

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(2) is not binding precedent of the Board.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. 41

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NARASIMHAN RAGHUPATHI,
PHILIP L. SCHELL, JAMES C. WATSON
and DAVID T. MELLE

Appeal No. 97-0139
Application 08/196,819¹

ON BRIEF

Before JOHN D. SMITH, WEIFFENBACH, and PAK, Administrative
Patent Judges.

¹ Application for patent filed February 14, 1994.
According to applicants, the application is a continuation of
Application 07/759,966, filed September 16, 1991, abandoned;
which is a continuation of Application 07/548,439, filed July
5, 1990, abandoned; which is a continuation of Application
07/175,829, filed March 31, 1988, abandoned.

Appeal No. 97-0139
Application No. 08/196,819

JOHN D. SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal pursuant to 35 U.S.C. § 134 from the final rejection of claims 1 through 5, 7 through 14, 16, 17, 23 through 26, and 28 through 30. Claims 18 through 22 are allowed.

Copies of representative claims 1 and 23 appear in an attached appendix to this decision.

The references of record relied upon by the examiner are:

Wong et al. (Wong)	3,920,313	Nov. 18, 1975
Temple	4,394,418	Jul. 19, 1983
Sanzero et al. (Sanzero)	4,752,527	Jun. 21, 1988
		(filed Oct. 30, 1986)

The appealed claims now stand rejected² under 35 U.S.C. § 103 over Sanzero in view of Temple and Wong.

We affirm.

The subject matter on appeal is directed to glass fibers having a dried residue of an aqueous treating composition on their surface. The dried residue is produced when the glass fibers are coated with an aqueous treating (sizing)

²This rejection was imposed as a new ground of rejection in the answer.

Appeal No. 97-0139
Application No. 08/196,819

composition comprising, inter alia, two aqueous soluble, dispersible, or emulsifiable film forming polymers wherein the first polymer is either a bisphenol A polyester or an esterified epoxy resin and the second polymer is a polyvinylacetate homopolymer or a copolymer of vinyl acetate and an organosilane (appealed claim 1) or more broadly, a polyvinylacetate copolymer (appealed claim 23). The vinylacetate polymer functions to produce glass fibers with a dried residue having "PEG wet-out values of about 8 to about 16 at 95% wet-out and about 4 to about 9.7 at about 100% wet-out in uncatalyzed resin" (appealed claims 1 and 23).

Appellants characterize the claimed treated glass fibers as having "optimum wet-out" in thermosetting matrix polymers used to produce glass fiber reinforced plastic (FRP) panels on non-linear conveyors (brief, page 4). According to appellants' specification at page 4, the term "wet-out" means that the matrix polymer encapsulates the glass fibers and very little, if any, bare glass is visible throughout the cured-fiber reinforced polymeric material. Thus, according to appellants, "wet-out" during production of a glass fiber reinforced polymeric material is a measure of the apparent intimacy of

Appeal No. 97-0139
Application No. 08/196,819

contact between the polymeric matrix and the glass fibers. According to appellants' specification, generally at pages 9 and 10, the PEG wet-out test measures the rate of wettability of the glass fibers wherein higher numbers indicate rapid wet-out and lower numbers reflect slow wet-out. The claimed PEG wet-out values are said to indicate "more controlled wet-out speed" which enables the fibers to be used to optimally produce fiber reinforced panels when the panels are produced using non-linear conveyor equipment. See the supplemental reply brief at page 2.

As evidence of obviousness of the claimed invention, the examiner relies on the combined disclosures of Sanzero, Wong, and Temple. Sanzero, according to the examiner, discloses glass fibers having a dried residue formed from "a treating composition essentially of the sort" covered by the appealed claims which includes, inter alia, a bisphenol A polyester resin and an epoxidized polyvinylacetate copolymer film forming component. Recognizing that appealed claim 1 requires the presence of either a homopolymer of polyvinylacetate or an organosilane copolymer of polyvinylacetate, rather than an epoxidized polyvinylacetate copolymer as described in Sanzero,

Appeal No. 97-0139
Application No. 08/196,819

the examiner cites the "secondary references" to Wong and Temple for their respective teachings of the use of the claimed polyvinylacetate polymers as film forming polymers used in aqueous sizing compositions for glass fibers.

