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(54) **HEATING SYSTEM INCLUDING CONDUCTIVE THREADS ACTING AS CAPACITIVE-BASED PROXIMITY SENSOR AND ATTACHING HEATING WIRE TO SUBSTRATE**

(71) Applicant: **GENTHERM GMBH**, Odelzhausen (DE)

(72) Inventors: **Jan BESKA**, Belle River (CA); **Zoran PANIC**, Windsor (CA)

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**ABSTRACT**

A heater/sensor assembly is configured to perform heating and proximity sensing and includes a heater carrier substrate including first and second surfaces. A heater wire is arranged in a predetermined pattern adjacent to and in contact with the first surface of the heater carrier substrate, wherein the heater wire is insulated. A proximity sensor includes a conductive thread attaching the heater wire to the first surface of the heater carrier substrate.

