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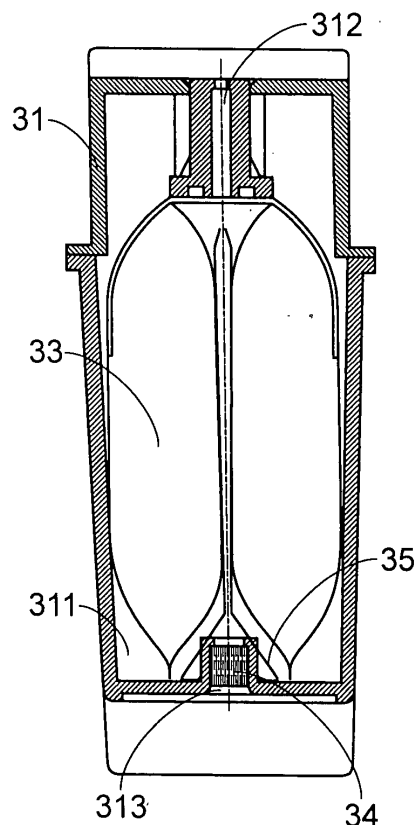
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(30) Priority: **16.10.2003 CN 200310101599**

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(54) **Ink cartridge and pressure regulating device thereof**

(57) An ink cartridge includes a housing (31), an air bag assembly (33), a filter assembly (34) and an elastic structure (35). The housing has an ink reservoir (311), a first vent (312), a second vent (313) and an exit port (32). The first vent and the second vent are disposed at the top and bottom of the housing, respectively. The air bag assembly is disposed within the ink reservoir, includes at least two air bags adjacent to a sidewall of the ink reservoir, and is open to the exterior air via the first vent. The filter assembly is disposed at the bottom of the housing and open to the exterior air via the second vent, and includes a filter for adjusting a flow rate of the exterior air flowing into the ink reservoir so as to smoothly adjust the inflation/deflation of the air bag assembly in response to a pressure change in the ink reservoir. The elastic structure is fixed onto the filter assembly or the bottom of the ink reservoir, and comprises at least two elastic sheets disposed between the at least two air bags of the air bag assembly for applying thereon an elastic force.



**Fig. 3(a)**

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# EUROPEAN SEARCH REPORT

Application Number  
EP 04 02 4643

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 6 056 395 A (LIU WIN-YIN) 2 May 2000 (2000-05-02)	10	B41J2/175
Y	* column 4, line 32 - line 60; figures 1-3 *	1-7	
X	US 6 213 598 B1 (HOU I C ET AL) 10 April 2001 (2001-04-10)	10	
Y	* column 4, line 66 - column 8, line 35; figures 3,4,6,7 *	1-7	
X	EP 0 633 137 A (HEWLETT PACKARD CO) 11 January 1995 (1995-01-11)	10	
Y	* column 4, line 38 - column 12, line 44; figures 6,7 *	1-7	B41J
Y	US 2003/043242 A1 (CHANG CHENG-MIN ET AL) 6 March 2003 (2003-03-06) * paragraphs [0001], [0003], [0034] - [0037] *	1-7	
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TECHNICAL FIELDS SEARCHED (Int.Cl.7)			
B41J			
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1 <del>The present search report has been drawn up for all claims</del>			
Place of search Munich		Date of completion of the search 13 January 2005	Examiner Bridge, S
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			

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**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

**LACK OF UNITY OF INVENTION**

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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LACK OF UNITY OF INVENTION  
SHEET B

Application Number  
EP 04 02 4643

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-7,10

OBJECTIVE PROBLEM : pressure regulated ink cartridge;  
SOLUTION : An ink cartridge comprising: a housing having  
an ink reservoir,  
a first vent, a second vent and an exit port; an air bag  
disposed within said  
ink reservoir, adjacent to a sidewall of said ink  
reservoir, and open to the  
exterior air via said first vent; and an elastic sheet in  
contact with said air bag  
and applying an elastic force on said air bag;  
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2. claims: 8,9

OBJECTIVE PROBLEM : adjusting a flow rate of the exterior  
air;  
SOLUTION : A pressure regulating device comprising : a  
filter assembly (34)  
comprising a filter (341) for adjusting a flow rate of the  
exterior air so as to  
smoothly adjust the inflation/deflation of said air bag.  
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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 04 02 4643

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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13-01-2005

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