

Title (en)  
REGENERATIVE PUMP WITH FORCE BALANCING

Publication  
**EP 0170175 A3 19870603 (DE)**

Application  
**EP 85109082 A 19850719**

Priority  
DE 3427112 A 19840723

Abstract (en)  
[origin: US4678395A] The present invention relates to a regenerative pump having a casing with a casing inlet and casing outlet, an impeller disposed on a shaft and containing at least one bucket ring with axially and radially open bucket compartments on the first and second side of the impeller, and mutually separated side channels having an entrance port, an exit port and an interrupter. The arrangement herein is such that the conveying streams on the two sides of the impeller are separated from each other. The entrance ports of the side channels on the two impeller sides are in communication with the casing inlet, and the exit ports are in communication with the casing outlet, so that the conveying streams are first subdivided and then recombined. The entrance port, the exit port, and the interrupter in opposition to the first impeller side are arranged to be offset in the direction of rotation of the impeller by such an angular amount with respect to the corresponding elements on the second impeller side that the radial forces on the first impeller side, resulting from the pressure differences in the conveying streams between the inlets and the outlets, are counterbalanced by radial forces on the second impeller side that are the same with respect to amount but are effective in the opposite direction. In this way, compensation of the radial forces acting on the pump shaft is attained.

IPC 1-7  
**F04D 5/00**

IPC 8 full level  
**F04D 5/00** (2006.01); **F04D 15/00** (2006.01)

CPC (source: EP US)  
**F04D 5/005** (2013.01 - EP US)

Citation (search report)

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Designated contracting state (EPC)  
AT BE CH DE FR GB IT LI LU NL SE

DOCDB simple family (publication)  
**EP 0170175 A2 19860205; EP 0170175 A3 19870603; EP 0170175 B1 19910626**; AT E64772 T1 19910715; CS 258472 B2 19880816; CS 536285 A2 19880115; DD 237533 A5 19860716; DE 3427112 A1 19860123; DE 3583312 D1 19910801; JP H0631634 B2 19940427; JP S6187996 A 19860506; US 4678395 A 19870707

DOCDB simple family (application)  
**EP 85109082 A 19850719**; AT 85109082 T 19850719; CS 536285 A 19850719; DD 27888085 A 19850723; DE 3427112 A 19840723; DE 3583312 T 19850719; JP 16173585 A 19850722; US 75813885 A 19850723