

Title (en)

DEVICE FOR MIXING LIQUIDS AND SOLIDS WITH LIQUIDS BY MEANS OF VIBRATION

Title (de)

VORRICHTUNG ZUM MISCHEN VON FLÜSSIGKEITEN UND FESTSTOFFEN MIT FLÜSSIGKEITEN MITTELS VIBRATION

Title (fr)

DISPOSITIF DE MÉLANGE DE LIQUIDES ET DE SOLIDES AVEC DES LIQUIDES PAR VIBRATION

Publication

EP 3801855 A1 20210414 (DE)

Application

EP 19737206 A 20190520

Priority

- CH 7212018 A 20180606
- IB 2019054137 W 20190520

Abstract (en)

[origin: WO2019234534A1] The invention relates to a device for mixing liquids and solids with liquids by means of vibration. A spring system (8, 8', 8''), which permits oscillation in one degree of freedom, is made to vibrate by means of an electromagnet (1), being magnetically coupled. A shaft (6) connected to the spring system (8, 8', 8'') transmits this unidirectional oscillation to a mixing member within the medium that is to be mixed. The spring system (8, 8', 8'') consists of flat spring elements (8, 8', 8'') made of spring steel or fiber-reinforced plastic and makes it possible to precisely set the vibration behavior by adapting the spring element clamped lengths. The design of the spring elements (8, 8', 8'') is set up so that in operation the loads on the spring elements (8, 8', 8'') are spread out and a long life is guaranteed even under high loads and cycles. The device is used for mixing volumes of up to 10,000 L and is operated at frequencies of up to 200 Hz and an amplitude of multiple millimeters.

IPC 8 full level

B01F 11/00 (2006.01); **B01F 13/08** (2006.01); **B01F 15/00** (2006.01); **B06B 1/14** (2006.01)

CPC (source: CH EP KR US)

B01F 23/40 (2022.01 - KR); **B01F 23/551** (2022.01 - KR); **B01F 31/27** (2022.01 - CH KR); **B01F 31/441** (2022.01 - CH EP KR US); **B01F 33/4534** (2022.01 - EP KR); **B01F 35/325** (2022.01 - EP KR); **B06B 1/14** (2013.01 - EP KR); **H01F 7/02** (2013.01 - KR US); **B01F 31/27** (2022.01 - US); **B01F 35/325** (2022.01 - US)

Citation (search report)

See references of WO 2019234534A1

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

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

WO 2019234534 A1 20191212; CH 715070 A2 20191213; CN 112512676 A 20210316; EP 3801855 A1 20210414; EP 3801855 B1 20230614; EP 3801855 C0 20230614; JP 2021526456 A 20211007; KR 20210018799 A 20210218; US 11958025 B2 20240416; US 2021197149 A1 20210701

DOCDB simple family (application)

IB 2019054137 W 20190520; CH 7212018 A 20180606; CN 201980032064 A 20190520; EP 19737206 A 20190520; JP 2020567211 A 20190520; KR 20207032395 A 20190520; US 201917058593 A 20190520