With regard to the relied upon "secondary references," Wong discloses that film formers that have been used in combination include epoxies, polyvinylacetate and polyesters (column 4, lines 65 through 68), and that the combination of film formers improves the handleability or processing characteristics of the glass fibers (column 4, lines 38 through 41) as well as the strand integrity (column 3, lines 30 through 33). In like manner, Temple discloses the use of an aqueous sizing composition for glass fibers comprising, inter alia, an epoxy polymer and a polyvinylacetate/silane copolymer which produces sized glass fibers in chopped form that have good strength and flow properties which leads to the formation of reinforced thermosetting materials having "good strength" (column 1, lines 7 through 13).

Based on the known advantages associated with the use of polyvinylacetate polymers in combination with epoxies and polyester film forming polymers in aqueous sizing compositions

Appeal No. 97-0139
Application No. 08/196,819

for glass fibers, as demonstrated by the relied upon "secondary references," we agree with the examiner that one of ordinary skill in this art would have been led to use a polyvinylacetate homopolymer or copolymer as claimed in combination with the bisphenol A polyester resin film former in the sizing composition of Sanzero. Further, as noted by the examiner, certain claims on appeal, including appealed claim 23, do not distinguish over the use of Sanzero's epoxidized polyvinyl-acetate copolymer film former in the aqueous solution contemplated by Sanzero since these claims broadly call for "polyvinylacetate copolymers."

We cannot subscribe to appellants' argument that the Wong reference (which relates to fiber optic materials) constitutes non-analogous art under the test of In re Wood, 599 F.2d 1032, 202 USPQ 171 (CCPA 1979). Indeed, since Wong is directed to the use of an aqueous sizing composition for treating glass fibers, we find that Wong is within the field of appellants' endeavor. Moreover, Wong, in our view, is not limited solely to fiber optic material utilities. Compare the teachings of Wong at column 1, lines 8 through 10 and column 4, lines 15 through 17.

Appeal No. 97-0139
Application No. 08/196,819

Although appellants argue that the formation of FRP panels by a "non-linear" conveyor process places additional demands on the wet-out properties of the glass fibers, appellants have made no specific argument that the PEG wet-out values defined by the ranges in the appealed claims differ in any way from the PEG wet-out value of Sanzero's treated glass fibers. In this regard, a "commercial" chemically treated glass fiber is reported by appellants as having a PEG wet-out value within the range defined by the appealed claims. See the specification at page 25, line 20. Further, although no prior art of record addresses the problem of controlled wet-out when utilizing a non-linear conveyor process for forming a FRP panel, it is well settled that the motivation in the prior art to "combine the references" does not have to be identical to that of an applicant to establish obviousness. In re Dillon, 919 F.2d 688, 693, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (en banc), cert. denied, 500 U.S. 904 (1991). Here the relied upon references themselves provide the motivation for combining the teachings of the prior art to arrive at the claimed invention.

The decision of the examiner is affirmed.

Appeal No. 97-0139
Application No. 08/196,819

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

AFFIRMED

JOHN D. SMITH)	
Administrative Patent Judge)	
)	
)	
)	BOARD OF PATENT
CAMERON WEIFFENBACH)	APPEALS AND
Administrative Patent Judge)	INTERFERENCES
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CHUNG K. PAK)	
Administrative Patent Judge)	

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APPENDIX

Claim 1. Glass fibers having at least a portion of their surfaces covered with the dried residue of an aqueous treating composition, wherein the aqueous treating composition comprises:

a. two aqueous soluble, dispersible or emulsifiable film forming polymers present as the only film forming polymers in the aqueous chemical treating composition where the total amount of film forming polymers that are present in the chemical treatment is at least 80 weight percent of the nonaqueous components, where the one film forming polymer has an amount of aliphatic unsaturation of less than 1.5 double bonds per mole of polymer and the ratio of aliphatic to

