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Application Number	
Filing Date	
First Named Inventor	Werner Mohl
Title	DEVICE TO ASSIST THE PERFORMANCE OF A HEART
Art Unit	
Examiner Name	
Attorney Docket Number	25955-0013005

SIGNATURE of Applicant or Patent Practitioner

Signature	/Alex Yu/	Date (Optional)	August 26, 2021
Name	Alex Yu	Registration Number	74,295
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

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This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

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☒ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter, which may be an application filed after the date of this power of attorney, or identified above:

26191

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I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Miracor Medical SA

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

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SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	/Ulc/	Date (Optional)	MARCH 15, 2018
Name	GRZEGORZ SKERCKI		
Title	CHIEF FINANCIAL OFFICER		

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August 26, 2021

Attorney Docket No.: 25955-0013005

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Presented for filing is a new continuation patent application of:

Inventor(s): WERNER MOHL

Title: DEVICE TO ASSIST THE PERFORMANCE OF A HEART

This application claims the benefit of the filing date and priority of the following application(s):

Application No.	Country or Region	Filing Date (MM/DD/YYYY)
16/282,948	United States	2/22/2019
14/454,965	United States	8/8/2014
13/555,318	United States	7/23/2012
12/449,632	United States	8/18/2009
PCT/IB2008/000421	WIPO	2/27/2008
A306/2007	Austria	2/27/2007

The requirement for a certified copy of the foreign priority document under 37 CFR 1.55 is satisfied in this application, as the certified copy is contained in the file of the related Application No. **13/555,318**, filed **July 23, 2012**.

Enclosed are the following papers, including those required to receive a filing date under 37 CFR 1.53(b):

	Pages
Specification	7
Claims	1
Abstract	1
Declaration	1
Drawing(s)	3

Enclosures:

— Application Data Sheet, 9 pages.
— Power of Attorney, 2 pages.

No filing fee is being paid now.

I hereby authorize the USPTO to communicate in response to email communications from the undersigned and practitioners under Customer No. 26191 in accordance with 37 CFR 1.33 and 37 CFR 1.34 concerning any subject matter of this application via email. I understand that a copy of these communications will be made of record in the application file. (MPEP 502.03).

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Respectfully submitted,

/Alex Yu/

Alex Yu

Registration No. 74,295

Enclosures

AZY/kay
41542007.doc

DEVICE TO ASSIST THE PERFORMANCE OF A HEART

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of and claims priority to U.S. Application Serial No. 16/282,948, filed on February 22, 2019, which is a continuation of U.S. Application Serial No. 14/454,965, filed on August 8, 2014, which is a continuation of and claims priority to U.S. Application Serial No. 13/555,318, filed on July 23, 2012, which is a divisional of and claims priority to U.S. Application Serial No. 12/449,632, filed on August 18, 2009, which is the U.S. national phase of International Application PCT/IB2008/000421, filed on February 27, 2008, which designated the U.S. and claims benefit of AT A 306/2007, filed February 27, 2007, the entire contents of these prior applications are hereby incorporated by reference.

FIELD

The invention relates to a catheter to assist the performance of a heart with at least one pump.

BACKGROUND

After a heart failure, for example a cardiac infarction or other reasons for the decrease in the performance of a heart, it is of essential importance for intensive care medicine to normalise and stabilise the cardiac function again as rapidly as possible. When for example the volume output of the heart is distinctly reduced as a result of a failure, it is particularly important to reliably and rapidly re-establish a corresponding peripheral blood flow in order to prevent secondary damage. The use of heart-lung machines basically allows the essential vital functions to be maintained. A specific adaptation to the respective actual requirements generally does not take place with such devices, however. Rather, conventional heart-lung machines are devices which, using external pumps, maintain a forced circulation of blood without systematically entering into the respective requirements of the heart which has been weakened or subjected to a failure.

In surgical interventions, particularly in the vein area, it has already been proposed to carry out retroinfusion, controlled by venous pressure, from or in veins of the body with the suction" of fluid and return of the fluid via a pump. Conventional catheters are used here, the lumina of which allow a suction of fluid and via the lumina of which the return is made possible at a suitable site. Known devices, particularly for the retroinfusion of blood in coronary veins in the area of myocardial protection during a brief coronary artery closure within a cardiological intervention, are generally devised so that a balloon dilatation of an arteriosclerotically constricted coronary artery is carried out. In these cases, a compensation which is adapted to the intervention briefly taking place respectively can be carried out by the return of blood which has been drawn off in veins. For a continuous restitution of the full function of a heart, however, the criteria are not taken into account which would be relevant for the full function of the heart, and an intensive provision over a particular period of time is therefore not provided with such devices. At the same time, the provision of the other organs must also be maintained.

In the device known from AT 407 960 B for assisting the performance of a heart, fluid is removed from blood vessels via an external pump and is returned into blood vessels via a return catheter, in which the returned quantity of fluid is regulated as a function of measurement values, with a heart ventricle catheter being provided to obtain these measurement values. The known device comprised a heart ventricle catheter which is equipped in the cardiac chamber with sensors to measure the volume of fluid per unit of time, in which these sensors, in the introduced state of the heart ventricle catheter, lie in the cardiac chamber and these sensors are connected with an evaluation circuit in which the ratio of the diastolic volume to the systolic volume is evaluated per heartbeat or per unit of time in particular the discharge rate and/or the deviation of the volume conveyed per unit of time by the heart from a defined rated value is evaluated, for example the rated value, calculated from physically specific data for the cardiac output. The signal which is generated in this way is passed to the pump, via which fluid is withdrawn from the cardiac chamber and is recirculated as a function of the generated signal.

SUMMARY

The invention now aims to further develop this known device to the effect that an external pump can be dispensed with and, at the same time, the desired pressure increase can be brought into effect systematically at particular locations. In particular, the fluid flow which is improved by the pump is to be developed in a way in which the mechanical stress of highly sensitive fluids, such as blood for example, can be kept as low as possible and nevertheless the corresponding improvement to circulation can be ensured at desired locations. To solve this problem, the initially mentioned device of the catheter according to the invention, which can be used within the scope of the device described above, consists substantially in that the pump is constructed as a rotary pump at the distal end of the catheter, in which the rotor lying distally on the outside is coupled via a magneto coupling with a drive wheel which is arranged inside the catheter and is formed as a paddle wheel which is operated hydraulically or pneumatically and the driving fluid is supplied to the paddle wheel via a lumen of the catheter and is carried off via a further lumen of the catheter. Such an axial pump, which is directly connected with the catheter, can be brought with the catheter directly into the desired position and, at the same time, can be used here with further therapeutic additions such as, for example, a retroper-fusion through cyclic occlusion of the blood vessel by means of a balloon. In order to guarantee a complete uncoupling from the driving medium driving the pump and in particular to ensure that simple driving means such as, for example, hydraulically or pneumatically operated paddle wheels can be used, a completely impervious separate on of the rotor from the drive wheel is achieved by the magneto coupling which is provided according to the invention, which eliminates axial passages between the drive wheel and the rotor lying distally on the outside. The embodiment is hereby devised according to the invention so that the drive wheel is formed as a hydraulically or pneumatically operated paddle wheel, with the driving fluid being supplied to the paddle wheel via a lumen of the catheter and being carried off via a further lumen of the catheter, in which preferably the paddle wheel is constructed with axial or semi-axial blades. The operation of such an arrangement can take place in a simple manner by means of correspondingly regulated hydraulic or pneumatic reservoirs, with the driving medium being supplied via

corresponding regulating valves to the drive wheel which is coupled magnetically with the rotor.

The device is designed in a structurally particularly simple manner such that the axis of rotation of the rotor is in alignment with the longitudinal axis of the catheter or is parallel thereto. A development of the catheter which has a correspondingly low wear and is impervious , with, at the same time, a secure mounting of the rotor, can be achieved in that the coupling is formed by bar magnets which, in adjacent chambers separated from each other hydraulically by a sealing wall, at the distal end of the catheter are respectively connected with the rotor and with the drive wheel so as to be locked against relative rotation, in which preferably the connections: locked against relative rotation, of the drive wheel or of the rotor with the respective bar magnets are respectively mounted in the walls of the chambers facing away from the sealing wall and facing the drive wheel or the rotor respectively.

The rotor itself can follow design principles such as described for example in WO 01/70300 A1. The rotary pump shown and described there for conveying blood and other highly sensitive fluids is formed as an external electromagnetically driven pump which is not directly suitable for incorporation into a catheter. The known design namely assumes that centrifugal flow components and flow components directed against a housing are present, in which the flow components directed against the housing serve primarily for the non-contact mounting and stabilizing of the rotor in the housing. However, with an arrangement of the rotor at the distal end of a catheter, a closed housing can not be readily realised with regard to flow technology, because such housing walls must in fact lie at a precisely defined distance from the rotor, which, however, is not readily guaranteed at the distal end of a catheter. However, for the desired conveying capacity with the axial pump according to the invention, provision is also made according to the invention that the rotor has guide surfaces to produce centrifugal flow components.

The driving fluid can be used within the scope of the invention in order to be able to operate a balloon for retroperfusion. The embodiment is preferably devised hereby so

that the lumina for the driving fluid are guided through an expandable balloon surrounding the catheter in a sealing manner, and that the lumina have separately controllable closure members via which driving fluid can arrive in the balloon or out of the balloon into the respective lumina, in which preferably the closure members are formed as magneto valves. On inflation of the balloon, additional driving medium is required which can be discharged again on collapsing of the balloon. This is possible extracorporally on the drive side by means of a reservoir.

The embodiment to assist the performance of a heart according to the invention, in which fluid is conveyed in blood vessels with the use of a pump and the conveyed quantity is able to be regulated as a function of measurement values of a heart ventricle catheter, from which the cardiac output is determined, proceeds from a development according to AT 407 960 B and is characterised substantially in that the pump is formed as an intravasal rotary pump at the periphery or at the distal end of the catheter, the rotor of which, lying on the outside, is connected via a magneto coupling with the drive which is arranged inside the catheter.

BRIEF DESCRIPTION OF DRAWINGS

The invention is explained in further detail below by use of an examplary embodiment which is illustrated diagrammatically in the drawings, in which Fig. 1 shows a diagrammatic illustration of the arrangement of the pump and of the drive, Fig. 2 shows a diagrammatic illustration of the distal end of a catheter which is used according to the invention, and Fig. 3 shows an enlarged illustration of the part of the catheter bearing the balloon, in section.

DETAILED DESCRIPTION

In Fig. 1, a heart is designated by 1, into which a heart ventricle catheter 2 is introduced. The catheter is introduced here for example via the femoral artery and the aortic arch 3 into the heart chamber and carries a series of sensors 4 via which the volume can be determined. The measurement signals are passed to a control arrangement 5. The heart ventricle catheter is formed with several lumina, as additionally illustrated below in

further figures of the drawings, with fluid being supplied via such lumina to drive a rotor, arranged at the distal end, which forms the pump to assist the blood circulation and is designated by 6 in Fig. 1. The positioning of this rotor is indicated in Fig. 1 by the arrow 8. The driving medium for the rotor or the pump is guided in a circular flow by means of a fluid pump 7 which can be regulated in a synchronised manner as a function of the control signals generated in the control arrangement 5. The distal region in which the pump is arranged is designated diagrammatically by 8, the catheter 2 having at its distal end a tube 9 leading to the suction end 10. A reservoir for driving fluid is designated by 11, which provides additional driving medium for filling the balloon 12 serving for an occlusion of the artery, and which receives again the volume of driving medium occurring on deflation of the balloon.

The volumetric measurement in the cardiac chamber allows differences to be reliably detected between the diastolic and systolic volume and allows corresponding correction signals to be made available for the output of the synchronised fluid pump 7. Furthermore, in the control circuit 5, corresponding fixed values can be provided, such as for example a defined cardiac output, which is referred to on deviation of the measured cardiac output to control the pump.

A retroperfusion can take place via a conventional balloon catheter which is occluded in a correspondingly synchronized manner, so that the directed return is in fact guaranteed during the diastole. Hereby the corresponding measurement values for the heart rate or for the correct moment of the diastole can be obtained from ECG data.

In Fig. 2, the distal end of a modified catheter 2 is now illustrated. The end side 13 of this catheter has two pocketshaped chambers 14 and 15, in which bar magnets are respectively arranged. The bar magnet 16 is connected here at the distal end outwards via a shaft 17 with a rotor 18, whereas the bar magnet 19 lying on the inside is connected via a shaft 20 with a drive wheel 21. The drive wheel 21 is formed here as a paddle wheel and is acted upon with fluid via a lumen 22, this fluid flowing off again via the lumen 23 of the catheter. The rotation of the paddle wheel 21 is regulated here accordingly by

corresponding control of the fluid pressure in the lumen 22 serving for the supply of fluid, in which the magnet 19, which is connected so as to be locked against relative rotation with the paddle wheel 21, is set into corresponding rotation. At the outer side, which is completely sealed with respect to the lumina 22 and 23, the magnet 16 is subsequently entrained accordingly and drives the rotor 18 via the shaft 17, whereby a flow is formed in the region of the tube 9, as is indicated by the arrows 24, and which assists the natural blood flow in the vessel 26, illustrated by the arrow 25.

In Fig. 3, the partial region of the balloon 12, which is connected in a sealing manner to the catheter 2, is illustrated on an enlarged scale. The two lumina leading away from the fluid pump 7 and back to the fluid pump 7 are designated in turn by 22 and 23. In the region of the balloon 12, the wall of these lumina is provided with valves which can be actuated magnetically for example. The valves are indicated diagrammatically by 27 and 28. An opening of the valve 27 leads to the fluid, coming from the fluid pump 7, which is under pressure, which is indicated by the "+" sign, being pumped into the balloon 12, with which the overall quantity of the circulating driving fluid would of course be reduced, in so far as the reservoir 11, indicated diagrammatically in Fig. 1, is not provided. By closing the valve 27, the occlusion is closed off, the collapsing of the balloon 12 being able to be brought about by opening the valve 28 and the fluid now being drawn off via the lumen 23, leading back to the pump, which lumen 23 is at a slightly lower pressure which is indicated by the "-" sign. As the overall volume of the fluid in the circulating system is now to be reduced, a portion of this volume must be pumped back again into the reservoir 11 according to Fig. 1.

Claims

1. A catheter to assist the performance of a heart with at least one pump, characterised in that the pump (7) is formed as a rotary pump at the distal end of the catheter (2), the rotor (6) lying distally at the outside being coupled via a magneto coupling with a drive wheel (21) which is arranged inside the catheter (2) and is formed as a hydraulically or pneumatically operated paddle wheel and the driving fluid being supplied to the paddle wheel via a lumen (22) of the catheter (2) and being carried off via a further lumen (23) of the catheter (2).

Abstract:

In a catheter (2) to assist the performance of a heart (1) with at least one pump (7), the pump is formed as a rotary pump at the distal end of the catheter (2), the rotor (6) lying distally on the outer side being coupled via a magneto coupling with a drive wheel (21), formed as a hydraulically or pneumatically operated paddle wheel, arranged inside the catheter (2). The driving fluid is supplied to the paddle wheel via a lumen (22) of the catheter (2) and is carried off via a further lumen (23) of the catheter. (Fig. 2).

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	25955-0013005
	Application Number	
Title of Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
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☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Werner		Mohl	

Residence Information (Select One) US Residency ● Non US Residency Active US Military Service

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Mailing Address of Inventor:

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Postal Code	2571	**Country** [i]	AT

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Email Address	apsi@fr.com	Add Email	Remove Email

Application Information:

Title of the Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART		
Attorney Docket Number	25955-0013005	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	3	**Suggested Figure for Publication (if any)**	

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	25955-0013005
	Application Number	
Title of Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART	

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For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

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Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	16282948	2019-02-22

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	25955-0013005
	Application Number	
Title of Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART	

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16282948	Continuation of	14454965	2014-08-08	10251984	2019-04-09
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14454965	Continuation of	13555318	2012-07-23	8801590	2014-08-12
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13555318	Division of	12449632	2009-08-18	8255050	2012-08-28
Prior Application Status	Expired				Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
12449632	a 371 of international	PCTIB2008000421	2008-02-27		

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Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
A306/2007	AT	2007-02-27	

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Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	25955-0013005
	Application Number	
Title of Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART	

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	25955-0013005
	Application Number	
Title of Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	25955-0013005
	Application Number	
Title of Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 — Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Miracor Medical SA		
Mailing Address Information For Applicant:			
Address 1	E40 Business Park		
Address 2	Rue de Bruxelles 174		
City	Awans	**State/Province**	
Country	BE	Postal Code	B-4340
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	25955-0013005
	Application Number	
Title of Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Alex Yu/			Date (YYYY-MM-DD)	2021-08-26
First Name	Alex	Last Name	Yu	Registration Number	74,295

Additional Signature may be generated within this form by selecting the Add button. Add

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	25955-0013005
	Application Number	
Title of Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

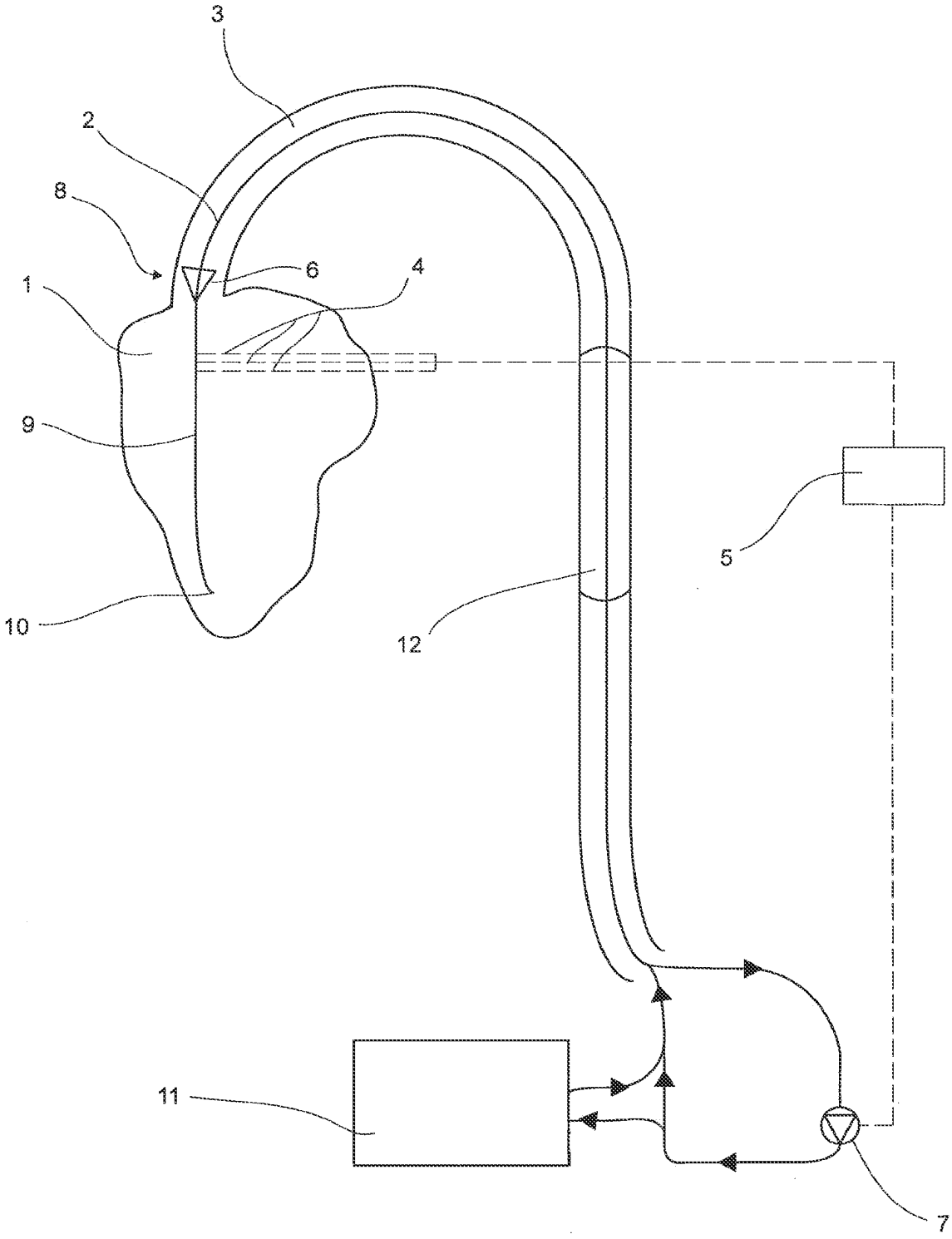

Fig.1

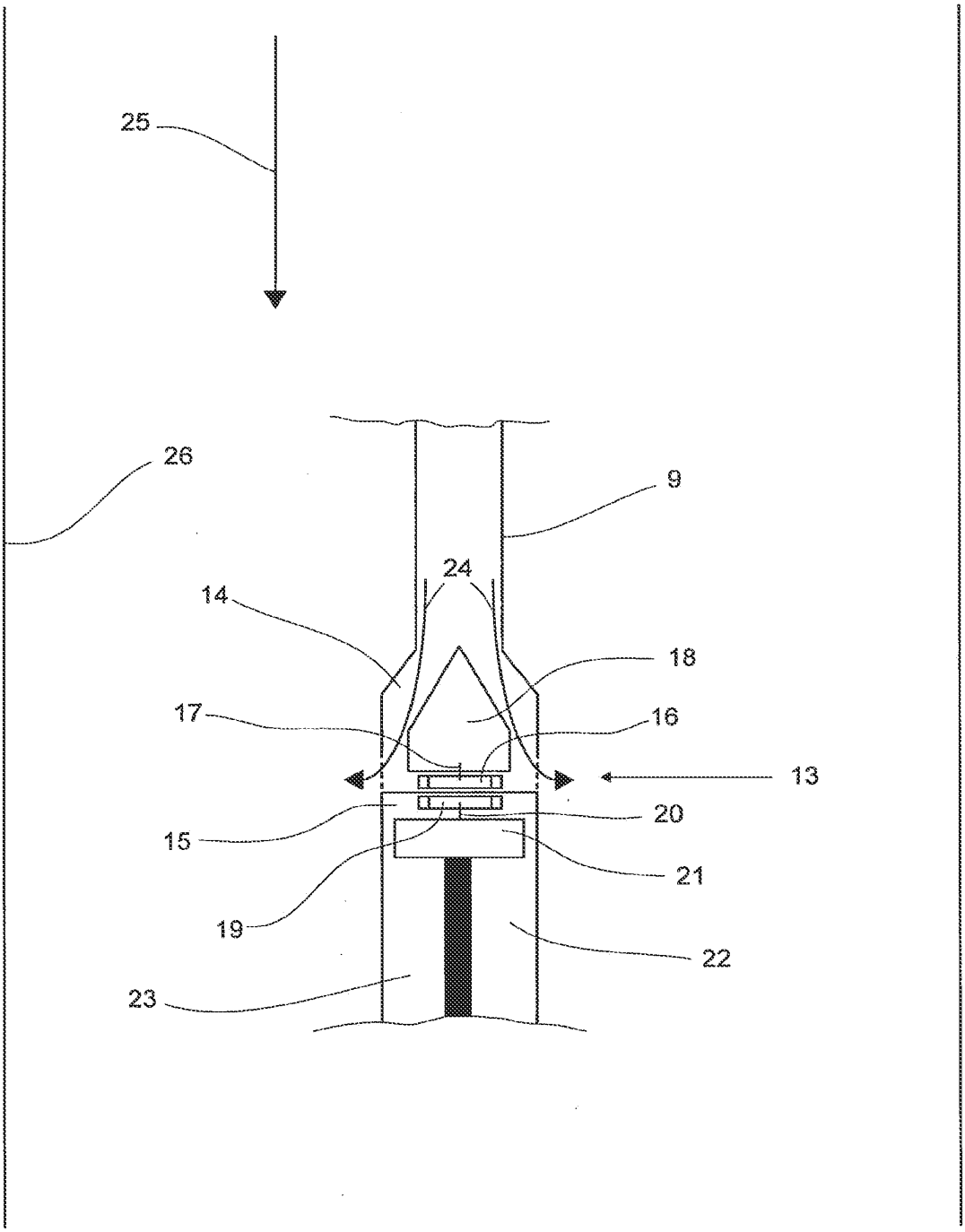

Fig. 2

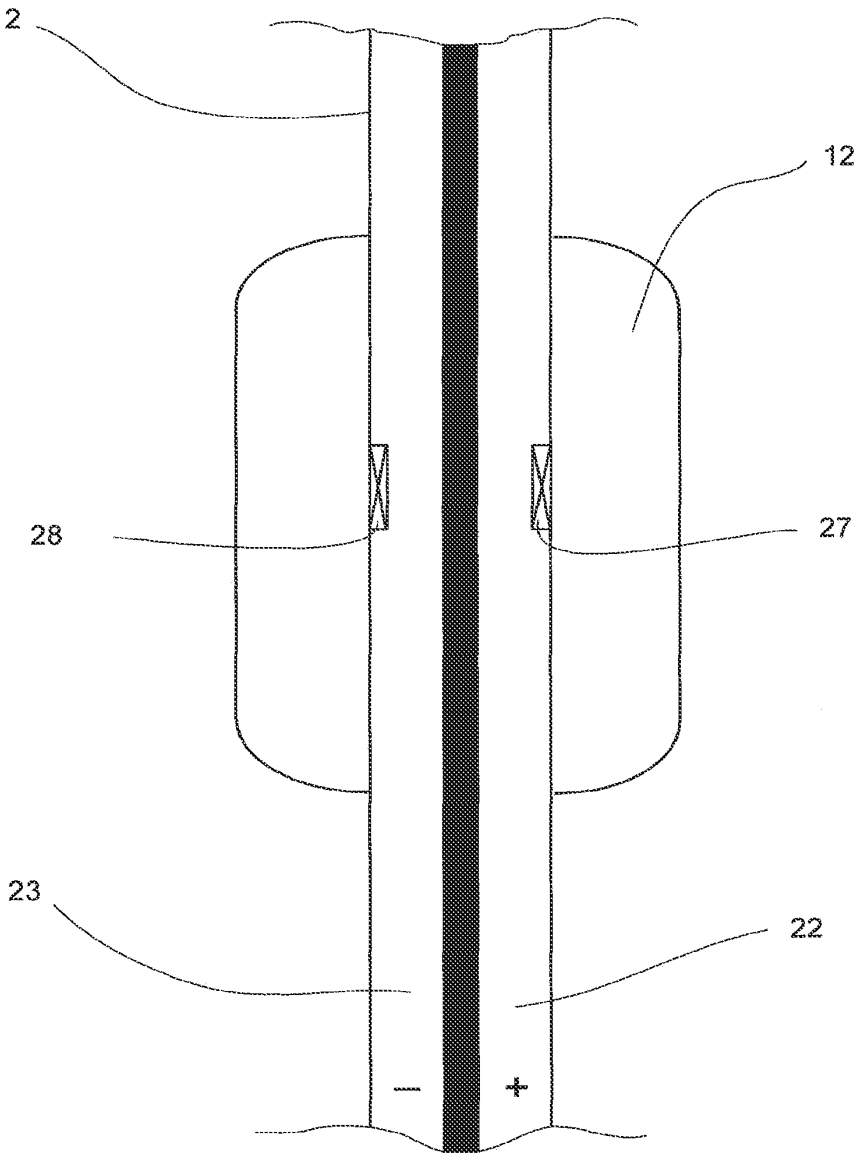

Fig. 3

Attorney Docket No.: 25955-0013003

PTO/AIA/01 (06-12)
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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	CATHETER TO ASSIST THE PERFORMANCE OF A HEART

As the below named inventor, I hereby declare that:

This declaration is directed to:

[ ] The attached application, or

[X] United States application or PCT international application number 14/454,965

filed on August 8, 2014.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Werner Mohl Date (Optional): Aug 15th 2014

Signature:

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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Alexandria, VA 22313 - 1450
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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
17/446,046	**08/26/2021 05:23:19 PM ET**	**25955-0013005**

Title of Invention

DEVICE TO ASSIST THE PERFORMANCE OF A HEART

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	7378	FILED BY	Kirstin Matteo
PATENT CENTER #	60294029	FILING DATE	-
CUSTOMER #	26191	FIRST NAMED INVENTOR	Werner Mohl
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Alex Yu

Documents

TOTAL DOCUMENTS: 8

DOCUMENT		PAGES	DESCRIPTION	SIZE (KB)
25955-0013005_Transmittal.pdf		2	Transmittal Letter	98 KB
25955-0013005_Application.pdf		9	-	95 KB
25955-0013005_Application-SPEC.pdf	(1-7)	7	Specification	78 KB
25955-0013005_Application-CLM.pdf	(8-8)	1	Claims	53 KB

25955-0013005_Application-ABST.pdf	(9-9)	1	Abstract	41 KB
25955-0013005_Declaration.pdf		1	Oath or Declaration filed	776 KB
25955-0013005_Drawings.pdf		3	Drawings-only black and white line drawings	861 KB
25955-0013005_ADS.pdf		8	Application Data Sheet	1781 KB

Warning: The attached version of the AIA/14 form is not the current version and data may not fully load to USPTO systems.

