

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* STEPHEN CHRISTENSEN and ERIC J. STOBBER

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Appeal No. 1999-2174  
Application No. 08/762,235

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Before KIMLIN, GARRIS, and OWENS, *Administrative Patent Judges*.  
GARRIS, *Administrative Patent Judge*.

***DECISION ON APPEAL***

This is a decision on appeal under 35 U.S.C. § 134 from the Examiner's refusal to allow claims 1-2, 4-5 and 8-14 as amended subsequent to the final rejection<sup>1</sup>. Remaining claim 3 stands withdrawn from consideration as directed to a non-elected invention. Claim 6 and 7 have been canceled.

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### ***BACKGROUND***



The subject matter on appeal relates to a method for curing a viscous thermoplastic resin preform. The method comprises preparing a fiber-reinforced preform, enclosing the preform in a pressure zone, and applying suction to reduce the pressure to extract residual volatiles during curing, then, compacting the preform, and then heating the preform to the curing temperature of the resin while inputting acoustic vibration into the preform at a vibration frequency to assist momentum transport of the resin for adequate flow to fill voids and to assist in consolidating the preform as the resin melts and cures. Appellants teach that in this process “piezoelectric transducers apply vibration at high frequency (in excess of  $10^5$  Hz) and low displacement (i.e.,  $\leq 1\mu\text{m}$ ) to a prepregged part [i.e. preform] ... to advance the consolidation of composites containing high viscosity resins that ... exhibit pseudoplastic rheology....To avoid distortion of the individual fibers, yarns, or plies, [in the prepregged part], the displacement must be limited” (see specification, page 4 and brief, page 3).

Claim 1 is representative of the subject matter on appeal and is reproduced below:

1. A method for curing a viscous thermoplastic resin preform having significant residual volatiles, comprising the steps of:

a) preparing a fiber-reinforced resin preform;

e) then, heating the preform to a curing temperature of the resin while inputting acoustic vibration into the preform at a vibration frequency to assist momentum transport of the resin for adequate flow to fill voids and to assist in consolidating the preform as the resin melts and cures at the curing temperature to a composite.

The prior art references of record relied upon by the Examiner as evidence of obviousness are:

Dahlgren	5,261,993	Nov. 16, 1993
Stutsman	3,217,356	Nov. 16, 1965
Pages 1-3 of instant specification		Appellants' admitted prior art

Claims 8 and 11-13 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1-2, 4-5, and 8-14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Dahlgren in view of Stutsman.

We refer to the brief and to the answer for a complete exposition of the opposing viewpoints expressed by the Appellants and by the Examiner concerning the above noted rejections.

***OPINION***

We agree with the Examiner, as set out on page 3 of the answer, that the limitation in claim 8<sup>2</sup> that the resin has a glass transition temperature of “at least” 525° F is not supported in the originally filed disclosure. According to Appellants (see brief, pages 6, 7), the specification description (1) implies “or higher” after “525°F” when it states on page 3 “... the resin must have a glass transition temperature (Tg) of 525°F after equilibration...”; and (2) expressly recites two temperatures, of which 525°F is the lower.

The test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language. *In re Kaslow*, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983). It has also been established that the USPTO has the initial burden of presenting reasons why a person would not recognize in applicant’s disclosure a description of the claimed invention. *See In re Wertheim*, 541 F.2d 257, 263, 191 USPQ 90, 97 (CCPA 1976).

In applying this test to the case at bar, we are led to the determination that the “at least 525°F” of appealed claim 8 does not comply with the written description requirement set forth in

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resin must have a glass transition temperature (Tg) of 525°F after equilibration with the operating environment and an “as processed” Tg approaching 600° F.” (emphasis provided).

In the decision in *Wertheim, supra*, the ranges described in the specification included a range of “25%-60%” and specific examples of “36%” and “50%”. In that case, it was decided that a corresponding new claim limitation to “at least 35%” did not meet the description requirement because the phrase “at least” had no upper limit, and caused the claim to read literally on embodiments outside the “25% to 60%” range.

