

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2023/0231500 A1

Jul. 20, 2023 (43) **Pub. Date:**

(54) CONTROL CIRCUIT

(71) Applicant: NIHON DEMPA KOGYO CO., LTD.,

Tokyo (JP)

(72) Inventor: Shigeru TAKEGISHI, Saitama (JP)

Assignee: NIHON DEMPA KOGYO CO., LTD.,

Tokyo (JP)

(21) Appl. No.: 18/152,731

(22) Filed: Jan. 10, 2023

(30)Foreign Application Priority Data

Jan. 17, 2022 (JP) 2022-004786

Publication Classification

(51) **Int. Cl.**

H02P 8/22 (2006.01)

H02P 8/14 (2006.01) (52) U.S. Cl.

CPC . H02P 8/22 (2013.01); H02P 8/14 (2013.01)

(57)ABSTRACT

A control circuit includes a storage unit, a generation unit, an update unit, and a rotation control unit. The storage unit stores a predetermined number of register values to designate a step frequency of a stepper motor. The generation unit generates a micro step clock signal every time a period corresponding to each of the predetermined number of register values stored in the storage unit elapses. The update unit updates the predetermined number of register values stored in the storage unit every time the generation unit generates the predetermined number of micro step clock signals. The rotation control unit supplies a phase current based on the micro step clock signal generated by the generation unit to the stepper motor to rotate a rotor of the stepper motor by a micro step angle found by equally dividing a step angle of the stepper motor into the predetermined number.



