



Europäisches
Patentamt
European
Patent Office
Office européen
des brevets



(11)

EP 3 181 362 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
23.08.2017 Bulletin 2017/34

(51) Int Cl.:
B41J 2/175 (2006.01)

(43) Date of publication A2:
21.06.2017 Bulletin 2017/25

(21) Application number: 16195918.4

(22) Date of filing: 27.10.2016

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

Designated Extension States:

BA ME

Designated Validation States:

MA MD

(30) Priority: 30.10.2015 JP 2015213932

(71) Applicant: **Seiko Epson Corporation
Tokyo 160-8801 (JP)**

(72) Inventor: **UCHIYAMA, Yuji
Suwa-shi, Nagano 392-8502 (JP)**

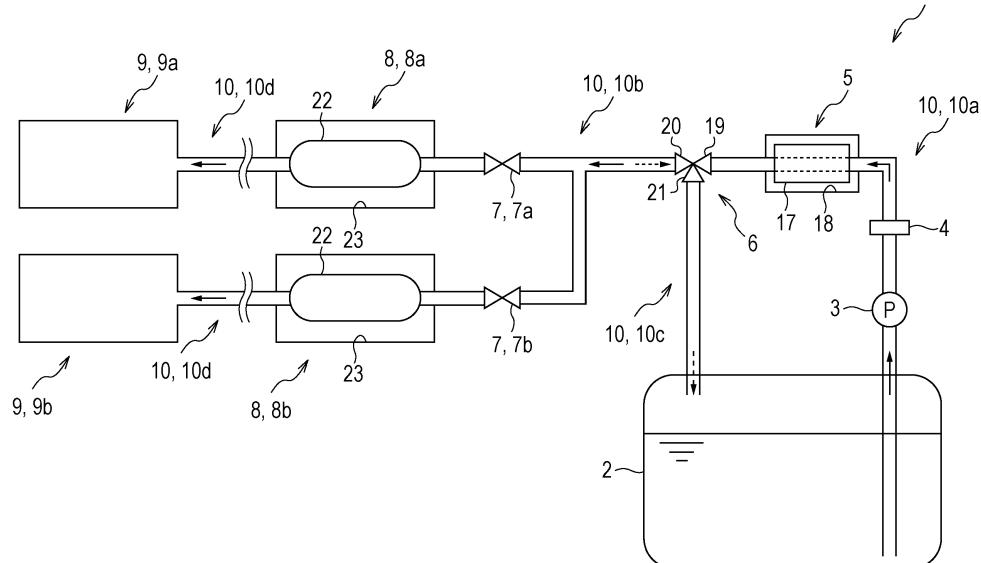
(74) Representative: **Miller Sturt Kenyon
9 John Street
London WC1N 2ES (GB)**

(54) LIQUID EJECTING APPARATUS AND METHOD OF REDUCING PRESSURE

(57) A liquid ejecting apparatus includes an ejecting portion configured to eject a liquid; a liquid channel extending from a liquid reservoir to the ejecting portion; a liquid holder configured to hold the liquid supplied from the liquid reservoir and allow the liquid to be supplied to the ejecting portion; a liquid driving portion configured to cause the liquid in the liquid channel to flow; a liquid channel opening/closing portion configured to open and close the liquid channel; a circulation channel for the liquid; a circulation channel opening/closing portion configured to open and close the circulation channel; and a controller

configured to control drive of the liquid driving portion and opening/closing of the liquid channel performed by the liquid channel opening/closing portion. The controller is further configured, when pressure in the portion of the liquid channel between the liquid driving portion and the liquid holder is increased by the control, to control opening/closing of the circulation channel opening/closing portion in such a manner that the increased pressure is released to the liquid reservoir through the circulation channel.

FIG. 1





EUROPEAN SEARCH REPORT

Application Number

EP 16 19 5918

5

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
10 X	EP 2 905 142 A2 (SEIKO EPSON CORP [JP]) 12 August 2015 (2015-08-12) * paragraphs [0023], [0026], [0027], [0090], [0094]; figure 1 * -----	1-6	INV. B41J2/175
15 X	US 2008/239027 A1 (KINASE ATSUSHI [JP] ET AL) 2 October 2008 (2008-10-02) * paragraphs [0078], [0081], [0086], [0106]; figure 4 * -----	1-6	
20 X	US 2008/158320 A1 (NITTA NOBORU [JP] ET AL) 3 July 2008 (2008-07-03) * paragraph [0015]; figure 1 * -----	1-6	
25 A	US 2010/188454 A1 (MURAKAMI ATSUSHI [JP] ET AL) 29 July 2010 (2010-07-29) * paragraph [0037]; figure 2 * -----	1-6	
30			TECHNICAL FIELDS SEARCHED (IPC)
			B41J
35			
40			
45			
50 2	The present search report has been drawn up for all claims		
55	Place of search The Hague	Date of completion of the search 14 July 2017	Examiner Joosting, Thetmar
CATEGORY OF CITED DOCUMENTS		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	
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			

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

EP 16 19 5918

5 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.

14-07-2017

10	Patent document cited in search report	Publication date		Patent family member(s)	Publication date
15	EP 2905142 A2	12-08-2015	CN EP JP US	104827769 A 2905142 A2 2015147365 A 2015224786 A1	12-08-2015 12-08-2015 20-08-2015 13-08-2015
20	US 2008239027 A1	02-10-2008		NONE	
25	US 2008158320 A1	03-07-2008	CN JP JP US	101209624 A 5031544 B2 2008162284 A 2008158320 A1	02-07-2008 19-09-2012 17-07-2008 03-07-2008
30	US 2010188454 A1	29-07-2010	JP JP US	5274276 B2 2010167733 A 2010188454 A1	28-08-2013 05-08-2010 29-07-2010
35					
40					
45					
50					
55					

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82