25955-0013005_POA.pdf		2	Power of Attorney	332 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/446,046	08/26/2021	3783	0.00	25955-0013005	1	1

CONFIRMATION NO. 7378

26191
FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

FILING RECEIPT

Date Mailed: 09/07/2021

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Werner Mohl, Altenmarkt-Thennenberg, AUSTRIA;

Applicant(s)

Miracor Medical SA, Awans, BELGIUM;

Power of Attorney: The patent practitioners associated with Customer Number 26191

Domestic Priority data as claimed by applicant

This application is a CON of 16/282,948 02/22/2019 PAT 11123540
which is a CON of 14/454,965 08/08/2014 PAT 10251984
which is a CON of 13/555,318 07/23/2012 PAT 8801590
which is a DIV of 12/449,632 08/18/2009 PAT 8255050
which is a 371 of PCT/IB2008/000421 02/27/2008

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
AUSTRIA A306/2007 02/27/2007 No Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 09/02/2021

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/446,046**

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

DEVICE TO ASSIST THE PERFORMANCE OF A HEART

Preliminary Class

604

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 32 of 254

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 17/446,046

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	80		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	350		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	400		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	1 minus 20 =	*	x 50 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 minus 3 =	*	x 240 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	830		TOTAL	

APPLICATION AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)	OR	RATE($)	ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/446,046	08/26/2021	Werner Mohl	25955-0013005

CONFIRMATION NO. 7378

26191
FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

FORMALITIES LETTER

OC000000128204005

Date Mailed: 09/07/2021

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
- The application search fee must be submitted.
- The application examination fee must be submitted.
- Surcharge as set forth in 37 CFR 1.16(f) must be submitted.
  The surcharge is due for any one of:
  - late submission of the basic filing fee, search fee, or examination fee,
  - late submission of inventor's oath or declaration,
  - filing an application that does not contain at least one claim on filing, or
  - submission of an application filed by reference to a previously filed application.

SUMMARY OF FEES DUE:

The fee(s) required within **TWO MONTHS** from the date of this Notice to avoid abandonment is/are itemized below. Small entity discount is in effect. If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- $ **80** basic filing fee.
- $ **80** surcharge.
- $ **350** search fee.
- $ **400** examination fee.
- $(**0**) previous unapplied payment amount.
- $ **910** TOTAL FEE BALANCE DUE.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

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/tnguyen/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor	:	Werner Mohl	Art Unit	:	3783
Application No.	:	17/446,046	Examiner	:	Unknown
Filed	:	August 26, 2021	Conf. No.	:	7378
Title	:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART			

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

Prior to examination, please amend the application as indicated on the following pages.

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Canceled)

2. (New) A system for assisting blood circulation of a heart, the system comprising:

a heart assist pump device deliverable to the heart and comprising:

an inflow tube defining a blood inflow path aligned with a central axis;

a magnetically driven rotor aligned with the central axis and that is rotatable about the central axis within a surrounding rotor housing to drive blood flowing from the inflow tube toward the magnetically driven rotor, the magnetically driven rotor being rigidly coupled to a first magnetic device;

a second magnetic device axially aligned with the central axis and positioned to magnetically drive rotation of the magnetically driven rotor via a magneto coupling with the first magnetic device while an entirety of the magnetically driven rotor is spaced apart from the magnetically driven rotor, the surrounding rotor housing, the first magnetic device, and the inflow tube by a gap occupied by the blood during rotation of the magnetically driven rotor; and

a blood outflow port positioned radially adjacent the magnetically driven rotor such that the blood driven by the magnetically driven rotor exits the surrounding rotor housing in a direction substantially perpendicular to the central axis, wherein the magneto coupling orients the magnetically driven rotor so that the magnetically driven rotor remains adjacent to and spaced apart from the surrounding rotor housing by the blood flowing from the inflow tube and to the blood outflow port; and

an external control unit configured to regulate operation of the second magnetic device, the external control unit being positionable exterior to a body when the heart assist pump device

is delivered to the heart, wherein the external control unit is connectable to the heart assist pump device for operating the second magnetic device to thereby magnetically drive the rotation of the magnetically driven rotor via the magneto coupling with the first magnetic device.

3. (New) The system of claim 2, wherein the magnetically driven rotor comprises: a guide surface to produce centrifugal flow components.

4. (New) The system of claim 2, wherein the first magnetic device is a single magnetic device rigidly coupled to the magnetically driven rotor.

5. (New) The system of claim 2, wherein the heart assist pump device further comprises a sealing wall positioned between the second magnetic device and the magnetically driven rotor.

6. (New) The system of claim 5, wherein the sealing wall at least partially defines the gap occupied by the blood.

7. (New) The system of claim 2, wherein the heart assist pump device is an intravascular rotary pump.

8. (New) The system of claim 2, wherein the first magnetic device is positioned within a first chamber, the second magnetic device is positioned within a second chamber, and the first chamber is sealed from the second chamber.

9. (New) The system of claim 8, wherein the heart assist pump device further comprises a wall separating the first chamber from the second chamber.

10. (New) The system of claim 2, wherein the external control unit is connectable to the heart assist pump device to deliver energy to the second magnetic device.

11. (New) The system of claim 2, wherein the external control unit is configured to regulate operation of the second magnetic device based on a defined cardiac output.

12. (New) A system for assisting blood circulation of a heart, the system comprising:

a heart assist pump device deliverable to the heart and comprising:

an inflow tube defining a blood inflow path along an inflow axis;

one or more walls at least partially defining a chamber to receive blood from the inflow tube;

a magnetically driven rotor comprising a first magnetic device, the magnetically driven rotor rotatable about an axis of rotation to drive the blood flowing from the inflow tube, and the axis of rotation being aligned with the inflow axis;

a magnetic drive system comprising a second magnetic device centered on the inflow axis and spaced apart from the magnetically driven rotor, the second magnetic device positioned to magnetically drive rotation of the magnetically driven rotor relative to the one or more walls via a magneto coupling with the first magnetic device, and a wall of the one or more walls defining the chamber being positioned between the magnetically driven rotor and the second magnetic device; and

a blood outflow port positioned such that the blood driven by the magnetically driven rotor exits the chamber in a direction substantially perpendicular to the inflow axis, wherein the magneto coupling orients the magnetically driven rotor so that the magnetically driven rotor remains spaced apart from the one or more walls by the blood flowing from the inflow tube and to the blood outflow port; and

a control unit configured to operate the second magnetic device to thereby magnetically drive the rotation of the magnetically driven rotor via the magneto coupling with the first magnetic device.

13. (New) The system of claim 12, wherein:

a guide surface to produce centrifugal flow components.

14. (New) The system of claim 12, wherein the magnetically driven rotor comprises a single magnetic device corresponding to the first magnetic device.

15. (New) The system of claim 12, wherein the one or more walls and the magnetically driven rotor define a gap separating the magnetically driven rotor from the one or more walls, the gap configured to be occupied by the blood when the second magnetic device drives the rotation of the magnetically driven rotor.

16. (New) The system of claim 15, wherein the gap surrounds the magnetically driven rotor.

17. (New) The system of claim 15, wherein at least part of the gap extends along a first axis substantially perpendicular to the inflow axis.

18. (New) The system of claim 12, wherein the heart assist pump device is an intravascular rotary pump.

19. (New) The system of claim 12, wherein the chamber is a first chamber within which the magnetically driven rotor is positioned, and the magnetic drive system is positioned within a second chamber sealed from the first chamber.

20. (New) The system of claim 19, wherein the wall of the one or more walls separates the first chamber from the second chamber.

21. (New) The system of claim 12, wherein the control unit is configured to regulate operation of the second magnetic device based on a defined cardiac output.

REMARKS

Claim 1 has been canceled, and claims 2-21 have been added. Applicant asks that all claims be examined in view of the amendment to the claims.

Applicant believes no fees are due with this submission. However, if Applicant is incorrect, please apply any necessary charges or credits to Deposit Account 06-1050, referencing the above attorney docket number.

Respectfully submitted,

Date: December 7, 2021

/Alex Yu/

Alex Yu
Reg. No. 74,295

Customer Number 26191
Fish & Richardson P.C.
Telephone: +1 (650) 839-5047
Facsimile: (877) 769-7945

41560949.doc

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor	:	Werner Mohl	Art Unit	:	3783
Application No.	:	17/446,046	Examiner	:	Unknown
Filed	:	August 26, 2021	Conf. No.	:	7378

Title : DEVICE TO ASSIST THE PERFORMANCE OF A HEART

MAIL STOP MISSING PARTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY TO NOTICE TO FILE MISSING PARTS OF APPLICATION

In response to the Notice to File Missing Parts of Application under 37 CFR §1.53(b) dated September 7, 2021, applicant claims small entity status (see 37 CFR §1.27) and submits herewith the following:

- ☒ Payment of the basic filing fee of $80;
- ☒ Payment of the search fee of $350;
- ☒ Payment of the examination fee of $400; and
- ☒ Payment of the surcharge of $80 for late filing of the basic filing fee and/or declaration.

The fees in the amount of $910 are being paid with this reply on the Electronic Filing System. Apply any necessary charges or credits to Deposit Account 06-1050, referencing the above attorney docket number.

Respectfully submitted,

Date: December 7, 2021

/Alex Yu/
Alex Yu
Reg. No. 74,295

Customer Number 26191
Fish & Richardson P.C.
Telephone: +1 (650) 839-5047
Facsimile: (877) 769-7945

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UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/446,046	08/26/2021	Werner Mohl	25955-0013005

CONFIRMATION NO. 7378

26191
FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

FORMALITIES LETTER

OC000000128204005

Date Mailed: 09/07/2021

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
- The application search fee must be submitted.
- The application examination fee must be submitted.
- Surcharge as set forth in 37 CFR 1.16(f) must be submitted.
  The surcharge is due for any one of:
  - late submission of the basic filing fee, search fee, or examination fee,
  - late submission of inventor's oath or declaration,
  - filing an application that does not contain at least one claim on filing, or
  - submission of an application filed by reference to a previously filed application.

SUMMARY OF FEES DUE:

The fee(s) required within **TWO MONTHS** from the date of this Notice to avoid abandonment is/are itemized below. Small entity discount is in effect. If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- $ **80** basic filing fee.
- $ **80** surcharge.
- $ **350** search fee.
- $ **400** examination fee.
- $(**0**) previous unapplied payment amount.
- $ **910** TOTAL FEE BALANCE DUE.

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Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/tnguyen/

Electronic Patent Application Fee Transmittal

Application Number:	17446046
Filing Date:	26-Aug-2021
Title of Invention:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART
First Named Inventor/Applicant Name:	Werner Mohl
Filer:	Alex Yu/Kirstin Matteo
Attorney Docket Number:	25955-0013005

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	80	80
UTILITY SEARCH FEE	2111	1	350	350
UTILITY EXAMINATION FEE	2311	1	400	400
Pages:				
Claims:				
Miscellaneous-Filing:				
LATE FILING FEE FOR OATH OR DECLARATION	2051	1	80	80
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with $0 paid	2251	1	110	110
Miscellaneous:				
		Total in USD ($)		**1020**

Electronic Acknowledgement Receipt	
EFS ID:	44449835
Application Number:	17446046
International Application Number:	
Confirmation Number:	7378
Title of Invention:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART
First Named Inventor/Applicant Name:	Werner Mohl
Customer Number:	26191
Filer:	Alex Yu/Kirstin Matteo
Filer Authorized By:	Alex Yu
Attorney Docket Number:	25955-0013005
Receipt Date:	07-DEC-2021
Filing Date:	26-AUG-2021
Time Stamp:	10:57:48
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$1020
RAM confirmation Number	E2021B7A58110333
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		25955-0013005_PA.pdf	69857 682308513b679b8cdfd555cbd325ed271be8689d	yes	6
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Preliminary Amendment		1	1	
	Claims		2	5	
	Applicant Arguments/Remarks Made in an Amendment		6	6	
Warnings:					
Information:					
2	Applicant Response to Pre-Exam Formalities Notice	25955-0013005_Resp-NFMP.pdf	92466 6c8b922cb0a41004e5217d66a033eb9ee236e26d	no	3
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	49234 c0805ba1c9751c9f32aefebe3a51ec1d2577d9da	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	211557		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 17/446,046

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	80		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	350		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	400		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 50 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*	x 240 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	830		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)	OR	RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/446,046	08/26/2021	3783	910	25955-0013005	20	2

CONFIRMATION NO. 7378

UPDATED FILING RECEIPT

26191
FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

OC000000130338975

Date Mailed: 12/10/2021

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Werner Mohl, Altenmarkt-Thennenberg, AUSTRIA;

Applicant(s)

Miracor Medical SA, Awans, BELGIUM;

Power of Attorney: The patent practitioners associated with Customer Number 26191

Domestic Priority data as claimed by applicant

This application is a CON of 16/282,948 02/22/2019 PAT 11123540
which is a CON of 14/454,965 08/08/2014 PAT 10251984
which is a CON of 13/555,318 07/23/2012 PAT 8801590
which is a DIV of 12/449,632 08/18/2009 PAT 8255050
which is a 371 of PCT/IB2008/000421 02/27/2008

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
AUSTRIA A306/2007 02/27/2007 No Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 09/02/2021

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/446,046**

Projected Publication Date: 03/17/2022

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

DEVICE TO ASSIST THE PERFORMANCE OF A HEART

Preliminary Class

604

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

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Abbott Ex. 1002, p. 54 of 254

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 17/446,046	Filing Date 08/26/2021	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $240 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	12/07/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0		x $240 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	12/21/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0		x $240 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/BRENDA V HARRISON/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

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If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor	:	Werner Mohl	Art Unit	:	3783
Application No.	:	17/446,046	Examiner	:	Unknown
Filed	:	August 26, 2021	Conf. No.	:	7378
Title	:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART			

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SECOND PRELIMINARY AMENDMENT

Prior to examination, please amend the application as indicated on the following pages.

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Canceled)

2. (Currently Amended) A system for assisting blood circulation of a heart, the system comprising:

a heart assist pump device deliverable to the heart and comprising:

an inflow tube defining a blood inflow path aligned with a central axis;

a magnetically driven rotor aligned with the central axis and that is rotatable about the central axis within a surrounding rotor housing to drive blood flowing from the inflow tube toward the magnetically driven rotor, the magnetically driven rotor being rigidly coupled and axially adjacent to a first magnetic device within the surrounding rotor housing;

a second magnetic device axially aligned with the central axis and positioned to magnetically drive rotation of the magnetically driven rotor via a magneto coupling with the first magnetic device while ~~an entirety of~~ both the magnetically driven rotor and first magnetic device are entirely ~~is~~ spaced apart from ~~the magnetically driven rotor,~~ the surrounding rotor housing~~, the first magnetic device, and the inflow tube~~ by a gap sized for passage of ~~occupied by~~ the blood during rotation of the magnetically driven rotor; and

a blood outflow port positioned radially adjacent the magnetically driven rotor such that the blood driven by the magnetically driven rotor exits the surrounding rotor housing in a direction substantially perpendicular to the central axis, wherein the magneto coupling orients the magnetically driven rotor so that the magnetically driven rotor remains adjacent to and spaced apart from the surrounding rotor housing by the blood flowing from the inflow tube and to the blood outflow port; and

an external control unit configured to regulate operation of the second magnetic device, the external control unit being positionable exterior to a body when the heart assist pump device

is delivered to the heart, wherein the external control unit is connectable to the heart assist pump device for operating the second magnetic device to thereby magnetically drive the rotation of the magnetically driven rotor via the magneto coupling with the first magnetic device.

3. (Previously presented) The system of claim 2, wherein the magnetically driven rotor comprises:

a guide surface to produce centrifugal flow components.

4. (Currently Amended) The system of claim 2, wherein the first magnetic device is a single magnetic device rigidly coupled to the magnetically driven rotor at a position axially between to the second magnetic device and the magnetically driven rotor.

5. (Previously presented) The system of claim 2, wherein the heart assist pump device further comprises a sealing wall positioned between the second magnetic device and the magnetically driven rotor.

6. (Currently Amended) The system of claim 5, wherein the sealing wall at least partially defines the gap sized for passage of ~~occupied by~~ the blood.

7. (Previously presented) The system of claim 2, wherein the heart assist pump device is an intravascular rotary pump.

8. (Previously presented) The system of claim 2, wherein the first magnetic device is positioned within a first chamber, the second magnetic device is positioned within a second chamber, and the first chamber is sealed from the second chamber.

9. (Previously presented) The system of claim 8, wherein the heart assist pump device further comprises a wall separating the first chamber from the second chamber.

10. (Previously presented) The system of claim 2, wherein the external control unit is connectable to the heart assist pump device to deliver energy to the second magnetic device.

11. (Previously presented) The system of claim 2, wherein the external control unit is configured to regulate operation of the second magnetic device based on a defined cardiac output.

12. (Currently Amended) A system for assisting blood circulation of a heart, the system comprising:

a heart assist pump device deliverable to the heart and comprising:

an inflow tube defining a blood inflow path along an inflow axis and being insertable into a left ventricle;

one or more walls at least partially defining a chamber to receive blood from the inflow tube;

a magnetically driven rotor axially aligned with the inflow axis and being rigidly coupled and axially adjacent to ~~comprising~~ a first magnetic device that is axially aligned with the inflow axis, the magnetically driven rotor and first magnetic device being rotatable about an axis of rotation aligned with the inflow axis to drive the blood flowing from the inflow tube~~, and the axis of rotation being aligned with the inflow axis~~;

a magnetic drive system comprising a second magnetic device axially aligned with ~~centered on~~ the inflow axis and spaced apart from the magnetically driven rotor such that a wall of the one or more walls defining the chamber is positioned between the magnetically driven rotor and the second magnetic device, the second magnetic device positioned axially closer to the first magnetic device than to the magnetically driven rotor so as to magnetically drive rotation of the magnetically driven rotor relative to the one or more walls via a magneto coupling with the first magnetic device~~, and a wall of the one or more walls defining the chamber being positioned between the magnetically driven rotor and the second magnetic device~~; and

a blood outflow port positioned such that the blood driven by the magnetically driven rotor exits the chamber in a direction substantially perpendicular to the inflow axis, wherein the magneto coupling orients the magnetically driven rotor so that both the magnetically driven rotor and the first magnetic device remain ~~remains~~ spaced apart from the one or more walls by the blood in response to rotation of the magnetically driven rotor ~~flowing from the inflow tube and to the blood outflow port~~; and

an external control unit configured to control operation of ~~operate~~ the second magnetic device based on a fixed value to thereby magnetically drive the rotation of the magnetically driven rotor via the magneto coupling with the first magnetic device.

13. (Currently Amended) The system of claim 12, wherein the magnetically driven rotor includes ~~:~~ a guide surface to produce centrifugal flow components.

14. (Currently Amended) The system of claim 12, wherein the first magnetic device ~~the magnetically driven rotor~~ comprises a single magnetic device rigidly coupled to the magnetically driven rotor at a position between to the second magnetic device and the magnetically driven rotor ~~corresponding to the first magnetic device~~.

15. (Previously presented) The system of claim 12, wherein the one or more walls and the magnetically driven rotor define a gap separating the magnetically driven rotor from the one or more walls, the gap configured to be occupied by the blood when the second magnetic device drives the rotation of the magnetically driven rotor.

16. (Previously presented) The system of claim 15, wherein the gap surrounds the magnetically driven rotor.

17. (Previously presented) The system of claim 15, wherein at least part of the gap extends along a first axis substantially perpendicular to the inflow axis.

18. (Previously presented) The system of claim 12, wherein the heart assist pump device is an intravascular rotary pump.

19. (Previously presented) The system of claim 12, wherein the chamber is a first chamber within which the magnetically driven rotor is positioned, and the magnetic drive system is positioned within a second chamber sealed from the first chamber.

20. (Previously presented) The system of claim 19, wherein the wall of the one or more walls separates the first chamber from the second chamber.

21. (Previously presented) The system of claim 12, wherein the control unit is configured to regulate operation of the second magnetic device based on a defined cardiac output.

REMARKS

Claims 2, 4, 6, and 12-14 have been amended. Written description support for these amendments is found throughout the original specification. No new matter has been added. Applicant asks that all claims 2-21 be examined in view of the amendment to the claims.

No fee is believed to be due at this time. If necessary, please apply any required charges or credits to Deposit Account 06-1050, referencing the above attorney docket number.

Respectfully submitted,

Date: December 21, 2021

/Michael T. Hawkins/
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Electronic Acknowledgement Receipt

EFS ID:	44575733
Application Number:	17446046
International Application Number:	
Confirmation Number:	7378
Title of Invention:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART
First Named Inventor/Applicant Name:	Werner Mohl
Customer Number:	26191
Filer:	Michael T. Hawkins/Kirstin Matteo
Filer Authorized By:	Michael T. Hawkins
Attorney Docket Number:	25955-0013005
Receipt Date:	21-DEC-2021
Filing Date:	26-AUG-2021
Time Stamp:	14:00:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		25955-0013005_PA2.pdf	73561 9e53b3afdec9a1820cdccb4d2ee9b659918f c1fa	yes	7

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Preliminary Amendment	1	1
	Claims	2	6
	Applicant Arguments/Remarks Made in an Amendment	7	7
Warnings:			
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	Total Files Size (in bytes):	73561	

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Substitute Disclosure Form	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No. 25955-0013005	Application No. 17/446,046
Information Disclosure Statement by Applicant (Use several sheets if necessary)		Applicant Miracor Medical SA	
(37 CFR §1.98(b))		Filing Date August 26, 2021	Group Art Unit 3792

U.S. Patent Documents

Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Filing Date If Appropriate	Class	Subclass
	1.	4674518	6/23/1987	Salo			
	2.	5308319	5/3/1994	Ide et al.			
	3.	5449342	9/12/1995	Hirose et al.			
	4.	5470208	11/28/1995	Kletschka			
	5.	5964694	10/12/1999	Siess et al.			
	6.	6007478	12/28/1999	Siess et al.			
	7.	6083260	7/4/2000	Aboul-Hosn			
	8.	6155969	12/5/2000	Schima et al.			
	9.	6176848	1/23/2001	Rau et al.			
	10.	6506146	1/14/2003	Mohl			
	11.	6508787	1/21/2003	Erbel et al.			
	12.	6540658	4/1/2003	Faschiano			
	13.	6623475	9/23/2003	Siess			
	14.	7699586	4/20/2010	LaRose et al.			
	15.	8255050	8/28/2012	Mohl			
	16.	9616157	4/11/2017	Akdis			
	17.	2008/0214888	9/4/2008	Ben Shalom, Zvi			
	18.	2011/0238172	9/29/2011	Akdis			

Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Translation	Class	Subclass
	19.	EP 0075606	4/6/1983	EP			
	20.	EP 0503839	9/16/1992	EP			
	21.	EP 1011753	6/28/2000	EP			
	22.	EP 1034808	9/13/2000	EP			
	23.	FR 1187249	8/8/1959	FR			
	24.	WO 1997/37698	10/16/1997	WO			

Examiner Signature	Date Considered

EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute Disclosure Form

Substitute Disclosure Form	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No. 25955-0013005	Application No. 17/446,046
Information Disclosure Statement by Applicant (Use several sheets if necessary)		Applicant Miracor Medical SA	
(37 CFR §1.98(b))		Filing Date August 26, 2021	Group Art Unit 3792

Foreign Patent Documents or Published Foreign Patent Applications							
Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Translation	Class	Subclass
	25.	WO 1999/15213	4/1/1999	WO			
	26.	WO 2000/44417	8/3/2000	WO			
	27.	WO 2001/70300	9/27/2001	WO			

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
	28.	AUTHORIZED OFFICER MALTE KADEN, International Search Report for Application No. PCT/IB2008/000421, dated November 7, 2008, 3 pages.
	29.	Mohl et al., "Intermittent Pressure Elevation of the Coronary Venous System as a Method to Protect Ischemic Myocardium," Interactive CardioVascular and Thoracic Surgery, Volume 4, 2005, pp. 66-69
	30.	Syeda et al., "The Salvage Potential of Coronary Sinus Interventions: Meta-Analysis and Pathophysiologic Consequences," The Journal of Thoracic and Cardiovascular Surgery, Volume 127, Number 6 (June 2004), pp. 1703-1712

Examiner Signature	Date Considered
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Disclosure Form

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor	:	Werner Mohl	Art Unit	:	3792
Application No.	:	17/446,046	Examiner	:	Unknown
Filed	:	August 26, 2021	Conf. No.	:	7378
Title	:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART			

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Please consider the documents listed on the disclosure form submitted with this statement. Copies of the documents are being submitted with this statement to the extent required under 37 C.F.R. § 1.98(a)(2).

Under 35 U.S.C. § 120, this application relies on the earlier filing date of application number 16/282,948, filed on February 22, 2019. The document corresponding to Desig. ID No. 27 has not been submitted to and/or cited by the Office in the prior application. All other listed documents were submitted to and/or cited by the Office in the prior application, and so copies of those documents are not provided in this application.

This statement is being filed before the receipt of a first action on the merits.

Apply any necessary charges or credits applicable under 37 C.F.R. § 1.17(p) to deposit account 06-1050, referencing the above attorney docket number.

Please contact the undersigned if there are any questions regarding this statement.

Respectfully submitted,

Date: January 7, 2022

/Alex Yu/
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(12) NACH DEM VERTRAG ÜBER DIE INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWESENS (PCT) VERÖFFENTLICHTE INTERNATIONALE ANMELDUNG

(19) Weltorganisation für geistiges Eigentum
Internationales Büro

(43) Internationales Veröffentlichungsdatum
27. September 2001 (27.09.2001)

PCT

(10) Internationale Veröffentlichungsnummer
WO 01/70300 A1

(51) Internationale Patentklassifikation[7]: A61M 1/10

(21) Internationales Aktenzeichen: PCT/AT01/00086

(22) Internationales Anmeldedatum:
22. März 2001 (22.03.2001)

(25) Einreichungssprache: Deutsch

(26) Veröffentlichungssprache: Deutsch

(30) Angaben zur Priorität:
A 510/2000 24. März 2000 (24.03.2000) AT

(71) Anmelder und
(72) Erfinder: **SCHIMA, Heinrich** [AT/AT]; Körnergasse 7/9, A-1020 Wien (AT).

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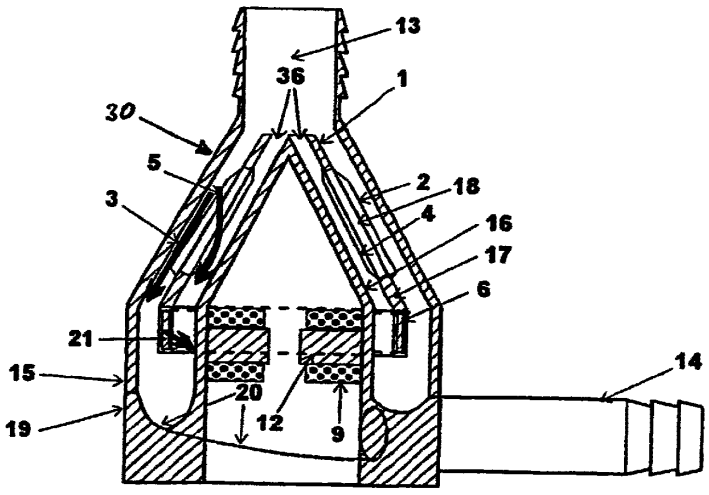
(81) Bestimmungsstaaten *(national)*: AE, AG, AL, AM, AT, AT (Gebrauchsmuster), AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ (Gebrauchsmuster), DE, DE (Gebrauchsmuster), DK, DK (Gebrauchsmuster), DM, DZ, EE, EE (Gebrauchsmuster), ES, FI, FI (Gebrauchsmuster), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Gebrauchsmuster), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

[Fortsetzung auf der nächsten Seite]

(54) Title: ROTARY PUMP COMPRISING A HYDRAULICALLY MOUNTED ROTOR

(54) Bezeichnung: ROTATIONSPUMPE MIT HYDRAULISCH GELAGERTEM ROTOR



(57) Abstract: The invention relates to a rotary pump for delivering blood and other fluids that are susceptible to shearing. Said rotary pump comprises a rotor that is hydraulically and, optionally, magnetically mounted in a casing, whereby the rotor (1) has guiding surfaces (2, 4, 35, 33, 37, 41) for producing centrifugal flow components (3) and flow components (5) that are directed against the casing (30) in order to allow the centrifugal flow components (3) to act prior to the generation of the externally effective delivery rate and to allow the flow components (5) that are directed against the casing to act prior to the contactless mounting and stabilization of the rotor in the housing.

