

Title (en)  
POWDER FILLING APPARATUS AND METHOD

Title (de)  
PULVERFÜLLVORRICHTUNG UND -VERFAHREN

Title (fr)  
APPAREIL ET PROCEDE DE REMPLISSAGE POUR POUDRE

Publication  
**EP 1021335 B1 20030625 (EN)**

Application  
**EP 98950964 A 19981006**

Priority  
• US 9821059 W 19981006  
• US 94904797 A 19971010

Abstract (en)  
[origin: WO9919215A1] The invention provides methods, systems and apparatus for the metered transport of fine powders into receptacles. According to one exemplary embodiment, an apparatus is provided which comprises a hopper (12) having an opening. The hopper is adapted to receive a bed of fine powder (20). At least one chamber (24), which is moveable to allow the chamber to be placed in close proximity to the opening, is also provided. An element (28) having a proximal end and a distal end is positioned within the hopper such that the distal end is near the opening. A vibrator motor is provided to vibrate the element when within the fine powder.

IPC 1-7  
**B65B 1/36**

IPC 8 full level  
**B65B 1/04** (2006.01); **G01F 13/00** (2006.01); **B65B 1/08** (2006.01); **B65B 1/26** (2006.01); **B65B 1/36** (2006.01); **B65B 37/04** (2006.01)

CPC (source: EP KR)  
**B65B 1/08** (2013.01 - EP); **B65B 1/36** (2013.01 - KR)

Cited by  
RU2475709C1; RU2477455C2; DE102007033388A1; CZ302824B6; USRE42942E; WO2013062443A1; WO2016185230A3

Designated contracting state (EPC)  
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)  
**WO 9919215 A1 19990422**; AR 015957 A1 20010530; AT E243638 T1 20030715; AT E295299 T1 20050515; AU 735627 B2 20010712; AU 9687398 A 19990503; BG 104198 A 20010131; BG 64618 B1 20050930; BR 9812893 A 20000808; CA 2306079 A1 19990422; CA 2306079 C 20071211; CN 1191963 C 20050309; CN 1273556 A 20001115; CO 4970755 A1 20001107; CU 22994 A3 20051220; CZ 2000756 A3 20010117; CZ 302824 B6 20111130; DE 69815874 D1 20030731; DE 69815874 T2 20040205; DE 69830208 D1 20050616; DE 69830208 T2 20060302; DE 69830208 T3 20100729; DK 1021335 T3 20031020; DK 1354795 T3 20050822; DK 1354795 T4 20100607; EA 001290 B1 20001225; EA 200000221 A1 20001030; EE 04424 B1 20050215; EE 200000223 A 20010416; EG 25495 A 20120122; EP 1021335 A1 20000726; EP 1021335 B1 20030625; EP 1354795 A2 20031022; EP 1354795 A3 20031029; EP 1354795 B1 20050511; EP 1354795 B2 20100224; ES 2201542 T3 20040316; ES 2242923 T3 20051116; ES 2242923 T5 20100528; GE P20033049 B 20030825; HK 1031363 A1 20010615; HR P20000200 A2 20011231; HR P20000200 B1 20041231; HU 224246 B1 20050628; HU P0100018 A1 20010528; HU P0100018 A3 20010628; ID 24623 A 20000727; IL 135534 A0 20010520; IL 135534 A 20040725; IS 2112 B 20060615; IS 5417 A 20000327; JP 2001519296 A 200111023; JP 2009160437 A 20090723; JP 4838332 B2 20111214; KR 100786590 B1 20071221; KR 20010031052 A 20010416; ME 00629 B 20041231; NO 20001806 D0 20000407; NO 20001806 L 20000607; NO 324158 B1 20070903; NZ 503153 A 20020531; PE 56799 A1 19990610; PL 193070 B1 20070131; PL 340002 A1 20010115; PT 1021335 E 20031031; PT 1354795 E 20050930; SI 1021335 T1 20031231; SI 1354795 T1 20051031; SI 1354795 T2 20100730; SK 286182 B6 20080506; SK 5012000 A3 20001211; TR 200000960 T2 20000821; TW 404920 B 20000911; YU 17000 A 20010710; YU 49263 B 20041231; ZA 989097 B 19990413

DOCDB simple family (application)  
**US 9821059 W 19981006**; AR P980105058 A 19981009; AT 03075990 T 19981006; AT 98950964 T 19981006; AU 9687398 A 19981006; BG 10419800 A 20000229; BR 9812893 A 19981006; CA 2306079 A 19981006; CN 98809858 A 19981006; CO 98058726 A 19981008; CU 20000076 A 20000410; CZ 2000756 A 19981006; DE 69815874 T 19981006; DE 69830208 T 19981006; DK 03075990 T 19981006; DK 98950964 T 19981006; EA 200000221 A 19981006; EE P200000223 A 19981006; EG 121898 A 19981008; EP 03075990 A 19981006; EP 98950964 A 19981006; ES 03075990 T 19981006; ES 98950964 T 19981006; GE AP1998005326 A 19981006; HK 01100578 A 20010127; HR P20000200 A 20000410; HU P0100018 A 19981006; ID 20000862 A 19981006; IL 13553498 A 19981006; IS 5417 A 20000327; JP 2000515800 A 19981006; JP 2009102177 A 20090420; KR 20007003880 A 20000410; ME P2000170 A 19981006; NO 20001806 A 20000407; NZ 50315398 A 19981006; PE 00093798 A 19981005; PL 34000298 A 19981006; PT 03075990 T 19981006; PT 98950964 T 19981006; SI 9830514 T 19981006; SI 9830780 T 19981006; SK 5012000 A 19981006; TR 200000960 T 19981006; TW 87116809 A 19981009; YU 17000 A 19981006; ZA 989097 A 19981006