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**Zhai et al.**(10) **Pub. No.: US 2023/0231461 A1**(43) **Pub. Date: Jul. 20, 2023**(54) **CONDUCTION-COOLED MAGNETIC FLUX PUMP**(71) Applicant: **Hunan University**, Changsha (CN)(72) Inventors: **Yujia Zhai**, Changsha (CN); **Chang Niu**, Changsha (CN); **Chunran Mu**, Changsha (CN); **Tingkun Weng**, Changsha (CN); **Jian Gao**, Changsha (CN); **Shoudao Huang**, Changsha (CN)(21) Appl. No.: **17/820,828**(22) Filed: **Aug. 18, 2022**(30) **Foreign Application Priority Data**

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**ABSTRACT**

Disclosed is a conduction-cooled magnetic flux pump, comprising a refrigerator, a cooling capacity conducting part, a cooling capacity conducting plate, a high-temperature superconducting coil, a high-temperature superconducting tape, an L-shaped machined part, a dynamic sealing device, a motor, a rotating shaft, a bow-shaped epoxy resin machined part, a permanent magnet rotor disk, and a permanent magnet. The cooling capacity conducting plate is connected to the refrigerator, the high-temperature superconducting coil is installed on the cooling capacity conducting plate, the high-temperature superconducting tape is fixed to the cooling capacity conducting plate by the L-shaped machined part. An output end of the motor is connected to one end of the rotating shaft through the dynamic sealing device, the other end of the rotating shaft is rotationally connected to the bow-shaped epoxy resin machined part. The permanent magnet rotor disk is installed on the rotating shaft and rotates along with the rotating shaft.

