The opinion in support of the decision being entered today is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL HEALY

Appeal 2007-1370
Application 10/250,360
Technology Center 1700

Decided: July 5, 2007

Before EDWARD C. KIMLIN, BRADLEY R. GARRIS, and CHUNG K. PAK, *Administrative Patent Judges*.

PAK, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the Primary Examiner's refusal to allow claims 1 through 12, which are all of the claims pending in the above-identified application (Br. 3).[1] We have jurisdiction pursuant to 35 U.S.C. § 6.

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[1] We refer to and cite from the "Appellant's Brief" dated Sep. 25, 2006.

STATEMENT OF THE CASE

According to the Appellant, the subject matter on appeal is directed to "fiber reinforced plastics materials known as composite laminates" (Br. 3). Further details of the appeal subject matter are recited in representative claims 1 and 12 reproduced below:

1. A composite laminate comprising a layup of fibre plies bonded in a matrix material, wherein at least one fibre ply is of non-woven fibres and said at least one fibre including at least one hairy yarn.

12. A method of producing a composite laminate comprising the steps of:

forming a layup of fibre plies, at least one of said fibre plies is non-woven and includes hairy yarn,

applying to the layup a bonding matrix, and

hardening the matrix to form the composite laminate.

The Examiner has relied upon the following prior art references as evidence of unpatentability:

Phillips	US 4,829,761	May 16, 1989
Vane	US 5,055,242	Oct. 8, 1991
Cheshire	US 5,503,928	Apr. 2, 1996

The Examiner has rejected claims 1 through 12 under 35 U.S.C. § 102(b) as anticipated by Vane, as evidenced by Phillips and Cheshire. (Answer 3). The Appellant contends that the Examiner has erred in rejecting the claims on appeal since Vane's composite laminate does not necessarily possess at least one hairy yarn as required by the claims on appeal.

ISSUE

Has the Examiner demonstrated that Vane's composite laminate comprising a layup of non-woven fiber plies bonded in a matrix material inherently (necessarily) possesses at least one hairy yarn in at least one of the fiber plies as evidenced by Phillips and Cheshire within the meaning of 35 U.S.C. § 102(b)?

RELEVANT FACTUAL FINDINGS AND ANALYSIS

To establish anticipation within the meaning of 35 U.S.C. § 102, a single prior art reference must teach either expressly or inherently each and every limitation recited in the claims on appeal. *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ 2d 1429, 1432 (Fed. Cir. 1997). "Extrinsic evidence may be considered when it is used to explain, but not to expand, the meaning of a reference." *In re Baxter Travenol Labs*, 952 F.2d 388, 390, 21 USPQ2d 1281, 1284 (Fed. Cir. 1991).

"[When] relying upon the theory of inherency, the [E]xaminer must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ 2d 1461, 1464 (Bd. Pat. App. & Int. 1990). Inherency cannot be established based on possibilities or probabilities. *In re Oelrich*, 666 F.2d 578, 581 , 212 USPQ 323, 326 (CCPA 1981).

Here, the Examiner has found (Answer 3-4) that:

> VANE teaches reinforcing material that has a plurality of superimposed layers; each layer of the reinforcing material includes a plurality of unidirectional nonwoven yarns or

> threads. The reference also teaches wetting the reinforcing material with a matrix material and consolidating the matrix material. (Abstract; Col. 2, lines 14-25)[.] The reference teaches that the yarns or threads used to produce the reinforcing material may be yarns, threads, rovings, tows or the *like*, of continuous or discontinuous fibers, of glass fiber or other suitable reinforcing material such as carbon fiber, aramid fiber, among others. (Col. 2, lines 58-62). [Emphasis added.]

The Examiner has recognized that Vane does not expressly mention employing the claimed "hairy" yarn which is defined, according to pages 1 and 2 of the Specification, as follows:

> It is also known to produce carbon yarn formed from many short fibres spun together. This produces a yarn with numerous short lengths of fibre protruding out from the main orientation of fibres, and will be referred to in the application as a "hairy" yarn. …
>
> The hairy yarn may be constructed from short lengths of broken and twisted carbon fibre or alternatively from glass, Kevlar®, PBO or other suitable material.

To remedy this deficiency, the Examiner has selected yarns and discontinuous fibers from various possibilities mentioned in Vane and determined that the use of yarns formed from such discontinuous fibers would necessarily result in the formation of the claimed "hairy" yarns (Answer 4). According to the Examiner, Cheshire and Phillips show that Vane's yarns formed from discontinuous fibers, if employed to form non-woven plies, would necessarily result in the formation of the claimed "hairy" yarns in the non-woven plies (*id.*).[2]

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[2] Cheshire teaches a filament consisting of a staple yarn spun from typically 10 to 100 mm long discontinuous fibers (col. 1, l. 62 to col. 2, l. 11).

Thus, the dispositive question is whether the Examiner has demonstrated that Vane's composite laminate comprising a layup of non-woven fiber plies bonded in a matrix material necessarily possesses at least one hairy yarn within the meaning of 35 U.S.C. § 102(b) On this record, we answer this question in the negative.

As indicated above, one of ordinary skill in the art must pick and choose a particular combination from those listed in Vane to "inherently" form the claimed "hairy" yarn. In other words, the claimed "hairy" yarn is not necessarily formed; it is formed by chance if an appropriate combination of methods and materials is chosen. Since the Examiner's inherency theory is based on probabilities or possibilities of making the right selection from various embodiments described in Vane, we cannot agree with the Examiner that Vane's composite laminate comprising a layup of non-woven fiber plies bonded in a matrix material *necessarily* possesses at least one hairy yarn within the meaning of 35 U.S.C. § 102(b).

OTHER ISSUE

We observe that the Appellant acknowledges at page 1, lines 25-32, of the Specification that:

> It is also known to produce carbon yarn formed from many short fibres spun together. This produces a yarn with numerous short lengths of fibre protruding out from the main orientation of fibres, and will be referred to in the application as a "hairy" yarn. It is also known in the art to use the yarn in the production of woven and non-woven fabrics which have improved interlaminar shear strengths and cross-ply tensile

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Philips teaches that the filament formed from staple yarns is known to have protruding free ends (col. 1).

> properties, as a consequence of through-thickness property improvements associated with the short fibres.

In other words, the Appellant acknowledges that the employment of the claimed "hairy" yarn in the non-woven fabric is known to improve "interlaminar shear strengths and cross-ply tensile properties"

Thus, upon return of this application, the Examiner is advised to determine whether one of ordinary skill in the art would have been led to employ the claimed "hairy" yarn in forming the non-woven plies taught in Vane (and optionally Cheshire) in view of the Appellant's admission regarding the known advantages of employing "hairy" yarns.

CONCLUSION

For the foregoing reasons, we reverse the Examiner's § 102(b) rejection of claims 1 through 12 and remand the application to the Examiner to determine whether Vane, the Appellant's admission at page 1 of the Specification and optionally Cheshire affect the patentability of claims 1 through 12 under 35 U.S.C. § 103.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a) (1) (iv) (2006).

This remand to the Examiner pursuant to 37 CFR § 41.50(a)(1) (2006) is not made for further consideration of a rejection. Accordingly, 37 CFR § 41.50(a)(2) does not apply.

REVERSED/§ 41.50(a)(1)

tlc/ls

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