US 20220416760A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2022/0416760 A1**

(43) **Pub. Date: Dec. 29, 2022**

**OHNISHI**

(54) **PIEZOELECTRIC VIBRATION DEVICE AND MANUFACTURING METHOD THEREFOR**

(71) Applicant: **Daishinku Corporation**, Kakogawa-shi, Hyogo (JP)

(72) Inventor: **Manabu OHNISHI**, Kakogawa-shi, Hyogo (JP)

(21) Appl. No.: **17/762,769**

(22) PCT Filed: **Jul. 29, 2020**

(86) PCT No.: **PCT/JP2020/029024**

§ 371 (c)(1),
(2) Date: **Mar. 23, 2022**

(30) **Foreign Application Priority Data**

Oct. 16, 2019 (JP) ..... 2019-189144

**Publication Classification**

(51) **Int. Cl.**

| | |
|---|---|
| ***H03H 9/10*** | (2006.01) |
| ***H03H 3/02*** | (2006.01) |
| ***H03H 9/05*** | (2006.01) |
| ***H03H 9/19*** | (2006.01) |

(52) **U.S. Cl.**

CPC ..... ***H03H 9/1035*** (2013.01); ***H03H 3/02*** (2013.01); ***H03H 9/0519*** (2013.01); ***H03H 9/19*** (2013.01); *H03H 2003/022* (2013.01)

(57) **ABSTRACT**

Metal films for first and second mounting terminals are formed at ends on both sides of a piezoelectric vibration plate across a vibrating portion, and first and second mounting terminals connected to these metal films are formed on outer surfaces of resin films adhered to the piezoelectric vibration plate. In case the metal films for first and second mounting terminals on both sides of the vibrating portion are desirably reduced in size in order to enlarge the vibrating portion, an adequate joining area for mounting purpose is still secured for the first and second mounting terminals formed on the outer surfaces of the resin films.