

Diego Gonzalez

Title: VARIABLE SPEED **PUMPING** SYSTEM AND METHOD

Abstract: Source: US2006045750A A variable speed **pumping** system and an associated method for moving water of an aquatic application. The variable speed **pumping** system includes a water **pump** for moving water in connection with performance of an operation upon the water. A variable speed motor is operatively connected to drive the **pump**. A sensor senses a parameter of the operation performed upon the water. A controller controls speed of the motor in response to the sensed parameter of operation.

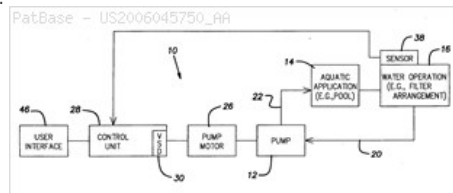
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International (IPC 8-9): B01D21/24 B01D21/30 E04H4/06 E04H4/12 F03B11/04 F04B17/03 F04B23/00 F04B49/00 F04B49/02 F04B49/06 F04B49/10 F04B49/20 F04D1/00 F04D13/02 F04D13/06 F04D15/00 F04D15/02 F04D27/00 G05D11/00 G05D7/06 G05D9/12 (Advanced/Invention); B01D21/24 B01D21/30 E04H4/00 F03B11/00 F04B17/03 F04B23/00 F04B49/00 F04B49/02 F04B49/06 F04B49/10 F04B49/20 F04D13/02 F04D13/06 F04D15/00 F04D15/02 (Core/Invention); F04B (Subclass/Invention); F04D (Subclass/Non-invention)

CPC: F04D15/00 Y02E10/226 F04D15/0227 F04D15/0236 F04D15/0077 F04B49/106 E04H4/1245 F04B49/065 F04D1/00 F04D13/06 F04D15/0066 F04B49/20

European: F04B49/20 F04D13/06 F04D15/00 F04D15/00G

US: 134/6 210/137 210/167.01 210/167.1 210/167.12 210/167.120S 210/167.14 210/167.21 210/167.210S 210/167.25 210/167.250S 210/416.1 210/416.100S 210/416.2 210/416.200S 210/739 210/90 210/96.1 210/96.100S 210/97 210/97P 210/98 4/490 4/508 4/509 4/509S 417/1 417/12 417/18 417/1P 417/1S 417/20 417/20P 417/22 417/326 417/36 417/42 417/42P 417/43 417/43P 417/43S 417/44.1 417/44.100P 417/44.100S 417/44.11 417/44.110 417/44.110P 417/44.2 417/44.200 417/45 417/46 417/53 417/53S 700/282

**Family:**

Publication number	Publication date	Application number	Application date
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Assignee(s): (std): PENTAIR POOL PRODUCTS INC ; PENTAIR WATER POOL AND INC SPA ; KJAER GERT ; LUNGEANU FLORIN ; HRUBY DANIEL J ; KJARTAN RUNARSSON EINAR ; MACCALLUM DAVID ; DUNN DENNIS ; MURPHY KEVIN ; ROBOL RONALD B ; MORANDO ALBERTO ; HANSEN ARNE F ; RUNARSSON EINAR K ; HOFMANN BERTHELSEN LARS ; PENTAIR WATER POOL AND SPA INC ; HANSEN ARNE FINK ; RUNARSSON EINAR KJARTAN ; DANFOSS LOW POWER DRIVES DIVIS ; HARVEST NILS OLE ; BERTHELSEN LAFS HOFFMANN ; BERTHELSEN LARS H ; BERTHELSEN LARS HOFFMANN ; BROWN EDWARD ; CLACK KENNETH ; DANFOSS LOW POWER DRIVES ; DANFOSS LOW POWER DRIVES A DIV ; CLARK KENNETH N ; CLACK KENNETH N ; DANFOSS LOW POWER DRIVES A DIVISION OF DANFOSS ; COX EVERETT ; DANFOSS LOW POWER DRIVES A DIVISION OF DANFOSS DRIVES AS ; RASMUSSEN PETER WESTERMANN ; DANFOSS LOW POWER DRIVES AS ; STILES ROBERT W JR ; YAHNKER CHRISTOPHER R ; WESTERMANN RASMUSSEN PETER ; RUNARSSON EINAR KJARTEN ; STILES ROBERT W ; STILES JR ROBERT W ; STILES ROBERT ; STEEN DONALD ; YAHNKER CHRISTOPHER ; WOODCOCK JR WALTER