(57) Zusammenfassung: Die Erfindung betrifft eine Rotationspumpe zur Förderung von Blut und anderen scherempfindlichen Flüssigkeiten mit einem in einem Gehäuse hydraulisch und gegebenenfalls magnetisch gelagerten Rotor, und wobei der Rotor (1) Leitflächen (2, 4, 35, 33, 37, 41) zur Erzeugung zentrifugaler Strömungskomponenten (3) und gegen das Gehäuse (30) gerichteter Strömungskomponenten (5) aufweist, um die zentrifugalen Strömungskomponenten (3) vorrangig zur Erzeugung der extern wirksamen Förderleistung und die gegen das Gehäuse gerichteten Strömungskomponenten (5) vorrangig zur berührungslosen Lagerung und Stabilisierung des Rotors im Gehäuse wirken zu lassen.

WO 01/70300 A1

(84) Bestimmungsstaaten *(regional)*: ARIPO-Patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), eurasisches Patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), europäisches Patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI-Patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Veröffentlicht:

— *mit internationalem Recherchenbericht*

— *vor Ablauf der für Änderungen der Ansprüche geltenden Frist; Veröffentlichung wird wiederholt, falls Änderungen eintreffen*

Zur Erklärung der Zweibuchstaben-Codes, und der anderen Abkürzungen wird auf die Erklärungen ("Guidance Notes on Codes and Abbreviations") am Anfang jeder regulären Ausgabe der PCT-Gazette verwiesen.

ROTATIONSPUMPE MIT HYDRAULISCH GELAGERTEM ROTOR

Die vorliegende Erfindung betrifft eine Rotationspumpe zur Förderung von Blut und anderen scherempfindlichen Flüssigkeiten mit einem in einem Gehäuse hydraulisch und gegebenenfalls magnetisch gelagerten Rotor.

Für die Förderung von Blut und anderen scherempfindlichen Flüssigkeiten werden unter anderem Rotationspumpen verwendet. Um eine möglichst geringe Zerstörung des Blutes zu gewährleisten, dürfen dabei die lokal auftretenden Geschwindigkeitsgradienten nicht übermäßige Werte annehmen, da sonst die korpuskulären Anteile des Blutes zerrissen und aufgrund der durch Reibung auftretenden Erwärmung chemische Degradationsprozesse verursacht werden. Darüber hinaus müssen strömungsarme Zonen und Totwasserzonen möglichst vermieden werden, um eine Anlagerung von Bestandteilen hintanzuhalten. Bei der Förderung von Blut spricht man dabei von Gerinnsel- beziehungsweise Thrombenbildung.

Diese Aufgaben verursachen aber bei den konventionellen, in Achsen gelagerten Pumpen beträchtliche Schwierigkeiten, da an der Durchführung der Achse durch eine allfällige Dichtung beziehungsweise bei der Lagerung der Achse in Spitzenlagern innerhalb des Pumpraumes ein Auftreten von Bereichen hoher Scherkraft, Reibung und oftmals auch, aufgrund der Achsnähe, niedriger Strömungsgeschwindigkeiten kaum vermeidbar ist.

Es wurden daher verschiedene Lösungen vorgeschlagen, Pumpen ohne Achse und mechanische Lagerung zu bauen. So hat Akamatsu et al. (siehe z.B. Artificial Organs 1997, Vol 21,Nr. 7, 645-638) eine Pumpe vorgeschlagen, bei der ein Rotor einer Zentrifugalpumpe zugleich von einer Seite durch einen konventionellen Motor angetrieben und von der anderen Seite durch gesteuerte Elektromagneten stabilisiert wird. Allerdings erfordert diese Pumpe eine komplexe Antriebsgestaltung und gleichzeitig geringe Spaltweiten zwischen Rotor und Gehäuse, um einen vertretbaren elektrischen Wirkungsgrad zu erreichen.

Kung und Hart (Artificial Organs 1997, Vol21,Nr.7, 645-650) haben eine Pumpe vorgeschlagen, bei der die Stabilisierung rein hydraulisch durch eine geometrische Anordnung von Spalten über und unter der Pumpe erfolgt, die durch die axiale Bewegung der Pumpe jeweils erweitert und verkleinert werden und die damit verbundenen Änderungen im Druck zwischen Rotor und Gehäuse zur Stabilisierung der Pumpe herangezogen werden. Dieses System funktioniert allerdings nur bei relativ geringen Spaltweiten und würde bereits durch kleinen Auflagerungen von Blutbestandteilen in einen instabilen Zustand gebracht werden.

Weiters haben Allaire und Mitarbeiter (siehe z.B. Artificial Organs 1996, Vol 20, Nr.7, 582-590) eine Zentrifugalpumpe vorgeschlagen, bei der der Rotor durch ein relativ aufwendiges System von Elektromagneten stabilisiert wird. Bei diesem System sind aber ebenfalls geringe Spaltweiten und eine komplexe Ansteuerung erforderlich.

Ferner hat Golding (US PS 5324177 und 5370509) vorgeschlagen, einen kegelförmigen Rotor mit schraubenförmigem Flügel auf einem Konus aufschwimmen zu lassen und durch die sich ausbildenden Tragkräfte zwischen einer flach gestalteten Rotorinnenwand und einem Konus der Gehäuserückseite eine Zentrierung des Rotors zu erreichen. Dieses Verfahren ermöglicht allerdings nur die Ausbildung sehr geringer Spaltweiten und damit hoher Scherkräfte, zugleich ergeben sich lange Verweilzeiten der im Spalt befindlichen Flüssigkeit und nur vergleichsweise geringe zentrierende Kräfte.

Schließlich haben Woodard et al. (WO 99/12587) eine Pumpe vorgeschlagen, deren Rotor hydrodynamisch gelagert ist, wobei der Rotationskörper aus mehreren zylindrischen Elementen besteht, deren schräg gestellte Stirnflächen gemeinsam mit der Gehäuseoberfläche verjüngende Spalte geringer Distanz ergeben. Die sich darin aufbauenden Staudruckkräfte oder zwischen den sich verjüngenden Flächen sozusagen eingefangenen Flüssigkeit verursachen eine achsiale Zentrierung des Rotors. Zugleich wird durch die kegelförmige Gestalt der Gehäuse-Oberseite eine radiale Zentrierung erreicht. Diese Erfindung scheint eine zweckmäßige Erzeugung stabilisierender Kräfte zu ermöglichen, verlangt aber in nachteiliger Weise kleine Spalte in der Größenordnung von weniger als 0,3 mm, was einerseits hohe Scherkräfte bedingt und beim Auftreten auch geringer biologischer Anlagerungen oder Gerinnsel zu massiven Änderungen der Strömungsverhältnisse führen kann. Darüber hinaus weisen die dort vorgeschlagenen Rotorformen eine Reihe von Staupunkten und Stagnationszonen auf.

Demgegenüber stellt sich die vorliegende Erfindung die Aufgabe, die vorstehenden Nachteile zu überwinden. Mechanische Lagerungen, Totwasserzonen oder Zonen verringerter

Strömungsgeschwindigkeiten und kleine Spaltabstände sollen vermieden werden. Die Zahl der Bauteile soll klein und der Aufbau einfach sein.

Die Erfindung ist dadurch gekennzeichnet, dass der Rotor Leitflächen zur Erzeugung zentrifugaler Strömungskomponenten und gegen das Gehäuse gerichteter Strömungskomponenten aufweist, um die zentrifugalen Strömungskomponenten vorrangig zur Erzeugung der extern wirksamen Förderleistung und die gegen das Gehäuse gerichteten Strömungskomponenten vorrangig zur berührungslosen Lagerung und Stabilisierung des Rotors im Gehäuse wirken zu lassen. Weiters bevorzugte Merkmale sind, dass das Gehäuse einen kegelförmigen Mittelteil und/oder einen hohlkegelförmigen Oberteil umfasst, und dass der dazwischen angeordnete Rotor kegelmantelförmig ausgebildet ist. Weiters können am Kegelmantel des Rotors Flügel als Leitflächen innen und/oder außen angeordnet sein. Bevorzugt weist der Rotor zum Strömungsdurchtritt Rotoröffnungen auf, an denen die Leitflächen angeordnet sind. Weitere vorteilhafte Merkmale sind den Ansprüchen, der Beschreibung und den Zeichnungen zu entnehmen.

Die Erfindung wird im Folgenden beispielsweise anhand von 17 Figuren beschrieben. Die Figuren 1 bis 5 zeigen Querschnitte durch verschiedene Ausführungen der Pumpe und Fig. 6 die Schrägansicht eines Rotors. Fig. 7 ist der Schnitt durch den Rotor und Fig. 8 die Schrägansicht des Schnittes nach Linie V – V in Fig. 7. Die Fig. 9 und 11 zeigen Rotoren in Schrägansicht und die Fig. 10,12 und 13,14 zugehörige Schnitte. Fig. 15 zeigt ein weiteres Bespiel für den Rotor und Fig. 16,17 zeigen mögliche Querschnitte des Rotorflügels. Alle Figuren sind schematisch gehalten.

Fig. 1 zeigt einen Querschnitt durch die Pumpe. Der Rotor 1 weist als Leitflächen 2,4 Flügel zur Erzeugung zentrifugaler Strömungskomponenten 3 und gegen das Gehäuse gerichteter Strömungskomponenten 5 auf. Dabei sind diese Leitflächen 2,4 auf einem kegelförmigen Grundkörper 17 aufgebracht, der Rotoröffnungen 18 zur Anströmung der inneren Flügel 4 aufweist. Dieser hohlkegelförmig aufgebaute Rotor 1 läuft in dem Pumpengehäuse 30 bestehend aus dem Gehäuseunterteil 19 mit dem kegelförmigen Mittelteil 16 und einem hohlkegelartigen Oberteil 15, wodurch eine Zentrierung des hohlkegelförmigen Rotors 1 auf dem Mittelteil 16 des Gehäuseunterteils 19 durch die gegen das Gehäuse gerichteten Strömungskomponenten 5 gegeben ist, wobei diese Strömung in vorzugsweise achsialer Richtung gegen die Kegeloberfläche des Mittelteiles 16 stattfindet. Diese Zentrierung kann aber auch gänzlich oder zusätzlich durch insbesondere gegen das Gehäuse gerichtete (5), aber auch zentrifugale (3) Strömungskomponenten gegen das hohlkegelförmige Oberteil 15 erfolgen. Ein im unteren Gehäuseteil 19 eingearbeiteter spiralförmiger Auslaufkanal 20 führt zu einem Auslauf 14. Der Rotor enthält Rotormagnete 6 zur vorzugsweisen Übertragung der Rotationsenergie, die einzeln oder als durchlaufender magnetischer Ring ausgeführt sein

können. Diesen Rotormagneten steht ein Antrieb gegenüber, der wie in Fig. 1 ausgeführt, als Stator 12 innen im Gehäuseunterteil 19 angeordnet sein kann und über Spulen 9 mit einem magnetischen Drehfeld versorgt wird. Durch einen achsialen Versatz der Rotormagnete 6 und des Stators 8 kann die Kopplungskraft 21 schräg einwirken und eine achsiale Komponente zur zusätzlichen Stabilisierung des Rotors 1 verursachen, wobei die Richtung dieser achsialen Komponente durch entsprechenden Versatz des Stators 12 nach oben oder nach unten gerichtet sein kann. Am Einlauf 13 weist der Rotor 1 eine Einlauföffnung 36 auf, um die einlaufende Flüssigkeit zu beiden Seiten des Rotors und gegen die Spitze des kegelförmigen Mittelteiles 16 zu lenken.

Wie in Fig. 2 gezeigt, kann der Antrieb auch über einen Elektromotor 26 erfolgen, der über einen Schaft 25 eine rotierende Scheibe 24 mit Magneten 10 antreibt. Diese Ausführung bietet den Vorteil, dass zur Lagerung des Rotors keine elektrische Energie benötigt wird und dennoch durch den achsialen Versatz der Scheibe 24 eine achsiale Komponente der magnetischen Kraft 21 sichergestellt werden kann.

Fig. 3 zeigt, dass der Antrieb auch über einen Scheibenläufermotor erfolgen kann, bei dem die Scheibe 11 mit eingelagerten Magneten 10 oder einer entsprechenden mehrpoligen Magnetisierung mit einer gelagerten Achse 29 gleichzeitig als Rotor für den Motor-Stator 44 und für die Einkopplung der magnetischen Energie in den Rotor 1 dient.

Wie in Fig. 4 dargestellt, kann der Antrieb 7 mit einem von außen wirkenden Stator 8 versehen sein, der wahlweise anstatt oder zusätzlich zum von innen wirkenden Stator 12 vorhanden sein kann. Zusätzlich zur hydraulischen Stabilisierung des Rotors 1 kann in allen Ausführungen des Antriebs zusätzlich eine magnetische Stabilisierung in Nähe des Einlaufs 13 angeordnet sein, indem ein in den Rotor 1 eingearbeiteter Ring 27 aus ferromagnetischem Eisen oder permanentmagnetischem Material vorgesehen ist, auf den von außen und/oder innen angebrachte Permanent- oder Elektromagnete 22, 28 mit Spulen 23 einwirken und damit eine strömungsbedingte Instabilität des Rotors ausgleichen können. Der ferromagnetische Ring 27 kann außen mit einer elektrisch sehr gut leitfähigen Beschichtung 34 versehen sein, um die Ausbildung von elektrischen Wirbelströmen und dadurch zur Zentrierung beitragenden magnetischen Kräften zu ermöglichen.

Darüber hinaus ist eine Kombination von außen und innen liegenden Antriebsystemen (Statoren 8,12) am unteren Umfang des Rotors 1 möglich, von denen dann eines vorzugsweise für die Aufbringung der Rotationsenergie und das andere für die Stabilisierung eingesetzt werden kann.

Die Positionierung (Laufverhalten) des Rotors kann z.B. durch entsprechende Positionssensoren ermittelt werden, wie in Fig. 4 durch das Bezugszeichen 42 in verschiedenen Positionen schematisch angedeutet ist. Beispielsweise können Hallsensoren Verwendung finden. Zur Positionsermittlung können aber auch in den Spulen rückinduzierte Spannungen oder die Rückwirkung auf hochfrequente Speisespannungsanteile gemessen und ausgewertet werden, wobei keine zusätzlichen Sensoren nötig sind.

In den Figuren 5 bis 15 sind verschiedene Ausführungen des Pumpenrotors erläutert.

Fig. 5 zeigt die Ausführung der Pumpe mit einem Rotor 1, der aus zwei übereinanderliegenden Kegelmänteln 31,32 besteht, die durch zentrifugale Flügel oder Leitflächen 33 miteinander verbunden sind. Die Rotoröffnungen 18 und die äußeren Flügel 4 dienen zur Erzeugung von Strömungskomponenten 5 gegen das Oberteil 15 des Gehäuses, sowie gegen den kegelförmigen Mittelteil 16 des Gehäuseunterteils 19. Dadurch wird eine hydrodynamische Stabilisierung des Rotors im Gehäuse erzielt.

Die Fig. 6 bis 8 zeigen in Schrägriß, Aufriß und Schnitt die Grundform eines Rotors 1 in einer Ausführung mit kegelförmigem Grundkörper 17, an dem außen als Leitflächen 2 Flügel zur vorzugsweisen Erzeugung zentrifugaler Strömungskomponenten angebracht sind. Diese Flügel können in an sich von Zentrifugal-Blutpumpen bekannter Weise eine Krümmung 39 aufweisen, die beispielsweise eine Einrichtung der Schaufeln gegen die Drehrichtung 40 ermöglicht. Der Grundkörper 17 weist am einlaufseitigen Ende die Einlauföffnung 36 auf, die eine direkte Anspülung der Spitze des kegelförmigen Mittelteils 16 des Gehäuseunterteils 19 ermöglicht. In den Grundkörper sind weiters die Rotoröffnungen 18 eingearbeitet, durch die Flüssigkeit treten kann, die von den Flügeln 4 gegen das Gehäusemittelteil 16 gelenkt wird. Die Wirkung der Flügel 2,4 kann durch eine Abschrägung 35 der Öffnung 18 verstärkt oder bei genügender Wandstärke des kegelförmigen Grundkörpers 17 sogar ersetzt werden, in welch letzterem Fall die Flügel 2,4 entfallen könnten. Die Leitflächen sind dabei somit nur durch die Abschrägung der Kanten der Rotoröffnungen 18 gebildet.

Die Fig. 9 und 10 zeigen in Schrägriß und Schnitt die ebenfalls mögliche Variante, dass die Flügel 4 zur Erzeugung der Strömungskomponenten 5 gegen das Gehäuse auf der Außenseite des kegelförmigen Grundkörpers 17 und die Flügel 2 zur vorzugsweisen Erzeugung zentrifugaler Strömungskomponenten 3 auf der Innenseite des Grundkörpers 17 liegen.

Diese beiden beschriebenen gegensinnigen Rotorkonstruktionen sind durch einen wie oben beschriebenen nach oben oder nach unten möglichen achsialen Versatz der Rotormagneten 6 und der Antriebsmagneten 8,12,24 und die dadurch erreichbare wahlweise nach oben oder

unten gerichtete achsiale Komponente der Magnetkraft 21 gleichermaßen realisierbar, siehe Fig. 1 bis 5.

In Fig. 11 bis 13 ist ein Rotor mit zwei übereinanderliegenden Kegelmänteln dargestellt. Er ermöglicht eine Strömungsausbildung gegen beide Gehäusewände 16,19. Er wurde bereits im Querschnitt in Fig. 5 beschrieben und ist detailliert in der Fig. 11 im Schrägriß, in der Fig. 12 im Aufriß und in der Fig. 13 in einem Schnitt quer zur Achsialrichtung der Pumpe dargestellt. Dabei sind der innere Kegelmantel 31 und der äußere Kegelmantel 32 durch Stege 33 miteinander verbunden, die zugleich als Flügel für die Strömung wirksam sind. Die Rotoröffnungen 18 weisen an den Kanten Abschrägungen oder Flügel (4) zur Erzeugung der gegen das Gehäuse gerichteten Strömungskomponenten auf.

Weiters ist durch eine entsprechende Anordnung der beiden Leiflächen (2,4) in Kombination mit der Abschrägung 35 der Rotoröffnung 18 im Kegelmantel ein Verschmelzen zu einer einzigen Flügelkonstruktion möglich, wie in Fig. 14 gezeigt ist. Diese Ausbildung ist auch bei übereinanderliegenden Kegelmänteln möglich.

Schließlich kann die Pumpe gemäß Fig. 15 auch einen Rotor enthalten, bei dem die einzelnen Flügel 37 selbstständig ohne durchgängigen kegelförmigen Grundkörper gestaltet sind. Diese Flügel sind entweder mit einem keilförmigen Profil (siehe Fig. 16) oder einem schräggestellten Profil (siehe Fig. 17) realisierbar, wobei eine deutliche Anschrägung der Seitenflächen zur Erzielung der gegen das Gehäuse gerichteten Strömungskomponenten vorgesehen ist. Somit sind die zuvor beschriebenen Leitflächen 2 und 4 durch die Abschrägungen 37 als Leitflächen ersetzt. Die Rotoröffnungen 18 erstrecken sich bis zum unteren Rand 41 des Rotors 1. Diese unteren Ränder können ebenfalls schräg zur Laufrichtung gestellt sein, sodass sie als Leitflächen zur Erzeugung einer Auftriebskomponente bzw. einer Förderkomponente für die Flüssigkeitsströmung dienen. An den Enden der Flügel können die Magnete 38 für den Antrieb und zusätzliche magnetische Lagerung angeordnet sein.

In den Figuren 1 bis 5 ist der Auslauf 14 stets unterhalb des unteren Randes 41 angeordnet. Wenn der Auslauf 14 höher angesetzt werden soll, etwa in der Ebene des unteren Randes 41 des Rotors 1, kann es vorteilhaft sein, zwei symmetrisch angeordnete Ausläufe vorzusehen, oder einen Auslauf zweigeteilt auszubilden, um die Strömung der Flüssigkeit zu stabilisieren.

PATENTANSPRÜCHE

1. Rotationspumpe zur Förderung von Blut und anderen scherempflindlichen Flüssigkeiten mit einem in einem Gehäuse hydraulisch und gegebenenfalls magnetisch gelagerten Rotor, dadurch gekennzeichnet, dass der Rotor (1) Leitflächen (2,4,35,33,37,41) zur Erzeugung zentrifugaler Strömungskomponenten (3) und gegen das Gehäuse (30) gerichteter Strömungskomponenten (5) aufweist, um die zentrifugalen Strömungskomponenten (3) vorrangig zur Erzeugung der extern wirksamen Förderleistung und die gegen das Gehäuse gerichteten Strömungskomponenten (5) vorrangig zur berührungslosen Lagerung und Stabilisierung des Rotors im Gehäuse wirken zu lassen.

2. Pumpe nach Anspruch 1, dadurch gekennzeichnet, dass das Gehäuse (30) einen kegelförmigen Mittelteil (16) und/oder einen hohlkegelförmigen Oberteil (15) umfasst, und dass der dazwischen angeordnete Rotor (1) kegelmantelförmig ausgebildet ist.

3. Pumpe nach Anspruch 1 oder 2, dadurch gekennzeichnet, dass als Leitflächen Flügel (2,4) am Kegelmantel des Rotors innen und/oder außen angeordnet sind.

4. Pumpe nach einem der Ansprüche 1 bis 3, dadurch gekennzeichnet, dass der Rotor (1) zum Strömungsdurchtritt Rotoröffnungen (18) aufweist, an denen die Leitflächen (2,4,35,33,37,41) angeordnet sind.

5. Pumpe nach einem der Ansprüche 1 bis 4, dadurch gekennzeichnet, dass die Kanten der Rotoröffnungen (18) als Leitflächen (35,37) schräg ausgebildet sind.

6. Pumpe nach einem der Ansprüche 1 bis 5, dadurch gekennzeichnet, dass sich die Rotoröffnungen (18) bis zum unteren Rand (41) des Kegelmantels erstrecken und die unteren Ränder (41) gegebenenfalls als Leitflächen zur Erzeugung einer Auftriebskomponente ausgebildet sind.

7. Pumpe nach einem der Ansprüche 1 bis 6, dadurch gekennzeichnet, dass der Rotor (1) aus zwei übereinanderliegenden Kegelmänteln (31,32) besteht, zwischen denen verbindende Flügel als Leitflächen (33) zur Erzeugung der zentrifugalen Strömungskomponente (3) angebracht sind, und wobei die beiden Kegelmäntel (31,32) Rotoröffnungen (18) und wahlweise Flügel (4) zur Erzeugung der gegen das Gehäuse gerichteten Strömungskomponenten (5) aufweisen.

8. Pumpe nach einem der Ansprüche 1 bis 7, dadurch gekennzeichnet, dass der Rotor (1) am Einlauf (13) eine Einlauföffnung (36) aufweist, um einen Teil der einlaufenden Flüssigkeit gegen die Spitze des kegelförmigen Mittelteils (16) des Gehäuses (30) zu lenken.

9. Pumpe nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, dass im Bereich des unteren Randes (41) des Rotors (1) mehrere Rotormagnete (6) oder ein Magnetring angeordnet sind, denen im Gehäuse (30) Magnete (10,12) und/oder ein Magnetantrieb zugeordnet sind.

10. Pumpe nach Anspruch 9, dadurch gekennzeichnet, dass der Magnetantrieb durch einen Stator (8,12) mit umlaufendem Magnetfeld gebildet ist.

11. Pumpe nach Anspruch 9, dadurch gekennzeichnet, dass der Magnetantrieb durch einen Scheibenläufer gebildet ist, wobei über einem Stator (38) eine rotierende Scheibe (24) mit eingelagerten Magneten (10) oder mehrfach magnetisierten Bereichen vorgesehen ist.

12. Pumpe nach einem der Ansprüche 1 bis 11, dadurch gekennzeichnet, dass die Rotormagnete (6) und die magnetkrafterzeugenden Anteile des Antriebsmotors (8,11,12) in achsialer Richtung so versetzt sind, dass zusätzlich zur Rotationsenergie eine in achsialer Richtung wirkende Kraftkomponente (21) auf den Rotor (1) gegeben ist, die zur Lagerung und/oder Stabilisierung des Rotors (1) beiträgt.

13. Pumpe nach einem der Ansprüche 1 bis 12, dadurch gekennzeichnet, dass zusätzlich zum Antrieb ein Ring (27) aus ferromagnetischem Eisen oder permanentmagnetischem Material im Rotor (1) um den Einlauf vorhanden ist und in diesem gegenüberliegenden Gehäuseteilen Permanent- oder Elektromagnete (22,23,28) zur zusätzlichen magnetischen Stabilisierung vorgesehen sind, und dass bevorzugt zur Ansteuerung dieser Magneten zusätzlich Positionssensoren (42) für die Erfassung der genauen Lage des Rotors (1) vorgesehen sind (Fig. 4).

14. Pumpe nach einem der Ansprüche 1 bis 13, dadurch gekennzeichnet, dass der Ring (27) aus ferromagnetischem Eisen um den Einlauf (13) eine gut elektrisch leitfähige Oberflächenbeschichtung (34) aufweist, sodass die darin auftretenden Wirbelströme und Magnetfelder zur Zentrierung des Rotors (1) beitragen.

15. Pumpe nach einem der Ansprüche 1 bis 14, dadurch gekennzeichnet, daß zur Rotation und Stabilisierung des Rotors (1) am Umfang von außen ein Stator (8) und von innen

wahlweise ein Stator (12) oder ein Motor (26) oder ein Scheibenläufermotor (24,29) über einer Magnetscheibe (11,24) angeordnet sind, wobei vorzugsweise die inneren Komponenten (12,26,29,11,24) zur Erzeugung der Rotationsenergie und der äußere Stator zur Stabilisierung des Rotors (1) wirksam sind.

