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Declarations under Rule 4.17:

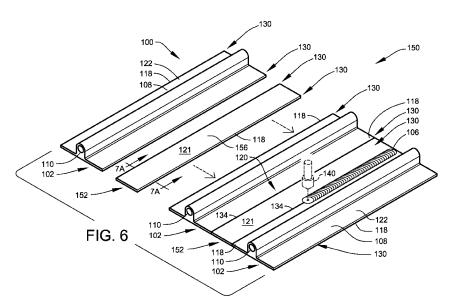
— of inventorship (Rule 4.17(iv))

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[Continued on next page]

(54) Title: RADIATOR SYSTEMS



(57) Abstract: A system of spacecraft radiators comprising pre-formed thermal-transfer modules joined together by at least one solid-state welding process. Critical failure points are eliminated by forming the thermal-transfer modules as a single unitary piece, preferably by an extrusion process. The thermal-transfer modules allow the formation of larger radiator assemblies, which may comprise a wide range of sizes and physical geometries.





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A. CLASSIFICATION OF SUBJECT MATTER

B64G 1/50(2006.01)i, F28F 7/00(2006.01)i, F28D 1/00(2006.01)i, F25B 1/00(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B64G 1/50; F28D 15/00; F28F 1/00; F28F 1/10; F28F 13/00; F28D 15/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) eKOMPASS(KIPO internal) & Keywords: heat, pipe, thermal, transfer, module, welding, fluid, channel

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2003/0196778 A1 (KOBAYASHI, TAKASHI; NOMURA, TAKEHIDE) 23 October 2003 See paragraph 78 - paragraph 277 and figures 1 - 43.	1-30
A	US 2008/0000435 A1 (BAER, STEPHEN C. et al.) 03 January 2008 See paragraph 74 - paragraph 101 and figures 1 - 9D.	1-30
A	US 5,823,477 A (YORK, GARY M.) 20 October 1998 See column 2, line 36 - column 4, line 66 and figures 1 - 3.	1-30
A	US 4,420,035 A (HEWITT, DENNIS R.) 13 December 1983 See column 3, line 53 - column 8, line 23 and figures 1 - 7.	1-30
A	US 4,880,050 A (NAKAMURA, GARY D.; STEPHENSON, JERRY D.) 14 November 1989 See column 3, line 17 - column 5, line 49 and figures 1 - 6.	1-30

		Further documents are	listed in	the continuation	of Box C.
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See patent family annex.

- * Special categories of cited documents:
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- "&" document member of the same patent family

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	AL SEARCH REPORT patent family members		International application No. PCT/US2011/03656	
Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
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US 5,823,477 A	20.10.1998	None		
US 4,420,035 A	13.12.1983	None		
US 4,880,050 A	14.11.1989	None		