

Title (en)  
LIQUID EJECTION HEAD AND PRINTER

Title (de)  
FLÜSSIGKEITSAUSSTOSSKOPF UND DRUCKER

Title (fr)  
TÊTE D'ÉJECTION DE LIQUIDE ET IMPRIMANTE

Publication  
**EP 3928989 A1 20211229 (EN)**

Application  
**EP 20209865 A 20201125**

Priority  
JP 2020109970 A 20200625

Abstract (en)  
According to one embodiment, there is provided a liquid ejection head including an actuator and a control unit. The actuator expands or contracts a pressure chamber communicating with a nozzle that ejects ink. The control unit applies an expansion pulse for expanding the pressure chamber to the actuator, and then applies a first contraction pulse for contracting the pressure chamber to a first volume to the actuator, and then applies a second contraction pulse for contracting a volume of the pressure chamber to a second volume smaller than the first volume to the actuator. A width of the second contraction pulse includes a first time point when, after changing from the first contraction pulse to the second contraction pulse, a meniscus formed in the nozzle changes from a state of progressing inside the pressure chamber to a state of progressing outside the pressure chamber.

IPC 8 full level  
**B41J 2/045** (2006.01)

CPC (source: CN EP)  
**B41J 2/01** (2013.01 - CN); **B41J 2/015** (2013.01 - CN); **B41J 2/04581** (2013.01 - EP); **B41J 2/04588** (2013.01 - EP);  
**B41J 2/04591** (2013.01 - EP); **B41J 2/04598** (2013.01 - EP); **B41J 2202/10** (2013.01 - EP)

Citation (search report)  
• [XA] US 2010171778 A1 20100708 - OZAWA KINYA [JP]  
• [X] US 2011211022 A1 20110901 - YONEKUBO NAOKI [JP]  
• [X] JP 2011020280 A 20110203 - SEIKO EPSON CORP

Designated contracting state (EPC)  
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 state (EPC)  
BA ME

DOCDB simple family (publication)  
**EP 3928989 A1 20211229**; **EP 3928989 B1 20240612**; CN 113844175 A 20211228; CN 113844175 B 20230919; JP 2022007186 A 20220113;  
JP 7458914 B2 20240401

DOCDB simple family (application)  
**EP 20209865 A 20201125**; CN 202110241456 A 20210304; JP 2020109970 A 20200625