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(54) Title: ICING PROTECTION SYSTEM AND METHOD FOR ENHANCING HEAT TRANSFER

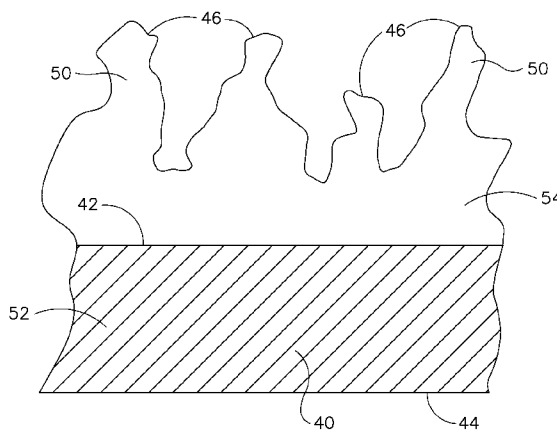


FIG. 4

(57) Abstract: An icing protection system and method for enhancing heat transfer includes a substrate (52) having an inner wall (42), an outer wall (44) and a thickness separating the inner wall and the outer wall. A metallic layer (54) deposited on the inner wall of the substrate by an electric arc thermal spray deposition process using at least one metallic wire has a thickness between about 0.203 mm (0.008 inches) and about 0.432 mm (0.017 inches), a surface roughness greater than about 12.7 microns (500 micro-inches) Ra, and a heat transfer augmentation of at least about 1.1. The metallic layer is formed on the inner wall from an M-Cr-Al alloy where M is selected from Fe, Co and Ni. The metallic layer defines a plurality of turbulators (46) that act as micro-fins (50) to enhance heat transfer from a heated gas in flow communication with the metallic layer through the substrate to prevent the formation of ice on the outer wall (52).

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**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. B64D15/04 C23C4/08 F28F13/18

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)  
B64D C23C F28F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 254 997 B1 (RETTIG MARK G [US] ET AL) 3 July 2001 (2001-07-03) cited in the application	1,3-7
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A	EP 1 050 663 A (GEN ELECTRIC [US]) 8 November 2000 (2000-11-08)	

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

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