Abb. 1

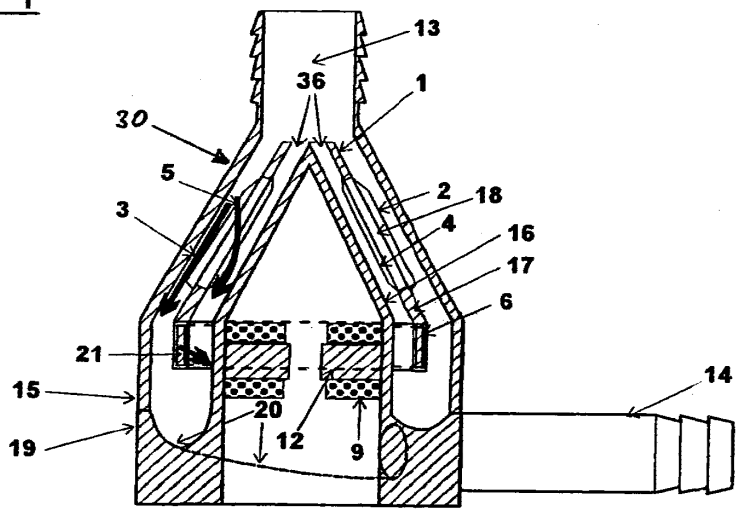

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Abb. 2

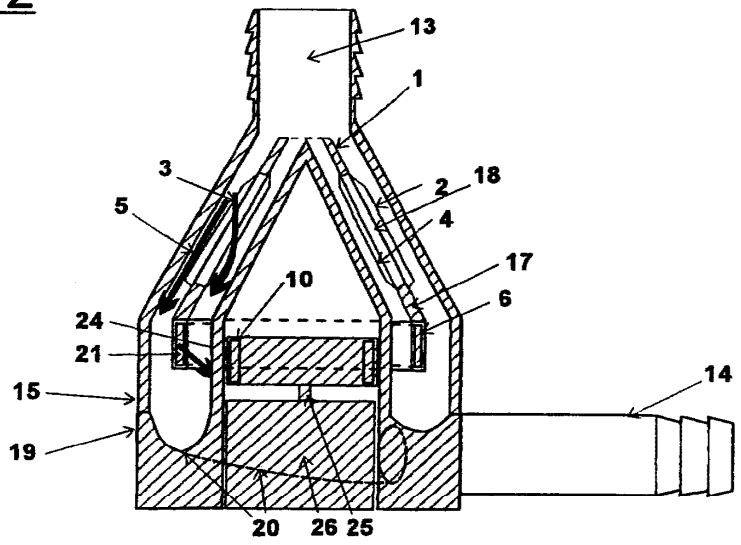
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Abb. 3

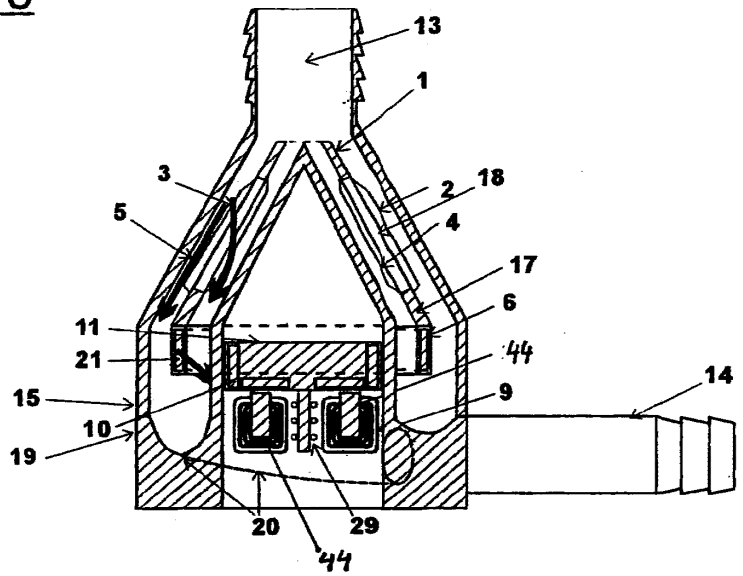
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Abb. 4

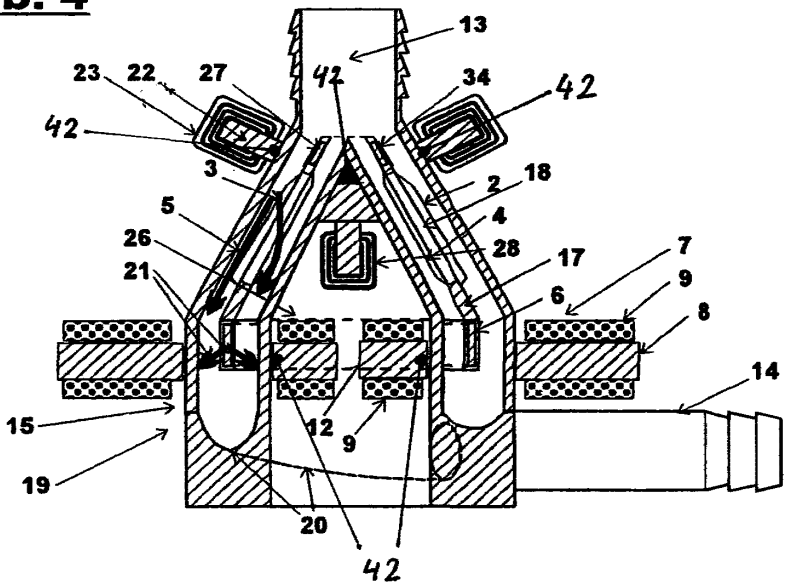
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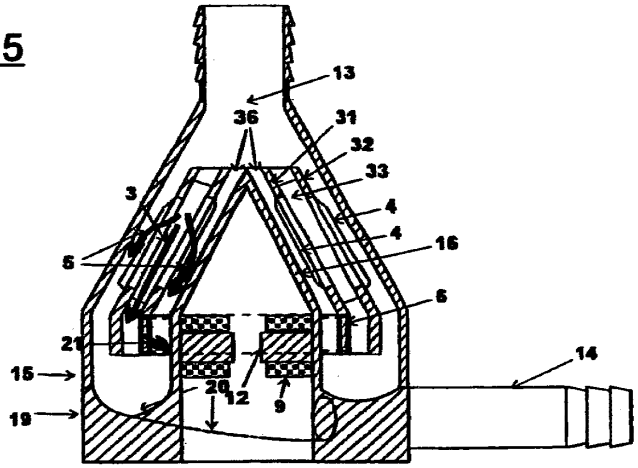
Abb. 5



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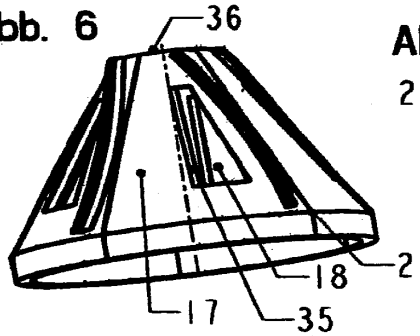

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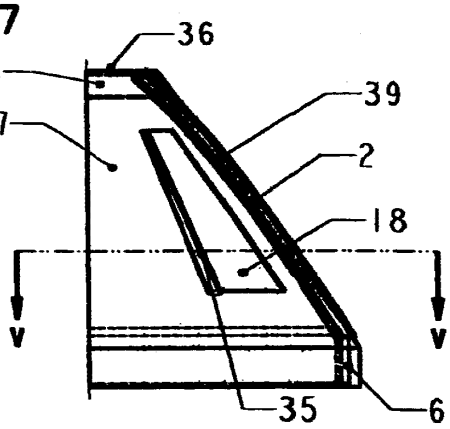

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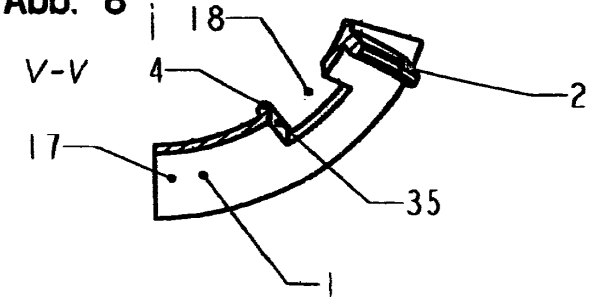

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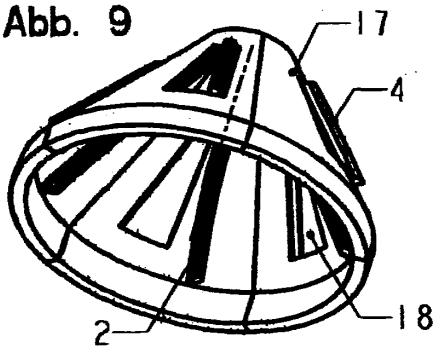

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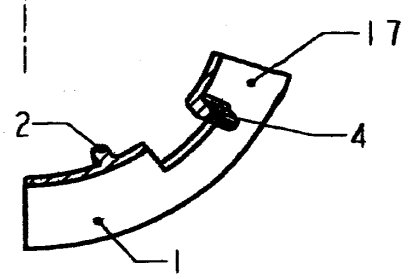

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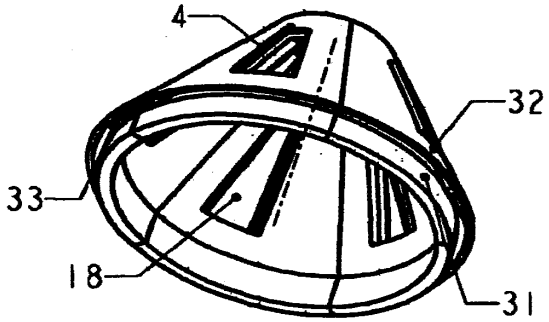

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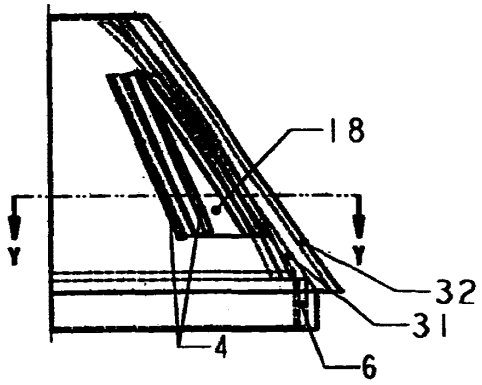

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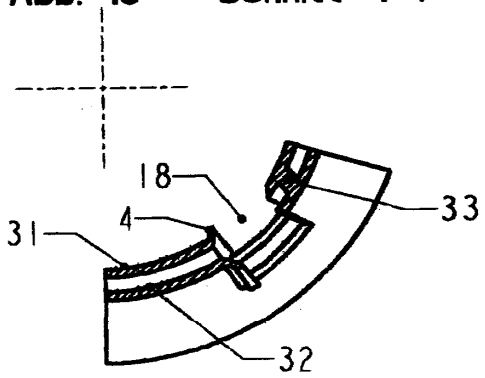

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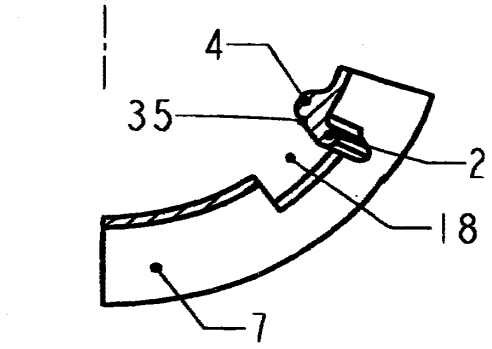

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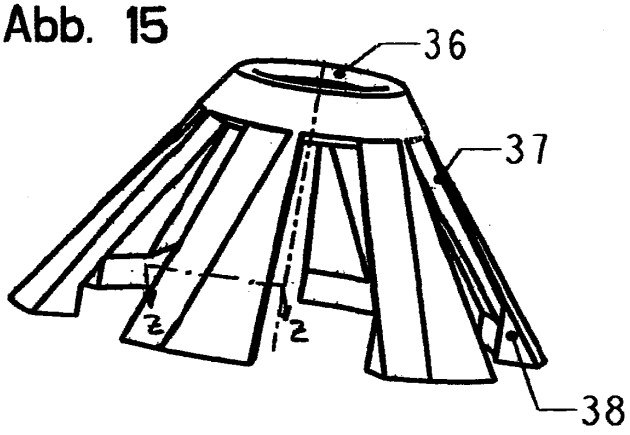

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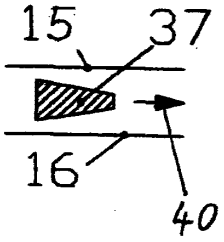
Schnitt 2-2



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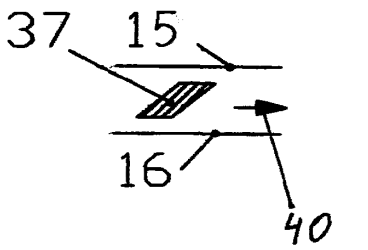

INTERNATIONAL SEARCH REPORT

Inte ional Application No
PCT/AT 01/00086

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61M1/10

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A61M F04D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	WO 00 32256 A (IMPELLA CARDIOTECH AG ;SIESS THORSTEN (DE)) 8 June 2000 (2000-06-08) page 2, line 16 -page 4, line 18; figures 1-4	1-4
X	US 5 938 412 A (IZRAELEV VALENTIN M) 17 August 1999 (1999-08-17) column 5, line 18 - line 67; figure 2	1,2,9,10
A		7,8

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
9 July 2001	16/07/2001

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Schönleben, J

1

Form PCT/ISA/210 (second sheet) (July 1992)

Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 84 of 254

INTERNATIONAL SEARCH REPORT

Inte .ional Application No
PCT/AT 01/00086

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 12587 A (CORTRONIX PTY LTD ;WOODARD JOHN CAMPBELL (AU); TANSLEY GEOFFREY DO) 18 March 1999 (1999-03-18) cited in the application page 7, line 2 -page 8, line 10 page 13, line 17 - line 32 page 15, line 6 -page 16, line 8 figures 1,2	1-4,8,9
A	---	13
X	EP 0 901 797 A (KRITON MEDICAL INC) 17 March 1999 (1999-03-17) column 13, line 35 -column 14, line 17; figures 7,11-13	1
A	---	12,15
A	EP 0 834 326 A (JMS CO LTD) 8 April 1998 (1998-04-08) figure 3	9,10

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Form PCT/ISA/210 (continuation of second sheet) (July 1992)

Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 85 of 254

INTERNATIONAL SEARCH REPORT

Information on patent family members

Inte .ional Application No
PCT/AT 01/00086

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0032256 A	08-06-2000	DE 29821565 U	15-06-2000
		AU 1554000 A	19-06-2000
US 5938412 A	17-08-1999	US 5685700 A	11-11-1997
		AU 8264398 A	25-01-1999
		EP 1003970 A	31-05-2000
		WO 9901663 A	14-01-1999
		AU 2729997 A	11-11-1998
		EP 1012477 A	28-06-2000
		WO 9846879 A	22-10-1998
		US 6206659 B	27-03-2001
		US 5924848 A	20-07-1999
WO 9912587 A	18-03-1999	AU 726752 B	23-11-2000
		AU 8965498 A	29-03-1999
		CN 1278188 T	27-12-2000
		EP 1019116 A	19-07-2000
		US 2001002234 A	31-05-2001
		US 2001004435 A	21-06-2001
EP 0901797 A	17-03-1999	US 5840070 A	24-11-1998
		AU 730235 B	01-03-2001
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		JP 11123239 A	11-05-1999
		US 6080133 A	27-06-2000
		US 6234998 B	22-05-2001
EP 0834326 A	08-04-1998	JP 10099429 A	21-04-1998
		US 6135710 A	24-10-2000

Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 86 of 254

INTERNATIONALER RECHERCHENBERICHT

Inte .ionales Aktenzeichen
PCT/AT 01/00086

A. KLASSIFIZIERUNG DES ANMELDUNGSGEGENSTANDES
IPK 7 A61M1/10

Nach der Internationalen Patentklassifikation (IPK) oder nach der nationalen Klassifikation und der IPK

B. RECHERCHIERTE GEBIETE

Recherchierter Mindestprüfstoff (Klassifikationssystem und Klassifikationssymbole)
IPK 7 A61M F04D

Recherchierte aber nicht zum Mindestprüfstoff gehörende Veröffentlichungen, soweit diese unter die recherchierten Gebiete fallen

Während der internationalen Recherche konsultierte elektronische Datenbank (Name der Datenbank und evtl. verwendete Suchbegriffe)
EPO-Internal

C. ALS WESENTLICH ANGESEHENE UNTERLAGEN

Kategorie°	Bezeichnung der Veröffentlichung, soweit erforderlich unter Angabe der in Betracht kommenden Teile	Betr. Anspruch Nr.
P,X	WO 00 32256 A (IMPELLA CARDIOTECH AG ;SIESS THORSTEN (DE)) 8. Juni 2000 (2000-06-08) Seite 2, Zeile 16 -Seite 4, Zeile 18; Abbildungen 1-4	1-4
X	US 5 938 412 A (IZRAELEV VALENTIN M) 17. August 1999 (1999-08-17) Spalte 5, Zeile 18 - Zeile 67; Abbildung 2	1,2,9,10
A		7,8

-/--

[X] Weitere Veröffentlichungen sind der Fortsetzung von Feld C zu entnehmen

[X] Siehe Anhang Patentfamilie

° Besondere Kategorien von angegebenen Veröffentlichungen :
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"O" Veröffentlichung, die sich auf eine mündliche Offenbarung, eine Benutzung, eine Ausstellung oder andere Maßnahmen bezieht
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"&" Veröffentlichung, die Mitglied derselben Patentfamilie ist

Datum des Abschlusses der internationalen Recherche	Absendedatum des internationalen Recherchenberichts
9. Juli 2001	16/07/2001

Name und Postanschrift der Internationalen Recherchenbehörde	Bevollmächtigter Bediensteter
Europäisches Patentamt, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Schönleben, J

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Formblatt PCT/ISA/210 (Blatt 2) (Juli 1992)

Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 87 of 254

INTERNATIONALER RECHERCHENBERICHT

Inte ionales Aktenzeichen
PCT/AT 01/00086

C.(Fortsetzung) ALS WESENTLICH ANGESEHENE UNTERLAGEN

Kategorie°	Bezeichnung der Veröffentlichung, soweit erforderlich unter Angabe der in Betracht kommenden Teile	Betr. Anspruch Nr.
X	WO 99 12587 A (CORTRONIX PTY LTD ;WOODARD JOHN CAMPBELL (AU); TANSLEY GEOFFREY DO) 18. März 1999 (1999-03-18) in der Anmeldung erwähnt Seite 7, Zeile 2 -Seite 8, Zeile 10 Seite 13, Zeile 17 - Zeile 32 Seite 15, Zeile 6 -Seite 16, Zeile 8 Abbildungen 1,2	1-4,8,9
A	---	13
X	EP 0 901 797 A (KRITON MEDICAL INC) 17. März 1999 (1999-03-17) Spalte 13, Zeile 35 -Spalte 14, Zeile 17; Abbildungen 7,11-13	1
A	---	12,15
A	EP 0 834 326 A (JMS CO LTD) 8. April 1998 (1998-04-08) Abbildung 3	9,10

1

Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 88 of 254

INTERNATIONALER RECHERCHENBERICHT

Angaben zu Veröffentlichungen, die zur selben Patentfamilie gehören

Inte... ...onales Aktenzeichen
PCT/AT 01/00086

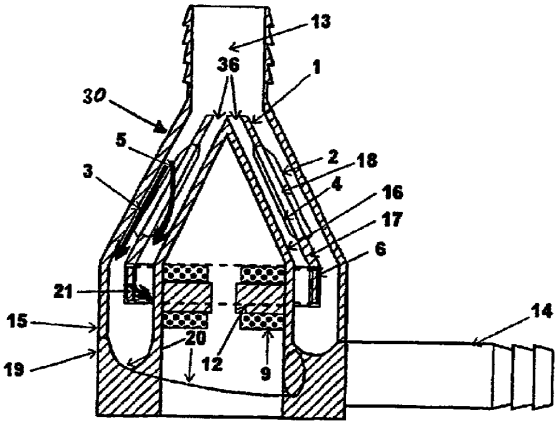
Im Recherchenbericht angeführtes Patentdokument		Datum der Veröffentlichung	Mitglied(er) der Patentfamilie			Datum der Veröffentlichung
WO 0032256	A	08-06-2000	DE	29821565	U	15-06-2000
			AU	1554000	A	19-06-2000
US 5938412	A	17-08-1999	US	5685700	A	11-11-1997
			AU	8264398	A	25-01-1999
			EP	1003970	A	31-05-2000
			WO	9901663	A	14-01-1999
			AU	2729997	A	11-11-1998
			EP	1012477	A	28-06-2000
			WO	9846879	A	22-10-1998
			US	6206659	B	27-03-2001
			US	5924848	A	20-07-1999
WO 9912587	A	18-03-1999	AU	726752	B	23-11-2000
			AU	8965498	A	29-03-1999
			CN	1278188	T	27-12-2000
			EP	1019116	A	19-07-2000
			US	2001002234	A	31-05-2001
			US	2001004435	A	21-06-2001
EP 0901797	A	17-03-1999	US	5840070	A	24-11-1998
			AU	730235	B	01-03-2001
			AU	7993698	A	25-02-1999
			JP	11123239	A	11-05-1999
			US	6080133	A	27-06-2000
			US	6234998	B	22-05-2001
EP 0834326	A	08-04-1998	JP	10099429	A	21-04-1998
			US	6135710	A	24-10-2000

patsnap

Title (Translation)	Rotary pump comprising a hydraulically mounted rotor		
Publication Number	WO2001070300A1	Publication Date	27 Sep 2001
Application Number	PCT/AT2001/000086	Application Date	22 Mar 2001
Assignee Name (Translated)	SCHIMA, HEINRICH SCHMALLEGGER, HELMUT SCHISTEK, ROLAND RADERER, FRANZ		
Standardized Inventor	SCHIMA HEINRICH SCHMALLEGGER HELMUT SCHISTEK ROLAND RADERER FRANZ		
Inventor Name	SCHIMA, HEINRICH SCHMALLEGGER, HELMUT SCHISTEK, ROLAND RADERER, FRANZ		
IPC	A61M1/10		
CPC	A61M2001/1017 A61M1/101 A61M60/824 A61M60/205 A61M60/419 A61M60/422 A61M60/148		
Priority Data	2000000510 24 Mar 2000 AT		
External Link	Espacenet WIPO		

Abstract (Translated)

The invention relates to a rotary pump for delivering blood and other fluids that are susceptible to shearing. Said rotary pump comprises a rotor that is hydraulically and, optionally, magnetically mounted in a casing, whereby the rotor (1) has guiding surfaces (2, 4, 35, 33, 37, 41) for producing centrifugal flow components (3) and flow components (5) that are directed against the casing (30) in order to allow the centrifugal flow components (3) to act prior to the generation of the externally effective delivery rate and to allow the flow components (5) that are directed against the casing to act prior to the contactless mounting and stabilization of the rotor in the housing.



Electronic Acknowledgement Receipt

EFS ID:	44693290
Application Number:	17446046
International Application Number:	
Confirmation Number:	7378
Title of Invention:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART
First Named Inventor/Applicant Name:	Werner Mohl
Customer Number:	26191
Filer:	Alex Yu/Callie Benge
Filer Authorized By:	Alex Yu
Attorney Docket Number:	25955-0013005
Receipt Date:	07-JAN-2022
Filing Date:	26-AUG-2021
Time Stamp:	12:49:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	IDS.pdf	209296 a4cbf703b4333c805486a45e86226dbe66dccc03	no	3

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2	Foreign Reference	WO2001070300A1.PDF	944452 9fa2c49d8ddfc90ae1a1d9b285c8a8ab9c9cf193	no	23
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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Substitute Disclosure Form / U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No.	Application No.
Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))	25955-0013005	17/446,046
	Applicant: Miracor Medical SA	
	Filing Date: August 26, 2021	Group Art Unit: OPAP

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Filing Date If Appropriate	Class	Subclass
	1.	2001/0039369	11/8/2001	Terentiev			

Foreign Patent Documents or Published Foreign Patent Applications							
Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Translation	Class	Subclass

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document

Examiner Signature	Date Considered
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Disclosure Form

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor	:	Werner Mohl	Art Unit	:	OPAP
Application No.	:	17/446,046	Examiner	:	Central, Docket
Filed	:	August 26, 2021	Conf. No.	:	7378
Title	:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART			

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Please consider the documents listed on the disclosure form submitted with this statement. Copies of the documents are being submitted with this statement to the extent required under 37 C.F.R. § 1.98(a)(2).

This statement is being filed within three months of the filing date of the application or before the receipt of a first action on the merits.

Apply any necessary charges or credits applicable under 37 C.F.R. § 1.17(p) to deposit account 06-1050, referencing the above attorney docket number.

Please contact the undersigned if there are any questions regarding this statement.

Respectfully submitted,

Date: March 9, 2022

/Alex Yu/
Alex Yu, Reg. No. 74,295

Customer Number 26191
Fish & Richardson P.C.
Telephone: +1 (650) 839-5047
Facsimile: (877) 769-7945

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Electronic Acknowledgement Receipt

EFS ID:	45186050
Application Number:	17446046
International Application Number:	
Confirmation Number:	7378
Title of Invention:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART
First Named Inventor/Applicant Name:	Werner Mohl
Customer Number:	26191
Filer:	Alex Yu/Callie Benge
Filer Authorized By:	Alex Yu
Attorney Docket Number:	25955-0013005
Receipt Date:	09-MAR-2022
Filing Date:	26-AUG-2021
Time Stamp:	15:20:30
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	IDS.pdf	201493 fbe467643524133beeeb5d01cff43a7214dc d5f9	no	2

Warnings:

Information:	
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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/446,046	08/26/2021	Werner Mohl	25955-0013005

CONFIRMATION NO. 7378

26191
FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

PUBLICATION NOTICE

Title:DEVICE TO ASSIST THE PERFORMANCE OF A HEART

Publication No.US-2022-0080181-A1
Publication Date:03/17/2022

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently https://portal.uspto.gov/pair/PublicPair. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PTO/AIA/14 (11-15)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	25955-0013005
	Application Number	17/446,046
Title of Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Werner		Mohl	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	~~Altenmarkt-Thennenberg~~ Altenmarkt-Thenneberg	Country of Residence	AT

Mailing Address of Inventor:

Address 1	Hafnerberg 66		
Address 2			
City	~~Altenmarkt-Thennenberg~~ **Altenmarkt-Thenneberg**	**State/Province**	
Postal Code	2571	**Country**	AT

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	26191		
Email Address	apsi@fr.com	Add Email	Remove Email

Application Information:

Title of the Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART		
Attorney Docket Number	25955-0013005	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	3	**Suggested Figure for Publication (if any)**	

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	25955-0013005
	Application Number	17/446,046
Title of Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	26191		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	16282948	2019-02-22

CORRECTED

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	25955-0013005
	Application Number	17/446,046
Title of Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART	

Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16282948	Continuation of	14454965	2014-08-08	10251984	2019-04-09
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14454965	Continuation of	13555318	2012-07-23	8801590	2014-08-12
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13555318	Division of	12449632	2009-08-18	8255050	2012-08-28
Prior Application Status	Expired			Remove	
Application Number	Continuity Type	Prior Application Number		Filing or 371(c) Date (YYYY-MM-DD)	
12449632	a 371 of international	PCTIB2008000421		2008-02-27	

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
A306/2007	AT	2007-02-27	

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	25955-0013005
	Application Number	17/446,046
Title of Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART	

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

CORRECTED

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	25955-0013005
	Application Number	17/446,046
Title of Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	25955-0013005
	Application Number	17/446,046
Title of Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◉ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
○ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Miracor Medical SA		
Mailing Address Information For Applicant:			
Address 1	E40 Business Park		
Address 2	Rue de Bruxelles 174		
City	Awans	**State/Province**	
Country	BE	Postal Code	B-4340
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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Approved for use through 04/30/2017. OMB 0651-0032
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	25955-0013005
	Application Number	17/446,046
Title of Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	~~/Alex Yu/~~ /Alex Yu/			Date (YYYY-MM-DD)	April 18, 2022 ~~2021-08-26~~
First Name	Alex	Last Name	Yu	Registration Number	74,295

Additional Signature may be generated within this form by selecting the Add button.

CORRECTED

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	25955-0013005
	Application Number	17/446,046
Title of Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	45496591
Application Number:	17446046
International Application Number:	
Confirmation Number:	7378
Title of Invention:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART
First Named Inventor/Applicant Name:	Werner Mohl
Customer Number:	26191
Filer:	Alex Yu/Kirstin Matteo
Filer Authorized By:	Alex Yu
Attorney Docket Number:	25955-0013005
Receipt Date:	18-APR-2022
Filing Date:	26-AUG-2021
Time Stamp:	14:59:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	25955-0013005_Supplemental-ADS.pdf	1482627 cb394ebfb11a90873ee49aeb3e1962387c3826a3	no	9

Warnings:

Information:	
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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/446,046	08/26/2021	Werner Mohl	25955-0013005	7378

26191 7590 10/11/2022
FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER	
MARLEN, TAMMIE K	

ART UNIT	PAPER NUMBER
3792	

NOTIFICATION DATE	DELIVERY MODE
10/11/2022	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary	Application No. 17/446,046	Applicant(s) Mohl, Werner	
	Examiner TAMMIE K MARLEN	Art Unit 3792	AIA (FITF) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 21 December 2021.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 2-21 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 2-3,5,7,10-13,18 and 21 is/are rejected.

8) ☑ Claim(s) 4,6,8-9,14-17 and 19-20 is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☑ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 26 August 2021 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Information Disclosure Statement

2. The information disclosure statement(s) (IDS) submitted on 1/7/2022 and 3/9/2022 has/have been acknowledged and is/are being considered by the Examiner.

Drawings

3. The Applicant is reminded to carefully review the drawing figures and the accompanying specification to ensure that all reference numerals present in the drawing figures are defined within the specification.

Specification

4. The disclosure is objected to because of the following informalities: the first paragraph of the specification should be updated to indicate the present status of all applications referred to therein.

Appropriate correction is required.

Claim Objections

5. Claims 4 and 14 are objected to because of the following informalities: in line 3, the phrase "between to the second" should instead read "between the second". Appropriate correction is required.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either

anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP § 2146 *et seq.* for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

7. Claims (2 and 12), 3, 5, (7 and 18), 10, and (11 and 21) are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1, 2, 3, 6, 11, and 13, respectively, of U.S. Patent No. 11,123,540. Although the claims at issue are not identical, they are not patentably distinct from each other because the differences which exist between the claims are either merely semantic or would be obvious to one having ordinary skill in the art upon a cursory review of the accompanying claims.

8. Claims (2 and 12), (3 and 13), (7 and 18), 10, and (11 and 21) are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1, 2, 7, 12, and 15, respectively, of U.S. Patent No. 11,351,357. Although the claims at issue are not identical, they are not patentably distinct from each other because the differences which exist between the claims are either merely semantic or would be obvious to one having ordinary skill in the art upon a cursory review of the accompanying claims.

9. Claims (2 and 12), 3, 5, (7 and 18), 10, and (11 and 21) are rejected on the ground of nonstatutory double patenting as being unpatentable over claims (1,10), 2, 3, 7, 12, and 15, respectively, of U.S. Patent No. 11,376,415. Although the claims at issue are not identical, they are not patentably distinct from each other because the differences which exist between the claims are either merely semantic or would be obvious to one having ordinary skill in the art upon a cursory review of the accompanying claims.

