

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SERGE GONZALEZ, PAUL MARIAGGI
and DOMINIQUE AUDIGIER

Appeal No. 2006-0500
Application No. 10/094,709

HEARD: MARCH 8, 2006

Before GARRIS, WALTZ and JEFFREY T. SMITH, Administrative Patent Judges.

GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal which involves claims 1-10 and 14-20.

The subject matter on appeal relates to a method of manufacturing a part made of a composite material comprising reinforcing fibers embedded in a matrix made of a polymerizable and/or crosslinkable material. The method is said to be "characterize in that" a layer of the composite is deposited on a

mandrel, the composite layer is coated with a protection layer made of a hardenable material, and the protection layer is hardened before polymerization and/or crosslinking of the composite layer. This appealed subject matter is adequately represented by independent claims 1 and 14 which read as follows:

1. A method of manufacturing a part made of a composite material comprising reinforcing fibers embedded in a matrix made of a polymerizable and/or crosslinkable material, characterized in that:

- at least one layer of said composite is deposited on a mandrel by winding the reinforcing fibers on the mandrel,
- said at least one layer of said composite is coated with at least one protection layer made of a hardenable material;
- said at least one protection layer is hardened before polymerization and/or crosslinking of said at least one layer of said composite.

14. A method of manufacturing a part made of a composite material comprising reinforcing fibers embedded in a matrix made of a B-stage thermosetting composition comprising a polymerizable and/or crosslinkable material, with low regain of water, oil and its components, with a glass-transition temperature of at least 100°C, said composition comprising at least one epoxide resin consisting of at least one polyepoxide containing in its molecule at least two epoxide groups and of at least one aromatic polyamine comprising in its molecule at least two primary amino groups, at least one alkanoyl substituent having 1 to 12 carbon atoms located at alpha and one of the amino groups, the amine to epoxide molar ratio ranging between 1:6 and 1:26, characterized in that:

- at least one layer of said composite is deposited on a mandrel,

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- said at least one layer of said composite is coated with at least one protection layer made of a hardenable material selected from the following group consisting of thermosetting resins, thermoplastic polymers, mixtures of polymers, rigid foams, cements, and impregnated cloths

- said at least one protection layer is hardened before polymerization and/or crosslinking of said at least one layer of said composite.

The prior art set forth below is relied upon by the examiner as evidence of obviousness:

Schetty et al. (Schetty)	3,884,269	May 20, 1975
Johansen et al. (Johansen)	3,988,188	Oct. 26, 1976
Nakasone et al. (Nakasone)	4,770,834	Sep. 13, 1988
Green et al. (Green)	5,445,191	Aug. 29, 1995
Werner & Pfleiderer (published British patent application) (hereinafter referred to as the British reference.)	1,151,964	May 14, 1969

The admitted prior art disclosed at pages 1-5 of the subject specification and shown in figures 1A and 2A of the appellants' drawing.

The following rejections under 35 U.S.C. § 103(a) are before us in this appeal:

Claims 1-9 are rejected over Johansen in view of the admitted prior art and Green, while claim 10 is correspondingly rejected over this prior art and further in view of Schetty or the British reference;

Claims 14-19 are rejected over Johansen in view of the admitted prior art, while claim 20 is correspondingly

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rejected over this prior art and further in view of Schetty or the British reference;

Claims 1-9 and 14-19 are rejected over the admitted prior art in view of Nakasone or Johansen, while claims 10 and 20 are correspondingly rejected over this prior art and further in view of Schetty or the British reference.

We refer to the brief and reply brief and to the answer for a complete exposition of the contrary viewpoints expressed by the appellants and by the examiner concerning the above noted rejections.

OPINION

We agree with the findings of fact, conclusions of law and rebuttals to argument expressed by the examiner in the answer. Accordingly, we hereby adopt these findings, conclusions and rebuttals as our own. We add the following comments for emphasis.

