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L'AIR LIQUIDE SOCIETE ANONYME POUR L'ETUDE ET L'EXPLOITATION DES PROCEDES GEORGES CLAUDE [FR/FR]; 75 quai d'Orsay, F-75007 Paris (FR).
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(54) **Title:** APPARATUS AND METHOD FOR FEEDING A PROCESS MEDIUM

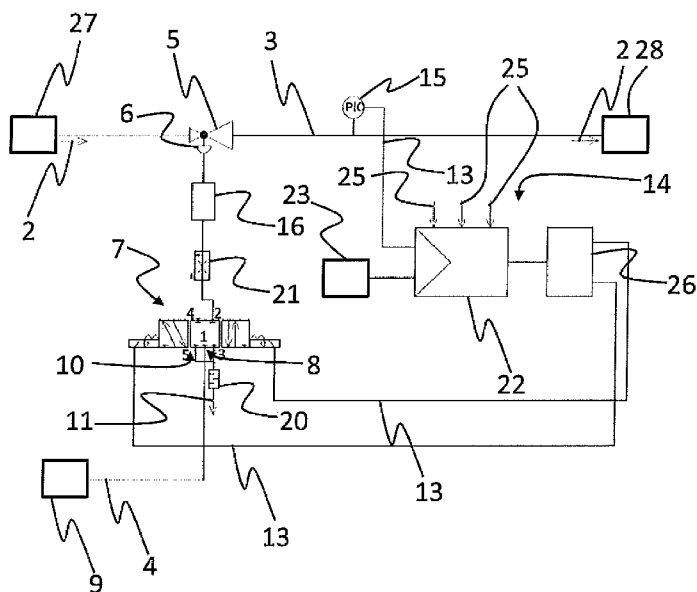


FIG. 3

(57) **Abstract:** The apparatus (1) according to the invention for regulating a process medium flow (2) to be fed to a process medium consumer (28), comprising a) a process medium path (3), by means of which a process medium source (27) can be connected to the process medium consumer (28), and b) a control gas path (4), by means of which a control gas pressure can be built up with a control gas, wherein the process medium path (3) comprises a pneumatic pressure regulator (5), the control input (6) of which is connected to the control gas path (4), wherein means (7) for regulating the control gas pressure are embodied, is distinguished by the fact that the means (7) for regulating the control gas pressure comprise a delivery valve (8) for connecting the control gas path (4) to a control gas pressure source (9) and a discharge valve (10) for decreasing pressure in the control gas path (4). The apparatus (1) according to the invention and the method according to the invention advantageously permit precise regulation of the process medium flow (2) from a process medium source (27) to a process medium consumer (28) using simple means. On account of the magnetic valves (8, 10, 19) used such as,

for example, the magnetic 5/3-way directional valve (19) for increasing or decreasing a control gas pressure in a control gas path (4), corresponding regulation can even be used in areas at risk of an explosion, such as, for example, in ultra-clean rooms, in implanters (18) or the like.

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A. CLASSIFICATION OF SUBJECT MATTER  
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ADD.  
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)  
G05D

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 practical, search terms used)  
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 553 474 A2 (BOC GROUP INC [US]) 13 July 2005 (2005-07-13) column 3 - column 7; figure 1 -----	1-13
X	US 5 654 885 A (MAYHEW JOHN [US] ET AL) 5 August 1997 (1997-08-05) column 4 - column 10; figures 1,2 -----	1-13
A	EP 1 287 900 A2 (DUERR SYSTEMS GMBH [DE]) 5 March 2003 (2003-03-05) the whole document -----	1-13

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

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- "E" earlier document but published on or after the international filing date
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  Philippot, Bertrand
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1553474	A2	13-07-2005	CN 1683817 A 19-10-2005
			EP 1553474 A2 13-07-2005
			JP 2005196788 A 21-07-2005
			KR 20050072683 A 12-07-2005
			SG 113042 A1 28-07-2005
			US 2005150552 A1 14-07-2005
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US 5654885	A	05-08-1997	NONE
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EP 1287900	A2	05-03-2003	AT 398495 T 15-07-2008
			DE 10142355 A1 20-03-2003
			EP 1287900 A2 05-03-2003
			ES 2307686 T3 01-12-2008
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