

Title (en)  
Slurry pumping apparatus.

Title (de)  
Anlage, um Dickstoffe zu pumpen.

Title (fr)  
Dispositif pour le pompage de liquides chargés.

Publication  
**EP 0419695 A1 19910403 (EN)**

Application  
**EP 89117765 A 19890926**

Priority  
JP 13435588 A 19880602

Abstract (en)  
A slurry pumping method and an apparatus (2) to deliver slurry waste from factories to a filter press (5) for solid-liquid separation. In this apparatus, a pair of laterally or vertically arranged diaphragm type pumping devices (2) are activated by hydraulic cylinders, each consisting of a main cylinder (17) and a sub-cylinder (19) directly connected to the main cylinder, to introduce slurry (26) from the slurry tank (4) and deliver it under pressure by a resilient diaphragm (12) of each pumping device to the filter press (5) where it is processed for solid-liquid separation. One of the diaphragm type pumping devices is first started, followed by the other, thus alternately and repetitively activating the two pumping devices to achieve continuous operation of the slurry pumping process. When the processing is completed, the two hydraulic cylinders of both diaphragm type pumping devices are stopped by controlling the sleeve valves (33, 34). In this way, an effective slurry pumping can be achieved.

IPC 1-7  
**F04B 9/10**; **F04B 15/02**; **F04B 43/06**

IPC 8 full level  
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Citation (search report)  
• [Y] EP 0247459 A1 19871202 - HOYA TAKESHI  
• [Y] DE 3448016 A1 19860612 - OBERMANN KLAUS  
• [Y] EP 0197632 A2 19861015 - THOMSEN A F D SALES SERVICE [GB]  
• [Y] EP 0175391 A2 19860326 - HOYA TAKESHI  
• [A] US 4065230 A 19771227 - GEZARI WALTER A  
• [A] EP 0319093 A1 19890607 - TETRA DEV CO [IT]  
• [A] EP 0226122 A2 19870624 - KOPPERSCHMIDT MUELLER & CO [DE]

Cited by  
WO2015128283A1; CN107842480A; EP0476616A1; US5222872A; EP2913525A1; AU2015222279B2; RU2669099C2; WO2013170279A1; WO2020161237A1; US10487818B2

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