US 20240213888A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2024/0213888 A1**

WADA et al. (43) **Pub. Date: Jun. 27, 2024**

(54) **POWER CONVERSION APPARATUS**

(71) Applicant: **TOSHIBA MITSUBISHI-ELECTRIC INDUSTRIAL SYSTEMS CORPORATION**, Chuo-ku (JP)

(72) Inventors: **Yuhei WADA**, Chuo-ku (JP); **Jumpei ISOZAKI**, Chuo-ku (JP); **Taichiro TSUCHIYA**, Chuo-ku (JP)

(73) Assignee: **TOSHIBA MITSUBISHI-ELECTRIC INDUSTRIAL SYSTEMS CORPORATION**, Chuo-ku (JP)

(21) Appl. No.: **18/555,893**

(22) PCT Filed: **Feb. 16, 2022**

(86) PCT No.: **PCT/JP2022/006148**

§ 371 (c)(1),
(2) Date: **Oct. 18, 2023**

Publication Classification

(51) **Int. Cl.**
H02M 7/5387 (2006.01)
H02M 7/00 (2006.01)

(52) **U.S. Cl.**
CPC ***H02M 7/53871*** (2013.01); ***H02M 7/003*** (2013.01)

(57) **ABSTRACT**

First to third capacitors (UC**1** to UC**3**) each have an identical shape of a rectangular parallelepiped. The rectangular parallelepiped has a first surface (P**1**) with a first side and a second side orthogonal to each other, a second surface (P**2**) with the second side and a third side orthogonal to each other, and a third surface (P**3**) with the third side and the first side orthogonal to each other. The first side has a length not less than twice and less than three times a length of the third side. The first and second capacitors (UC**1**, UC**2**) are arranged such that the first surfaces (P**1**) thereof are perpendicular to an installation surface (**10**), the first surfaces (P**1**) face each other while being spaced apart from each other, and the second surfaces (P**2**) are horizontal to the installation surface (**10**). The third capacitor (UC**3**) is arranged such that the first surface (P**1**) thereof faces the second surfaces (P**2**) of the first and second capacitors (UC**1**, UC**2**) while being spaced apart from each other and the third surface (P**3**) thereof is flush with the third surfaces (P**3**) of the first and second capacitors (UC**1**, UC**2**).