

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 HANNS ROLAND MISIAK

Appeal 2007-1174
Application 11/001,244
Technology Center 1700

Decided: April 5, 2007

Before CHARLES F. WARREN, THOMAS A. WALTZ, and PETER F. KRATZ, *Administrative Patent Judges*.

WALTZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal from the Primary Examiner's refusal to allow claims 1-11, the only claims pending in this application, as amended subsequent to the Final Rejection (*see* the Amendments dated Feb. 14, 2006, and Apr. 13, 2006, entered as per the Advisory Actions dated Mar. 3, 2006, and Apr. 21, 2006, respectively; Br. 3). We have jurisdiction pursuant to 35 U.S.C. §§ 6 and 134.

According to Appellant, the invention is directed to a cyanoacrylate adhesive composition with enhanced peel strength, where the composition includes a cyanoacrylate component and a toughening agent comprising poly(vinylidene chloride-co-acrylonitrile) in combination with fumed silica (Br. 3). Independent claims 1 and 9 are illustrative of the invention and are reproduced below:

1. A toughened cyanoacrylate composition consisting essentially of:
 - a. a cyanoacrylate component; and
 - b. polyvinylene-chloride-co-acrylonitrile); and
 - c. fumed silica, wherein the fixturing time of the cyanoacrylate composition between two substrates is less than about 70 seconds.
9. A cyanoacrylate composition consisting essentially of:
 - a. a cyanoacrylate component;
 - b. poly(vinylidene-chloride-co-acrylonitrile);
 - c. fumed silica; and
 - d. one or more additives selected from the group consisting of stabilizers, accelerators, plasticizers, fillers other than fumed silica, opacifiers, thickeners, viscosity modifiers, inhibibors, thixotropy conferring agents other than fumed silica, dyes, thermal degradation reducers, and combinations thereof,

wherein upon cure, the cyanoacrylate composition has an average tensile shear strength in excess of about 1.0 N/mm.

The Examiner has relied upon the following references as evidence of obviousness:

Gleave	US 4,102,945	Jul. 25, 1978
Koga	US 4,713,405	Dec. 15, 1987
Nishino	US 5,739,205	Apr. 14, 1998
O'Connor	US 6,475,331 B1	Nov. 05, 2002

ISSUES ON APPEAL

Claims 1-8 stand rejected under 35 U.S.C. § 112, first paragraph, for failure to provide enablement for the scope of the claims (Answer 3).¹

Claims 1-11 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Nishino in view of Gleave, O'Connor, and Koga (Answer 3).

Appellant contends that only routine, not undue, experimentation is needed to determine if the fixture time between any two substrates is within the scope of the claims (less than about 70 seconds) (Br. 7).

Appellant contends that the claimed language “consisting essentially of” eliminates the need for an accelerator while all of the applied prior art includes an accelerator (Br. 10-12 and 15; Reply Br. 2-4).

Appellant contends that Nishino teaches that difficulties are encountered if the specific disclosed thickeners are not used, and thus there is no motivation to substitute the thickener of Gleave (Br. 14).

Appellant contends that unexpected results have been shown (Br. 16-17).

¹ We refer to and cite from the Examiner’s Answer dated Nov. 2, 2006. We note that the rejection of claims 1-8 under the first paragraph of 35 U.S.C. § 112 for lack of written description has been withdrawn by the Examiner (Answer 2, ¶ (6)).

The Examiner contends that O'Connor shows that the fixturing time of the adhesive composition depends on the type of substrates, and Appellant's Specification does not reasonably provide enablement for the fixturing time of the adhesive composition used between any two substrates (Answer 3).

The Examiner contends that Gleave teaches the improved benefits of using a vinylidene chloride-acrylonitrile (VAC) thickener in place of the conventional poly(methylmethacrylate) (PMM) thickener (Answer 4 and 8-9).

The Examiner contends that the claimed language "consisting essentially of" does not exclude the accelerators of the applied prior art references since Appellant has not shown that accelerators materially affect the basic and novel characteristics of the claimed invention (Answer 8).

