604/891.1, 890.1, 892.1, 65, 66, 131; 600/309, 345, 347, 348, 365

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	US 6,491,666 B1 (SANTINI, JR. et al) 10 December 2002 (10.12.2002), Figures 1, 2D and 8C; col. 2, lines 9-56; col. 4, lines 46-67; col. 6, line 25 through col. 7, line 15; col. 9, lines 17-19; col. 9, line 45 through col. 10, line 2; col. 14, lines 12-45 and col. 17, line 57 through col. 18, line 40.	1-18, 20-29, 31 and 32
A	US 5,797,898 A (SANTINI, JR. et al) 25 August 1998 (25.08.1998). See Figures and specification.	
A	US 5,368,704 A (MADOU et al) 29 November 1994 (29.11.1994). See Figures and specification.	

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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