

Title (en)

MULTI-CHAMBER PUMP APPARATUS, SYSTEMS, AND METHODS

Title (de)

MEHRKAMMERPUMPVORRICHTUNG, -SYSTEME UND -VERFAHREN

Title (fr)

APPAREIL DE POMPE À CHAMBRES MULTIPLES, SYSTÈMES ET PROCÉDÉS

Publication

**EP 2855934 A4 20160504 (EN)**

Application

**EP 13782364 A 20130419**

Priority

- US 201261636759 P 20120423
- US 2013037372 W 20130419

Abstract (en)

[origin: WO2013163033A1] Disclosed are apparatus adapted to dispense and/or aspirate liquids, such as in a clinical analyzer. In one aspect, a multi-chamber pump apparatus is disclosed that has a pump body containing first and second chambers, a piston having a first piston portion of a first pump area A1 received in the first chamber, and a second piston portion of a second pumping area A2 received in the second chamber, and an actuator coupled to the piston. The first and second chambers can be selectively accessed to improve metering accuracy at dissimilar flow volumes from the chambers. Methods and systems including the multi-chamber pump apparatus are provided, as are other aspects.

IPC 8 full level

**F04B 49/12** (2006.01); **F04B 5/00** (2006.01); **F04B 13/00** (2006.01); **F04B 9/02** (2006.01)

CPC (source: EP US)

**F04B 1/12** (2013.01 - US); **F04B 5/00** (2013.01 - EP US); **F04B 13/00** (2013.01 - EP US); **F04B 49/12** (2013.01 - EP US); **F04B 49/22** (2013.01 - US); **F04B 9/02** (2013.01 - EP US); **F04B 2201/0201** (2013.01 - EP US)

Citation (search report)

- [XAYI] US 2522783 A 19500919 - GOLDEN JOHN P
- [XAYI] EP 0039146 A1 19811104 - BECKMAN INSTRUMENTS INC [US]
- [XAI] US 3036529 A 19620529 - ARCHER WILLIAM G
- [YA] US 2005023205 A1 20050203 - HIRAKU KENJI [JP], et al
- [YA] US 2005152787 A1 20050714 - OGLESBY KENNETH D [US]
- [YA] US 2005106051 A1 20050519 - HEMPELMANN WILLI [DE]
- [A] US 2009047137 A1 20090219 - STENBERG JOHAN [SE]
- See references of WO 2013163033A1

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 2013163033 A1 20131031**; EP 2855934 A1 20150408; EP 2855934 A4 20160504; US 2015086386 A1 20150326

DOCDB simple family (application)

**US 2013037372 W 20130419**; EP 13782364 A 20130419; US 201314396359 A 20130419