

Title (en)  
MULTISTAGE CENTRIFUGAL PUMP WITH AN AXIAL THRUST BALANCING PISTON, THE PRESSURE AND SUCTION SIDES OF WHICH ARE SEPARATED BY A MECHANICAL SEAL

Title (de)  
MEHRSTUFIGE KREISELPUMPE MIT EINEM AXIALSCHUB-AUSGLEICHSKOLBEN, DESSEN DRUCK- UND SAUGSEITEN VON EINER GLEITRINGDICHTUNG GETRENNNT SIND

Title (fr)  
POMPE CENTRIFUGE MULTICELLULAIRE AVEC UN PISTON D'ÉQUILIBRAGE DE POUSSÉE AXIALE DONT LES FACES DE HAUTE ET BASSE PRESSION SONT SÉPARÉES PAR UNE GARNITURE MÉCANIQUE

Publication  
**EP 3171028 B1 20190814 (DE)**

Application  
**EP 15195416 A 20151119**

Priority  
EP 15195416 A 20151119

Abstract (en)  
[origin: US2017146019A1] A multistage centrifugal pump (1) has impellers (9) arranged on a common shaft (8), which is rotatably arranged within a pump casing (2-4). One end of the shaft (8) is led out of the casing (2-4) for connection to a drive motor and another shaft end (15) is rotatably mounted in the pump casing (2-4). The shaft end (15) which is mounted within the pump casing (2-4) is subjected to a counter-force which is produced by way of pressure subjection via a conduit connection to a delivery side of the pump. An axial seal (11) is provided on the shaft end (15) arranged within the pump casing (2-4). The rotating part of the axial seal is led on the shaft end and the non-rotating part is led, axially movably, within the pump casing (2-4). A sealing arrangement is provided between the pump casing and the axially movably mounted part.

IPC 8 full level  
**F04D 1/06** (2006.01); **F04D 29/041** (2006.01); **F04D 29/12** (2006.01)

CPC (source: CN EP US)  
**F04D 1/06** (2013.01 - CN EP US); **F04D 29/041** (2013.01 - US); **F04D 29/0413** (2013.01 - US); **F04D 29/0416** (2013.01 - EP US);  
**F04D 29/042** (2013.01 - US); **F04D 29/051** (2013.01 - US); **F04D 29/0513** (2013.01 - US); **F04D 29/0516** (2013.01 - US);  
**F04D 29/086** (2013.01 - CN US); **F04D 29/106** (2013.01 - US); **F04D 29/12** (2013.01 - US); **F04D 29/122** (2013.01 - US);  
**F04D 29/126** (2013.01 - EP US); **F04D 29/426** (2013.01 - CN)

Citation (examination)  
• US 1927543 A 19330919 - DOYLE FRANK B  
• WO 9943959 A2 19990902 - FLUID EQUIPMENT DEV COMPANY LL [US]

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)  
**EP 3171028 A1 20170524; EP 3171028 B1 20190814**; CN 106870378 A 20170620; CN 106870378 B 20190423; ES 2756199 T3 20200427;  
US 10495099 B2 20191203; US 2017146019 A1 20170525

DOCDB simple family (application)  
**EP 15195416 A 20151119**; CN 201611027447 A 20161121; ES 15195416 T 20151119; US 201615355744 A 20161118