Assignee(s): WOODCOCK WALTER J JR ; HARVEST NILES OLE ; DANFOSS LOW POWER DRIVES DIVISION OF DANFOSS DRIVES A S ; DANFOSS LOW POWER DRIVES A DIVISION OF DANFOSS DRIVES A S ; DANFOSS LOW POWER DRIVES A S ; DANFOSS LOW POWER DRIVES A DIVISION OF DANFOSS DRIVES A S ; DANFOSS LOW POWER DRIVES A DIVISION OF DANFOSS DRI ; BERTHELSEN LAS HOFFMAN

Inventor(s): (std): ALBERTO MORANDO ; BERTHELSEN LAFS HOFFMANN ; BERTHELSEN LARS H ; BERTHELSEN LARS HOFFMANN ; BERTHELSEN LAS HOFFMAN ; BROWN EDWARD ; CLACK KENNETH ; CLACK KENNETH N ; CLARK KENNETH N ; COX EVERETT ; EVERETT COX ; FINK HANSEN ARNE ; FLORIN LUNGEANU ; GERT KJAER ; HANSEN ARNE F ; HANSEN ARNE FINK ; HARVEST NILES OLE ; HARVEST NILS OLE ; HOFFMANN BERTHELSEN LARS ; HOFMANN BERTHELSEN LARS ; HRUBY DANIEL J ; JR WOODCOCK WALTER J ; KEVIN MURPHY ; KJAER GERT ; KJARTAN RUNARSSON EINAR ; LANGEANU FLORIN ; LUNGEANU FLORIN ; MACCALLUM DAVID ; MORANDO ALBERTO ; MURPHY KEVIN ; OLE HARVEST NILS ; RASMUSSEN PETER WESTERMANN ; ROBERT STILES ; RUNARSSON EINAR K ; RUNARSSON EINAR KJARTAN ; RUNARSSON EINAR KJARTEN ; RUNARSSON ELNAR KJARTAN ; STEEN DONALD ; STILES JR ROBERT W ; STILES ROBERT ; STILES ROBERT W ; STILES ROBERT W JR ; DONALD STEEN ; DUNN DENNIS ; ROBOL RONALD B ; WESTERMANN RASMUSSEN PETER ; WOODCOCK JR WALTER ; WOODCOCK JR WALTER J ; WOODCOCK WALTER J JR ; YAHNKER CHRISTOPHER ; YAHNKER CHRISTOPHER R

Inventor(s): WOODCOCK WALTER JJR ; WOODCOCK WALTER J ; RONALD B ROBOL ; RUNARSSON EINAR ; EINAR KJARTEN RUNARSSON ; STILES ROBERT WJR ; ROBERT W STILES ; ROBOL RONALD ; PETER WESTERMANN RASMUSSEN ; LARS HOFFMANN BERTHELSEN ; HRUBY DANIEL ; HANSEN ARNE ; DANIEL J HRUBY ; CLARK KENNETH ; CHRISTOPHER R YAHNKER ; BERTHELSEN LARS ; ARNE FINK HANSEN

Agent(s): P AND TS PATENTS AND TECHNOLOGY SURVEYS SA; P AND TS AG LTD SA; LAWRENCE JOHN; PEARNE AND GORDON LLP; GREENBERG TRAUIG (PHX); GREENBERG TRAUIG PHX; GREENBERG TRAUIG; GREENBERG TRAUIG LLP; QUARTES AND BRADY LLP; QUARLES AND BRADY LLP; QUARLES AND BRADY; FELLOWS GERALD L

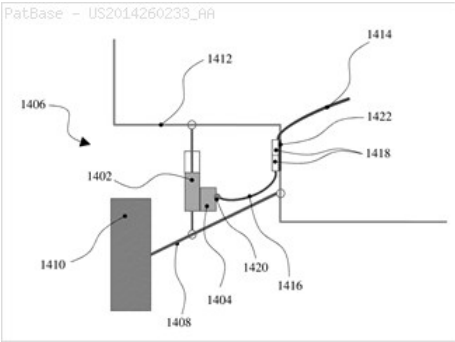
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Title: HYDRAULIC ACTUATOR WITH ON-DEMAND ENERGY FLOW

Abstract: Source: US2014260233A Various embodiments related to hydraulic actuators and active suspension systems as well as their methods of use are described.

