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Mikkelsen et al.

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(54) **SUPPORT CUSHIONS AND METHODS FOR CONTROLLING SURFACE TEMPERATURE OF SAME**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,585,517 A * 2/1952 Tolen 5/284
3,132,688 A * 5/1964 Nowak 602/14
(Continued)

FOREIGN PATENT DOCUMENTS

CN 2864512 1/2007
CN 201468654 5/2010
(Continued)

OTHER PUBLICATIONS

Patent Cooperation Treaty, International Search Report and Written Opinion, Jul. 17, 2013, 7 pgs.

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(57) **ABSTRACT**

A support cushion for providing individualized heating and cooling to a user resting on the support cushion is provided. The support cushion includes a body supporting portion, a plurality of thermoelectric elements positioned and configured to selectively provide heating or cooling of the body supporting portion, and a heat dissipating portion that is comprised of a thermally-absorbent material and is operably connected to the thermoelectric elements. Methods of controlling a surface temperature of a support cushion are also provided.

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