Allowable Subject Matter

10. Claims 4, 6, 8, 9, 14-17, 19, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAMMIE K MARLEN whose telephone number is (571)272-1986. The examiner can normally be reached Monday through Friday from 8 am until 4 pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Layno can be reached on 571-272-4949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TAMMIE K MARLEN/
Primary Examiner, Art Unit 3792

Notice of References Cited	Application/Control No. 17/446,046	Applicant(s)/Patent Under Reexamination Mohl, Werner	
	Examiner TAMMIE K MARLEN	Art Unit 3792	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20010039369-A1	11-2001	Terentiev, Alexandre N.	F04D29/048	600/16
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 115 of 254

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/446,046	Mohl, Werner
	Examiner	Art Unit
	TAMMIE K MARLEN	3792

CPC - Searched*		
Symbol	**Date**	**Examiner**
A61M60/40,405,148,135,422,857,205,833,414	10/03/2022	TKM
F04D13/027	10/03/2022	TKM
A61M1/101,1015,1008,1031,1032,1036,1029,122,125	10/03/2022	TKM

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
Inventor name and assignee search	10/03/2022	TKM
Text-limited and related application search -- see search history printout	10/03/2022	TKM
Similarity and "More Like This" search	10/04/2022	TKM

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**

/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	

Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 116 of 254

Sheet 1 of 1

Substitute Disclosure Form / U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No.	Application No.
Information Disclosure Statement by Applicant (Use several sheets if necessary)	25955-0013005	17/446,046
	Applicant: Miracor Medical SA	
(37 CFR §1.98(b))	Filing Date: August 26, 2021	Group Art Unit: OPAP

U.S. Patent Documents

Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Filing Date If Appropriate	Class	Subclass
	1.	2001/0039369	11/8/2001	Terentiev			

Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Translation	Class	Subclass

Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document

Examiner Signature	Date Considered
/TAMMIE K MARLEN/	10/03/2022

EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute Disclosure Form

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

Attorney Docket No.: 25955-0013005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor	:	Werner Mohl	Art Unit	:	OPAP
Application No.	:	17/446,046	Examiner	:	Central, Docket
Filed	:	August 26, 2021	Conf. No.	:	7378
Title	:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART			

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Please consider the documents listed on the disclosure form submitted with this statement. Copies of the documents are being submitted with this statement to the extent required under 37 C.F.R. § 1.98(a)(2).

This statement is being filed within three months of the filing date of the application or before the receipt of a first action on the merits.

Apply any necessary charges or credits applicable under 37 C.F.R. § 1.17(p) to deposit account 06-1050, referencing the above attorney docket number.

Please contact the undersigned if there are any questions regarding this statement.

Respectfully submitted,

Date: March 9, 2022 /Alex Yu/

Alex Yu, Reg. No. 74,295

Customer Number 26191
Fish & Richardson P.C.
Telephone: +1 (650) 839-5047
Facsimile: (877) 769-7945

62911216.doc

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	17	((WERNER) near2 (MOHL)).INV.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2012/03/24 09:05 AM
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L7	5	L6 and paddle	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 09:18 AM
L8	284	L6 and (hydraul$9 or pneumat$9)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 09:18 AM
L9	118	bedingham.in.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2012/03/24 09:25 AM
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Abbott Ex. 1002, p. 120 of 254

		5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$).did.					
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		7588531-$ or US- 7588530-$ or US- 7520850-$ or US- 7513863-$ or US- 7458929-$ or US- 7445592-$ or US- 7331921-$ or US- 7264606-$ or US- 7247134-$ or US- 7189199-$ or US- 7182727-$ or US- 7144365-$ or US- 7125376-$ or US- 7112219-$ or US- 7011620-$ or US- 6976996-$ or US- 6974436-$ or US- 6858001-$).did. or (US- 6808488-$ or US- 6808482-$ or US- 6793618-$ or US- 6755777-$ or US- 6685621-$ or US- 6629921-$ or US- 6610004-$ or US- 6589160-$ or US- 6514194-$ or US- 6440059-$ or US- 6428464-$ or US- 6406420-$ or US- 6402679-$ or US- 6390969-$ or US- 6387037-$ or US- 6332864-$ or US- 6332863-$ or US- 6299575-$ or US- 6261222-$ or US- 6260552-$ or US- 6200260-$ or US- 6183411-$ or US- 6165120-$ or US- 6165119-$ or US- 6162168-$ or US- 6162167-$ or US- 6123725-$).did. or (US- 6083260-$ or US- 6059715-$ or US- 6050936-$ or US- 6045497-$ or US- 5964694-$ or US- 5961440-$ or US- 5921913-$ or US- 5911685-$ or US- 5711753-$ or US- 5513956-$ or US- 5092879-$ or US- 4994078-$ or US- 4925443-$).did.					

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L55	790	L53 and (hydraul$9 or pneumat$9)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2013/07/11 09:52 AM
L56	43	((WERNER) near2 (MOHL)).INV.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2014/01/09 12:17 PM
L57	20	(US-20080214888-$ or US-20060009672-$).did. or (US-6506146-$ or US-6176848-$ or US-6155969-$ or US-5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$).did.	(US-PGPUB; USPAT)	OR	ON	ON	2014/01/09 12:32 PM
L58	19	L57 and (sens$6 control$4 controlled$4 controlling$4 controller$4 regulat$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/01/09 12:32 PM
L59	2391	600/16-18.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:48 AM
L60	209	623/3.11,3.13.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:48 AM
L61	949	623/3.1-3.3.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:48 AM
L62	2895	L59 L60 L61	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:48 AM
L63	1051	L62 and balloon	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:49 AM
L64	753	L63 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:49 AM
L65	2391	600/16-18.ccls.	(US-PGPUB; USPAT;	OR	ON	ON	2014/03/21

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			USOCR; EPO; JPO; DERWENT)				07:51 AM
L66	209	623/3.11,3.13.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L67	949	623/3.1-3.3.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L68	2895	L65 L66 L67	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L69	659	L68 and (magnet or magneto)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L70	856	L68 and (hydraul$9 or pneumat$9)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L71	265	L69 and L70 and (sens$6 control$4 controlled$4 controlling$4 controller$4 regulat$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L72	56	L64 and L71	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L73	56	L64 and L71	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L74	344	L62 and (balloon same catheter same (valv$5 close closed closing closure seal$6))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:56 AM
L75	242	L74 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:57 AM
L76	242	L74 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:57 AM
L77	242	L76 and (balloon same catheter same (valv$5 close closed closing closure seal$6))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 08:00 AM
L79	51	((Werner) near2 (Mohl)).INV.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2015/05/14 08:48 AM
L80	13	US-20080214888-$.DID. OR US-4674518-$.DID. OR US-5308319-$.DID. OR US-5449342-$.DID. OR US-5470208-$.DID. OR US-5964694-$.DID. OR US-6007478-$.DID. OR US-6155969-$.DID. OR	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2015/05/14 08:53 AM

		US-6176848-$.DID. OR US-6506146-$.DID. OR US-6508787-$.DID. OR US-6623475-$.DID. OR US-7699586-$.DID.					
L92	4498	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L93	1160	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L94	917	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L95	967	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L96	68	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L97	801	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L98	121	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L99	3143	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L100	1476	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L101	6925	L92 L93 L94 L95 L96 L97 L98 L99 L100	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:05 AM
L102	54	L101 and magneto	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:05 AM
L103	2326	L101 and magnet$6	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:09 AM
L104	1409	L103 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:10 AM
L105	4687	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L106	1210	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L107	994	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM

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L108	1015	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L109	90	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L110	833	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L111	172	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L112	3360	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L113	1586	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L114	7327	L105 L106 L107 L108 L109 L110 L111 L112 L113	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L115	2426	L114 and magnet$6	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L116	1412	L115 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L117	318	L116 and (shaft with (rotate rotates rotating rotated rotation))	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:29 AM
L118	318	L116 and (shaft with (rotate rotates rotating rotated rotation))	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:30 AM
L119	20	(US-20080214888-$ or US-20060009672-$).did. or (US-6506146-$ or US-6176848-$ or US-6155969-$ or US-5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$).did.	(US-PGPUB; USPAT)	OR	ON	ON	2015/09/30 11:22 AM
L120	20	(US-20080214888-$ or	(US-PGPUB; USPAT)	OR	ON	ON	2015/09/30

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		US-20060009672-$).did. or (US-6506146-$ or US-6176848-$ or US-6155969-$ or US-5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$).did.					12:31 PM
L121	16	L120 and (hydraul$9 or pneumat$9)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:31 PM
L122	16	L120 and (hydraul$9 or pneumat$9)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:32 PM
L123	9	L120 and ((hydraul$9 or pneumat$9) with (drive paddle))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:35 PM
L124	12	L120 and ((hydraul$9 or pneumat$9 or fluid) with (drive paddle))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:37 PM
L125	4687	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L126	1210	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L127	994	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L128	1015	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L129	90	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L130	833	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L131	172	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L132	3360	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	ON	2015/09/30 12:42 PM

			JPO; DERWENT)				
L133	1586	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L134	7327	L125 L126 L127 L128 L129 L130 L131 L132 L133	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L135	147	L134 and ((hydraul$9 or pneumat$9) with (drive paddle))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L136	81	L135 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:58 PM
L137	15	L134 and (((hydraul$9 or pneumat$9) with (drive paddle)) same magnet$6) and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 01:22 PM
L138	21	(US-20080214888-$ or US-20060009672-$).did. or (US-6506146-$ or US-6176848-$ or US-6155969-$ or US-5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$ or US-6083260-$).did.	(US-PGPUB; USPAT)	OR	ON	ON	2016/05/11 01:11 PM
L139	9	L138 and (fluid$6 with (drive driven drived driving))	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2016/05/11 01:12 PM
L142	7	((("MIRACOR") near3 ("MEDICAL") near3 ("SA"))).AS,AANM.	(USPAT)	OR	ON	ON	2020/08/26 01:24 PM
L144	16	("20080214888"|"4674518"|"5308319"|"5449342"|"5470208"|"5964694"|"6007478"|"6083260"|"6155969"|"6176848"|"6506146"|"6508787"|"6540658"|"6623475"|"7699586"|"8255050").PN.	(US-PGPUB; USPAT)	OR	ON	ON	2020/08/26 01:26 PM
L145	10275	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	ON	2020/08/26 01:27 PM

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			JPO; DERWENT)				
L146	2559	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L147	7014	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L148	3739	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L149	315	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L150	2288	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L151	1463	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L152	13127	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L153	5858	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L154	18242	L145 L146 L147 L148 L149 L150 L151 L152 L153	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L155	368	L154 and ((hydraul$9 or pneumat$9) with (drive paddle))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L156	187	L155 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L157	10280	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L158	2560	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L159	7017	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L160	3741	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L161	315	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L162	2288	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM

L163	1463	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L164	13128	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L165	5863	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L166	18248	L157 L158 L159 L160 L161 L162 L163 L164 L165	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L167	368	L166 and ((hydraul$9 or pneumat$9) with (drive paddle))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L168	187	L167 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L169	92	((("MOHL") near3 ("Werner"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:23 PM
L170	4	"37698" and thorsten	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 01:16 PM
L171	21	(US-20080214888-$ or US-20060009672-$).did. or (US-6506146-$ or US-6176848-$ or US-6155969-$ or US-5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$ or US-6083260-$).did.	(US-PGPUB; USPAT)	OR	ON	ON	2020/08/27 01:45 PM
L172	18	L171 and (hydraul$9 or pneumat$9 or ((drive drived drove driving) near3 fluid))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 01:46 PM
L173	2	(("20030100816") or ("20010031210")).PN.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2020/08/27 03:58 PM
L174	18	(US-20030100816-$ or US-20010031210-$ or US-20110238172-	(US-PGPUB; USPAT)	OR	ON	ON	2020/08/27 04:01 PM

		$).did. or (US-6942611-$ or US-6981942-$ or US-5613935-$ or US-5964694-$ or US-7070398-$ or US-6201329-$ or US-7229258-$ or US-6447266-$ or US-6244835-$ or US-6717311-$ or US-5928131-$ or US-6293901-$ or US-6074180-$ or US-6220832-$ or US-6716157-$).did.					
L175	9	L174 and (hydraul$9 or pneumat$9 or ((drive drived drove driving) near3 fluid))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 04:02 PM
L176	330	seiss.in.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:12 PM
L177	385	antaki.in.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:13 PM
L178	715	L176 L177	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:13 PM
L179	121	L178 and a61m$.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:14 PM
L180	1086	siess.in.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:16 PM
L181	713	L180 and a61m$.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:16 PM
L182	61	L181 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:22 PM
L183	18	L182 and (magnet magneto magnetic$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:24 PM
L184	1	(12/376549).APP.	(USPAT; USOCR)	OR	ON	ON	2020/10/05 12:57 PM
L185	1346	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L186	307	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L187	880	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM

Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 132 of 254

L188	460	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L189	36	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L190	337	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L191	245	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L192	1756	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L193	771	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L194	2499	L185 L186 L187 L188 L189 L190 L191 L192 L193	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L195	453	L194 and (magnet magneto magnetic$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L196	8251	A61M60/40.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L197	314	A61M60/405.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L198	12179	A61M60/148.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L199	19152	A61M60/40,405,148,135,422,857,205,833,414.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L200	1632	F04D13/027.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L201	22816	L194 L196 L197 L198 L199 L200	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L202	4191	L201 and (magnet magneto magnetic$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L203	1346	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L204	307	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L205	880	A61M1/1008.cpc.	(US-PGPUB; USPAT;	OR	ON	ON	2021/05/12

			USOCR; FPRS; EPO; JPO; DERWENT)				11:57 AM
L206	460	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L207	36	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L208	337	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L209	245	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L210	1756	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L211	771	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L212	2499	L203 L204 L205 L206 L207 L208 L209 L210 L211	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L213	8251	A61M60/40.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L214	314	A61M60/405.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L215	12179	A61M60/148.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L216	19152	A61M60/40,405,148,135,422,857,205,833,414.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L217	1632	F04D13/027.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L218	22816	L212 L213 L214 L215 L216 L217	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L219	4191	L218 and (magnet magneto magnetic$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L220	3601	L219 and blood	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L221	1031	L220 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:58 AM
L222	1031	L220 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO;	OR	ON	ON	2021/05/12 12:00 PM

			DERWENT)				
L223	15	((("MIRACOR") near3 ("MEDICAL") near3 ("SA"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/10/03 02:57 PM
L224	110	((("MOHL") near3 ("Werner"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/10/03 02:57 PM
L225	19	("20010039369" OR "20080214888" OR "20110238172" OR "4674518" OR "5308319" OR "5449342" OR "5470208" OR "5964694" OR "6007478" OR "6083260" OR "6155969" OR "6176848" OR "6506146" OR "6508787" OR "6540658" OR "6623475" OR "7699586" OR "8255050" OR "9616157").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2022/10/03 02:57 PM
L226	16846	A61M60/237,17,405,148,13,422,861,523,833,414.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2022/10/03 03:01 PM
L227	2496	F04D13/027.cpc.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/10/03 03:01 PM
L228	42	(Artificial Intelligence) Similar to: 17/446,046 with 0 CPC Selections and 0 Text Selections Text: (US-11123540-B2 OR US-11351356-B2 OR US-11351357-B2 OR US-20220111194-A1 OR US-11376415-B2	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE,	OR	ON	ON	2022/10/04 09:20 AM

Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 135 of 254

		OR US-20220118242-A1 OR US-20220080181-A1 OR US-20220111195-A1 OR EP-2114484-A2 OR WO-2008104858-A2 OR EP-2114484-B1 OR US-20120316383-A1 OR US-8801590-B2 OR US-20140350328-A1 OR AT-504990-B1 OR CN-101678158-A OR US-8255050-B2 OR US-20110009687-A1 OR AT-504990-A1 OR ES-2371128-T3 OR PT-2114484-E OR JP-5274485-B2 OR JP-2010519001-A OR WO-2008104858-A3 OR US-20190184080-A1 OR US-10251984-B2 OR US-20210038792-A1 OR DE-2200599-B1 OR DE-2200599-C2 OR US-20210252276-A1 OR US-20010039369-A1 OR GB-1383811-A OR AU-2018301507-A1 OR US-20190015569-A1 OR WO-2019014626-A1 OR EP-3651825-A1 OR WO-2008017289-A3 OR EP-1113177-A3 OR EP-1113177-A2 OR US-6575717-B2 OR US-20010016170-A1 OR EP-1113177-B1 OR CN-107252504-B OR JP-2017164503-A OR US-20220042511-A1 OR AU-2017272906-B2 OR EP-3693038-A1 OR DE-60006926-T2 OR DE-102010011998-A1 OR EP-3854443-A1).did.	SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO))				

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N44	1	(catheter AND pump AND rotor AND magnet$9 AND (hydraul$9 or	(US-PGPUB; USPAT)	OR	ON	ON	2012/06/29 01:54 PM

		pneumat$9) AND lumen AND balloon).clm.					
N78	3	(catheter AND pump AND rotor AND magnet$9 AND (hydraul$9 or pneumat$9) AND lumen AND balloon).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2014/03/21 09:03 AM
N140	53	(catheter AND pump AND rotor AND magnet$9).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2018/11/14 01:21 PM
N141	10	(catheter AND pump AND rotor AND magnet$9 AND sens$9).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2018/11/14 01:21 PM
N223	220	(pump AND rotor AND magnet$9 AND blood AND control$6).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/05/13 03:04 PM
N224	6	(pump AND rotor AND magneto AND blood AND control$6).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/05/13 03:05 PM

Substitute Disclosure Form / U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No.	Application No.
Information Disclosure Statement by Applicant (Use several sheets if necessary)	25955-0013005	17/446,046
(37 CFR §1.98(b))	Applicant: Miracor Medical SA	
	Filing Date: August 26, 2021	Group Art Unit: 3792

U.S. Patent Documents

Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Filing Date If Appropriate	Class	Subclass
	1.	4674518	6/23/1987	Salo			
	2.	5308319	5/3/1994	Ide et al.			
	3.	5449342	9/12/1995	Hirose et al.			
	4.	5470208	11/28/1995	Kletschka			
	5.	5964694	10/12/1999	Siess et al.			
	6.	6007478	12/28/1999	Siess et al.			
	7.	6083260	7/4/2000	Aboul-Hosn			
	8.	6155969	12/5/2000	Schima et al.			
	9.	6176848	1/23/2001	Rau et al.			
	10.	6506146	1/14/2003	Mohl			
	11.	6508787	1/21/2003	Erbel et al.			
	12.	6540658	4/1/2003	Faschiano			
	13.	6623475	9/23/2003	Siess			
	14.	7699586	4/20/2010	LaRose et al.			
	15.	8255050	8/28/2012	Mohl			
	16.	9616157	4/11/2017	Akdis			
	17.	2008/0214888	9/4/2008	Ben Shalom, Zvi			
	18.	2011/0238172	9/29/2011	Akdis			

Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Translation	Class	Subclass
	19.	EP 0075606	4/6/1983	EP			
	20.	EP 0503839	9/16/1992	EP			
	21.	EP 1011753	6/28/2000	EP			
	22.	EP 1034808	9/13/2000	EP			
	23.	FR 1187249	8/8/1959	FR			
	24.	WO 1997/37698	10/16/1997	WO			

Examiner Signature	Date Considered
/TAMMIE K MARLEN/	10/03/2022

EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute Disclosure Form

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

Substitute Disclosure Form / U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No.	Application No.
Information Disclosure Statement by Applicant (Use several sheets if necessary)	25955-0013005	17/446,046
(37 CFR §1.98(b))	Applicant: Miracor Medical SA	
	Filing Date: August 26, 2021	Group Art Unit: 3792

Foreign Patent Documents or Published Foreign Patent Applications							
Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Translation	Class	Subclass
	25.	WO 1999/15213	4/1/1999	WO			
	26.	WO 2000/44417	8/3/2000	WO			
	27.	WO 2001/70300	9/27/2001	WO			

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
	28.	AUTHORIZED OFFICER MALTE KADEN, International Search Report for Application No. PCT/IB2008/000421, dated November 7, 2008, 3 pages.
	29.	Mohl et al., "Intermittent Pressure Elevation of the Coronary Venous System as a Method to Protect Ischemic Myocardium," Interactive CardioVascular and Thoracic Surgery, Volume 4, 2005, pp. 66-69
	30.	Syeda et al., "The Salvage Potential of Coronary Sinus Interventions: Meta-Analysis and Pathophysiologic Consequences," The Journal of Thoracic and Cardiovascular Surgery, Volume 127, Number 6 (June 2004), pp. 1703-1712

Examiner Signature	Date Considered
/TAMMIE K MARLEN/	10/03/2022

EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute Disclosure Form

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

Attorney Docket No.: 25955-0013005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor	:	Werner Mohl	Art Unit	:	3792
Application No.	:	17/446,046	Examiner	:	Unknown
Filed	:	August 26, 2021	Conf. No.	:	7378
Title	:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART			

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Please consider the documents listed on the disclosure form submitted with this statement. Copies of the documents are being submitted with this statement to the extent required under 37 C.F.R. § 1.98(a)(2).

Under 35 U.S.C. § 120, this application relies on the earlier filing date of application number 16/282,948, filed on February 22, 2019. The document corresponding to Desig. ID No. 27 has not been submitted to and/or cited by the Office in the prior application. All other listed documents were submitted to and/or cited by the Office in the prior application, and so copies of those documents are not provided in this application.

This statement is being filed before the receipt of a first action on the merits.

Apply any necessary charges or credits applicable under 37 C.F.R. § 1.17(p) to deposit account 06-1050, referencing the above attorney docket number.

Please contact the undersigned if there are any questions regarding this statement.

Respectfully submitted,

Date: January 7, 2022

/Alex Yu/
Alex Yu, Reg. No. 74,295

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Fish & Richardson P.C.
Telephone: +1 (650) 839-5047
Facsimile: (877) 769-7945

62853291.doc

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 17/446,046	Filing Date 08/26/2021	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $240 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	11/07/2022	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0		x $240 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/TRACEY T BELL/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: DIST.E.FILE **Document Description: Electronic Terminal Disclaimer - Filed**	PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT**
Application Number	17446046
Filing Date	26-Aug-2021
First Named Inventor	Werner Mohl
Attorney Docket Number	25955-0013005
Title of Invention	DEVICE TO ASSIST THE PERFORMANCE OF A HEART

☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent Interest
Miracor Medical SA	100%

The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s)

11123540

11351357

11376415

as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:
- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

◉ Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request. ○ I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.	
Applicant claims the following fee status: ◉ Small Entity ○ Micro Entity ○ Regular Undiscounted I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.	
THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES I certify, in accordance with 37 CFR 1.4(d)(4) that I am: ◉ An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application Registration Number 57867 ○ A sole inventor ○ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application ○ A joint inventor; all of whom are signing this request	
Signature	/Michael T. Hawkins/
Name	Michael T. Hawkins

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	17446046
Filing Date:	26-Aug-2021
Title of Invention:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART
First Named Inventor/Applicant Name:	Werner Mohl
Filer:	Michael T. Hawkins/Kirstin Matteo
Attorney Docket Number:	25955-0013005

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	2814	1	170	170
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**170**

Doc Code: DISQ.E.FILE
Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 17446046

Filing Date: 26-Aug-2021

Applicant/Patent under Reexamination: Mohl

Electronic Terminal Disclaimer filed on November 7, 2022

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt	
EFS ID:	46964743
Application Number:	17446046
International Application Number:	
Confirmation Number:	7378
Title of Invention:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART
First Named Inventor/Applicant Name:	Werner Mohl
Customer Number:	26191
Filer:	Michael T. Hawkins/Kirstin Matteo
Filer Authorized By:	Michael T. Hawkins
Attorney Docket Number:	25955-0013005
Receipt Date:	07-NOV-2022
Filing Date:	26-AUG-2021
Time Stamp:	11:12:53
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$170
RAM confirmation Number	E2022A7B12464471
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	41691 e45b341833c70129ec86cad2185edd199c2f29ec	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	38134 4f34b9549764e86eddd1f012cba6a0c11e40d6cf	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	79825		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor	:	Werner Mohl	Art Unit	:	3792
Application No.	:	17/446,046	Examiner	:	Tammie K. Marlen
Filed	:	August 26, 2021	Conf. No.	:	7378
Title	:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART			

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY TO ACTION OF OCTOBER 11, 2022

Please consider the following reply.

Amendments to the Specification:

Please replace the paragraph starting at page 1, line 5 with the following amended paragraph:

This application is a continuation of and claims priority to U.S. Application Serial No. 16/282,948, filed on February 22, 2019 (now U.S. Patent No. 11,123,540), which is a continuation of U.S. Application Serial No. 14/454,965, filed on August 8, 2014 (now U.S. Patent No. 10,251,984), which is a continuation of and claims priority to U.S. Application Serial No. 13/555,318, filed on July 23, 2012 (now U.S. Patent No. 8,801,590), which is a divisional of and claims priority to U.S. Application Serial No. 12/449,632, filed on August 18, 2009 (now U.S. Patent No. 8,255,050), which is the U.S. national phase of International Application PCT/IB2008/000421, filed on February 27, 2008, which designated the U.S. and claims benefit of AT A 306/2007, filed February 27, 2007, the entire contents of these prior applications are hereby incorporated by reference

Amendments to Claims:
Listing of Claims.

1. (Canceled)

2. (Previously presented) A system for assisting blood circulation of a heart, the system comprising:

a heart assist pump device deliverable to the heart and comprising:

an inflow tube defining a blood inflow path aligned with a central axis;

a magnetically driven rotor aligned with the central axis and that is rotatable about the central axis within a surrounding rotor housing to drive blood flowing from the inflow tube toward the magnetically driven rotor, the magnetically driven rotor being rigidly coupled and axially adjacent to a first magnetic device within the surrounding rotor housing;

a second magnetic device axially aligned with the central axis and positioned to magnetically drive rotation of the magnetically driven rotor via a magneto coupling with the first magnetic device while both the magnetically driven rotor and first magnetic device are entirely spaced apart from the surrounding rotor housing by a gap sized for passage of the blood during rotation of the magnetically driven rotor; and

a blood outflow port positioned radially adjacent the magnetically driven rotor such that the blood driven by the magnetically driven rotor exits the surrounding rotor housing in a direction substantially perpendicular to the central axis, wherein the magneto coupling orients the magnetically driven rotor so that the magnetically driven rotor remains adjacent to and spaced apart from the surrounding rotor housing by the blood flowing from the inflow tube and to the blood outflow port; and

an external control unit configured to regulate operation of the second magnetic device, the external control unit being positionable exterior to a body when the heart assist pump device is delivered to the heart, wherein the external control unit is connectable to the heart assist pump

device for operating the second magnetic device to thereby magnetically drive the rotation of the magnetically driven rotor via the magneto coupling with the first magnetic device.

3. (Previously presented) The system of claim 2, wherein the magnetically driven rotor comprises:

a guide surface to produce centrifugal flow components.

4. (Currently Amended) The system of claim 2, wherein the first magnetic device is a single magnetic device rigidly coupled to the magnetically driven rotor at a position axially between ~~to~~ the second magnetic device and the magnetically driven rotor.

5. (Previously presented) The system of claim 2, wherein the heart assist pump device further comprises a sealing wall positioned between the second magnetic device and the magnetically driven rotor.

6. (Previously presented) The system of claim 5, wherein the sealing wall at least partially defines the gap sized for passage of the blood.

7. (Previously presented) The system of claim 2, wherein the heart assist pump device is an intravascular rotary pump.

8. (Previously presented) The system of claim 2, wherein the first magnetic device is positioned within a first chamber, the second magnetic device is positioned within a second chamber, and the first chamber is sealed from the second chamber.

9. (Previously presented) The system of claim 8, wherein the heart assist pump device further comprises a wall separating the first chamber from the second chamber.

10. (Previously presented) The system of claim 2, wherein the external control unit is connectable to the heart assist pump device to deliver energy to the second magnetic device.

11. (Previously presented) The system of claim 2, wherein the external control unit is configured to regulate operation of the second magnetic device based on a defined cardiac output.

12. (Previously presented) A system for assisting blood circulation of a heart, the system comprising:

a heart assist pump device deliverable to the heart and comprising:

an inflow tube defining a blood inflow path along an inflow axis and being insertable into a left ventricle;

one or more walls at least partially defining a chamber to receive blood from the inflow tube;

a magnetically driven rotor axially aligned with the inflow axis and being rigidly coupled and axially adjacent to a first magnetic device that is axially aligned with the inflow axis, the magnetically driven rotor and first magnetic device being rotatable about an axis of rotation aligned with the inflow axis to drive the blood flowing from the inflow tube;

a magnetic drive system comprising a second magnetic device axially aligned with the inflow axis and spaced apart from the magnetically driven rotor such that a wall of the one or more walls defining the chamber is positioned between the magnetically driven rotor and the second magnetic device, the second magnetic device positioned axially closer to the first magnetic device than to the magnetically driven rotor so as to magnetically drive rotation of the magnetically driven rotor relative to the one or more walls via a magneto coupling with the first magnetic device; and

a blood outflow port positioned such that the blood driven by the magnetically driven rotor exits the chamber in a direction substantially perpendicular to the inflow axis, wherein the magneto coupling orients the magnetically driven rotor so that both the magnetically driven rotor and the first magnetic device remain spaced

apart from the one or more walls by the blood in response to rotation of the magnetically driven rotor; and

an external control unit configured to control operation of the second magnetic device based on a fixed value to thereby magnetically drive the rotation of the magnetically driven rotor via the magneto coupling with the first magnetic device.

13. (Previously presented) The system of claim 12, wherein the magnetically driven rotor includes a guide surface to produce centrifugal flow components.

14. (Currently Amended) The system of claim 12, wherein the first magnetic device comprises a single magnetic device rigidly coupled to the magnetically driven rotor at a position between ~~to~~ the second magnetic device and the magnetically driven rotor.

