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(54) **APPARATUSES, SYSTEMS, AND METHODS CONTROLLING TESTING OPTICAL FIRE DETECTORS**

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(58) **Field of Classification Search**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,864,146	A *	9/1989	Hodges et al.	250/504 R
4,866,285	A *	9/1989	Simms	250/495.1
4,899,053	A *	2/1990	Lai et al.	250/343
5,471,055	A *	11/1995	Costanzo et al.	250/252.1
5,924,784	A *	7/1999	Chliwnyj et al.	362/234
6,179,465	B1 *	1/2001	Yam	374/2
8,564,879	B1	10/2013	Eaton et al.	

OTHER PUBLICATIONS

Partial European Search Report dated Jun. 2, 2015 in European Application No. 15151946.9.
Extended European Search Report dated Sep. 28, 2015 in European Application No. 15151946.9.

* cited by examiner

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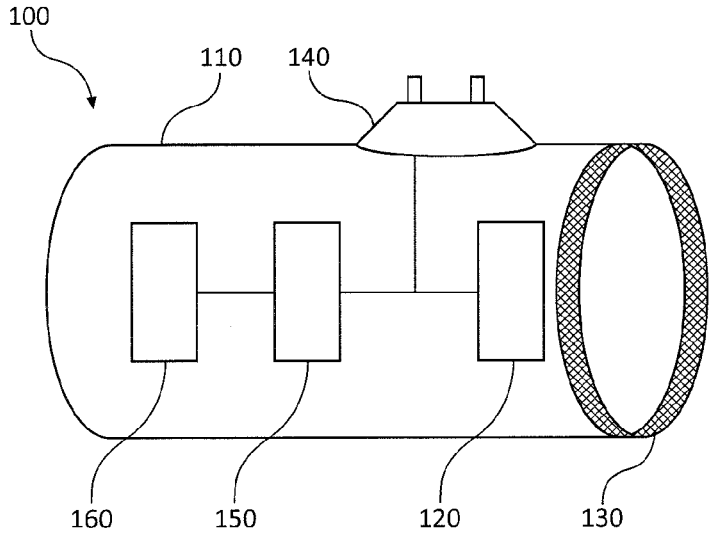
(57) **ABSTRACT**

A testing device for testing infrared OFDs is provided. The testing device may comprise a body, an infrared source, a controller and a user input. The infrared source may be housed with the body. The controller may be operatively coupled to the infrared source. The controller may also be integral to the infrared source. The user input may be operatively coupled to at least one of the controller and the infrared source. The testing device may be configured to produce infrared emissions to simulate flaming fire.

8 Claims, 3 Drawing Sheets