

Title (en)  
METHODS AND APPARATUS FOR DISPENSING PLURAL FLUIDS IN A PRECISE PROPORTION

Publication  
**EP 0466772 A4 19920325 (EN)**

Application  
**EP 90905925 A 19900330**

Priority  
US 33223089 A 19890331

Abstract (en)  
[origin: WO9011960A1] A fluid-driven proportioning pump (10) dispenses precise volumes of three fluids, includes a drive cylinder (12) housing a drive piston (40) which divides drive cylinder (12) into drive fluid chambers (106, 108). From each face of drive piston (40) projects two proportioning pistons (50, 52, 54, 58) which extend into proportioning cylinders (42, 44, 46, 48). An over-center mechanism triggered by movement of drive piston (40) at the extremes of its reciprocating motion operates valving (62) which admits pressurized drive fluid into alternate of drive fluid chambers (106, 108). The over-center mechanism is activated by C-shaped springs (68, 70), and is housed within drive cylinder (12). Selective adjustment is possible of the proportion among the drive fluid and other constituent fluids. Each proportioning piston (50, 52, 54, 58) is a disk-like piston head (116) slidably mounted on a turnable shaft (114) that projects from the face of the drive piston (40). The enlarged head (128) of the turnable shaft (114) is provided with a fitting (128) manipulatable from outside the pump by a retractable tool (132).

IPC 1-7  
**B67B 7/00**; **B67D 5/56**; **G01F 11/06**; **F01L 31/02**; **F01B 31/14**

IPC 8 full level  
**B01F 15/04** (2006.01); **B67D 1/10** (2006.01); **G05D 11/13** (2006.01)

CPC (source: EP)  
**B01F 35/88222** (2022.01); **B67D 1/107** (2013.01); **G05D 11/132** (2013.01)

Citation (search report)  
• [X] EP 0223568 A2 19870527 - PROD RES & DEV [US]  
• [A] EP 0113486 A2 19840718 - NEUCKENS FRANCOIS  
• [A] FR 2124464 A1 19720922 - LUPERT ROSEMARIE  
• [A] GB 1160690 A 19690806 - BROWN CICERO COLUMBUS [US]  
• [A] EP 0253406 A2 19880120 - COCA COLA CO [US]  
• See references of WO 9011960A1

Designated contracting state (EPC)  
DE DK ES FR GB IT LU NL SE

DOCDB simple family (publication)  
**WO 9011960 A1 19901018**; AU 5420090 A 19901105; EP 0466772 A1 19920122; EP 0466772 A4 19920325

DOCDB simple family (application)  
**US 9001765 W 19900330**; AU 5420090 A 19900330; EP 90905925 A 19900330