

Title (en)  
PUMP-LESS TONER DISPENSER

Title (de)  
PUMPENLOSER TONERSPENDER

Title (fr)  
DISTRIBUTEUR DE TONER SANS POMPE

Publication  
**EP 2417038 A4 20141001 (EN)**

Application  
**EP 10762356 A 20100407**

Priority  

- US 2010030209 W 20100407
- US 41990809 A 20090407
- US 41990609 A 20090407

Abstract (en)  
[origin: WO2010118113A1] Methods, systems, and apparatus, including computer programs encoded on a computer storage medium, for dispensing toners. In one aspect, a toner dispensing system includes a toner container; a cap and valve assembly coupled to the toner container, the cap and valve assembly including: a movable valve assembly, the movable valve assembly having a first position and a second position, a toner path, and an air inlet path, where in a first valve assembly position the toner path and the air inlet path are closed, and in a second valve assembly position the toner path and the air inlet path are open; an air assembly including a first air supply coupled to the air path of the cap and valve assembly and a second regulated air supply coupled to the toner container; and a control assembly for controlling the second air supply.

IPC 8 full level  
**B65D 83/00** (2006.01); **B01F 13/10** (2006.01); **G03G 15/10** (2006.01); **G03G 15/08** (2006.01)

CPC (source: EP KR)  
**B01F 33/84** (2022.01 - EP KR); **B01F 33/8442** (2022.01 - EP KR); **B65B 1/44** (2013.01 - KR); **B65D 83/06** (2013.01 - KR); **B65D 83/0811** (2013.01 - KR); **G03G 15/0879** (2013.01 - KR)

Citation (search report)  

- [XYI] JP H06160151 A 19940607 - HOKKEI KOGYO KK
- [IY] US 2007187409 A1 20070816 - WILFORD MICHAEL [US], et al
- [YA] US 5938080 A 19990817 - HAASER JAMES D [US], et al
- [A] JP H10167388 A 19980623 - FUJI ELECTRIC CO LTD
- See references of WO 2010118113A1

Designated contracting state (EPC)  
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 SE SI SK SM TR

DOCDB simple family (publication)  
**WO 2010118113 A1 20101014**; BR PI1006515 A2 20190702; CA 2758076 A1 20101014; CA 2758076 C 20190108; CN 102695659 A 20120926; CN 102695659 B 20140820; EP 2417038 A1 20120215; EP 2417038 A4 20141001; EP 2417038 B1 20190116; ES 2717425 T3 20190621; JP 2012523329 A 20121004; JP 5632452 B2 20141126; KR 101700983 B1 20170131; KR 20120035143 A 20120413; RU 2011140586 A 20130520; RU 2525800 C2 20140820

DOCDB simple family (application)  
**US 2010030209 W 20100407**; BR PI1006515 A 20100407; CA 2758076 A 20100407; CN 201080023856 A 20100407; EP 10762356 A 20100407; ES 10762356 T 20100407; JP 2012504816 A 20100407; KR 20117026105 A 20100407; RU 2011140586 A 20100407