



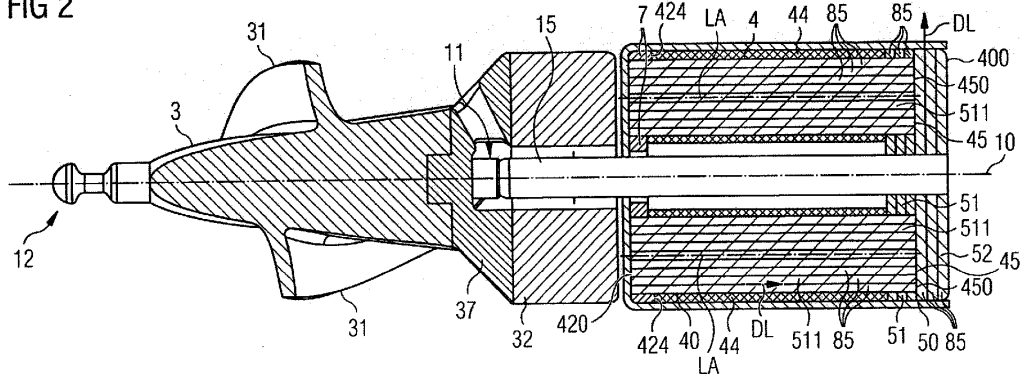
- (51) **International Patent Classification:**  
*A61M 1/10* (2006.01) *A61M 1/12* (2006.01)
- (21) **International Application Number:**  
PCT/EP2020/056987
- (22) **International Filing Date:**  
13 March 2020 (13.03.2020)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**  
19163667.9 19 March 2019 (19.03.2019) EP
- (71) **Applicant:** **ABIOMED EUROPE GMBH** [DE/DE];  
Neuenhofer Weg 3, 52074 Aachen (DE).
- (72) **Inventors:** **GRAUWINKEL, Marius**; c/o Abiomed Europe GmbH, Neuenhofer Weg 3, 52074 Aachen (DE).  
**KERKHOFFS, Wolfgang**; c/o Abiomed Europe GmbH, Neuenhofer Weg 3, 52074 Aachen (DE).
- (74) **Agent:** **KLUNKER IP PATENTANWÄLTE PARTG MBB**; Destouchesstraße 68, 80796 München (DE).

(81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) **Designated States** (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

(54) **Title:** BLOOD PUMP

FIG 2



(57) **Abstract:** This invention concerns an intravascular blood pump (1) for percutaneous insertion into a patient's blood vessel. The blood pump (1) comprises a pump casing (2) having a blood flow inlet (21) and a blood flow outlet (22), and an impeller (3) arranged in said pump casing (2) so as to be rotatable about an axis of rotation (10). The impeller (3) has blades (31) sized and shaped for conveying blood from the blood flow inlet (21) to the blood flow outlet (22). The blood pump comprises a drive unit (4) for rotating the impeller (3), the drive unit (4) comprising a plurality of posts (40) arranged about the axis of rotation (10) and a back plate. A coil winding (44) is disposed around each of the posts (40) and has an impeller-side end (420) pointing towards the impeller (3). The coil windings (44) are controllable so as to create a rotating magnetic field, wherein the impeller (3) comprises a magnetic structure (32) arranged to interact with the rotating magnetic field so as to cause rotation of the impeller (3). The rear end surfaces (45) of the posts (40) contact the back plate (50).

**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *of inventorship (Rule 4.17(iv))*

**Published:**

- *with international search report (Art. 21(3))*