By pointing to the fact that the temperature range in Appellants’ claim 8 of “at least 525°F” literally reads on embodiments outside the range described in the aforementioned instant specification quotation, the Examiner has satisfied the USPTO’s initial burden. Indeed, one could conclude that a temperature *range* was not even disclosed in this quotation, and that the Tg of the resin must be 525°F, as opposed to the Tg of the “as processed” product, which may approach 600°F. In any event, the Examiner’s interpretation of the above quoted disclosure is a reasonable interpretation on the record before us. Certainly, Appellants have proffered no evidence that the specification disclosure in controversy would have conveyed to an artisan with ordinary skill their interpretation rather than the Examiner’s interpretation.

adequate written description of the here claimed invention. We note here that Appellants state that for the purposes of the § 112 rejection, these claims stand or fall together (appeal brief, page 7).

The facts of this case necessitate a new rejection which we add pursuant to our authority under 37 CFR § 1.196(b). We state the rejection as follows:

Claim 14 is rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 14 depends from claim 13 which is included in the § 112 rejection we have affirmed above. The Examiner did not include claim 14 in that rejection<sup>3</sup>.

Claim 13 depends from claim 8 which contains the new matter which is not described in the original disclosure, and claim 14 does not add any limitations that cure this problem. Thus claim 14 is also based upon a disclosure which fails to contain an adequate written description of the here claimed invention for the same reasons set forth above with respect to claims 8 and 11-13.

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curing a preform in an autoclave. The resin preform already has the fiber reinforcements contained therein. Stutsman teaches (col. 3, lines 33-42) pouring adhesive into a mold that contains fiber glass sheets. The function of the vibration of the matched mold set of Stutsman is to spread the adhesive evenly into the fiberglass reinforcement sheets (col 4, lines 5-11). As Appellants state (see brief, page 9), Dahlgren does not need to promote infusion of resin into its prepreg (i.e. preform). Dahlgren is curing “parts comprising fibers such as graphite or Kevlar fibers *impregnated* with thermosetting resins ...” (See col 1, lines 12-14; emphasis provided). Thus, the resin is already spread throughout the reinforcement fibers. Under these circumstances, we cannot accept the Examiner's position that it would have been *prima facie* obvious to add the adhesive spreading vibration step of the molding process of Stutsman to the autoclave curing process of Dahlgren.

Furthermore, we agree with the Appellants that Dahlgren does not mention that there are any problems with the autoclave curing operation (brief, page 9). Indeed, Dahlgren at col 3, line 29-33 teaches that the part 14 after curing in the autoclave is “void-free”. Thus there is no suggestion to perform the additional claimed step of “... inputting acoustic vibration into the preform at a vibration frequency to assist momentum transport of the resin for adequate flow to

***SUMMARY***

We have sustained the Examiner's rejection of claims 8 and 11-13 under 35 U.S.C. § 112, first paragraph, but not the Examiner's rejection of claims 1-2, 4-5, and 8-14 under 35 U.S.C. § 103(a) over Dahlgren in view of Stutsman.

Also, we have made a new ground of rejection under the first paragraph of 35 USC § 112 against claim 14 pursuant to our authority under 37 CFR § 1.196(b).

In addition to affirming the Examiner's rejection of one or more claims, this decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b), which provides that "[a] new ground of rejection shall not be considered final for purposes of judicial review."

Regarding any affirmed rejection, 37 CFR § 1.197 (b) provides:

(b) Appellants may file a single request for rehearing within two months from the date of the original decision....

37 CFR § 1.196(b) also provides that the appellant, ***WITHIN TWO MONTHS FROM THE DATE OF THE DECISION***, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (37 CFR § 1.197(c)) as to the rejected claims:

(1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or

Should the Appellants elect to prosecute further before the Primary Examiner pursuant to 37 CFR § 1.196(b)(1), in order to preserve the right to seek review under 35 U.S.C. §§ 141 or 145 with respect to the affirmed rejection, the effective date of the affirmance is deferred until conclusion of the prosecution before the examiner unless, as a mere incident to the limited prosecution, the affirmed rejection is overcome.

If the appellants elect prosecution before the examiner and this does not result in allowance of the application, abandonment or a second appeal, this case should be returned to the Board of Appeals and Interferences for final action on the affirmed rejection, including any timely request for rehearing thereof.

***CONCLUSION***

The decision of the Examiner is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

***AFFIRMED-IN-PART***

***37 CFR § 1.196(b)***

EDWARD C. KIMLIN	)	
Administrative Patent Judge	)	
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	)	
	)	BOARD OF PATENT
BRADLEY R. GARRIS	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
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	)	
TERRY J. OWENS	)	
Administrative Patent Judge	)	

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