

(12) **United States Patent**
Bottome et al.

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(54) **NOSE CONE ASSEMBLY**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 823 days.

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(51) **Int. Cl.**

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F02C 7/04 (2006.01)

(57) **ABSTRACT**

A nose cone assembly is provided comprising a nose cone **104**, a support ring **106** on which the nose cone **104** is mounted, and an insulating layer **110** disposed between the nose cone **104** and the support ring **106**, the insulating layer **110** at least partially comprising glass fibers.

(52) **U.S. Cl.**

CPC . **F01D 5/066** (2013.01); **F02C 7/04** (2013.01);
Y02T 50/672 (2013.01); **Y02T 50/673** (2013.01)

A composite nose cone is also provided comprising an attachment region A, in which composite fibers are oriented substantially perpendicular to an axis of rotation of the nose cone **104**, and an impact region I, in which composite fibers are oriented substantially parallel to the axis of rotation of the nose cone **104**.

(58) **Field of Classification Search**

CPC B64C 11/14; F01D 25/243; F03D 1/065;
F03D 1/0666; F03D 1/0691
USPC 416/93 R, 94, 245, 500, 245 R
See application file for complete search history.

Also provided is a support ring **106** for a nose cone assembly, the support ring **106** comprising an annular main body **140** and an annular projecting attachment flange **142**, the attachment flange **142** terminating in a plurality of circumferentially spaced attachment tabs **144**, wherein the attachment flange **142** forms with the main body **140** a cross section having at least two C curves **160**, **162**.

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16 Claims, 4 Drawing Sheets

