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(19) **United States**(12) **Patent Application Publication**
CHEN(10) **Pub. No.: US 2022/0416793 A1**(43) **Pub. Date: Dec. 29, 2022**(54) **PHASE-LOCKED LOOP CIRCUIT**(52) **U.S. Cl.**(71) Applicant: **HUAWEI TECHNOLOGIES CO., LTD.**, Shenzhen (CN)CPC **H03L 7/0891** (2013.01); **H03L 7/0995** (2013.01)(72) Inventor: **Yanqin CHEN**, Shanghai (CN)(57) **ABSTRACT**(21) Appl. No.: **17/901,971**(22) Filed: **Sep. 2, 2022****Related U.S. Application Data**

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The technology of this application relates to a phase-locked loop circuit that includes a phase frequency detector, a first voltage control module, a second voltage control module, a third voltage control module, a voltage-controlled oscillator, and a frequency divider. A first output end of the phase frequency detector is connected to a first input end of the first voltage control module and a first input end of the second voltage control module, a second output end of the phase frequency detector is connected to a second input end of the first voltage control module and a second input end of the second voltage control module, an output end of the first voltage control module.

