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(54) **An ink cartridge**

(57) An ink cartridge 10 comprises an ink tank 12 defined by a plurality of surfaces 20, 22, 24, 28, 30. A group of ink outlet apertures 38 is defined in the floor 28 of the ink tank 12. The ink tank floor 28 is flat in the vicinity of the ink outlet apertures 38. The cartridge 10 includes an ink supply port 16 to receive the end of an ink withdrawal needle 82 so that ink can be withdrawn from the tank 12. A seal 44;90 is provided in the ink supply port 16, the seal 44;90 defining an aperture 48;92 to receive an ink withdrawal needle 82 to enable the seal 44;90 to seal around the ink withdrawal needle 82. A cover 50;96 is provided to cover the said aperture 48;92 in the seal 44;90 and to be pierced by the ink withdrawal needle 82. A protective guide 52 may be provided to align the ink withdrawal needle 82 with the aperture 48 and to guide the ink withdrawal needle 82 into the aperture 48.

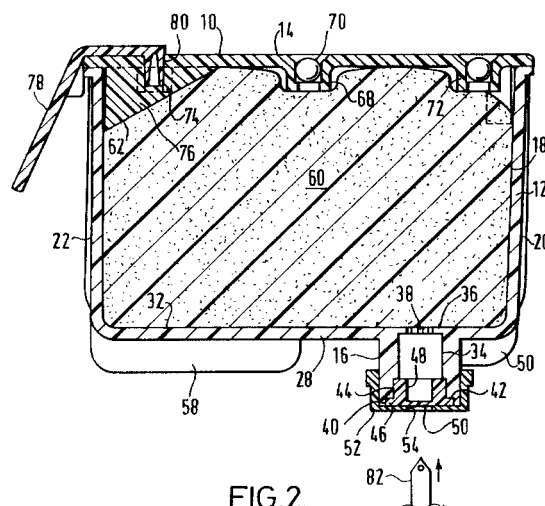


FIG. 2.



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# EUROPEAN SEARCH REPORT

Application Number  
EP 00 30 9723

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 5 633 666 A (HAIGO HIDEAKI) 27 May 1997 (1997-05-27) * figure 1 * * column 2, line 35 - column 3, line 5 *	1-9	B41J2/175
X	PATENT ABSTRACTS OF JAPAN vol. 013, no. 077 (M-801), 22 February 1989 (1989-02-22) -& JP 63 276554 A (RICOH CO LTD), 14 November 1988 (1988-11-14) * abstract; figures 1,2 *	1-8, 19-21	
X	PATENT ABSTRACTS OF JAPAN vol. 012, no. 197 (M-706), 8 June 1988 (1988-06-08) & JP 63 003961 A (CANON INC), 8 January 1988 (1988-01-08) * abstract *	1-8	
A		19	
X	PATENT ABSTRACTS OF JAPAN vol. 1996, no. 03, 29 March 1996 (1996-03-29) & JP 07 311058 A (CITIZEN WATCH CO LTD), 28 November 1995 (1995-11-28) * abstract *	1-9	TECHNICAL FIELDS SEARCHED (Int.Cl.7) B41J
X	US 5 907 341 A (MIYAZAWA HISASHI) 25 May 1999 (1999-05-25) * figures 1,3 * * column 3, line 41 - column 4, line 60 *	19-21	
X	US 5 477 963 A (MOCHIZUKI SEIJI ET AL) 26 December 1995 (1995-12-26) * figures 3,9A,10A * * column 9, line 24 - line 55 * * column 10, line 20 - line 60 *	19-21	
<del>The present search report has been drawn up for all claims</del>			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>31 January 2001</b>	Examiner <b>Papastefanou, E</b>
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:

1-9



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**LACK OF UNITY OF INVENTION  
SHEET B**

Application Number  
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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: 1-9**

An ink cartridge comprising an ink tank defined by a plurality of surfaces and an ink outlet aperture or a group of ink outlet apertures defined in one of the surfaces. The surface in the vicinity the aperture or the group of apertures is flat.

**1.1. Claims: 19-21**

An ink cartridge including an ink tank and an ink supply port receiving the end of an ink withdrawal needle, a seal in the ink supply port with an aperture to receive the ink withdrawal needle, a cover to cover the aperture in the seal and to be pierced by the needle and a protective guide to align the needle with the aperture and to guide the needle into the aperture.

**2. Claims: 10-18**

An ink cartridge including an ink tank and an ink supply port receiving the end of an ink withdrawal needle, the cartridge defining at least one aperture (described as septum in the dependant claim 12) to restrict the flow rate of ink from the ink tank through the ink supply port to the ink withdrawal needle.

Please note that all inventions mentioned under item 1, although not necessarily linked by a common inventive concept, could be searched without effort justifying an additional fee.

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 30 9723

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  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

31-01-2001

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