15. (Previously presented) The system of claim 12, wherein the one or more walls and the magnetically driven rotor define a gap separating the magnetically driven rotor from the one or more walls, the gap configured to be occupied by the blood when the second magnetic device drives the rotation of the magnetically driven rotor.

16. (Previously presented) The system of claim 15, wherein the gap surrounds the magnetically driven rotor.

17. (Previously presented) The system of claim 15, wherein at least part of the gap extends along a first axis substantially perpendicular to the inflow axis.

18. (Previously presented) The system of claim 12, wherein the heart assist pump device is an intravascular rotary pump.

19. (Previously presented) The system of claim 12, wherein the chamber is a first chamber within which the magnetically driven rotor is positioned, and the magnetic drive system is positioned within a second chamber sealed from the first chamber.

20. (Previously presented) The system of claim 19, wherein the wall of the one or more walls separates the first chamber from the second chamber.

21. (Previously presented) The system of claim 12, wherein the control unit is configured to regulate operation of the second magnetic device based on a defined cardiac output.

REMARKS

The specification has been amended to identify the patent numbers of the related applications originally described in the first paragraph of page 1. No new matter has been added. Additionally, dependent claims 4 and 14 have been amended to correct minor typographical errors. Again, no new matter has been added. Applicant respectfully requests reconsideration and allowance of all claims 2-21.

Specification

The Office Action objected to the specification due to a minor informality. The first paragraph of page 1 originally listed the application serial numbers for the related applications. As amended, the corresponding patent numbers are now provided too. No new matter has been added. Applicant requests withdrawal of the objection to the specification.

Claim Objections

The Office Action objected to dependent claims 4 and 14 due to a minor typographical error. Claims 4 and 14 have been amended. Applicant requests withdrawal of the objections to claims 4 and 14.

Terminal Disclaimer

The Office Action rejected claims 2, 3, 5, 7, 10, 11, 12, 18, and 21 on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1, 2, 3, 6, 11, and 13 of commonly owned U.S. Patent No. 11,123,540. Also, the Office Action rejected claims 2, 3, 7, 10, 11, 12, 13, 18, and 21 on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1, 2, 7, 12, and 15 of commonly owned U.S. Patent No. 11,351,357. Further, the Office Action rejected claims 2, 3, 5, 7, 10, 11, 12, 18, and 21 on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1, 2, 3, 7, 10, 12, and 15 of commonly owned U.S. Patent No. 11,376,415. Applicant respectfully submits a terminal disclaimer in compliance with 37 C.F.R. § 1.321 to obviate these grounds for

rejection. The Applicant expressly notes that "[t]he filing of a terminal disclaimer to obviate a rejection based on nonstatutory double patenting is not an admission of the propriety of the rejection." MPEP § 804.02.

Accordingly, claims 2-21 are in condition for allowance.

Request for Reconsideration

The Applicant respectfully requests prompt consideration and a Notice of Allowance. **In the event that no Notice of Allowance will be provided in the next communication, Applicant requests that the Examiner telephone the undersigned attorney (612-337-2569) prior to the next communication so that prosecution on the merits may be expedited**.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper. Applicant hereby specifically reserves the right to prosecute claims of different or broader scope in a continuation application.

This Amendment is submitted with the aforementioned terminal disclaimer and the requisite fee. No other fees are believed to be due at this time. If necessary, please apply any other charges or credits to Deposit Account 06-1050, referencing the above attorney docket number.

Respectfully submitted,

Date: November 7, 2022

/Michael T. Hawkins/
Michael T. Hawkins, Reg. No. 57,867

Customer Number 26191
Fish & Richardson P.C.
Telephone: +1 (650) 839-5047
Facsimile: (877) 769-7945

41618667.doc

Electronic Acknowledgement Receipt

EFS ID:	46970651
Application Number:	17446046
International Application Number:	
Confirmation Number:	7378
Title of Invention:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART
First Named Inventor/Applicant Name:	Werner Mohl
Customer Number:	26191
Filer:	Michael T. Hawkins/Kirstin Matteo
Filer Authorized By:	Michael T. Hawkins
Attorney Docket Number:	25955-0013005
Receipt Date:	07-NOV-2022
Filing Date:	26-AUG-2021
Time Stamp:	11:15:39
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		25955-0013005_Resp-NFOA.pdf	97976 a775617af448203b05dade84cf6cc89b50fb c49f	yes	9

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Request for Reconsideration-After Non-Final Rejection	1	1
	Specification	2	2
	Claims	3	7
	Applicant Arguments/Remarks Made in an Amendment	8	9
Warnings:			
Information:			
	Total Files Size (in bytes):	97976	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

26191 7590 11/30/2022
FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER	
MARLEN, TAMMIE K	
ART UNIT	PAPER NUMBER
3792	

DATE MAILED: 11/30/2022

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/446,046	08/26/2021	Werner Mohl	25955-0013005	7378

TITLE OF INVENTION: DEVICE TO ASSIST THE PERFORMANCE OF A HEART

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	02/28/2023

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 160 of 254

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

26191 7590 11/30/2022
FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/446,046	08/26/2021	Werner Mohl	25955-0013005	7378

TITLE OF INVENTION: DEVICE TO ASSIST THE PERFORMANCE OF A HEART

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	02/28/2023

EXAMINER	ART UNIT	CLASS-SUBCLASS
MARLEN, TAMMIE K	3792	600-016000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 161 of 254

UNITED STATES PATENT AND TRADEMARK OFFICE

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Alexandria, Virginia 22313-1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/446,046	08/26/2021	Werner Mohl	25955-0013005	7378

26191 7590 11/30/2022

FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER	
MARLEN, TAMMIE K	
ART UNIT	PAPER NUMBER
3792	

DATE MAILED: 11/30/2022

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	**Application No.** 17/446,046	**Applicant(s)** Mohl, Werner	
	Examiner TAMMIE K MARLEN	**Art Unit** 3792	**AIA (FITF) Status** No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to the amendment and TD filed on 11/7/2022.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 2-21 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some* c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/TAMMIE K MARLEN/
Primary Examiner, Art Unit 3792

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Allowable Subject Matter

2. Claims 2-21 are allowed.

3. The following is a statement of reasons for the indication of allowable subject matter: It is the opinion of the examiner that the art of record (considered as a whole) neither anticipates nor renders obvious a system for assisting the blood circulation of a heart comprising a heart assist pump device deliverable to the heart and comprising: an inflow tube defining a blood inflow path aligned with a central axis; a magnetically driven rotor aligned with the central axis and that is rotatable about the central axis within a surrounding rotor housing to drive blood flowing from the inflow tube toward the magnetically driven rotor, the magnetically driven rotor being rigidly coupled and axially adjacent to a first magnetic device within the surrounding rotor housing; a second magnetic device axially aligned with the central axis and positioned to magnetically drive rotation of the magnetically driven rotor via a magneto coupling with the first magnetic device while both the magnetically driven rotor and first magnetic device are entirely spaced apart from the surrounding rotor housing by a gap sized for passage of the blood during rotation of the magnetically driven rotor; and a blood outflow port positioned radially adjacent the magnetically driven rotor such that the blood driven by the magnetically driven rotor exits the surrounding rotor housing in a direction substantially perpendicular to the central axis, wherein the magneto coupling orients the magnetically driven rotor so that the magnetically driven rotor remains adjacent to and spaced apart from the surrounding rotor housing by the blood flowing from the inflow tube and to the blood outflow port in combination with the rest of the claimed limitations set forth in claim 2 or a heart assist pump device deliverable to the heart and comprising: an inflow tube defining a blood inflow path along an inflow axis and being insertable into a left ventricle; one or more walls at least partially defining a chamber to receive blood from the inflow tube; a

magnetically driven rotor axially aligned with the inflow axis and being rigidly coupled and axially adjacent to a first magnetic device that is axially aligned with the inflow axis, the magnetically driven rotor and first magnetic device being rotatable about an axis of rotation aligned with the inflow axis to drive the blood flowing from the inflow tube; a magnetic drive system comprising a second magnetic device axially aligned with the inflow axis and spaced apart from the magnetically driven rotor such that a wall of the one or more walls defining the chamber is positioned between the magnetically driven rotor and the second magnetic device, the second magnetic device positioned axially closer to the first magnetic device than to the magnetically driven rotor so as to magnetically drive rotation of the magnetically driven rotor relative to the one or more walls via a magneto coupling with the first magnetic device; and a blood outflow port positioned such that the blood driven by the magnetically driven rotor exits the chamber in a direction substantially perpendicular to the inflow axis, wherein the magneto coupling orients the magnetically driven rotor so that both the magnetically driven rotor and the first magnetic device remain spaced apart from the one or more walls by the blood in response to rotation of the magnetically driven rotor port in combination with the rest of the claimed limitations set forth in claim 12.

4. While the prior art to Terentiev (U.S. 2001/0039369) discloses delivering a heart assist pump 10 to the heart, where the heart assist pump comprises an inflow tube 22, a magnetically driven rotor 26 rigidly coupled to a first magnetic device 27/28, and a second magnetic device 40 axially aligned with the inflow tube and positioned to magnetically drive rotation of the magnetically driven rotor via a magneto coupling with the first magnetic device (see Figure 1 and paragraph [0068]), Terentiev fails to disclose that the first magnetic device is located in a rotor housing that surrounds the magnetically driven rotor. Rather, the first magnetic device of Terentiev is integral with the magnetically driven rotor. The prior art to Akdis (U.S. 2011/0238172) which was cited by the Applicant discloses a structure very similar to Terentiev and likewise fails to disclose that the first magnetic device is located in a rotor housing that surrounds the magnetically driven rotor.

The prior art, neither alone nor in combination, anticipates nor renders obvious the claimed invention and no motivation is found to modify the prior art to obtain the claimed invention.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAMMIE K MARLEN whose telephone number is (571)272-1986. The examiner can normally be reached Monday through Friday from 8 am until 4 pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Layno can be reached on 571-272-4949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TAMMIE K MARLEN/
Primary Examiner, Art Unit 3792

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/446,046	Mohl, Werner
	Examiner	Art Unit
	TAMMIE K MARLEN	3792

CPC - Searched*		
Symbol	**Date**	**Examiner**
A61M60/40,405,148,135,422,857,205,833,414	10/03/2022	TKM
F04D13/027	10/03/2022	TKM
A61M1/101,1015,1008,1031,1032,1036,1029,122,125	10/03/2022	TKM
Updated above	11/18/2022	TKM

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
Inventor name and assignee search	10/03/2022	TKM
Text-limited and related application search -- see search history printout	10/03/2022	TKM
Similarity and "More Like This" search	10/04/2022	TKM
Updated above	11/18/2022	TKM

/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	

Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 168 of 254

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/446,046	Mohl, Werner
	Examiner	Art Unit
	TAMMIE K MARLEN	3792

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	PGPUB text search -- see interference search printout	11/18/2022	TKM

/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	

Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 169 of 254

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/446,046	Mohl, Werner
	Examiner	**Art Unit**
	TAMMIE K MARLEN	3792

CPC							
Symbol						**Type**	**Version**
F04D	/	13	/	027		F	2013-01-01
A61M	/	60	/	148		I	2021-01-01
A61M	/	60	/	405		I	2021-01-01
A61M	/	60	/	422		I	2021-01-01
A61M	/	60	/	17		I	2021-01-01
A61M	/	60	/	13		I	2021-01-01
A61M	/	60	/	237		I	2021-01-01
A61M	/	60	/	523		I	2021-01-01
A61M	/	60	/	861		I	2021-01-01
A61M	/	60	/	419		I	2021-01-01
A61M	/	60	/	414		A	2021-01-01
A61M	/	60	/	833		A	2021-01-01

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	18 November 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	2	2

U.S. Patent and Trademark Office — Part of Paper No.: 20221118

Abbott v. Miracor, IPR2025-00114
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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/446,046	Mohl, Werner
	Examiner	**Art Unit**
	TAMMIE K MARLEN	3792

INTERNATIONAL CLASSIFICATION				
CLAIMED				
A61M60/40	/	60	/	40

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 20	
/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792 (Primary Examiner) 18 November 2022 (Date)	O.G. Print Claim(s) 2	O.G. Print Figure 2

Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 171 of 254

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/446,046	Mohl, Werner
	Examiner	**Art Unit**
	TAMMIE K MARLEN	3792

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	18 November 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	2	2

U.S. Patent and Trademark Office Part of Paper No.: 20221118

Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 172 of 254

Bibliographic Data

Application No: 17/446,046

Foreign Priority claimed: (•) Yes ( ) No

35 USC 119 (a-d) conditions met: [✓] Yes [ ] No [ ] Met After Allowance

Verified and Acknowledged: /TAMMIE K MARLEN/ Examiner's Signature [ ] Initials

Title: DEVICE TO ASSIST THE PERFORMANCE OF A HEART

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
08/26/2021	600	3792	25955-0013005
RULE			

APPLICANTS

Miracor Medical SA, Awans, BELGIUM

INVENTORS

Werner Mohl, Altenmarkt-Thennenberg, AUSTRIA

CONTINUING DATA

This application is a CON of 16282948 02/22/2019 PAT 11123540

16282948 is a CON of 14454965 08/08/2014 PAT 10251984

14454965 is a CON of 13555318 07/23/2012 PAT 8801590

13555318 is a DIV of 12449632 08/18/2009 PAT 8255050

12449632 is a 371 of PCT/IB2008/000421 02/27/2008

FOREIGN APPLICATIONS

AUSTRIA ATA306/2007 02/27/2007

IF REQUIRED, FOREIGN LICENSE GRANTED**

09/02/2021

**** SMALL ENTITY ****

STATE OR COUNTRY

AUSTRIA

ADDRESS

FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022
UNITED STATES

FILING FEE RECEIVED

$1,020

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	17	((WERNER) near2 (MOHL)).INV.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2012/03/24 09:05 AM
L2	16	US-4674518-$.DID. OR US-5308319-$.DID. OR US-5449342-$.DID. OR US-5470208-$.DID. OR US-5964694-$.DID. OR US-6007478-$.DID. OR US-6155969-$.DID. OR US-6176848-$.DID. OR US-6506146-$.DID. OR US-6623475-$.DID. OR US-1011753-$.DID. OR US-1034808-$.DID. OR US-1187249-$.DID. OR WO-9737698-$.DID. OR WO-9737698101997-$.DID. OR WO-9915213-$.DID. OR WO-9915213041999-$.DID. OR WO-0044417-$.DID. OR WO-0044417082000-$.DID.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2012/03/24 09:06 AM
L4	1742	600/16-18.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 09:17 AM
L5	143	623/3.11,3.13.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 09:17 AM
L6	767	623/3.1-3.3.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 09:17 AM
L7	5	L6 and paddle	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 09:18 AM
L8	284	L6 and (hydraul$9 or pneumat$9)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 09:18 AM
L9	118	bedingham.in.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2012/03/24 09:25 AM
L10	1	("6245007").PN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2012/03/24 09:26 AM
L11	47	grundeman.in.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 09:26 AM
L12	226	L8 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 09:31 AM

L13	1742	600/16-18.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 11:41 AM
L14	143	623/3.11,3.13.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 11:41 AM
L15	767	623/3.1-3.3.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 11:41 AM
L16	2154	L13 L14 L15	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 11:41 AM
L17	710	L16 and (hydraul$9 or pneumat$9)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 11:41 AM
L18	500	L16 and (magnet or magneto)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 11:41 AM
L19	206	L17 and L18	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 11:41 AM
L20	284	L15 and (hydraul$9 or pneumat$9)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 11:41 AM
L21	104	L19 and L20	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 11:41 AM
L22	226	L20 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 11:41 AM
L23	82	L19 and L22	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 11:41 AM
L24	331	L16 and (drive with fluid$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 11:57 AM
L25	6	L16 and (drive with (wheel and fluid$6))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 11:57 AM
L26	130	nappholz.in.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 12:06 PM
L27	9	"2287249"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 12:10 PM
L28	12	"1187249"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 12:10 PM
L29	20	(US-20080214888-$ or US-20060009672-$).did. or (US-6506146-$ or US-6176848-$ or US-6155969-$ or US-	(US-PGPUB; USPAT)	OR	ON	ON	2012/03/24 01:03 PM

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		5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$).did.					
L30	12	L29 and balloon	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 01:03 PM
L31	1780	600/16-18.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/06/29 01:03 PM
L32	147	623/3.11,3.13.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/06/29 01:03 PM
L33	781	623/3.1-3.3.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/06/29 01:03 PM
L34	2181	L31 L32 L33	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2012/06/29 01:03 PM
L35	95	L34 and rotor and magnet$8 and balloon	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2012/06/29 01:04 PM
L36	79	L35 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/06/29 01:04 PM
L37	79	(US-20080214888-$ or US-20090069854-$ or US-20090005632-$ or US-20060241335-$ or US-20060155158-$ or US-20060100565-$ or US-20060069299-$ or US-20060014999-$ or US-20050107658-$ or US-20050085772-$ or US-20050004421-$ or US-20030144574-$ or US-20020147495-$).did. or (US-6508787-$ or US-7988614-$ or US-7896832-$ or US-7766812-$ or US-7722523-$ or US-7695425-$ or US-7614997-$ or US-7591778-$ or US-	(US-PGPUB; USPAT)	OR	ON	ON	2012/06/29 01:05 PM

		7588531-$ or US- 7588530-$ or US- 7520850-$ or US- 7513863-$ or US- 7458929-$ or US- 7445592-$ or US- 7331921-$ or US- 7264606-$ or US- 7247134-$ or US- 7189199-$ or US- 7182727-$ or US- 7144365-$ or US- 7125376-$ or US- 7112219-$ or US- 7011620-$ or US- 6976996-$ or US- 6974436-$ or US- 6858001-$).did. or (US- 6808488-$ or US- 6808482-$ or US- 6793618-$ or US- 6755777-$ or US- 6685621-$ or US- 6629921-$ or US- 6610004-$ or US- 6589160-$ or US- 6514194-$ or US- 6440059-$ or US- 6428464-$ or US- 6406420-$ or US- 6402679-$ or US- 6390969-$ or US- 6387037-$ or US- 6332864-$ or US- 6332863-$ or US- 6299575-$ or US- 6261222-$ or US- 6260552-$ or US- 6200260-$ or US- 6183411-$ or US- 6165120-$ or US- 6165119-$ or US- 6162168-$ or US- 6162167-$ or US- 6123725-$).did. or (US- 6083260-$ or US- 6059715-$ or US- 6050936-$ or US- 6045497-$ or US- 5964694-$ or US- 5961440-$ or US- 5921913-$ or US- 5911685-$ or US- 5711753-$ or US- 5513956-$ or US- 5092879-$ or US- 4994078-$ or US- 4925443-$).did.					

L38	79	L37 and balloon	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2012/06/29 01:08 PM
L39	1780	600/16-18.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/06/29 01:53 PM
L40	147	623/3.11,3.13.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/06/29 01:53 PM
L41	781	623/3.1-3.3.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/06/29 01:53 PM
L42	2202	L39 L40 L41	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/06/29 01:53 PM
L43	6	L42 and (drive with (wheel and fluid$6))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/06/29 01:53 PM
L45	34	((WERNER) near2 (MOHL)).INV.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2013/07/11 09:26 AM
L46	19	US-20080214888-$.DID. OR US-4674518-$.DID. OR US-5308319-$.DID. OR US-5449342-$.DID. OR US-5470208-$.DID. OR US-5964694-$.DID. OR US-6007478-$.DID. OR US-6155969-$.DID. OR US-6176848-$.DID. OR US-6506146-$.DID. OR US-6508787-$.DID. OR US-6623475-$.DID. OR US-7699586-$.DID. OR US-1011753-$.DID. OR US-1034808-$.DID. OR US-1187249-$.DID. OR WO-9737698-$.DID. OR WO-9737698101997-$.DID. OR WO-9915213-$.DID. OR WO-9915213041999-$.DID. OR WO-0044417-$.DID. OR WO-0044417082000-$.DID.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2013/07/11 09:27 AM
L50	1929	600/16-18.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2013/07/11 09:52 AM
L51	158	623/3.11,3.13.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2013/07/11 09:52 AM
L52	814	623/3.1-3.3.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2013/07/11 09:52 AM

L53	2373	L50 L51 L52	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2013/07/11 09:52 AM
L54	584	L53 and (magnet or magneto)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2013/07/11 09:52 AM
L55	790	L53 and (hydraul$9 or pneumat$9)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2013/07/11 09:52 AM
L56	43	((WERNER) near2 (MOHL)).INV.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2014/01/09 12:17 PM
L57	20	(US-20080214888-$ or US-20060009672-$).did. or (US-6506146-$ or US-6176848-$ or US-6155969-$ or US-5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$).did.	(US-PGPUB; USPAT)	OR	ON	ON	2014/01/09 12:32 PM
L58	19	L57 and (sens$6 control$4 controlled$4 controlling$4 controller$4 regulat$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/01/09 12:32 PM
L59	2391	600/16-18.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:48 AM
L60	209	623/3.11,3.13.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:48 AM
L61	949	623/3.1-3.3.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:48 AM
L62	2895	L59 L60 L61	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:48 AM
L63	1051	L62 and balloon	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:49 AM
L64	753	L63 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:49 AM
L65	2391	600/16-18.ccls.	(US-PGPUB; USPAT;	OR	ON	ON	2014/03/21

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			USOCR; EPO; JPO; DERWENT)				07:51 AM
L66	209	623/3.11,3.13.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L67	949	623/3.1-3.3.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L68	2895	L65 L66 L67	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L69	659	L68 and (magnet or magneto)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L70	856	L68 and (hydraul$9 or pneumat$9)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L71	265	L69 and L70 and (sens$6 control$4 controlled$4 controlling$4 controller$4 regulat$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L72	56	L64 and L71	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L73	56	L64 and L71	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L74	344	L62 and (balloon same catheter same (valv$5 close closed closing closure seal$6))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:56 AM
L75	242	L74 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:57 AM
L76	242	L74 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:57 AM
L77	242	L76 and (balloon same catheter same (valv$5 close closed closing closure seal$6))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 08:00 AM
L79	51	((Werner) near2 (Mohl)).INV.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2015/05/14 08:48 AM
L80	13	US-20080214888-$.DID. OR US-4674518-$.DID. OR US-5308319-$.DID. OR US-5449342-$.DID. OR US-5470208-$.DID. OR US-5964694-$.DID. OR US-6007478-$.DID. OR US-6155969-$.DID. OR	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2015/05/14 08:53 AM

		US-6176848-$.DID. OR US-6506146-$.DID. OR US-6508787-$.DID. OR US-6623475-$.DID. OR US-7699586-$.DID.					
L92	4498	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L93	1160	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L94	917	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L95	967	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L96	68	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L97	801	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L98	121	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L99	3143	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L100	1476	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L101	6925	L92 L93 L94 L95 L96 L97 L98 L99 L100	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:05 AM
L102	54	L101 and magneto	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:05 AM
L103	2326	L101 and magnet$6	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:09 AM
L104	1409	L103 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:10 AM
L105	4687	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L106	1210	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L107	994	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM

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L108	1015	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L109	90	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L110	833	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L111	172	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L112	3360	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L113	1586	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L114	7327	L105 L106 L107 L108 L109 L110 L111 L112 L113	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L115	2426	L114 and magnet$6	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L116	1412	L115 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L117	318	L116 and (shaft with (rotate rotates rotating rotated rotation))	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:29 AM
L118	318	L116 and (shaft with (rotate rotates rotating rotated rotation))	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:30 AM
L119	20	(US-20080214888-$ or US-20060009672-$).did. or (US-6506146-$ or US-6176848-$ or US-6155969-$ or US-5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$).did.	(US-PGPUB; USPAT)	OR	ON	ON	2015/09/30 11:22 AM
L120	20	(US-20080214888-$ or	(US-PGPUB; USPAT)	OR	ON	ON	2015/09/30

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		US-20060009672-$).did. or (US-6506146-$ or US-6176848-$ or US-6155969-$ or US-5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$).did.					12:31 PM
L121	16	L120 and (hydraul$9 or pneumat$9)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:31 PM
L122	16	L120 and (hydraul$9 or pneumat$9)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:32 PM
L123	9	L120 and ((hydraul$9 or pneumat$9) with (drive paddle))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:35 PM
L124	12	L120 and ((hydraul$9 or pneumat$9 or fluid) with (drive paddle))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:37 PM
L125	4687	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L126	1210	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L127	994	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L128	1015	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L129	90	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L130	833	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L131	172	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L132	3360	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	ON	2015/09/30 12:42 PM

			JPO; DERWENT)				
L133	1586	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L134	7327	L125 L126 L127 L128 L129 L130 L131 L132 L133	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L135	147	L134 and ((hydraul$9 or pneumat$9) with (drive paddle))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L136	81	L135 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:58 PM
L137	15	L134 and (((hydraul$9 or pneumat$9) with (drive paddle)) same magnet$6) and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 01:22 PM
L138	21	(US-20080214888-$ or US-20060009672-$).did. or (US-6506146-$ or US-6176848-$ or US-6155969-$ or US-5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$ or US-6083260-$).did.	(US-PGPUB; USPAT)	OR	ON	ON	2016/05/11 01:11 PM
L139	9	L138 and (fluid$6 with (drive driven drived driving))	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2016/05/11 01:12 PM
L142	7	((("MIRACOR") near3 ("MEDICAL") near3 ("SA"))).AS,AANM.	(USPAT)	OR	ON	ON	2020/08/26 01:24 PM
L144	16	("20080214888"|"4674518"|"5308319"|"5449342"|"5470208"|"5964694"|"6007478"|"6083260"|"6155969"|"6176848"|"6506146"|"6508787"|"6540658"|"6623475"|"7699586"|"8255050").PN.	(US-PGPUB; USPAT)	OR	ON	ON	2020/08/26 01:26 PM
L145	10275	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	ON	2020/08/26 01:27 PM

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			JPO; DERWENT)				
L146	2559	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L147	7014	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L148	3739	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L149	315	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L150	2288	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L151	1463	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L152	13127	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L153	5858	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L154	18242	L145 L146 L147 L148 L149 L150 L151 L152 L153	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L155	368	L154 and ((hydraul$9 or pneumat$9) with (drive paddle))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L156	187	L155 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L157	10280	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L158	2560	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L159	7017	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L160	3741	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L161	315	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L162	2288	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM

L163	1463	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L164	13128	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L165	5863	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L166	18248	L157 L158 L159 L160 L161 L162 L163 L164 L165	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L167	368	L166 and ((hydraul$9 or pneumat$9) with (drive paddle))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L168	187	L167 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L169	92	((("MOHL") near3 ("Werner"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:23 PM
L170	4	"37698" and thorsten	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 01:16 PM
L171	21	(US-20080214888-$ or US-20060009672-$).did. or (US-6506146-$ or US-6176848-$ or US-6155969-$ or US-5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$ or US-6083260-$).did.	(US-PGPUB; USPAT)	OR	ON	ON	2020/08/27 01:45 PM
L172	18	L171 and (hydraul$9 or pneumat$9 or ((drive drived drove driving) near3 fluid))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 01:46 PM
L173	2	(("20030100816") or ("20010031210")).PN.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2020/08/27 03:58 PM
L174	18	(US-20030100816-$ or US-20010031210-$ or US-20110238172-	(US-PGPUB; USPAT)	OR	ON	ON	2020/08/27 04:01 PM

		$).did. or (US-6942611-$ or US-6981942-$ or US-5613935-$ or US-5964694-$ or US-7070398-$ or US-6201329-$ or US-7229258-$ or US-6447266-$ or US-6244835-$ or US-6717311-$ or US-5928131-$ or US-6293901-$ or US-6074180-$ or US-6220832-$ or US-6716157-$).did.					
L175	9	L174 and (hydraul$9 or pneumat$9 or ((drive drived drove driving) near3 fluid))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 04:02 PM
L176	330	seiss.in.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:12 PM
L177	385	antaki.in.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:13 PM
L178	715	L176 L177	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:13 PM
L179	121	L178 and a61m$.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:14 PM
L180	1086	siess.in.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:16 PM
L181	713	L180 and a61m$.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:16 PM
L182	61	L181 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:22 PM
L183	18	L182 and (magnet magneto magnetic$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:24 PM
L184	1	(12/376549).APP.	(USPAT; USOCR)	OR	ON	ON	2020/10/05 12:57 PM
L185	1346	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L186	307	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L187	880	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM

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L188	460	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L189	36	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L190	337	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L191	245	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L192	1756	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L193	771	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L194	2499	L185 L186 L187 L188 L189 L190 L191 L192 L193	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L195	453	L194 and (magnet magneto magnetic$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L196	8251	A61M60/40.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L197	314	A61M60/405.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L198	12179	A61M60/148.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L199	19152	A61M60/40,405,148,135,422,857,205,833,414.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L200	1632	F04D13/027.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L201	22816	L194 L196 L197 L198 L199 L200	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L202	4191	L201 and (magnet magneto magnetic$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L203	1346	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L204	307	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L205	880	A61M1/1008.cpc.	(US-PGPUB; USPAT;	OR	ON	ON	2021/05/12

