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(54) **IDENTIFYING AND REPAIRING A DEFECT DURING AN ADDITIVE MANUFACTURING PROCESS**

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(71) Applicant: **Corps Technologies LLC**, Campobello, NC (US)

(57)

ABSTRACT

Methods and systems for identifying a defect in an additive manufacturing process. One or more robots are configured for manufacturing, inspection, and repair of material. One or more sensors are configured for analyzing the material. A memory includes instructions and at least one processor configured to execute the instructions. The instructions are configured to cause the robot(s) and/or a corresponding computing platform to perform steps including receiving information from the one or more sensors during deposition of the material and obtaining microstructure information specific to the material being deposited from a predictive index. The steps also include assigning a weight to the output of, or to a defect probability determined from the output of, at least one of the one or more sensors. The steps also include determining, using the weighted information, the likelihood of a defect in the material.

(72) Inventor: **Michael Moore**, Charlotte, NC (US)

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