US009410853B2

(12) **United States Patent**
Zombo et al.

(10) **Patent No.: US 9,410,853 B2**
(45) **Date of Patent: Aug. 9, 2016**

(54) **GUIDED WAVE THERMOGRAPHY METHODS AND SYSTEMS FOR INSPECTING A STRUCTURE**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 419 days.

(21) Appl. No.: **13/922,367**

(22) Filed: **Jun. 20, 2013**

(65) **Prior Publication Data**

US 2013/0343424 A1 Dec. 26, 2013

Related U.S. Application Data

(60) Provisional application No. 61/662,487, filed on Jun. 21, 2012.

(51) **Int. Cl.**

G01K 11/22	(2006.01)
G01N 25/72	(2006.01)
G01N 29/26	(2006.01)
G01N 29/06	(2006.01)

(52) **U.S. Cl.**
CPC ***G01K 11/22*** (2013.01); ***G01N 25/72*** (2013.01); ***G01N 29/0672*** (2013.01); ***G01N 29/262*** (2013.01); *G01N 2291/0425* (2013.01)

(58) **Field of Classification Search**
CPC . G01N 25/72; G01N 29/262; G01N 29/0672; G01N 2291/0425; G01K 11/22
USPC 73/618, 598, 600, 602
See application file for complete search history.

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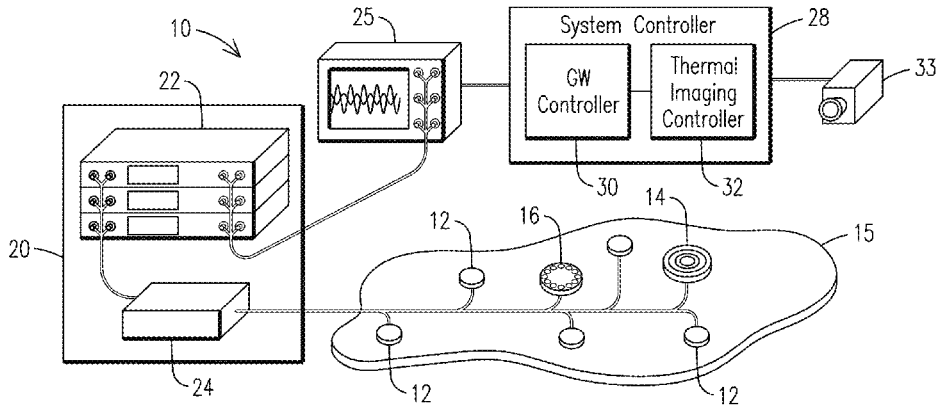
(57) **ABSTRACT**

Methods and systems (**10**) based on guided wave thermography for non-destructively inspecting structural flaws that may be present in a structure (**15**). For example, such systems and methods may provide the ability to selectively deliver sonic or ultrasonic energy to provide focusing and/or beam steering throughout the structure from a fixed transducer location (**12**, **14**, **16**). Moreover, such systems and methods may provide the ability to selectively apply sonic or ultrasonic energy having excitation characteristics (FIGS. **11** and **12**) which may be uniquely tailored to enhance the thermal response (FIGS. **5** and **7**) of a particular flaw geometry and/or flaw location.

24 Claims, 6 Drawing Sheets