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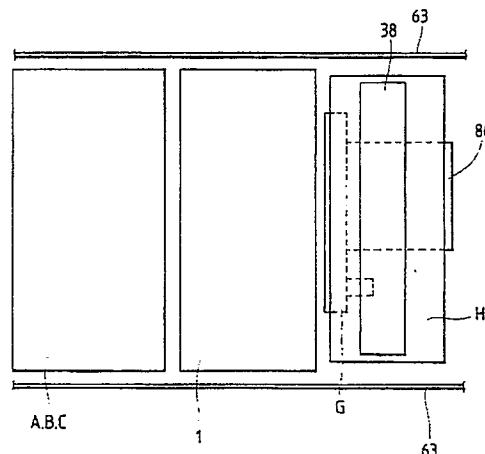
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(54) Ink supplying device and ink jet recording apparatus using the same.

(57) An ink cartridge adapted to be loaded detachably to an ink jet recording apparatus for preforming a recording on a recording medium by discharging ink comprises an ink tank for accommodating ink therein, leading-out means for leading out ink within said ink tank to the outside, said leading-out means being provided on said ink tank, and a frame for supporting displaceably said ink tank on which said leading-out means is provided. Also, an ink jet recording apparatus for preforming a recording on a recording medium (1) comprises a recording head (38) for discharging ink from a discharge port to carry out the recording on the recording medium (1), a loading part for loading therein an ink cartridge, said loading part having an ink tank for accommodating ink therein, leading-out means for leading out ink within said ink tank to the outside, said leading-out means being provided on said ink tank and a frame for supporting displaceably said ink tank on which said leading-out means is provided, and ink supplying means (G) for

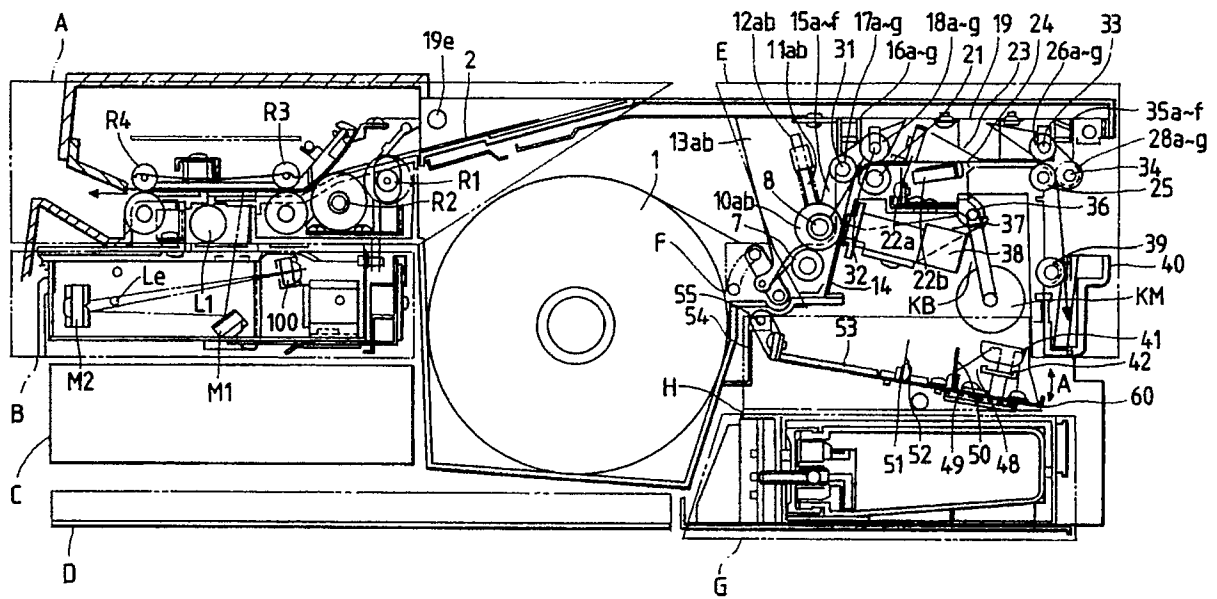
supplying ink to said recording head (38) by coupling to the lead-out means of said ink cartridge which is loaded in said loading part.

FIG. 1B



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FIG. 1A





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# EUROPEAN SEARCH REPORT

Application number  
EP 91102045

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. 4)
A	EP-A-320165 (HEWLETT-PACKARD COMP.) * figure 1 *	18,21	B41J2/19
A	DE-A-3220939 (CANON K.K.) * abstract; figures 3,4 *	1,13	
A	DE-A-3316969 (CANON K.K.) * abstract; figures 1,2 *	1	
A	DE-A-3420050 (CANON K.K.) * figures 1,11 *	1,5,7, 9,14	
A	PATENT ABSTRACTS OF JAPAN vol. 3, no. 159 (E-162), 27 December 1979; & JP - A - 54139533 (RICOH K.K.) 30.10.1979 * the whole document *	25	TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
A	PATENT ABSTRACTS OF JAPAN vol. 3, no. 159 (E-162), 27 December 1979; & JP - A - 54139530 (RICOH K.K.) 30.10.1979 * the whole document *	25,26	B41J
The present search report has been drawn up for all claims			
Place of search Berlin		Date of completion of the search 05.08.1991	Examiner K. ZOPF
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			



## CLAIMS INCURRING FEES

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

- ☐ All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the claims fees 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 claims:
- ☐ 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.

## x LACK OF UNITY OF INVENTION

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

1. claims: 1-24  
ink cartridge and recording apparatus
2. claims: 25-29  
ink supply and recovery operation

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ 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 has 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: