

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2023/0232525 A1 Tunks et al.

Jul. 20, 2023 (43) **Pub. Date:**

(54) HEATER APPARATUS FOR A COMPUTING DEVICE

- (71) Applicant: Dell Products L.P., Round Rock, TX (US)
- (72) Inventors: Eric Michael Tunks, Austin, TX (US); Richard Mark Eiland, Austin, TX
- (21) Appl. No.: 17/576,708
- (22) Filed: Jan. 14, 2022

Publication Classification

(51) Int. Cl. H05K 1/02 (2006.01)H05K 3/32 (2006.01)

(52) U.S. Cl. CPC H05K 1/0212 (2013.01); H05K 3/325 (2013.01); *H05K 2201/10409* (2013.01)

(57)**ABSTRACT**

A computing device includes a printed circuit board, a base, and a heater apparatus. The printed circuit board is secured to the base. The heater apparatus includes a heater component and a plurality of heater wires, and the heater component is disposed between the printed circuit board and the