Concerning the rejection of claims 1-9 over Johansen, the admitted prior art and Green, the examiner expresses his basic position on pages 5-6 of the answer as follows:

Johansen et al., while teaching that the reinforcing fibers are wound and the crosslinkable resin [i.e., adhesive] is placed between the composite core and reinforcing fibers, are silent as to winding reinforcing fibers impregnated with the crosslinkable resin. It would

have been obvious to one of ordinary skill in the art at the time the invention was made to apply the crosslinkable resin taught by Johansen et al. simultaneously with winding the reinforcing fibers, e.g., as resin impregnated fibers, as this was a well known technique in the art for applying reinforcing fiber and resin to a core when forming a hose as shown for example by the admitted prior art or Green et al. wherein only the expected results/benefits would be achieved, i.e., applying the reinforcing fibers and resin in a single (as opposed to multiple) step.

This obviousness conclusion is well founded. An artisan would have been motivated to so combine the aforementioned prior art teachings in order to provide Johansen's core tube with the combination of a reinforcing layer and adhesive as desired by patentee in a single deposition step wherein the reinforcing fibers impregnated with crosslinkable resin or adhesive are wound onto the core tube. The motivation for this provision would have included the increased efficiency of effecting Johansen's desired result in a single step as opposed to providing the desired reinforcing layer and adhesive in separate steps.

The appellants argue that "there is no suggestion in Johansen et al. to conduct crosslinking after at least a protection layer is hardened, i.e., to harden the protection layer before polymerization and/or crosslinking of the composite layer of reinforcing fibers embedded in a matrix as presently claimed" (brief, page 6). This argument is unpersuasive as fully

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explained on pages 11-14 of the answer. To summarize, Johansen teaches or at least would have suggested hardening sheath 11 prior to his crosslinking step (e.g., see figure 3 of the patent).

In response to this explanation by the examiner, the appellants urge that "the Examiner has made a fundamental missing interpretation [sic, misinterpretation?] of the present invention in relation to the Johansen et al. patent" (reply brief, page 2). Specifically, the appellants point out that Johansen fails to disclose the hereclaimed feature wherein the reinforcing fibers are embedded in a matrix of polymerizable and/or crosslinkable material and then argue that "[w]hether or not the sheath 11 of Johansen et al. is hardened before or after the cross-linking of the core tube 13 and the sheath 11 is irrelevant" (reply brief, page 4). In this regard, the appellants urge that, "[s]ince the Johansen et al. patent does not disclose reinforcing fibers embedded in a matrix made of polymerizable and/or crosslinkable material, it of course can not disclose or suggest hardening of a protection layer before polymerization and/or crosslinking of such a composite" (id.).

This argument is not well taken because it ignores the examiner's exposition of his rejection and more particularly the

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other prior art applied in this rejection. As quite clearly expressed in the aforequoted statement from pages 5-6 of the answer, the examiner fully appreciates that the Johansen patent is "silent as to winding reinforcing fibers impregnated with the crosslinkable resin" (answer, pages 5-6). Concerning this deficiency of Johansen, the examiner concludes that it would have been obvious "to apply the crosslinkable resin taught by Johansen et al. simultaneously with winding the reinforcing fibers, e.g. [,] as resin impregnated fibers, as this was a well known technique in the art for applying reinforcing fibers and resin to a core when forming a hose as shown for example by the admitted prior art or Green et al. wherein only the expected results/benefits would be achieved, i.e. [,] applying the reinforcing fibers and resin in a single (as opposed to multiple) step" (answer, page 6). In short, Johansen when modified by the admitted prior art and Green in the manner proposed by the examiner would result in a method having all of the features and steps recited in appealed independent claim 1 including the feature wherein reinforcing fibers are embedded in a matrix made of a polymerizable and/or crosslinkable material.

Under these circumstances and for the reasons set forth in the answer, we hereby sustain the examiner's Section 103

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rejection of independent claim 1 and of nonargued dependent claims 2-9 as being unpatentable over Johansen in view of the admitted prior art and Green.

We also hereby sustain the examiner's Section 103 rejection of claim 10 over Johansen, the admitted prior art, Green and Schetty or the British reference as well as the rejection of claims 14-19 over Johansen in view of the admitted prior art as well as the rejection of claim 20 over Johansen, the admitted prior art and Schetty or the British reference. This is because we agree with the examiner's obviousness conclusions in these rejections and because the arguments advanced by the appellants in support of nonobviousness correspond to those found to be unpersuasive for reasons expressed earlier.

