



US009409187B2

(12) **United States Patent**
Meisberger et al.

(10) **Patent No.:** **US 9,409,187 B2**

(45) **Date of Patent:** **Aug. 9, 2016**

(54) **CENTRIFUGE DEVICE INCLUDING AN ACTUATING ELEMENT AND METHOD FOR OPERATING SAME**

(52) **U.S. Cl.**
CPC . **B04B 9/08** (2013.01); **B01D 21/26** (2013.01);
B04B 2005/0492 (2013.01); **B04B 2009/085**
(2013.01)

(71) Applicant: **Fresenius Kabi Deutschland GmbH**,
Bad Homburg (DE)

(58) **Field of Classification Search**
CPC **B04B 9/08**; **B04B 2009/085**; **B04B**
2005/0492

(72) Inventors: **Artur Meisberger**, St. Wendel (DE);
Ilka Sternheimer, Frankfurt (DE)

USPC **494/17**, **18**, **21**, **45**, **83**, **84**; **210/380.1**,
210/380.3, **781**, **782**; **138/111**
See application file for complete search history.

(73) Assignee: **FRESENIUS KABI DEUTSCHLAND GMBH**,
Bad Homburg (DE)

(56) **References Cited**

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

U.S. PATENT DOCUMENTS

4,114,802 A * 9/1978 Brown B04B 5/0442
174/86

(21) Appl. No.: **14/421,543**

(Continued)

(22) PCT Filed: **Aug. 14, 2013**

FOREIGN PATENT DOCUMENTS

(86) PCT No.: **PCT/EP2013/066971**

DE 3242541 5/1984
DE 4220232 A1 * 12/1993 B04B 5/0442

§ 371 (c)(1),
(2) Date: **Feb. 13, 2015**

(Continued)

(87) PCT Pub. No.: **WO2014/027016**

Primary Examiner — Charles Cooley

(74) *Attorney, Agent, or Firm* — Occhiuti & Rohlicek LLP

PCT Pub. Date: **Feb. 20, 2014**

(57) **ABSTRACT**

(65) **Prior Publication Data**

US 2015/0231649 A1 Aug. 20, 2015

A centrifuge device comprises a fixed section, a drive device having a drive shaft, and a rotor mounted on the fixed section about a first rotational axis. The rotor is drivable about the first rotational axis. A transfer shaft is mounted on the rotor about a second rotational axis eccentric to the first rotational axis, the transfer shaft being coupled via a gearing with the fixed section. A centrifugal chamber is rotatable about a third rotational axis and is operatively connected to the transfer shaft. A locking device is arranged on the rotor for axially fixing the centrifugal chamber on the rotor. The locking device comprises a locking element and an actuating element, the locking element being adjustable between a locked position in which the centrifugal chamber is axially fixed with respect to the rotor and an unlocked position in which the centrifugal chamber is removable from the rotor.

Related U.S. Application Data

(60) Provisional application No. 61/695,526, filed on Aug. 31, 2012.

(30) **Foreign Application Priority Data**

Aug. 14, 2012 (EP) 12180411

(51) **Int. Cl.**
B04B 9/08 (2006.01)
B01D 21/26 (2006.01)
B04B 5/04 (2006.01)

13 Claims, 2 Drawing Sheets

