

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DONALD L. PURINTON and LOUIS R. SEMFF

Appeal No. 97-1489
Application No. 08/478,158¹

ON BRIEF

Before JOHN D. SMITH, HANLON, and ROBINSON, Administrative Patent Judges.

HANLON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the final rejection of claims 1 and 21-39, all of the claims pending in the application. Claim 1 is illustrative of the subject matter on appeal and reads as follows:

¹ Application for patent filed June 7, 1995. According to appellants, the application is a continuation of Application No. 08/273,040, filed July 8, 1994.

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1. A radome comprising:

(a) an exterior wall, said wall including:

(i) a central region of porous material comprising a ceramic material impregnated with an inorganic resin and having a pair of opposing exterior surfaces; and

(ii) a skin overlying each of said opposing surfaces to form a composite structure, said skin comprising a first cloth of ceramic material impregnated with an inorganic resin which, under pyrolysis, provides an elemental carbon-free material and, with increased temperature, gradually converts from the liquid state to a resilient state and then to a solid state by about 1200°F;

(b) the flexure strength of said wall being at least about 5000 psi through a temperature range up to about 2000°F;

(c) said wall being free of elemental carbon formation at temperatures up to about 2000°F.

The references relied upon by the examiner are:

Boyd et al. (Boyd)	5,134,421	Jul. 28, 1992
Liimatta et al. (Limatta)	5,198,152	Mar. 30, 1993

The sole issue on appeal² is whether the examiner properly rejected claims 1 and 21-39 under 35 U.S.C. § 103 as being unpatentable over the combination of Boyd and Liimatta.

² Claims 1 and 21-39 were also provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 and 21 of copending Application 08/273,040. However, appellants filed a terminal disclaimer, and the rejection was withdrawn (see Supplemental Examiner's Answer).

Discussion

Claim 1 is directed to a radome comprising an exterior wall including, in part:

(1) a central region of porous material comprising a ceramic material impregnated with an inorganic resin and having a pair of opposing exterior surfaces; and

(2) a skin overlying each of the opposing surfaces whereby the skin comprises a ceramic material impregnated with an inorganic resin which, under pyrolysis, provides an elemental carbon-free material and, with increased temperature, gradually converts from the liquid state to a resilient state and then to a solid state by about 1200EF. The inorganic resin is preferably a polysilazane or a polysiloxane (Specification, p.3).

According to the examiner (Answer, p.3; Paper No. 5, p.2):

Boyd et al discloses a radome comprising a honeycomb or foam layer laminated with face sheets of resin impregnated-fiber reinforced material and the use of ceramic materials for these layers; see column 2, lines 18-40 and the paragraph bridging columns 5 and 6. However, Boyd et al do not disclose the particular claimed materials used to form the fiber reinforced layers Liimatta et al discloses the use of polysilizane [sic, polysilazane] materials as an infiltrant in ceramic fiber

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reinforced composites which may be used in radomes;
see column 1, lines 13-18 and 49-50, column 2, lines
65-67 and column 4, lines 42-49.

The examiner continues (Answer, pp.3-4):

It [sic, It] is the examiner's position that since
Liimatta et al disclose the same impregnate as that
disclosed by appellant, namely polysilazane [sic,
polysilazane], that the claimed property under
pyrolysis is inherent in the Liimatta et al
impregnate.

However, appellants argue that the polysilazanes in
Liimatta are not the same as those claimed. More specifically
(Brief, p.6):

Claim 1 requires a skin comprising a first cloth
of ceramic material impregnated with an inorganic
resin which, under pyrolysis, provides an elemental
carbon-free material and, with increased
temperature, gradually converts from the liquid
state to a resilient state and then to a solid state
by about 1200°F. Even further, nowhere in Liimatta
et al. is there a teaching or even a suggestion that
the materials taught therein are limited to those
"which, under pyrolysis, provides an elemental
carbon-free material and, with increased
temperature, gradually converts from the liquid
state to a resilient state and then to a solid state
by about 1200°F". [Emphasis added.]

Manifestly, the resins disclosed in Liimatta are organic.
According to Liimatta, the disclosed invention is directed to
(Abstract):

A crosslinkable preceramic composition suitable for
use as an infiltrant for porous ceramics, such as

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fiber-reinforced ceramic composites, comprises about 75-99% by weight of a low molecular weight polysilazane and about 1-25% by weight of an unsaturated organic or organosilicon compound containing at least two alkenyl groups, preferably methylvinylcyclosilazane.

The examiner has failed to explain how the organic compositions disclosed in Liimatta provide an elemental carbon-free material under pyrolysis. Absent a more factually specific statement of the rejection, we cannot sustain the rejection of claims 1 and 21-39³ under 35 U.S.C. § 103 as being unpatentable over the combination of Boyd and Liimatta. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992) (the examiner bears the initial burden of presenting a prima facie case of unpatentability).

Based on the record before us, the decision of the examiner is reversed.

REVERSED

³ Claims 21-39 are dependent on independent claim 1. See 37 CFR § 1.75(c) ("Claims in dependent form shall be construed to include all the limitations of the claim incorporated by reference into the dependent claim.").

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JOHN D. SMITH)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
ADRIENE LEPIANE HANLON)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
)	
)	
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APJ HANLON

APJ ROBINSON

APJ JOHN D. SMITH

DECISION: REVERSED
Send Reference(s): Yes No
or Translation (s)
Panel Change: Yes No
Index Sheet-2901 Rejection(s): _____

Prepared: July 18, 2000

Draft Final

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OB/HD GAU

PALM / ACTS 2 / BOOK
DISK (FOIA) / REPORT