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- **LEVINE, Rachel Wyn**
96215 Lichtenfels (DE)
- **SABO, Nicholas**
West Chester, Ohio 45069-3807 (US)
- **WOLFE, Jared**
West Chester, Ohio 45069-3807 (US)
- **DOWELL, John**
Grove City, Pennsylvania 16127-1613 (US)
- **BAILEY, Kevin**
Grove City, Pennsylvania 16127-1613 (US)

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(71) Applicant: **General Electric Company**
Schenectady, NY 12345 (US)

(74) Representative: **Illingworth-Law, William**
Illingworth
Global Patent Operation - Europe
GE International Inc.
The Ark, 201 Talgarth Road
Hammersmith
London W6 8BJ (GB)

(72) Inventors:
• **SENNOUN, Mohammed El Hacin**
West Chester, Ohio 45069-3807 (US)
• **BONAR, James Fitzgerald**
West Chester, Ohio 45069-3807 (US)

(54) **THERMAL MANAGEMENT SYSTEM AND METHOD**

(57) A thermal management system includes a housing 101, and a monolithic core structure disposed within the housing 101. An outer surface of the core structure defines at least part of a first passageway 126. An inner surface of the core structure defines at least part of a second passageway 136. The core structure includes a separator wall that isolates a first flow passing through the first passageway 126 from a second flow passing through the second passageway 136. The first passageway 126 is in thermal communication with the second passageway 136. The core structure includes one or more heat exchanger features, or fins, that are positioned within the first passageway 126, the second passageway 136, or both the first and second passageways. The core structure may have a compliant segment coupled to two or more walls.

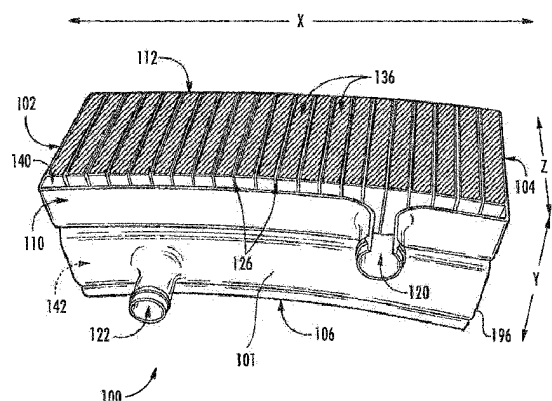


FIG. 2



EUROPEAN SEARCH REPORT

Application Number
EP 18 20 7545

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 3 054 254 A1 (UNITED TECHNOLOGIES CORP [US]) 10 August 2016 (2016-08-10)	1	INV.
A	* paragraphs [0026] - [0037]; figures 1, 2, 4 *	2-13	F28F7/02 F28F9/007
A	WO 2017/052798 A1 (WESTINGHOUSE ELECTRIC CO LLC [US]) 30 March 2017 (2017-03-30) * the whole document *	1-13	
A	US 2016/116218 A1 (SHEDD TIMOTHY A [US] ET AL) 28 April 2016 (2016-04-28) * the whole document *	1-13	
			TECHNICAL FIELDS SEARCHED (IPC)
			F28F
3 The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Munich		27 May 2019	Axters, Michael
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.02 (P04C01)



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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-13

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



LACK OF UNITY OF INVENTION
SHEET B

Application Number

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-13

A thermal management system comprising a housing and a monolithic core structure wherein the core structure has a compliant segment having a first end coupled to the housing structure and a second end coupled to the separator wall, or the compliant segment couples one separator wall to another separator wall.

These features provide potential special technical features for solving the problem of achieving a core structure which is able to expand or contract, bend or flex under load to avoid breaking.

2. claims: 14, 15

A thermal management system comprising a housing and a monolithic core structure wherein the core structure comprises two or more different materials that are non-homogeneous and unalloyed with each other.

These features provide potential special technical features for solving the problem of forming regions of the core structure having different properties (thermal or protective).

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 18 20 7545

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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27-05-2019

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