Title (en)

LIQUID EJECTION SYSTEM INCLUDING DROP VELOCITY MODULATION

Title (de)

FLÜSSIGKEITSAUSSTOSSSYSTEM MIT TROPFENGESCHWINDIGKEITSMODULATION

Title (fr)

SYSTÈME D'ÉJECTION DE LIQUIDE AVEC MODULATION DE VITESSE DES GOUTTES

Publication

EP 2714406 B1 20161214 (EN)

Application

EP 12723795 A 20120517

Priority

- US 201113115482 A 20110525
- US 201113115465 A 20110525
- US 2012038298 W 20120517

Abstract (en)

[origin: WO2012162082A1] A continuous liquid ejection system includes a liquid chamber in fluidic communication with a nozzle. The liquid chamber contains liquid under pressure sufficient to eject a liquid jet through the nozzle. A drop formation device is associated with the liquid jet and is actuatable to produce a modulation in the liquid jet that cause portions of the liquid jet to break off into a series of drop pairs traveling along a path. Each drop pair is separated in time on average by a drop pair period. Each drop pair includes a first drop and a second drop. A charging device includes a charge electrode associated with the liquid jet and a source of varying electrical potential between the charge electrode and the liquid jet. The source of varying electrical potential provides a waveform that includes a period that is equal to the drop pair period. The waveform also includes a first distinct voltage state and a second distinct voltage state. The charging device is synchronized with the drop formation device to produce a first charge state on the first drop and to produce a second charge state on the second drop. A drop velocity modulation device varies a relative velocity of a first drop and a second drop of a selected drop pair to control whether the first drop and the second drop of the selected drop pair combine with each other to form a combined drop. The combined drop has a third charge state. A deflection device causes the first drop having the first charge state to travel along a first path, causes the second drop having the second charge state to travel along a second path, and causes the combined drop having the third charge state to travel along a third path.

IPC 8 full level

B41J 2/105 (2006.01); **B41J 2/21** (2006.01)

CPC (source: EP)

B41J 2/07 (2013.01); **B41J 2/105** (2013.01); B41J 2202/06 (2013.01)

Cited by

DE102017119610A1

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

DOCDB simple family (publication)

WO 2012162082 A1 20121129; BR 112013030233 A2 20190924; CN 103547456 A 20140129; CN 103547456 B 20160413; EP 2714406 A1 20140409; EP 2714406 B1 20161214; JP 2014515324 A 20140630

DOCDB simple family (application)

US 2012038298 W 20120517; BR 112013030233 A 20120517; CN 201280025180 A 20120517; EP 12723795 A 20120517; JP 2014512886 A 20120517