Classifications:

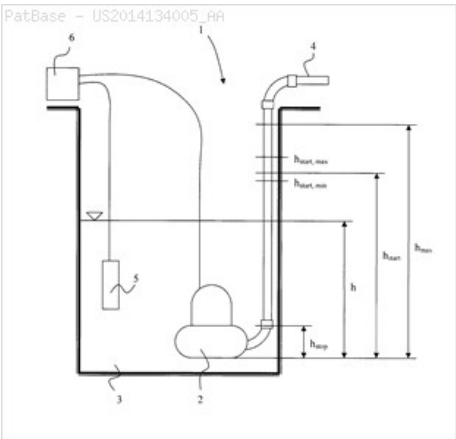
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CPC: F15B13/0444 H02K5/12 H02P6/16 H02K11/0015 H02K11/0021 H02K11/0026 B60G17/0195 H02K7/14 H02K7/1823 H02K11/0073 H02K29/08 H02K29/10 B60G2202/413 B60G2204/11 B60G11/265 B60G17/015 B60G17/0152 B60G2400/90 B60G17/04 B60G2500/10 B60G2500/20 B60G13/14 B60G17/0182 B60G17/08 B60G99/002 B60G2202/30 B60G2202/416 B60G2206/41 B60G2400/051 B60G2400/5182 B60G2400/821 B60G2401/172 B60G2500/02 B60G2600/1871 B60G2600/82 B60G2800/162 B60G2800/85 B60G2800/916 B60L1/003 B60L7/14 B60L7/20 B60L11/1862 B60L11/1868 B60L2210/12 B60L2210/14 B60L2240/529 B60L2260/50 B60G17/016 B60G17/0157 Y02T10/7005 Y02T10/7011 Y02T10/7016 Y02T10/7044 Y02T10/7066 Y02T10/7225 Y02T10/7233 H02K7/06 H02P21/06
US: 280/124.157 280/5.5 307/10.1 310/68B 318/400.39 417/410.1 417/42 60/325 60/431 60/494 701/36 701/37 701/38



Title: METHOD FOR CONTROLLING A PUMP

Abstract: Source: US2014134005A A method for automatic mutual alternation between an arbitrary number of pumps by the control of each individual pump, which makes use of a start condition for a state change from an inactive state of the pump into an active state of the pump to be performed, as well as makes use of a stop condition for a state change from the active state into the inactive state to be performed. The method includes a sub method (Find start condition) that includes the step of, after a predetermined stage, arbitrarily changing the start condition of the individual pump within predetermined limits.

Classifications:
International (IPC 8-9): E03F5/22 F04B23/04 F04B49/06 F04D F04D13/08 F04D15/00 F04D15/02 G05B13/02 (Advanced/Invention); G05B13/02 (Advanced/Non-invention); F04D15/00 (Core/Invention); F04D (Subclass/Invention)
CPC: E03F5/22 F04D15/029 G05B13/0265 F04D13/08 F04B23/04 F04D15/0218
US: 417/53



Family:

Publication number	Publication date	Application number	Application date
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Priority:

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Assignee(s): (std): FULLEMANN ALEXANDER ; LARSSON MARTIN ; XYLEM HOLDINGS LLC ; XYLEM IP HOLDINGS LLC

Inventor(s): (std): FULLEMANN ALEXANDER ; LARSSON MARTIN

Inventor(s): MARTIN LARSSON ; ALEXANDER FULLEMANN

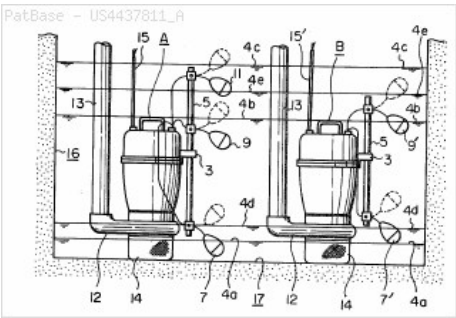
Agent(s): BRANN AB

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: Submersible pump with alternate pump operation control means

Abstract: Source: US4437811A A submersible pump adapted to pump out the liquid in a reservoir has a built-in control unit for alternate pump operation. The control unit includes step memory means which provides a signal to permit the starting of pump operation every other time a high liquid level sensor senses the liquid. Once started, the pump continues its operation until the liquid level drops below a low liquid level sensor. The submersible pump can be combined with an additional pump having a conventional control unit in which case the two pumps are alternately operated.

