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(54) **HEATING OR COOLING
APPARATUS-INTEGRATED HEAT SINK FOR
A COMPUTING DEVICE**

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(71) Applicant: **Dell Products L.P.**, Round Rock, TX
(US)

(72) Inventors: **Eric Michael Tunks**, Austin, TX (US);
Joseph Andrew Vivio, Seattle, WA
(US); **Tyler Baxter Duncan**, Austin,
TX (US)

(57) **ABSTRACT**

A computing device includes a heat dissipation component, a heating or cooling apparatus, and a printed circuit board. The heating or cooling apparatus includes a heating or cooling component and a wire, and the heating or cooling component is affixed to a surface of the heat dissipation component. The printed circuit board includes a printed circuit board component, and the heat dissipation component is affixed to the printed circuit board component and configured to heat or cool the printed circuit board component.

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