			USOCR; FPRS; EPO; JPO; DERWENT)				11:57 AM
L206	460	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L207	36	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L208	337	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L209	245	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L210	1756	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L211	771	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L212	2499	L203 L204 L205 L206 L207 L208 L209 L210 L211	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L213	8251	A61M60/40.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L214	314	A61M60/405.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L215	12179	A61M60/148.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L216	19152	A61M60/40,405,148,135,422,857,205,833,414.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L217	1632	F04D13/027.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L218	22816	L212 L213 L214 L215 L216 L217	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L219	4191	L218 and (magnet magneto magnetic$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L220	3601	L219 and blood	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L221	1031	L220 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:58 AM
L222	1031	L220 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO;	OR	ON	ON	2021/05/12 12:00 PM

			DERWENT)				
L223	15	((("MIRACOR") near3 ("MEDICAL") near3 ("SA"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/10/03 02:57 PM
L224	110	((("MOHL") near3 ("Werner"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/10/03 02:57 PM
L225	19	("20010039369" OR "20080214888" OR "20110238172" OR "4674518" OR "5308319" OR "5449342" OR "5470208" OR "5964694" OR "6007478" OR "6083260" OR "6155969" OR "6176848" OR "6506146" OR "6508787" OR "6540658" OR "6623475" OR "7699586" OR "8255050" OR "9616157").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2022/10/03 02:57 PM
L226	16846	A61M60/237,17,405,148,13,422,861,523,833,414.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2022/10/03 03:01 PM
L227	2496	F04D13/027.cpc.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/10/03 03:01 PM
L228	42	(Artificial Intelligence) Similar to: Publication Status Unavailable from Similarity Search Text: (US-11123540-B2 OR US-11351356-B2 OR US-11351357-B2 OR US-20220111194-A1 OR US-11376415-B2	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE,	OR	ON	ON	2022/10/04 09:20 AM

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		OR US-20220118242-A1 OR US-20220080181-A1 OR US-20220111195-A1 OR EP-2114484-A2 OR WO-2008104858-A2 OR EP-2114484-B1 OR US-20120316383-A1 OR US-8801590-B2 OR US-20140350328-A1 OR AT-504990-B1 OR CN-101678158-A OR US-8255050-B2 OR US-20110009687-A1 OR AT-504990-A1 OR ES-2371128-T3 OR PT-2114484-E OR JP-5274485-B2 OR JP-2010519001-A OR WO-2008104858-A3 OR US-20190184080-A1 OR US-10251984-B2 OR US-20210038792-A1 OR DE-2200599-B1 OR DE-2200599-C2 OR US-20210252276-A1 OR US-20010039369-A1 OR GB-1383811-A OR AU-2018301507-A1 OR US-20190015569-A1 OR WO-2019014626-A1 OR EP-3651825-A1 OR WO-2008017289-A3 OR EP-1113177-A3 OR EP-1113177-A2 OR US-6575717-B2 OR US-20010016170-A1 OR EP-1113177-B1 OR CN-107252504-B OR JP-2017164503-A OR US-20220042511-A1 OR AU-2017272906-B2 OR EP-3693038-A1 OR DE-60006926-T2 OR DE-102010011998-A1 OR EP-3854443-A1).did.	SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO))				
L229	26	(Artificial Intelligence) More like doc: US-20220080181-A1 Text: (US-11123540-B2 OR US-11351357-B2 OR US-11351356-B2 OR US-11376415-B2 OR US-20220111194-A1	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO,	OR	ON	ON	2022/10/04 03:18 PM

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		OR US-20220118242-A1 OR US-20220111195-A1 OR US-20120316383-A1 OR EP-2114484-A2 OR WO-2008104858-A2 OR US-8801590-B2 OR US-20140350328-A1 OR EP-2114484-B1 OR US-8255050-B2 OR US-20110009687-A1 OR JP-2010519001-A OR CN-101678158-A OR US-20190184080-A1 OR US-10251984-B2 OR JP-5274485-B2).did.	NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L230	17621	A61M60/237,17,405,148,13,422,861,523,833,414.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2022/11/18 02:34 PM
L231	2511	F04D13/027.cpc.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/11/18 02:35 PM
L232	42	(Artificial Intelligence) Similar to: 17/446,046 with 0 CPC Selections and 0 Text Selections Text: (US-11123540-B2 OR US-11351356-B2 OR US-11351357-B2 OR US-20220111194-A1 OR US-11376415-B2 OR US-20220118242-A1 OR US-20220080181-A1 OR US-20220111195-A1 OR EP-2114484-A2 OR WO-2008104858-A2 OR EP-2114484-B1 OR US-20120316383-A1 OR US-8801590-B2 OR US-20140350328-A1	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO))	OR	ON	ON	2022/11/18 02:35 PM

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		OR AT-504990-B1 OR CN-101678158-A OR US-8255050-B2 OR US-20110009687-A1 OR AT-504990-A1 OR ES-2371128-T3 OR PT-2114484-E OR JP-5274485-B2 OR JP-2010519001-A OR WO-2008104858-A3 OR US-20190184080-A1 OR US-10251984-B2 OR US-20210038792-A1 OR DE-2200599-B1 OR DE-2200599-C2 OR US-20210252276-A1 OR US-20010039369-A1 OR GB-1383811-A OR AU-2018301507-A1 OR US-20190015569-A1 OR WO-2019014626-A1 OR EP-3651825-A1 OR WO-2008017289-A3 OR EP-1113177-A3 OR EP-1113177-A2 OR US-6575717-B2 OR US-20010016170-A1 OR EP-1113177-B1 OR CN-107252504-B OR JP-2017164503-A OR US-20220042511-A1 OR AU-2017272906-B2 OR EP-3693038-A1 OR DE-60006926-T2 OR DE-102010011998-A1 OR EP-3854443-A1).did.					
L233	26	(Artificial Intelligence) More like doc: US-20220080181-A1 Text: (US-11123540-B2 OR US-11351357-B2 OR US-11351356-B2 OR US-11376415-B2 OR US-20220111194-A1 OR US-20220118242-A1 OR US-20220111195-A1 OR US-20120316383-A1 OR WO-2008104858-A2 OR EP-2114484-A2 OR US-8801590-B2 OR US-20140350328-A1 OR EP-2114484-B1 OR US-8255050-B2 OR	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/11/18 02:35 PM

		US-20110009687-A1 OR JP-2010519001-A OR CN-101678158-A OR US-20190184080-A1 OR US-10251984-B2 OR JP-5274485-B2).did.					

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N44	1	(catheter AND pump AND rotor AND magnet$9 AND (hydraul$9 or pneumat$9) AND lumen AND balloon).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2012/06/29 01:54 PM
N78	3	(catheter AND pump AND rotor AND magnet$9 AND (hydraul$9 or pneumat$9) AND lumen AND balloon).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2014/03/21 09:03 AM
N140	53	(catheter AND pump AND rotor AND magnet$9).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2018/11/14 01:21 PM
N141	10	(catheter AND pump AND rotor AND magnet$9 AND sens$9).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2018/11/14 01:21 PM
N223	220	(pump AND rotor AND magnet$9 AND blood AND control$6).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/05/13 03:04 PM
N224	6	(pump AND rotor AND magneto AND blood AND control$6).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/05/13 03:05 PM
N225	14	(pump AND rotor AND magneto AND blood AND control$6).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2022/11/18 02:35 PM

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/446,046	08/26/2021	Werner Mohl	25955-0013005	7378

26191 7590 12/07/2022

FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER	
MARLEN, TAMMIE K	

ART UNIT	PAPER NUMBER
3792	

NOTIFICATION DATE	DELIVERY MODE
12/07/2022	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Corrected ***Notice of Allowability***	**Application No.** 17/446,046	**Applicant(s)** Mohl, Werner	
	Examiner TAMMIE K MARLEN	**Art Unit** 3792	**AIA (FITF) Status** No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to the amendment and TD filed on 11/7/2022.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 2-21 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☑ All b) ☐ Some* c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☑ Certified copies of the priority documents have been received in Application No. 12/449,632 .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/TAMMIE K MARLEN/
Primary Examiner, Art Unit 3792

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DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Allowable Subject Matter

2. Claims 2-21 are allowed.

3. The following is a statement of reasons for the indication of allowable subject matter: It is the opinion of the examiner that the art of record (considered as a whole) neither anticipates nor renders obvious a system for assisting the blood circulation of a heart comprising a heart assist pump device deliverable to the heart and comprising: an inflow tube defining a blood inflow path aligned with a central axis; a magnetically driven rotor aligned with the central axis and that is rotatable about the central axis within a surrounding rotor housing to drive blood flowing from the inflow tube toward the magnetically driven rotor, the magnetically driven rotor being rigidly coupled and axially adjacent to a first magnetic device within the surrounding rotor housing; a second magnetic device axially aligned with the central axis and positioned to magnetically drive rotation of the magnetically driven rotor via a magneto coupling with the first magnetic device while both the magnetically driven rotor and first magnetic device are entirely spaced apart from the surrounding rotor housing by a gap sized for passage of the blood during rotation of the magnetically driven rotor; and a blood outflow port positioned radially adjacent the magnetically driven rotor such that the blood driven by the magnetically driven rotor exits the surrounding rotor housing in a direction substantially perpendicular to the central axis, wherein the magneto coupling orients the magnetically driven rotor so that the magnetically driven rotor remains adjacent to and spaced apart from the surrounding rotor housing by the blood flowing from the inflow tube and to the blood outflow port in combination with the rest of the claimed limitations set forth in claim 2 or a heart assist pump device deliverable to the heart and comprising: an inflow tube defining a blood inflow path along an inflow axis and being insertable into a left ventricle; one or more walls at least partially defining a chamber to receive blood from the inflow tube; a

magnetically driven rotor axially aligned with the inflow axis and being rigidly coupled and axially adjacent to a first magnetic device that is axially aligned with the inflow axis, the magnetically driven rotor and first magnetic device being rotatable about an axis of rotation aligned with the inflow axis to drive the blood flowing from the inflow tube; a magnetic drive system comprising a second magnetic device axially aligned with the inflow axis and spaced apart from the magnetically driven rotor such that a wall of the one or more walls defining the chamber is positioned between the magnetically driven rotor and the second magnetic device, the second magnetic device positioned axially closer to the first magnetic device than to the magnetically driven rotor so as to magnetically drive rotation of the magnetically driven rotor relative to the one or more walls via a magneto coupling with the first magnetic device; and a blood outflow port positioned such that the blood driven by the magnetically driven rotor exits the chamber in a direction substantially perpendicular to the inflow axis, wherein the magneto coupling orients the magnetically driven rotor so that both the magnetically driven rotor and the first magnetic device remain spaced apart from the one or more walls by the blood in response to rotation of the magnetically driven rotor port in combination with the rest of the claimed limitations set forth in claim 12.

4. While the prior art to Terentiev (U.S. 2001/0039369) discloses delivering a heart assist pump 10 to the heart, where the heart assist pump comprises an inflow tube 22, a magnetically driven rotor 26 rigidly coupled to a first magnetic device 27/28, and a second magnetic device 40 axially aligned with the inflow tube and positioned to magnetically drive rotation of the magnetically driven rotor via a magneto coupling with the first magnetic device (see Figure 1 and paragraph [0068]), Terentiev fails to disclose that the first magnetic device is located in a rotor housing that surrounds the magnetically driven rotor. Rather, the first magnetic device of Terentiev is integral with the magnetically driven rotor. The prior art to Akdis (U.S. 2011/0238172) which was cited by the Applicant discloses a structure very similar to Terentiev and likewise fails to disclose that the first magnetic device is located in a rotor housing that surrounds the magnetically driven rotor.

The prior art, neither alone nor in combination, anticipates nor renders obvious the claimed invention and no motivation is found to modify the prior art to obtain the claimed invention.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAMMIE K MARLEN whose telephone number is (571)272-1986. The examiner can normally be reached Monday through Friday from 8 am until 4 pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Layno can be reached on 571-272-4949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TAMMIE K MARLEN/
Primary Examiner, Art Unit 3792

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/446,046	Mohl, Werner
	Examiner	**Art Unit**
	TAMMIE K MARLEN	3792

CPC							
Symbol						**Type**	**Version**
F04D	/	13	/	027		F	2013-01-01
A61M	/	60	/	148		I	2021-01-01
A61M	/	60	/	405		I	2021-01-01
A61M	/	60	/	422		I	2021-01-01
A61M	/	60	/	17		I	2021-01-01
A61M	/	60	/	13		I	2021-01-01
A61M	/	60	/	237		I	2021-01-01
A61M	/	60	/	523		I	2021-01-01
A61M	/	60	/	861		I	2021-01-01
A61M	/	60	/	419		I	2021-01-01
A61M	/	60	/	414		A	2021-01-01
A61M	/	60	/	833		A	2021-01-01

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	01 December 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	2	2

U.S. Patent and Trademark Office — Part of Paper No.: 20221201

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/446,046	Mohl, Werner
	Examiner	**Art Unit**
	TAMMIE K MARLEN	3792

INTERNATIONAL CLASSIFICATION				
CLAIMED				
A61M60/40	/	60	/	40

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 20	
/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792 (Primary Examiner) 01 December 2022 (Date)	O.G. Print Claim(s) 2	O.G. Print Figure 2

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/446,046	Mohl, Werner
	Examiner	**Art Unit**
	TAMMIE K MARLEN	3792

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 20	
/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792 (Primary Examiner)	01 December 2022 (Date)	O.G. Print Claim(s) 2	O.G. Print Figure 2

U.S. Patent and Trademark Office — Part of Paper No.: 20221201

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/446,046	Mohl, Werner
	Examiner	Art Unit
	TAMMIE K MARLEN	3792

CPC - Searched*		
Symbol	**Date**	**Examiner**
A61M60/40,405,148,135,422,857,205,833,414	10/03/2022	TKM
F04D13/027	10/03/2022	TKM
A61M1/101,1015,1008,1031,1032,1036,1029,122,125	10/03/2022	TKM
Updated above	11/18/2022	TKM

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
Inventor name and assignee search	10/03/2022	TKM
Text-limited and related application search -- see search history printout	10/03/2022	TKM
Similarity and "More Like This" search	10/04/2022	TKM
Updated above	11/18/2022	TKM

/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/446,046	Mohl, Werner
	Examiner	Art Unit
	TAMMIE K MARLEN	3792

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	PGPUB text search -- see interference search printout	11/18/2022	TKM

/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	

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PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	17	((WERNER) near2 (MOHL)).INV.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2012/03/24 09:05 AM
L2	16	US-4674518-$.DID. OR US-5308319-$.DID. OR US-5449342-$.DID. OR US-5470208-$.DID. OR US-5964694-$.DID. OR US-6007478-$.DID. OR US-6155969-$.DID. OR US-6176848-$.DID. OR US-6506146-$.DID. OR US-6623475-$.DID. OR US-1011753-$.DID. OR US-1034808-$.DID. OR US-1187249-$.DID. OR WO-9737698-$.DID. OR WO-9737698101997-$.DID. OR WO-9915213-$.DID. OR WO-9915213041999-$.DID. OR WO-0044417-$.DID. OR WO-0044417082000-$.DID.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2012/03/24 09:06 AM
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L6	767	623/3.1-3.3.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 09:17 AM
L7	5	L6 and paddle	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 09:18 AM
L8	284	L6 and (hydraul$9 or pneumat$9)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 09:18 AM
L9	118	bedingham.in.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2012/03/24 09:25 AM
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L12	226	L8 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 09:31 AM

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L18	500	L16 and (magnet or magneto)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 11:41 AM
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L24	331	L16 and (drive with fluid$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 11:57 AM
L25	6	L16 and (drive with (wheel and fluid$6))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 11:57 AM
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L27	9	"2287249"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/03/24 12:10 PM
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		5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$).did.					
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L33	781	623/3.1-3.3.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2012/06/29 01:03 PM
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		7588531-$ or US- 7588530-$ or US- 7520850-$ or US- 7513863-$ or US- 7458929-$ or US- 7445592-$ or US- 7331921-$ or US- 7264606-$ or US- 7247134-$ or US- 7189199-$ or US- 7182727-$ or US- 7144365-$ or US- 7125376-$ or US- 7112219-$ or US- 7011620-$ or US- 6976996-$ or US- 6974436-$ or US- 6858001-$).did. or (US- 6808488-$ or US- 6808482-$ or US- 6793618-$ or US- 6755777-$ or US- 6685621-$ or US- 6629921-$ or US- 6610004-$ or US- 6589160-$ or US- 6514194-$ or US- 6440059-$ or US- 6428464-$ or US- 6406420-$ or US- 6402679-$ or US- 6390969-$ or US- 6387037-$ or US- 6332864-$ or US- 6332863-$ or US- 6299575-$ or US- 6261222-$ or US- 6260552-$ or US- 6200260-$ or US- 6183411-$ or US- 6165120-$ or US- 6165119-$ or US- 6162168-$ or US- 6162167-$ or US- 6123725-$).did. or (US- 6083260-$ or US- 6059715-$ or US- 6050936-$ or US- 6045497-$ or US- 5964694-$ or US- 5961440-$ or US- 5921913-$ or US- 5911685-$ or US- 5711753-$ or US- 5513956-$ or US- 5092879-$ or US- 4994078-$ or US- 4925443-$).did.					

L38	79	L37 and balloon	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2012/06/29 01:08 PM
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L45	34	((WERNER) near2 (MOHL)).INV.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2013/07/11 09:26 AM
L46	19	US-20080214888-$.DID. OR US-4674518-$.DID. OR US-5308319-$.DID. OR US-5449342-$.DID. OR US-5470208-$.DID. OR US-5964694-$.DID. OR US-6007478-$.DID. OR US-6155969-$.DID. OR US-6176848-$.DID. OR US-6506146-$.DID. OR US-6508787-$.DID. OR US-6623475-$.DID. OR US-7699586-$.DID. OR US-1011753-$.DID. OR US-1034808-$.DID. OR US-1187249-$.DID. OR WO-9737698-$.DID. OR WO-9737698101997-$.DID. OR WO-9915213-$.DID. OR WO-9915213041999-$.DID. OR WO-0044417-$.DID. OR WO-0044417082000-$.DID.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2013/07/11 09:27 AM
L50	1929	600/16-18.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2013/07/11 09:52 AM
L51	158	623/3.11,3.13.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2013/07/11 09:52 AM
L52	814	623/3.1-3.3.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2013/07/11 09:52 AM

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L53	2373	L50 L51 L52	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2013/07/11 09:52 AM
L54	584	L53 and (magnet or magneto)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2013/07/11 09:52 AM
L55	790	L53 and (hydraul$9 or pneumat$9)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2013/07/11 09:52 AM
L56	43	((WERNER) near2 (MOHL)).INV.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2014/01/09 12:17 PM
L57	20	(US-20080214888-$ or US-20060009672-$).did. or (US-6506146-$ or US-6176848-$ or US-6155969-$ or US-5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$).did.	(US-PGPUB; USPAT)	OR	ON	ON	2014/01/09 12:32 PM
L58	19	L57 and (sens$6 control$4 controlled$4 controlling$4 controller$4 regulat$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/01/09 12:32 PM
L59	2391	600/16-18.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:48 AM
L60	209	623/3.11,3.13.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:48 AM
L61	949	623/3.1-3.3.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:48 AM
L62	2895	L59 L60 L61	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:48 AM
L63	1051	L62 and balloon	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:49 AM
L64	753	L63 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:49 AM
L65	2391	600/16-18.ccls.	(US-PGPUB; USPAT;	OR	ON	ON	2014/03/21

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			USOCR; EPO; JPO; DERWENT)				07:51 AM
L66	209	623/3.11,3.13.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L67	949	623/3.1-3.3.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L68	2895	L65 L66 L67	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L69	659	L68 and (magnet or magneto)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L70	856	L68 and (hydraul$9 or pneumat$9)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L71	265	L69 and L70 and (sens$6 control$4 controlled$4 controlling$4 controller$4 regulat$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L72	56	L64 and L71	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L73	56	L64 and L71	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:51 AM
L74	344	L62 and (balloon same catheter same (valv$5 close closed closing closure seal$6))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:56 AM
L75	242	L74 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:57 AM
L76	242	L74 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 07:57 AM
L77	242	L76 and (balloon same catheter same (valv$5 close closed closing closure seal$6))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2014/03/21 08:00 AM
L79	51	((Werner) near2 (Mohl)).INV.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2015/05/14 08:48 AM
L80	13	US-20080214888-$.DID. OR US-4674518-$.DID. OR US-5308319-$.DID. OR US-5449342-$.DID. OR US-5470208-$.DID. OR US-5964694-$.DID. OR US-6007478-$.DID. OR US-6155969-$.DID. OR	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2015/05/14 08:53 AM

		US-6176848-$.DID. OR US-6506146-$.DID. OR US-6508787-$.DID. OR US-6623475-$.DID. OR US-7699586-$.DID.					
L92	4498	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L93	1160	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L94	917	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L95	967	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L96	68	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L97	801	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L98	121	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L99	3143	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L100	1476	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:04 AM
L101	6925	L92 L93 L94 L95 L96 L97 L98 L99 L100	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:05 AM
L102	54	L101 and magneto	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:05 AM
L103	2326	L101 and magnet$6	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:09 AM
L104	1409	L103 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/05/14 09:10 AM
L105	4687	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L106	1210	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L107	994	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM

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L108	1015	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L109	90	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L110	833	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L111	172	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L112	3360	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L113	1586	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L114	7327	L105 L106 L107 L108 L109 L110 L111 L112 L113	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L115	2426	L114 and magnet$6	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L116	1412	L115 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:27 AM
L117	318	L116 and (shaft with (rotate rotates rotating rotated rotation))	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:29 AM
L118	318	L116 and (shaft with (rotate rotates rotating rotated rotation))	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 08:30 AM
L119	20	(US-20080214888-$ or US-20060009672-$).did. or (US-6506146-$ or US-6176848-$ or US-6155969-$ or US-5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$).did.	(US-PGPUB; USPAT)	OR	ON	ON	2015/09/30 11:22 AM
L120	20	(US-20080214888-$ or	(US-PGPUB; USPAT)	OR	ON	ON	2015/09/30

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		US-20060009672-$).did. or (US-6506146-$ or US-6176848-$ or US-6155969-$ or US-5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$).did.					12:31 PM
L121	16	L120 and (hydraul$9 or pneumat$9)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:31 PM
L122	16	L120 and (hydraul$9 or pneumat$9)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:32 PM
L123	9	L120 and ((hydraul$9 or pneumat$9) with (drive paddle))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:35 PM
L124	12	L120 and ((hydraul$9 or pneumat$9 or fluid) with (drive paddle))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:37 PM
L125	4687	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L126	1210	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L127	994	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L128	1015	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L129	90	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L130	833	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L131	172	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L132	3360	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	ON	2015/09/30 12:42 PM

			JPO; DERWENT)				
L133	1586	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L134	7327	L125 L126 L127 L128 L129 L130 L131 L132 L133	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L135	147	L134 and ((hydraul$9 or pneumat$9) with (drive paddle))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:42 PM
L136	81	L135 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 12:58 PM
L137	15	L134 and (((hydraul$9 or pneumat$9) with (drive paddle)) same magnet$6) and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2015/09/30 01:22 PM
L138	21	(US-20080214888-$ or US-20060009672-$).did. or (US-6506146-$ or US-6176848-$ or US-6155969-$ or US-5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$ or US-6083260-$).did.	(US-PGPUB; USPAT)	OR	ON	ON	2016/05/11 01:11 PM
L139	9	L138 and (fluid$6 with (drive driven drived driving))	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2016/05/11 01:12 PM
L142	7	((("MIRACOR") near3 ("MEDICAL") near3 ("SA"))).AS,AANM.	(USPAT)	OR	ON	ON	2020/08/26 01:24 PM
L144	16	("20080214888"|"4674518"|"5308319"|"5449342"|"5470208"|"5964694"|"6007478"|"6083260"|"6155969"|"6176848"|"6506146"|"6508787"|"6540658"|"6623475"|"7699586"|"8255050").PN.	(US-PGPUB; USPAT)	OR	ON	ON	2020/08/26 01:26 PM
L145	10275	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	ON	2020/08/26 01:27 PM

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			JPO; DERWENT)				
L146	2559	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L147	7014	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L148	3739	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L149	315	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L150	2288	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L151	1463	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L152	13127	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L153	5858	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L154	18242	L145 L146 L147 L148 L149 L150 L151 L152 L153	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L155	368	L154 and ((hydraul$9 or pneumat$9) with (drive paddle))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L156	187	L155 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/26 01:27 PM
L157	10280	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L158	2560	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L159	7017	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L160	3741	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L161	315	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L162	2288	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM

L163	1463	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L164	13128	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L165	5863	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L166	18248	L157 L158 L159 L160 L161 L162 L163 L164 L165	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L167	368	L166 and ((hydraul$9 or pneumat$9) with (drive paddle))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L168	187	L167 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:20 PM
L169	92	((("MOHL") near3 ("Werner"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 12:23 PM
L170	4	"37698" and thorsten	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 01:16 PM
L171	21	(US-20080214888-$ or US-20060009672-$).did. or (US-6506146-$ or US-6176848-$ or US-6155969-$ or US-5470208-$ or US-6245007-$ or US-6790171-$ or US-8070668-$ or US-7988614-$ or US-RE41394-$ or US-7699586-$ or US-7588530-$ or US-7481760-$ or US-7217236-$ or US-6945998-$ or US-6827682-$ or US-6540658-$ or US-5984857-$ or US-6508787-$ or US-6083260-$).did.	(US-PGPUB; USPAT)	OR	ON	ON	2020/08/27 01:45 PM
L172	18	L171 and (hydraul$9 or pneumat$9 or ((drive drived drove driving) near3 fluid))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 01:46 PM
L173	2	(("20030100816") or ("20010031210")).PN.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2020/08/27 03:58 PM
L174	18	(US-20030100816-$ or US-20010031210-$ or US-20110238172-	(US-PGPUB; USPAT)	OR	ON	ON	2020/08/27 04:01 PM

		$).did. or (US-6942611-$ or US-6981942-$ or US-5613935-$ or US-5964694-$ or US-7070398-$ or US-6201329-$ or US-7229258-$ or US-6447266-$ or US-6244835-$ or US-6717311-$ or US-5928131-$ or US-6293901-$ or US-6074180-$ or US-6220832-$ or US-6716157-$).did.					
L175	9	L174 and (hydraul$9 or pneumat$9 or ((drive drived drove driving) near3 fluid))	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/08/27 04:02 PM
L176	330	seiss.in.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:12 PM
L177	385	antaki.in.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:13 PM
L178	715	L176 L177	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:13 PM
L179	121	L178 and a61m$.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:14 PM
L180	1086	siess.in.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:16 PM
L181	713	L180 and a61m$.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:16 PM
L182	61	L181 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:22 PM
L183	18	L182 and (magnet magneto magnetic$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2020/10/05 12:24 PM
L184	1	(12/376549).APP.	(USPAT; USOCR)	OR	ON	ON	2020/10/05 12:57 PM
L185	1346	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L186	307	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L187	880	A61M1/1008.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM

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L188	460	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L189	36	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L190	337	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L191	245	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L192	1756	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L193	771	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L194	2499	L185 L186 L187 L188 L189 L190 L191 L192 L193	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L195	453	L194 and (magnet magneto magnetic$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L196	8251	A61M60/40.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:37 AM
L197	314	A61M60/405.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L198	12179	A61M60/148.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L199	19152	A61M60/40,405,148,135,422,857,205,833,414.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L200	1632	F04D13/027.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L201	22816	L194 L196 L197 L198 L199 L200	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L202	4191	L201 and (magnet magneto magnetic$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 09:38 AM
L203	1346	A61M1/101.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L204	307	A61M1/1015.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L205	880	A61M1/1008.cpc.	(US-PGPUB; USPAT;	OR	ON	ON	2021/05/12

			USOCR; FPRS; EPO; JPO; DERWENT)				11:57 AM
L206	460	A61M1/1031.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L207	36	A61M1/1032.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L208	337	A61M1/1036.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L209	245	A61M1/1029.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L210	1756	A61M1/122.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L211	771	A61M1/125.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L212	2499	L203 L204 L205 L206 L207 L208 L209 L210 L211	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L213	8251	A61M60/40.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L214	314	A61M60/405.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L215	12179	A61M60/148.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L216	19152	A61M60/40,405,148,135,422,857,205,833,414.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L217	1632	F04D13/027.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L218	22816	L212 L213 L214 L215 L216 L217	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L219	4191	L218 and (magnet magneto magnetic$6)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L220	3601	L219 and blood	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:57 AM
L221	1031	L220 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/05/12 11:58 AM
L222	1031	L220 and @ad<="20070227"	(US-PGPUB; USPAT; USOCR; EPO; JPO;	OR	ON	ON	2021/05/12 12:00 PM