Classifications:
International (IPC 8-9): F04B49/025 F04D15/02 (Advanced/Invention); F04B49/02 F04D15/02 (Core/Invention)
International (IPC 1-7): F04B49/04
CPC: F04B49/025 F04D15/029
European: F04B49/025 F04D15/02F
US: 417/36 417/40 417/8



Family:

Publication number	Publication date	Application number	Application date
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Priority:

US19800163948 19800630

Assignee(s): (std): EBARA CORP ; EBARA DENSAN LTD

Assignee(s): EBARA 11 1 HANEDA ASAHI CHO OTA KU TOKYO JAPAN EBA

Inventor(s): (std): SHIBATA TOMOYUKI ; MURATA YUKIO ; IWATA MINORU

Title: Improvements in or relating to oil tanker cargo **pumping** systems

Abstract: Source: GB793013A An oil tanker cargo **pumping** system (see Group XVII) includes means for separating gases from the oil as it is being discharged by one or more centrifugal **pumps**. A gas collector as shown in Fig. 3 has a port 1 for connection to the inlet side of a centrifugal **pump** and a port 5 for connection to a separate priming **pump**. A valve 89 is normally closed by a spring 90, and a float 86 is normally in an upper position due to the surrounding oil. As gases are collected, the float 86 descends until it operates a servo device 88 causing the valve 89 to open and so allow the accumulated gases to be extracted by the priming **pump**. As the gas is extracted the gas collector fills with **liquid** and the float 86 rises to a position where it causes the servomotor 88 to close the valve 89. **Liquid** trapping apparatus. Between the priming **pump** and each gas collector, Fig. 3, is a **liquid** trapping apparatus, Fig. 2. This has a port 18 coupled to the priming **pump**, a double valve 67 arranged to provide communication with the atmosphere when open, a non-return valve 61 coupled to the gas collectors and a port 16 coupled through a one-way valve to the inlet side of the centrifugal discharge **pumps**. As gases are drawn in through the valve 61 by the priming **pump** coupled to the port 18, any entrapped **liquid** settles in the receiver 60 and raises the float 62. The vacuum holds the oneway valve shut. As the float 62 rises, it acts on a spring-biased arm 66 which eventually snaps over to cause a sudden opening of the double valve 67, this breaks the vacuum in the receiver 60 and the accumulated **liquid** in the receiver flows down the conduit 16 past the one-way valve and back to the inlet sides of the centrifugal discharge **pumps**. The float 62 then descends until the double valve 67 is caused to close, whereupon the vacuum is re-established. Should the **liquid level** accidentally rise to the height of a ball valve 78, the ball valve 78 closes the port 18. Modified **liquid** trapping apparatus. The receiver may be replaced by a vertically movable cylinder balanced by a counterweight and coupled to the various **pumps** by flexible tubes. As **liquid** collects in the receiver it descends until, through a lost motion mechanism, it suddenly causes its internal vacuum to be broken to permit the accumulated **liquid** to pass back to the gas collectors. When this has been done, the now lighter receiver rises and through the lost motion mechanism suddenly causes the vacuum created by the priming **pump** to be re-established.