Concerning the rejection based on the admitted prior art in view of Nakasone or Johansen, the examiner's obviousness position is set forth on page 9 of the answer as follows:

The admitted prior art is silent as to including a protective layer on the composite material prior to crosslinking the resin of the composite material. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the admitted prior art to include extruding a (removable or permanent) thermoplastic protective layer onto the composite layer prior to crosslinking the resin of the composite layer as was well known in the art as shown for example by either one of Nakasone et al. or Johansen et al. to protect the composite layer during crosslinking and so that the resin of

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the composite layer is crosslinked at a high speed of manufacture while still maintaining good dimensional accuracy.

Again, for reasons more fully explained in the answer, we consider this obviousness conclusion to be well taken.

The appellants' initial argument against this rejection is that "[t]he Nakasone et al. patent is completely inapposite to this field, since it relates to a method for continuous molding of a rod-like product, e.g., a multi-core optical fiber" and that "one skilled in the art to which the present invention is directed, would not have look[ed] to Nakasone et al. to modify what is known in the prior art" (brief, page 9). Though not expressly stated, the appellants seem to regard Nakasone as nonanalogous prior art. With this in mind, we observe that two criteria have evolved for determining whether prior art is analogous: (1) whether the art is from the same field of endeavor regardless of the problem addressed, and (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. In re Clay, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060 (Fed. Cir. 1992).

With respect to this criteria, we cannot agree with the appellants that the Nakasone patent "is complete inapposite to

this field" (brief, page 9). Contrary to the appellants' implication, Nakasone is not limited to a rod-like product in the form of an optical fiber. Rather, Nakasone discloses that rod-like products of the type with which he is concerned are extensively used in a variety of contexts including as structural material (e.g., see lines 7-15 in column 1). The appellants' field of endeavor also relates to products used in a variety of contexts (e.g., as a tube or a pipe for carrying liquids; see lines 2-8 on specification page 1) including as structural material (e.g., see lines 10-12 on specification page 3). Viewed from this perspective, the Nakasone patent is analogous prior art because it is from the appellants' field of endeavor.

Regardless, a comparison of the appellants' specification disclosure (e.g., see the last paragraph on specification page 5) with the disclosure of Nakasone (e.g., see the abstract and lines 33-50 in column 4) reveals that the reference is reasonably pertinent to the particular problem (i.e., dimensionally unstable polymer at elevated temperatures) with which the appellants were involved. For this additional reason, it is proper to consider Nakasone as analogous prior art.

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The appellants further argue that "nothing in Nakasone et al or Johansen et al would have suggested the modifications of 'the admitted prior art' necessary to arrive at the presently claimed invention" (brief, page 10). However, beyond contending that Nakasone "is completely inapposite to this field" (brief, page 9), the appellants have not identified with any reasonable specificity an alleged deficiency of this rejection. That is, the appellants have not proffered any particular reason why the examiner's proposed combination of the admitted prior art with either Nakasone or Johansen would not have been obvious. Nor have the appellants specified any claim limitation which would not be satisfied by this proposed combination.

Under these circumstances, it is our determination that the examiner has established a prima facie case of obviousness which the appellants have failed to successfully rebut with argument or evidence of nonobviousness. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). Accordingly, we hereby sustain the examiner's Section 103 rejection of claims 1-9 and 14-19 as being unpatentable over the admitted prior art in

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view of Nakasone or Johansen. For analogous reasons we also hereby sustain the corresponding rejection of claims 10 and 20 over the aforementioned prior art and further in view of Schetty or the British reference, since the only arguments directed against this rejection are those which were found to be unpersuasive as discussed previously.

In summary, we have sustained each of the rejections advanced on this appeal for the reasons expressed in the answer and above.

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The decision of the examiner is affirmed.

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

AFFIRMED

BRADLEY R. GARRIS)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
THOMAS A. WALTZ)	APPEALS AND
Administrative Patent Judge)	INTERFERENCES
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BRG/hh

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