			DERWENT)				
L223	15	((("MIRACOR") near3 ("MEDICAL") near3 ("SA"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/10/03 02:57 PM
L224	110	((("MOHL") near3 ("Werner"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/10/03 02:57 PM
L225	19	("20010039369" OR "20080214888" OR "20110238172" OR "4674518" OR "5308319" OR "5449342" OR "5470208" OR "5964694" OR "6007478" OR "6083260" OR "6155969" OR "6176848" OR "6506146" OR "6508787" OR "6540658" OR "6623475" OR "7699586" OR "8255050" OR "9616157").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2022/10/03 02:57 PM
L226	16846	A61M60/237,17,405,148,13,422,861,523,833,414.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2022/10/03 03:01 PM
L227	2496	F04D13/027.cpc.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/10/03 03:01 PM
L228	42	(Artificial Intelligence) Similar to: Publication Status Unavailable from Similarity Search Text: (US-11123540-B2 OR US-11351356-B2 OR US-11351357-B2 OR US-20220111194-A1 OR US-11376415-B2	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE,	OR	ON	ON	2022/10/04 09:20 AM

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		OR US-20220118242-A1 OR US-20220080181-A1 OR US-20220111195-A1 OR EP-2114484-A2 OR WO-2008104858-A2 OR EP-2114484-B1 OR US-20120316383-A1 OR US-8801590-B2 OR US-20140350328-A1 OR AT-504990-B1 OR CN-101678158-A OR US-8255050-B2 OR US-20110009687-A1 OR AT-504990-A1 OR ES-2371128-T3 OR PT-2114484-E OR JP-5274485-B2 OR JP-2010519001-A OR WO-2008104858-A3 OR US-20190184080-A1 OR US-10251984-B2 OR US-20210038792-A1 OR DE-2200599-B1 OR DE-2200599-C2 OR US-20210252276-A1 OR US-20010039369-A1 OR GB-1383811-A OR AU-2018301507-A1 OR US-20190015569-A1 OR WO-2019014626-A1 OR EP-3651825-A1 OR WO-2008017289-A3 OR EP-1113177-A3 OR EP-1113177-A2 OR US-6575717-B2 OR US-20010016170-A1 OR EP-1113177-B1 OR CN-107252504-B OR JP-2017164503-A OR US-20220042511-A1 OR AU-2017272906-B2 OR EP-3693038-A1 OR DE-60006926-T2 OR DE-102010011998-A1 OR EP-3854443-A1).did.	SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO))				
L229	26	(Artificial Intelligence) More like doc: US-20220080181-A1 Text: (US-11123540-B2 OR US-11351357-B2 OR US-11351356-B2 OR US-11376415-B2 OR US-20220111194-A1	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO,	OR	ON	ON	2022/10/04 03:18 PM

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Abbott Ex. 1002, p. 222 of 254

		OR US-20220118242-A1 OR US-20220111195-A1 OR US-20120316383-A1 OR EP-2114484-A2 OR WO-2008104858-A2 OR US-8801590-B2 OR US-20140350328-A1 OR EP-2114484-B1 OR US-8255050-B2 OR US-20110009687-A1 OR JP-2010519001-A OR CN-101678158-A OR US-20190184080-A1 OR US-10251984-B2 OR JP-5274485-B2).did.	NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L230	17621	A61M60/237,17,405,148,13,422,861,523,833,414.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT)	OR	ON	ON	2022/11/18 02:34 PM
L231	2511	F04D13/027.cpc.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/11/18 02:35 PM
L232	42	(Artificial Intelligence) Similar to: 17/446,046 with 0 CPC Selections and 0 Text Selections Text: (US-11123540-B2 OR US-11351356-B2 OR US-11351357-B2 OR US-20220111194-A1 OR US-11376415-B2 OR US-20220118242-A1 OR US-20220080181-A1 OR US-20220111195-A1 OR EP-2114484-A2 OR WO-2008104858-A2 OR EP-2114484-B1 OR US-20120316383-A1 OR US-8801590-B2 OR US-20140350328-A1	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO))	OR	ON	ON	2022/11/18 02:35 PM

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		OR AT-504990-B1 OR CN-101678158-A OR US-8255050-B2 OR US-20110009687-A1 OR AT-504990-A1 OR ES-2371128-T3 OR PT-2114484-E OR JP-5274485-B2 OR JP-2010519001-A OR WO-2008104858-A3 OR US-20190184080-A1 OR US-10251984-B2 OR US-20210038792-A1 OR DE-2200599-B1 OR DE-2200599-C2 OR US-20210252276-A1 OR US-20010039369-A1 OR GB-1383811-A OR AU-2018301507-A1 OR US-20190015569-A1 OR WO-2019014626-A1 OR EP-3651825-A1 OR WO-2008017289-A3 OR EP-1113177-A3 OR EP-1113177-A2 OR US-6575717-B2 OR US-20010016170-A1 OR EP-1113177-B1 OR CN-107252504-B OR JP-2017164503-A OR US-20220042511-A1 OR AU-2017272906-B2 OR EP-3693038-A1 OR DE-60006926-T2 OR DE-102010011998-A1 OR EP-3854443-A1).did.					
L233	26	(Artificial Intelligence) More like doc: US-20220080181-A1 Text: (US-11123540-B2 OR US-11351357-B2 OR US-11351356-B2 OR US-11376415-B2 OR US-20220111194-A1 OR US-20220118242-A1 OR US-20220111195-A1 OR US-20120316383-A1 OR WO-2008104858-A2 OR EP-2114484-A2 OR US-8801590-B2 OR US-20140350328-A1 OR EP-2114484-B1 OR US-8255050-B2 OR	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/11/18 02:35 PM

		US-20110009687-A1 OR JP-2010519001-A OR CN-101678158-A OR US-20190184080-A1 OR US-10251984-B2 OR JP-5274485-B2).did.					

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N44	1	(catheter AND pump AND rotor AND magnet$9 AND (hydraul$9 or pneumat$9) AND lumen AND balloon).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2012/06/29 01:54 PM
N78	3	(catheter AND pump AND rotor AND magnet$9 AND (hydraul$9 or pneumat$9) AND lumen AND balloon).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2014/03/21 09:03 AM
N140	53	(catheter AND pump AND rotor AND magnet$9).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2018/11/14 01:21 PM
N141	10	(catheter AND pump AND rotor AND magnet$9 AND sens$9).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2018/11/14 01:21 PM
N223	220	(pump AND rotor AND magnet$9 AND blood AND control$6).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/05/13 03:04 PM
N224	6	(pump AND rotor AND magneto AND blood AND control$6).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/05/13 03:05 PM
N225	14	(pump AND rotor AND magneto AND blood AND control$6).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2022/11/18 02:35 PM

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor	:	Werner Mohl	Art Unit	:	3792
Application No.	:	17/446,046	Examiner	:	Tammie K. Marlen
Filed	:	August 26, 2021	Confirmation No.	:	7378
			Notice of Allowance Date: 11/30/2022		
Title	:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART			

MAIL STOP ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT AFTER ALLOWANCE
PURSUANT TO 37 C.F.R. §1.312

Please amend the application as indicated on the following pages. This amendment is being filed concurrently with the payment of the issue fee.

Amendments to the Specification:

Please delete the heading at page 1, line 15, which includes the word "Field."

Please delete the paragraph beginning at page 1, line 16.

Please replace the abstract at page 9 with the following amended abstract:

~~In a catheter (2)~~ A device to assist the performance of a heart ~~(1)~~ with at least one pump ~~(7), the pump~~ that is formed as a rotary pump ~~at the distal end of the catheter (2), the rotor (6) lying distally on the outer side being coupled~~ and driven via a magneto coupling ~~with a drive wheel (21), formed as a hydraulically or pneumatically operated paddle wheel, arranged inside the catheter (2). The driving fluid is supplied to the paddle wheel via a lumen (22) of the catheter (2) and is carried off via a further lumen (23) of the catheter. (Fig. 2)~~.

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Canceled)

2. (Previously presented) A system for assisting blood circulation of a heart, the system comprising:

a heart assist pump device deliverable to the heart and comprising:

an inflow tube defining a blood inflow path aligned with a central axis;

a magnetically driven rotor aligned with the central axis and that is rotatable about the central axis within a surrounding rotor housing to drive blood flowing from the inflow tube toward the magnetically driven rotor, the magnetically driven rotor being rigidly coupled and axially adjacent to a first magnetic device within the surrounding rotor housing;

a second magnetic device axially aligned with the central axis and positioned to magnetically drive rotation of the magnetically driven rotor via a magneto coupling with the first magnetic device while both the magnetically driven rotor and first magnetic device are entirely spaced apart from the surrounding rotor housing by a gap sized for passage of the blood during rotation of the magnetically driven rotor; and

a blood outflow port positioned radially adjacent the magnetically driven rotor such that the blood driven by the magnetically driven rotor exits the surrounding rotor housing in a direction substantially perpendicular to the central axis, wherein the magneto coupling orients the magnetically driven rotor so that the magnetically driven rotor remains adjacent to and spaced apart from the surrounding rotor

housing by the blood flowing from the inflow tube and to the blood outflow port; and

an external control unit configured to regulate operation of the second magnetic device, the external control unit being positionable exterior to a body when the heart assist pump device is delivered to the heart, wherein the external control unit is connectable to the heart assist pump device for operating the second magnetic device to thereby magnetically drive the rotation of the magnetically driven rotor via the magneto coupling with the first magnetic device.

3. (Previously presented) The system of claim 2, wherein the magnetically driven rotor comprises:

a guide surface to produce centrifugal flow components.

4. (Previously presented) The system of claim 2, wherein the first magnetic device is a single magnetic device rigidly coupled to the magnetically driven rotor at a position axially between the second magnetic device and the magnetically driven rotor.

5. (Previously presented) The system of claim 2, wherein the heart assist pump device further comprises a sealing wall positioned between the second magnetic device and the magnetically driven rotor.

6. (Previously presented) The system of claim 5, wherein the sealing wall at least partially defines the gap sized for passage of the blood.

7. (Previously presented) The system of claim 2, wherein the heart assist pump device is an intravascular rotary pump.

8. (Previously presented) The system of claim 2, wherein the first magnetic device is positioned within a first chamber, the second magnetic device is positioned within a second chamber, and the first chamber is sealed from the second chamber.

9. (Previously presented) The system of claim 8, wherein the heart assist pump device further comprises a wall separating the first chamber from the second chamber.

10. (Previously presented) The system of claim 2, wherein the external control unit is connectable to the heart assist pump device to deliver energy to the second magnetic device.

11. (Previously presented) The system of claim 2, wherein the external control unit is configured to regulate operation of the second magnetic device based on a defined cardiac output.

12. (Previously presented) A system for assisting blood circulation of a heart, the system comprising:

a heart assist pump device deliverable to the heart and comprising:

an inflow tube defining a blood inflow path along an inflow axis and being insertable into a left ventricle;

one or more walls at least partially defining a chamber to receive blood from the inflow tube;

a magnetically driven rotor axially aligned with the inflow axis and being rigidly coupled and axially adjacent to a first magnetic device that is axially aligned with the inflow axis, the magnetically driven rotor and first magnetic device being rotatable about an axis of rotation aligned with the inflow axis to drive the blood flowing from the inflow tube;

a magnetic drive system comprising a second magnetic device axially aligned with the inflow axis and spaced apart from the magnetically driven rotor such that a wall of the one or more walls defining the chamber is positioned between the magnetically driven rotor and the second magnetic device, the second magnetic device positioned axially closer to the first magnetic device than to the magnetically driven rotor so as to magnetically drive rotation of the magnetically driven rotor relative to the one or more walls via a magneto coupling with the first magnetic device; and

a blood outflow port positioned such that the blood driven by the magnetically driven rotor exits the chamber in a direction substantially perpendicular to the inflow axis, wherein the magneto coupling orients the magnetically driven rotor so that both the magnetically driven rotor and the first magnetic device remain spaced apart from the one or more walls by the blood in response to rotation of the magnetically driven rotor; and

an external control unit configured to control operation of the second magnetic device based on a fixed value to thereby magnetically drive the rotation of the magnetically driven rotor via the magneto coupling with the first magnetic device.

13. (Previously presented) The system of claim 12, wherein the magnetically driven rotor includes a guide surface to produce centrifugal flow components.

14. (Previously presented) The system of claim 12, wherein the first magnetic device comprises a single magnetic device rigidly coupled to the magnetically driven rotor at a position between the second magnetic device and the magnetically driven rotor.

15. (Previously presented) The system of claim 12, wherein the one or more walls and the magnetically driven rotor define a gap separating the magnetically driven rotor from the one or more walls, the gap configured to be occupied by the blood when the second magnetic device drives the rotation of the magnetically driven rotor.

16. (Previously presented) The system of claim 15, wherein the gap surrounds the magnetically driven rotor.

17. (Previously presented) The system of claim 15, wherein at least part of the gap extends along a first axis substantially perpendicular to the inflow axis.

18. (Previously presented) The system of claim 12, wherein the heart assist pump device is an intravascular rotary pump.

19. (Previously presented) The system of claim 12, wherein the chamber is a first chamber within which the magnetically driven rotor is positioned, and the magnetic drive system is positioned within a second chamber sealed from the first chamber.

20. (Previously presented) The system of claim 19, wherein the wall of the one or more walls separates the first chamber from the second chamber.

21. (Currently Amended) The system of claim 12, wherein the external control unit is configured to regulate operation of the second magnetic device based on a defined cardiac output.

REMARKS

Dependent claim 21, page 1 of the specification, and the abstract were amended. No new matter has been added by these amendments. Claims 2-21 remain in condition for allowance.

Interview Summary

Applicant thanks the examiner for participating in a telephone interview on December 19, 2022, during which the amendment to dependent claim 21 and the amendments to the specification were discussed. ***It was agreed*** that the aforementioned amendments did not add new matter and did not raise new issues, and that all of the allowed claims 2-21 are supported by the specification in accordance with 35 U.S.C. § 112 (e.g., the claims encompass but are not limited to a "catheter" embodiment). *In re Wright*, 866 F.2d 422, 425 (Fed. Cir. 1989); *see also Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991). In particular, dependent claim 21 was amended to clarify the antecedent basis found in the "external control unit" recited in claim 12. Also, page 1 of the specification and the abstract were amended to provide added clarity and consistency with the specification (e.g., page 5, lines 9-10 ("embodiment to assist the performance of a heart") and lines 19-20 ("embodiment which is illustrated")), with the allowed claims, and with related U.S. Patent No. 11,376,415 (previously allowed by the same examiner). These amendments are consistent with the breadth of teaching in the original specification.

Conclusion

The Applicant respectfully requests prompt consideration and issuance of the patent in this case. No fee is believed to be due, however please apply any necessary charges or credits to Deposit Account 06-1050, referencing the above attorney docket number.

Respectfully submitted,

Date: December 21, 2022

/Michael T. Hawkins/
Michael T. Hawkins, Reg. No. 57,867

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
17/446,046	**12/21/2022 10:59:42 AM ET**	**25955-0013005**

Title of Invention

DEVICE TO ASSIST THE PERFORMANCE OF A HEART

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	7378	FILED BY	Kirstin Matteo
PATENT CENTER #	61333272	FILING DATE	08/26/2021
CUSTOMER #	26191	FIRST NAMED INVENTOR	Werner Mohl
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Michael Hawkins

Documents

TOTAL DOCUMENTS: 6

DOCUMENT		PAGES	DESCRIPTION	SIZE (KB)
25955-0013005_Amend312.pdf		8	-	120 KB
25955-0013005_Amend312-A.NA.pdf	(1-1)	1	Amendment after Notice of Allowance (Rule 312)	66 KB
25955-0013005_Amend312-SPEC.pdf	(2-2)	1	Specification	48 KB
25955-0013005_Amend312-CLM.pdf	(3-7)	5	Claims	56 KB

25955-0013005_Amend312-REM.pdf	(8-8)	1	Applicant Arguments/Remarks Made in an Amendment	86 KB
25955-0013005_Issue-fee.pdf		1	Issue Fee Payment (PTO-85B)	154 KB
25955-0013005_Resp-NOA.pdf		2	Post Allowance Communication - Incoming	73 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
25955-0013005_Amend312.pdf	DF3EEA5532419154EE7D6A262481ADA5B31E19416E63785D17CD9704DF7AB78B0E5300E8ED466394490E4F72004ECC7B4158EEF5B6558AC01DD9517023819D35
25955-0013005_Amend312-A.NA.pdf	94E6608FE93A9363049D2464351F6C56F7AD6F36518618E04E59542F6CD9A6FF0C9EA66B5E822791112ADE7B88B34058256F064AC022895C520596C834C0084D
25955-0013005_Amend312-SPEC.pdf	5B79D00D2D7B918B4B824C805D5C0691F053CEE2D1D54442C4CC21FDD5250335970F4DDCA59154EFE2EFE0B86B789BD86242B169272B9C9320262D06C8CE168F
25955-0013005_Amend312-CLM.pdf	B8C61025F6EAFACC7CFD16CA560A5DDA3925D4B95E71806C3023F44C1868004189AF6521B1733B2AE3B7835B70C2E47F2AFD5228675B206C41B9C8455F4942FE
25955-0013005_Amend312-REM.pdf	C552CC6FCC361500C1C90A82A12F97B10DF70ADC7649D3B4FDEB4B469FBD7793B046AC6852FBDEA112138E7928C07A543DEFE4D6DC7024BD7FBE2BEEFC608DF1
25955-0013005_Issue-fee.pdf	4EDF365B6ACE6846EED549753033C83385A0DB025B297A08DAD266EC7729A2239B8FF8E4D80A3FDC89DBA541D74393347E8BB967BBE5BB14B1C37CFC2FE24B60

25955-0013005_Resp-NOA.pdf C015F9847011523A6F0CA78B161E05F46ED023464F07E4B86D
9C1CFA863DE062DCDABACD519263F878C479D5E99C94391C
770B82D895928376B8A23FC3B6C362

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
17/446,046	12/21/2022 10:59:42 AM ET	25955-0013005

Title of Invention

DEVICE TO ASSIST THE PERFORMANCE OF A HEART

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	7378	FILED BY	Kirstin Matteo
PATENT CENTER #	61333272	AUTHORIZED BY	Michael Hawkins
CUSTOMER #	26191	FILING DATE	08/26/2021
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Werner Mohl

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
DA / 061050	E2022BKB00470015	Kirstin Matteo

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
2501	UTILITY ISSUE FEE	600.00	1	600.00
			TOTAL AMOUNT:	$600.00

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

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submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor	:	Werner Mohl	Art Unit	:	3792
Application No.	:	17/446,046	Examiner	:	Tammie K. Marlen
Filed	:	August 26, 2021	Confirmation No.	:	7378
			Notice of Allowance Date: November 30, 2022		
Title	:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART			

MAIL STOP ISSUE FEE
Commissioner for Patents
P.O. Box 1450
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REPLY TO NOTICE OF ALLOWANCE

In response to the Notice of Allowance dated November 30, 2022, enclosed is a completed Part B - Fee(s) Transmittal.

The issue fee is being paid with this reply on the Electronic Filing System. Apply that fee and any other necessary charges or credits to Deposit Account 06-1050, referencing the above attorney docket number.

COMMENTS ON EXAMINER'S REASONS FOR ALLOWANCE

It is recognized that, in accordance with M.P.E.P. § 1302.14, the Examiner's reasons for allowance need not set forth all of the details as to why the claims are allowed. In the above-referenced application, it is not conceded that the Examiner's stated reasons for allowance are the only reasons for which the claims are allowable. The Examiner's reasons for allowance indicate that particular claim elements are not disclosed or suggested by the prior art of record, yet the claims may be patentable for other reasons as well, including the inventive combination of all of the recited claim elements. It is not conceded that the specific limitations identified by the Examiner are necessary to distinguish the art of record or to satisfy the requirements of 35 U.S.C. § 112. Moreover, the Examiner does not assert, and it would not be conceded, that the Examiner's reasons have any bearing on the patentability of claims in any other applications directed to the disclosed subject matter.

In addition, each dependent claim stands on its own and may be allowable on its own merits. In particular, each dependent claim may be allowable on the basis of a combination of some of the features recited in the dependent claim and its base claim(s), which combination of features may not include all of the limitations identified in the Examiner's reasons for allowance.

Respectfully submitted,

Date: December 21, 2022

/Michael T. Hawkins/
Michael T. Hawkins, Reg. No. 57,867

Customer Number 26191
Fish & Richardson P.C.
Telephone: (617) 542-5070
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24267914.doc

Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 240 of 254

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
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By fax, send to: (571) 273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

26191 7590 11/30/2022

FISH & RICHARDSON P.C.
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Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/446,046	08/26/2021	Werner Mohl	25955-0013005	7378

TITLE OF INVENTION: DEVICE TO ASSIST THE PERFORMANCE OF A HEART

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0	$0	$600	02/28/2023

EXAMINER	ART UNIT	CLASS-SUBCLASS
MARLEN, TAMMIE K.	3792	600-016000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

[ ] Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

[ ] "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Fish & Richardson P.C.
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Miracor Medical SA

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Awans, Belgium

Please check the appropriate assignee category or categories (will not be printed on the patent): [ ] Individual [X] Corporation or other private group entity [ ] Government

4a. Fees Submitted: [X] Issue Fee [ ] Publication Fee (if required) [ ] Advance Order - # of Copies

4b. Method of Payment (*Please first reapply any previously paid fee shown above*):

[ ] Electronic Payment via EFS-Web [ ] Enclosed check [ ] Non-electronic payment by credit card (Attach form PTO-2038)

[X] The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account No. 06-1050

5. **Change of Entity Status** (from status indicated above)

[ ] Applicant certifying micro entity status. See 37 CFR 1.29 — **NOTE**: Absent a valid Certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

[ ] Applicant asserting small entity status. See 37 CFR 1.27. — **NOTE**: If the application was previously under micro entity status, checking this box will be taken as a notification of loss of entitlement to micro entity status.

[ ] Applicant changing to regular undiscounted fee status. — **NOTE**: Checking this box will be taken as a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Michael T. Hawkins/ Date December 21, 2022

Typed or printed name Michael T. Hawkins Registration No. 57,867

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/446,046	08/26/2021	Werner Mohl	25955-0013005	7378

26191 7590 12/23/2022
FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER	
MARLEN, TAMMIE K	

ART UNIT	PAPER NUMBER
3792	

NOTIFICATION DATE	DELIVERY MODE
12/23/2022	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Applicant-Initiated Interview Summary	**Application No.** 17/446,046	**Applicant(s)** Mohl, Werner		
	Examiner TAMMIE K MARLEN	**Art Unit** 3792	**AIA (First Inventor to File) Status** No	**Page** 1 of 1

All Participants (applicant, applicants representative, PTO personnel)	**Title**	**Type**
TAMMIE K MARLEN	Primary Examiner	Telephonic
Michael Hawkins	Attorney of Record	

Date of Interview: 19 December 2022

Issues Discussed:

Proposed Amendment(s)

Applicant's representative contacted the Examiner to discuss proposed 312 amendments to page 1 of the specification, the Abstract, and claim 21, where the specification and Abstract amendments are intended to mirror changes made in U.S. Patent No. 11,376,415 that issued from Application 17/558,979 , and the amendment to claim 21 is intended to mirror language used in claim 12. The Examiner indicated that such amendments would be acceptable.

/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	

Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicants responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04
Please further see:
MPEP 713.04
Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b)
37 CFR § 1.2 Business to be transacted in writing

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

Abbott v. Miracor, IPR2025-00114
Abbott Ex. 1002, p. 243 of 254

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/446,046	08/26/2021	Werner Mohl	25955-0013005	7378

26191 7590 01/09/2023

FISH & RICHARDSON P.C. (TC)
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EXAMINER	
MARLEN, TAMMIE K	

ART UNIT	PAPER NUMBER
3792	

NOTIFICATION DATE	DELIVERY MODE
01/09/2023	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Response to Rule 312 Communication	Application No.	Applicant(s)	
	17/446,046	Mohl, Werner	
	Examiner	Art Unit	AIA (FITF) Status
	TAMMIE K MARLEN	3792	No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

1. ☑ The amendment filed on 21 December 2022 under 37 CFR 1.312 has been considered, and has been:

a) ☐ entered.

b) ☑ entered as directed to matters of form not affecting the scope of the invention.

c) ☐ disapproved because the amendment was filed after the payment of the issue fee.
Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) ☐ disapproved. See explanation below.

e) ☐ entered in part. See explanation below.

f) ☐ not entered because the supplemental or corrected Application Data sheet (ADS)

☐ was not accompanied by a petition to accept an unintentionally delayed claim under 37 CFR 1.55 or 27 CFR 1.78;

☐ did not identify the information being changed in accordance with 37 CFR 1.76(c)(2);

☐ was not properly signed in accordance with 37 CFR 1.76(e) (or 37 CFR 1.33(b) for applications filed prior to September 16, 2012).

/TAMMIE K MARLEN/
Primary Examiner, Art Unit 3792

OK TO ENTER: /T.K.M./ 12/28/2022

Attorney's Docket No.: 25955-0013005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor	:	Werner Mohl	Art Unit	:	3792
Application No.	:	17/446,046	Examiner	:	Tammie K. Marlen
Filed	:	August 26, 2021	Confirmation No.	:	7378
			Notice of Allowance Date: 11/30/2022		
Title	:	DEVICE TO ASSIST THE PERFORMANCE OF A HEART			

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AMENDMENT AFTER ALLOWANCE
PURSUANT TO 37 C.F.R. §1.312

Please amend the application as indicated on the following pages. This amendment is being filed concurrently with the payment of the issue fee.

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/446,046	02/07/2023	11572879	25955-0013005	7378

26191 7590 01/18/2023

FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

INVENTOR(s) (Please see PAIR WEB site http://pair.uspto.gov for additional inventors):

Werner Mohl, Altenmarkt-Thennenberg, AUSTRIA;

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Miracor Medical SA, Awans, BELGIUM;

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CORRESPONDENCE ADDRESS CHANGE

APPLICATION #	FILING OR 371(C) DATE	REQUEST ID
17/446,046	08/26/2021	129027

The following fields have been changed to Customer Number 95668 on 11/22/2023 via Patent Center in view of the certification copied below that authorized the change.

- Correspondence Address

The address for Customer Number 95668 is:

95668 - Barnes & Thornburg LLP (MI)
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Minneapolis , MN 55402-4662

I certify, in accordance with 37 CFR 1.4(d)(4), that I am :

An attorney or Agent of Record registered to practice before the Patent and Trademark Office who has been given power of attorney in this application

Signature	Name	Registration #
/Michael T. Hawkins/	Michael Hawkins	57867

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FEE ADDRESS CHANGE

APPLICATION #	FILING OR 371(C) DATE	REQUEST ID
17/446,046	08/26/2021	129027

The following fields have been changed to Customer Number 95668 on 11/22/2023 via Patent Center in view of the certification copied below that authorized the change.

- Maintenance Fee Address

The address for Customer Number 95668 is:

95668 - Barnes & Thornburg LLP (MI)
225 South Sixth Street, Suite 2800
Minneapolis, MN 55402-4662

I certify, in accordance with 37 CFR 1.4(d)(4), that I am :

An attorney or Agent of Record registered to practice before the Patent and Trademark Office who has been given power of attorney in this application

Signature	Name	Registration #
/Michael T. Hawkins/	Michael Hawkins	57867

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
17/446,046	**11/07/2024 11:09:30 AM Z ET**	**97354.397367**

Title of Invention

DEVICE TO ASSIST THE PERFORMANCE OF A HEART

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	11572879
CONFIRMATION #	7378	FILED BY	Mary Johnston
PATENT CENTER #	67875962	FILING DATE	08/26/2021
CUSTOMER #	95668	FIRST NAMED INVENTOR	Werner Mohl
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Jeffrey Stone

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
POA_397367.pdf	1	Power of Attorney	1172 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
POA_397367.pdf	6CC005E7402D2FF7DD15E4796C3A5AFB56CEE60A93AA2359 37A06B80751949593BEC02749B0B6D2A636FB1AAABFE89C2B 7503AFF09A6CF1B343F1BDEE83BE08A

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date
17/446046	August 26, 2021

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 95668

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

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OR

☐ Firm or Individual Name					
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I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Miracor Medical SA

☐ Inventor or Joint Inventor (title not required below)
☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)	14 November 2023
Name	Bertrand Grimmonpré		
Title	CFO & Board Member		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms

☐ Total of forms are submitted.

Bertrand Grimmonpré
CFO

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/446,046	08/26/2021	Werner Mohl	97354.397367

CONFIRMATION NO. 7378

95668
Barnes & Thornburg LLP (MI)
225 South Sixth Street, Suite 2800
Minneapolis, MN 55402-4662

POWER OF ATTORNEY NOTICE

OC000000080851247

Date Mailed: 11/22/2024

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/07/2024.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/cnguyen/

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17/446,046	08/26/2021	Werner Mohl	97354.397367

CONFIRMATION NO. 7378

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Barnes & Thornburg LLP (MI)
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POA ACCEPTANCE LETTER

OC000000080851269

Date Mailed: 11/22/2024

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/07/2024.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

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