Appeal No. 97-0139
Application No. 08/196,819

aromatic unsaturation of not greater than 0.1 selected from the group consisting of bisphenol A polyester and esterified epoxy resin where the esterification is by reaction with carboxylic acids to esterify the epoxy group to the hydroxy ester, present in an amount of at least 40 weight percent of the nonaqueous components, and where the second aqueous soluble, dispersible or emulsifiable film forming polymer is a moderate wettable polyvinylacetate polymeric material selected from the group consisting of poly(vinylacetate) homopolymer, and copolymers of vinyl acetate and organosilane, where the amount of organosilane in the copolymer is below about 1 weight percent of the copolymer, where the polyvinylacetate polymeric material results in the glass fibers with the dried residue having PEG wet-out values of about 8 to about 16 at 95 percent wet-out and about 4 to about 9.7 at about 100 percent wet-out in uncatalyzed resin, present in an amount to comprise the balance of the film forming polymer for the aqueous chemical treatment as an amount in the range of about 5 to 60 weight percent of the nonaqueous components of the chemical treatment;

b. organo coupling agent selected from the group consisting of acryloxy-containing, and methacryloxy-containing coupling agents, present in an effective coupling agent amount;

c. polyamino amide cationic fiber lubricant made with pelargonic acid where the lubricant is present in an amount in the range of about 0.05 to about 0.5 weight percent of the aqueous treating composition; and

Appeal No. 97-0139
Application No. 08/196,819

d. water in an amount to give a total solids of the aqueous chemical treating composition in the range of about 1 to about 30 weight percent and wherein the aqueous chemical treating composition is essentially free of inorganic antistatic agents and where the pH of the aqueous treating composition is below about 7.

Claim 23. In glass fiber strands having a plurality of glass fibers, where the glass fibers have at least a portion of their surfaces covered with the dried residue of an aqueous treating composition, where the aqueous treating composition has:

a. an aqueous soluble, dispersible or emulsifiable film forming polyester having an amount of aliphatic unsaturation of less than 1.5 double bonds per mole of polymer and a ratio of aliphatic to aromatic unsaturation of less than 0.1;

b. organo coupling agent selected from the group consisting of acryloxy-containing, and methacryloxy-containing coupling agents, present in an effective coupling agent amount;

c. polyamino amide cationic fiber lubricant made with pelargonic acid; and

d. water in an amount to give a total solids of the aqueous chemical treating composition in the range of about 1 to about 30 weight percent and wherein the aqueous chemical treating composition is essentially free of inorganic antistatic agents and where the pH of the aqueous treating composition is below about 7, where the IMPROVEMENT COMPRISES:

the polyester is selected from the group consisting of bisphenol A polyester and esterified epoxy resin where the esterification is by reaction with carboxylic acids to esterify the epoxy group to the hydroxy ester,

a second aqueous soluble, dispersible or emulsifiable film forming polymer present that is a moderate wettable polyvinylacetate polymeric material selected from the group

Appeal No. 97-0139
Application No. 08/196,819

consisting of:

a) poly(vinylacetate) homopolymer, polyvinylacetate copolymers, and present in an amount in the range of about 5 to

Appeal No. 97-0139
Application No. 08/196,819

60 weight percent of the nonaqueous components of the chemical treatment, and

b) vinyl acetate organosilane copolymers, where the amount of organosilane in the copolymer does not exceed about 1 weight percent of the copolymer,

wherein the polyvinylacetate polymeric material is present to give a ratio of the two film forming polymers ranging from 1:99 to 99:1, where the polyvinylacetate polymeric material results in the glass fibers with the dried residue having PEG wet-out values of about 8 to about 16 at 95 percent wet-out and about 4 to about 9.7 at about 100 percent wet-out in uncatalyzed resin, and where the amount of the second film forming polymer comprises the balance of the film forming polymer for the aqueous chemical treatment and where the two film forming polymers constitute the total amount of the film forming polymers in the treatment and where the total amount of the film forming polymers that are present in the chemical treatment is at least 40 weight percent of the nonaqueous components, and where the lubricant is present in an amount in the range of about 0.05 to about 0.5 weight percent of the aqueous treating composition.

Appeal No. 97-0139
Application No. 08/196,819

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