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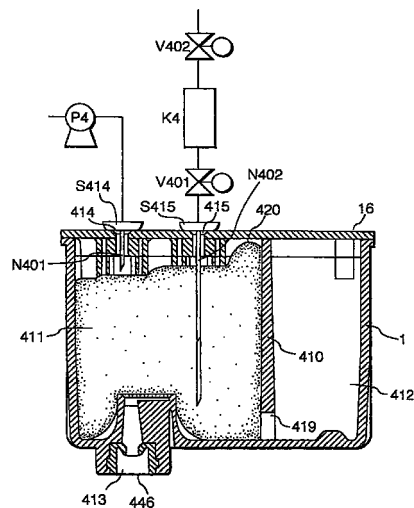
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(54) **Method of charging ink into an ink cartridge**

(57) A method of charging ink into an ink cartridge is described, in which the ink cartridge includes: a foam chamber (411); an ink supply port (413) formed in a wall of said ink cartridge; and a porous body (420) for absorbing ink being accommodated within said foam chamber (411) and positioned to engage said ink supply port (413) for delivery of ink thereto to define a space in said foam chamber between said porous body (420) and the wall bearing a through hole. The ink cartridge has at least two insertion through holes in a wall thereof, said wall defining at least one of said walls of said foam chamber (411).

The method comprises the steps of: inserting an exhausting hollow needle (N401) to be connected to an exhauster through a first of said through holes into the space in said foam chamber; inserting an ink injecting hollow needle (N402) through a second of said plurality of through holes into said porous member; exhausting the interior of said cartridge; injecting ink through said ink injecting hollow needle (N402) after the exhausting operation has been completed; removing said hollow needles; and sealing said cartridge.

**FIG. 3**





European Patent  
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# EUROPEAN SEARCH REPORT

Application Number  
EP 99 11 0235

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.6)
Y	US 4 968 998 A (ALLEN) 6 November 1990 (1990-11-06)	1	B41J2/175
A	* column 4, line 14 - column 8, line 4; figures 1-4 *	2-8	
---			
Y,P	EP 0 640 484 A (CANON KABUSHIKI KAISHA) 1 March 1995 (1995-03-01)	1	
A,P	* page 10, line 45 - page 14, line 21; figures 20-34B *	2-8	
---			
A	US 4 967 207 A (RUDER) 30 October 1990 (1990-10-30) * column 2, line 48 - column 4, line 46 * * column 6, line 57 - column 9, line 46; figures 5-7 *	1-8	
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The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>3 September 1999</b>	Examiner <b>Rivero, C</b>
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p> <p>&amp; : member of the same patent family, corresponding document</p>			

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

EP 99 11 0235

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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03-09-1999

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4968998	A	06-11-1990	NONE	
<hr/>				
EP 640484	A	01-03-1995	JP 7060984 A	07-03-1995
			JP 7068775 A	14-03-1995
			JP 7076097 A	20-03-1995
			JP 7101071 A	18-04-1995
			AU 680523 B	31-07-1997
			AU 7161294 A	30-03-1995
			CN 1111568 A	15-11-1995
			KR 137604 B	15-05-1998
			US 5790157 A	04-08-1998
<hr/>				
US 4967207	A	30-10-1990	NONE	
<hr/>				