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Makansi et al.

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(54) **MEDICAL, TOPPER, PET WIRELESS, AND AUTOMATED MANUFACTURING OF DISTRIBUTED THERMOELECTRIC HEATING AND COOLING**

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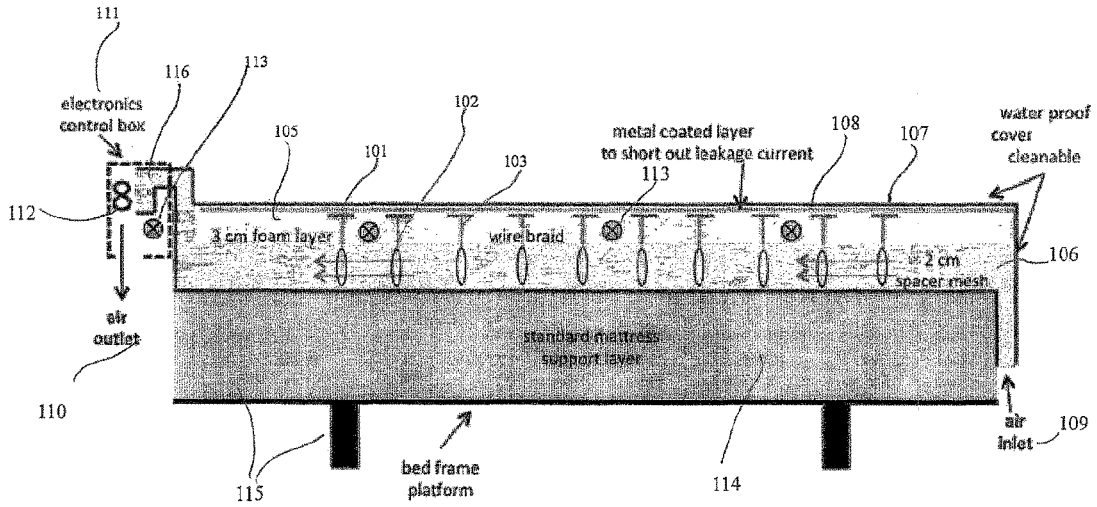
(57) **ABSTRACT**

A thermoelectric device comprising an elongated panel, formed of a thermally insulating material, and having a plurality of thermoelectric elements comprising compacted conductors inside the insulating material and expanded conductors outside the insulating material is combined with other layers for leakage current interception, bodily fluid absorption, and pillars that preserve pressure re-distribution. The thermoelectric device may be integrated into a variety of surfaces or enclosures needing heating or cooling and manufactured using pre-existing automated equipment.

27 Claims, 10 Drawing Sheets