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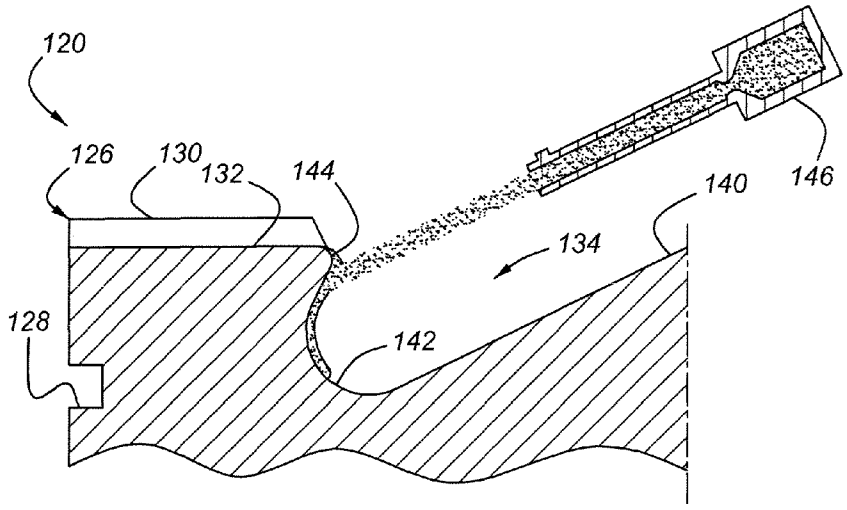


Figure 4

(57) Abstract: A piston (120) and method for making a piston (120) for a fuel-injected diesel engine adapted to withstand the damaging effects of fuel injection plume-induced oxidation in the regions of the piston bowl (134) and rim (130). The surfaces of the piston crown (126) targeted by the fuel injection plume (138) are first coated with a corrosion-resistant and oxidation-resistant composition applied as a slurry or by a thermal spraying technique, such as HVOF or plasma spraying. Thereafter, a high energy industrial laser beam irradiates the as-sprayed coating to increase its density, while simultaneously reforming its microstructure so as to fuse, alloy, and materially bond the coating material with the underlying steel substrate, thereby resulting in a durable protective surface for the steel piston crown (126).

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INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER
IPC: **B32B 15/18**(2006.01)

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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)
U.S. : 123/193.6; 92/223; 428/679

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
NONE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2004/0001966 A (SUBRAMANIAN et al) 01 January 2004 (01.01.2004) see abstract.	1-3, 6-13
Y	US 5,014,605 A (SANTI) 14 May 1991 (14.05.1991), see abstract.	1-3, 6-13
Y	US 2005/0092279 A (PARKER et al) 05 May 2005 (05.05.2005), see Figure 1.	4, 5, 14-21

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

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