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(19) **United States**(12) **Patent Application Publication****Beebe et al.**(10) **Pub. No.: US 2022/0352830 A1**(43) **Pub. Date: Nov. 3, 2022**(54) **SYNCHRONOUS BUCK INVERTER****Publication Classification**(71) Applicant: **JABIL INC.**, St. Petersburg, FL (US)(72) Inventors: **Ronald Beebe**, St. Petersburg, FL (US); **Christopher D. Compton**, St. Petersburg, FL (US); **David Eckerson**, St. Petersburg, FL (US); **Yizhe Liu**, St. Petersburg, FL (US); **Salman Talebi**, St. Petersburg, FL (US)(73) Assignee: **JABIL INC.**, St. Petersburg, FL (US)(21) Appl. No.: **17/744,895**(22) Filed: **May 16, 2022****Related U.S. Application Data**

(63) Continuation of application No. 17/069,459, filed on Oct. 13, 2020, now Pat. No. 11,336,204, which is a continuation of application No. 15/724,839, filed on Oct. 4, 2017, now Pat. No. 10,840,824, which is a continuation of application No. 15/251,487, filed on Aug. 30, 2016, now Pat. No. 9,935,580, which is a continuation of application No. 14/675,073, filed on Mar. 31, 2015, now Pat. No. 9,647,608.

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(57)

**ABSTRACT**

A power inverter, such as a synchronous buck power inverter, that is configured with a high frequency switching control having a (PWM) controller and sensing circuit. Controller provides a low frequency oscillating wave to effect switching control on a synchronous-buck circuit portion that includes a plurality of switches to invert every half cycle of the frequency provided by controller. The inverting process thus creates a positive and negative transition of the oscillating wave signal. A low frequency switching stage includes a further plurality of switches configured to operate as zero voltage switching (ZVS) and zero current switching (ZCS) drives Charge on an output capacitor is discharged to zero on every zero crossing of low frequency switching stage and advantageously discharges energy every half cycle. During this discharge of energy, the zero crossing distortion in the low frequency sine wave is greatly reduced.

