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[Continued on next page]

(54) Title: CARDIAC PUMP WITH SPEED ADAPTED FOR VENTRICLE UNLOADING

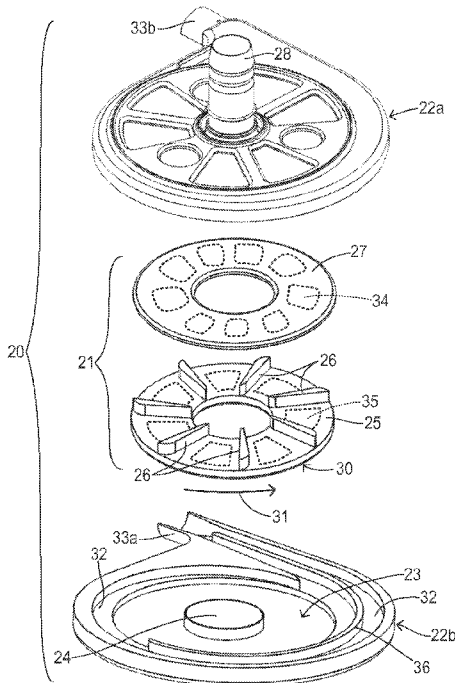


Fig. 2

(57) Abstract: A blood pump system is implantable in a patient for ventricular support. A pumping chamber has an inlet for receiving blood from a ventricle of the patient. An impeller is received in the pumping chamber. A motor is coupled to the impeller for driving rotation of the impeller. A motor controller is provided for tracking systolic and diastolic phases of a cardiac cycle of the patient and supplying a variable voltage signal to the motor in a variable speed mode to produce a variable impeller speed linked to the cardiac cycle. The impeller speed comprises a ramping up to an elevated speed during the diastolic phase in order to reduce a load on the ventricle at the beginning of the systolic phase.



Declarations under Rule 4.17:

— *as to the identity of the inventor (Rule 4.17(i))*

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A. CLASSIFICATION OF SUBJECT MATTER**A61M 1/10(2006.01)i, A61M 1/12(2006.01)i**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHEDMinimum documentation searched (classification system followed by classification symbols)
A61M 1/10; A61N 1/362; A61B 19/00; A61M 1/12Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean utility models and applications for utility models
Japanese utility models and applications for utility modelsElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS(KIPO internal) & keywords: blood pump, ventricular support, pumping chamber, impeller, motor, motor controller, systolic phase, diastolic phase**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003-0045772 A1 (REICH et al.) 06 March 2003 See abstract; paragraphs [0030]-[0031], [0034], [0149]; table 2 and claim 20.	1-9
Y		10-11
Y	US 4902272 A (MILDER et al.) 20 February 1990 See column 3, lines 28-39 and claims 1, 3, 5, 11-13.	10-11
A	WO 2012-047550 A1 (EVERHEART SYSTEMS, INC.) 12 April 2012 See claims 1, 8-9, 11.	1-11
A	US 2012-0022645 A1 (BURKE) 26 January 2012 See claims 7-8.	1-11
A	EP 2298375 A1 (SUN MEDICAL TECHNOLOGY RESEARCH CORPORATION) 23 March 2011 See claims 1-4.	1-11

 Further documents are listed in the continuation of Box C. See patent family annex.

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Date of the actual completion of the international search

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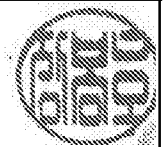
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INTERNATIONAL SEARCH REPORT

Information on patent family members

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