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02.01.92 Bulletin 92/01(71) Applicant: **EATON S.A.M.**
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Eaton House Staines Road
Hounslow Middlesex TW4 5DX(GB)(54) **Pump for liquids.**

(57) The invention refers to a pump in which a diaphragm (8) is reciprocated to cause cycles of high and low pressure in a chamber (9), and two conduits (10,11) communicating between the chamber and the exteriors, contain oppositely directed one way valve elements (12,13). Because the forward directions of those valve elements may offer even very low resistance to such effects as gravity (Fig.3), an entire reservoir could empty inadvertently through the pump. The invention proposes that a single body (27) be shaped to contain the one-way elements

(12,13), to fit in the lower pump body (24), to assist in clamping the diaphragm (8), and to present to the chamber (9) one or other of the conduits, preferably that destined as the inlet conduit (10A), with an orifice (27C) which will act as a valve seat. A portion (6) of the diaphragm is contrived as a valve flap, and can close that conduit which is presented with the orifice (27C). Return bias (5) of the pump acts on the diaphragm (8) such as to close the orifice under quiescent or switched off conditions of the pump.

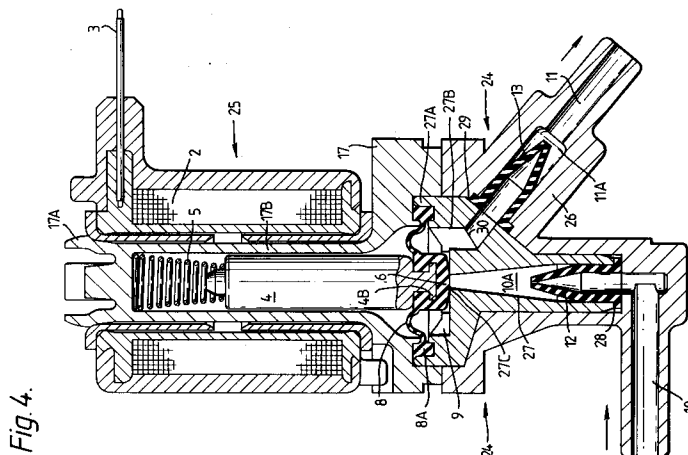


Fig. 4.

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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.5)
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X	PATENT ABSTRACTS OF JAPAN, unexamined applications, M field, vol. 12, no. 91, March 24, 1988 THE PATENT OFFICE JAPANESE GOVERNMENT page 77 M 679 * Kokai-no. 62-228 684 (KEIHIN SEIKI) *	1-4	
Y	--	5, 8-10	TECHNICAL FIELDS SEARCHED (Int. Cl.5)
Y	GB - A - 1 571 360 (GENERAL AND COUNTRY LABORA- TORIES LTD.) * Totality; esp. fig. 1, pos. nr. 11 *	5	F 04 B 17/00 F 04 B 21/00 F 04 B 43/00
D, Y	EP - A2 - 0 286 404 (EATON S.A.M.) * Totality *	8-10	
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 21-10-1991	Examiner WERDECKER
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			