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DOGOME et al.(10) **Pub. No.: US 2024/0213057 A1**(43) **Pub. Date: Jun. 27, 2024**(54) **TRANSFER APPARATUS**(52) **U.S. Cl.**(71) Applicant: **Tokyo Electron Limited**, Tokyo (JP)CPC .. **H01L 21/67196** (2013.01); **H01L 21/67742**
(2013.01); **H01L 21/68764** (2013.01)(72) Inventors: **Masahiro DOGOME**, Miyagi (JP);
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(57)

ABSTRACT(73) Assignee: **Tokyo Electron Limited**, Tokyo (JP)(21) Appl. No.: **18/600,829**(22) Filed: **Mar. 11, 2024****Related U.S. Application Data**(63) Continuation of application No. 17/563,850, filed on
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A transfer apparatus includes a first vacuum transfer module; a first transfer robot disposed in the first vacuum transfer module and at least one ring. In addition, a second vacuum transfer module is provided; and a second transfer robot is disposed in the second vacuum transfer module. A tubular connecting module is disposed between the first vacuum transfer module and the second vacuum transfer module. Further, the first vacuum transfer module, the second vacuum transfer module and the tubular connecting module are arranged along a first direction, with the tubular connecting module having a first length in the first direction, and the first length is smaller than the diameter of the wafer. A wafer support is rotatably attached to the tubular connecting module and at least three ring supporting members outwardly extend from the wafer support to support the at least one ring.