Classifications:

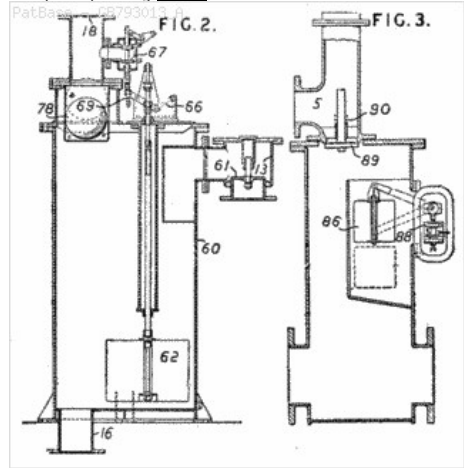
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International (IPC 1-7): B63B27/24

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European: B63B27/24 F04D13/00



Family:

Publication number	Publication date	Application number	Application date
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Priority:

GB19540022019 19540728

Assignee(s): (std): SHELL RES LTD

Assignee(s): SHELL RESEARCH LIMITED

Inventor(s): (std): LAMB JOHN

Title: Improvements in or relating to centrifugal **pumps**

Abstract: Source: GB871991A 871,991. Centrifugal **pumps**. HAYWARD TYLER and CO. Ltd. Dec. 24, 1957 [Sept. 24, 1956], No. 29120/56. Class 110 (1). In a priming arrangement for a centrifugal **pump**, a normally closed valve blocks communication between the **pump** and the primer, the valve being urged into the open position during priming by means responsive to the suction of the primer and being urged into the closed position, when the **pump** is primed, by means responsive to an increase of the pressure in the outlet of the **pump**. In the centrifugal **pump** shown, the **pump** impeller U is driven from a pulley P through step-up gearing, and a liquidring **pump** 13 is driven from the pulley P through a friction wheel F. When the **pump** is at rest, a valve 5a is closed by a spring 18 to prevent communication between chambers 10 and 15. Chamber 10 is connected to the priming **pump** 13 through a conduit 12, and chamber 15 is connected to the centrifugal **pump** inlet I through a conduit 14 and a reservoir 20. When the **pump** is running in unprimed **condition**, the suction of the priming **pump** 13, communicated from chamber 10 through a groove 11 to the underside of a diaphragm 7, causes the diaphragm to open the valve 5a to permit priming. On completion of priming, the pressure in a space T (which is about 70% of the discharge pressure of the centrifugal **pump**), applied to the underside of a diaphragm 2a, causes the latter to close the valve 5a. The reservoir 20 prevents water from entering the priming **pump** 13 to dilute the anti-freeze solution in the **liquid** ring during the interval between completion of priming and closure of valve 5a. A piston 8 subjected to the pressure in space T pivots the priming **pump** 13 against the action of springs S to disengage the frictional drive on completion of priming. In a modification, the suction conduit 14 of the priming **pump** is connected to the space T instead of the inlet I, the reservoir 20 being omitted, and the space beneath the diaphragm 2a is connected through a pipe to the discharge O. The Provisional Specification describes an **alternative** embodiment in which the diaphragm 2a may be replaced by a piston, and either a reservoir or a non-return valve may be provided at the inlet to the priming **pump**.

Classifications:

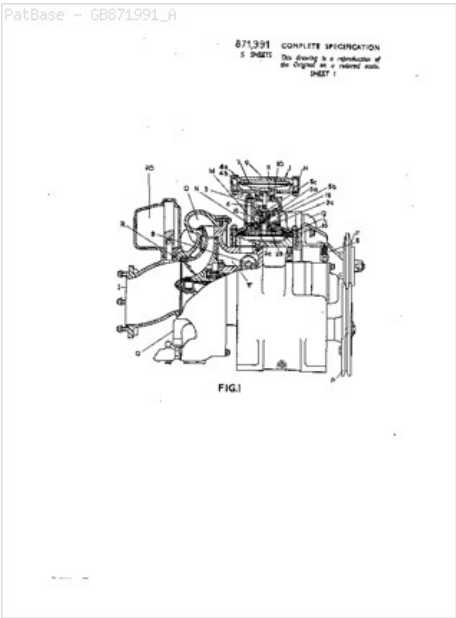
International (IPC 8-9): A62C25/00 (Advanced/Invention);

A62C25/00 (Core/Invention)

International (IPC 1-7): F04D9/04

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Assignee(s): (std): HAYWARD TYLER AND COMPANY LTD

Assignee(s): HAYWARD TYLER AND CO LTD ; HAYWARD TYLER AND COMPANY LIMITED

Inventor(s): (std): HETHERINGTON THOMAS ; SKINNER CYRIL JOHN