Accordingly, the issues presented in this appeal are as follows: (1) would undue experimentation be required to practice the invention as claimed?; (2) does the claimed language "consisting essentially of" exclude the accelerators required by the applied prior art references?; (3) has a motivation, reason, or suggestion been established for substituting the thickener of Gleave for the thickener of Nishino?; and (4) does Appellant show unexpected results sufficient to rebut any *prima facie* case of obviousness?

We determine that the Examiner has not established that the Specification disclosure requires undue experimentation to practice the invention as claimed. Therefore, we REVERSE the rejection based on the first paragraph of § 112, essentially for the reasons stated in the Brief and

those set forth below. We also determine that the Examiner has established a prima facie case of obviousness in view of the reference evidence, which case has not been adequately rebutted by Appellant's arguments and evidence. Therefore, we AFFIRM the rejection based on § 103(a) essentially for the reasons stated in the Answer, as well as those reasons set forth below. Accordingly, the decision of the Examiner to reject the claims on appeal is AFFIRMED.

OPINION

A. The Rejection under § 112, first paragraph

We determine the following factual findings from the record in this appeal:

- (1) some of the claims require that the “fixturing time of the cyanoacrylate composition between two substrates is less than about 70 seconds” (*see* claim 1 on appeal reproduced above);
- (2) original claim 13 provides a literal basis for this requirement in claim 1 on appeal (Br. 9);
- (3) examples of substrates bonded with Appellant's adhesive composition include EPDM rubber and steel (Specification 11:16-19; 12:11-19; 13, Table 1; and 14:1-7; Br. 6; and Answer 3, 5-6); and
- (4) O'Connor discloses cyanoacrylate adhesive compositions with various fixture times for different substrates (col. 5, Table 2).

Whether a specification is enabling is a legal conclusion based upon several underlying factual inquiries. *See In re Wands*, 858 F.2d 731, 735-37, 8 USPQ2d 1400, 1400-04 (Fed. Cir. 1988). The initial burden of

establishing lack of enabling disclosure, such as by showing undue experimentation, rests with the Examiner. *See In re Wright*, 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). Some routine experimentation is permissible to practice the invention as claimed as long as the experimentation is not “unduly extensive.” *See Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986).

Applying the preceding legal principles to the factual findings in the record of this appeal, we determine that the Examiner has not met the initial burden of establishing a lack of enabling disclosure. It is not necessary that a patent applicant test all the embodiments of the invention. *See In re Angstadt*, 537 F.2d 498, 502, 190 USPQ 214, 218 (CCPA 1976). The Examiner has not established what experimentation would have been necessary to practice the invention as claimed, much less that this experimentation would have been “undue.” *See Wands, supra*. Merely because the prior art shows different fixturing times for different types of substrates does not constitute undue experimentation or lack of enabling disclosure. Therefore, we determine that the Examiner has not met the initial burden of establishing that the Specification disclosure lacks enablement. Accordingly, we cannot sustain the rejection of claims 1-8 under the first paragraph of 35 U.S.C. § 112.

B. The Rejection based on § 103(a)

We determine the following factual findings from the record in this appeal:

- (1) Nishino teaches that polymer thickeners were known to be blended with cyanoacrylate adhesives in order to increase the viscosity, and ultrafine anhydrous silica was blended with cyanoacrylate adhesives in order to give high thixotropy and improve flowability and penetration (col. 1, ll. 20-23 and 31-34);
- (2) Nishino discloses that prior art adhesive compositions included cyanoacrylate, poly(methylmethacrylate) (PMM) as a thickener, a quick-curing additive, and fumed silica (col. 1, ll. 44-50, citing US 4,845,151);
- (3) Nishino discloses an adhesive composition comprising a cyanoacrylate, a specific amount of PMM with an average molecular weight of from 100,000 to 300,000, a specific amount of a quick-curing agent represented by formula (1), and an ultrafine anhydrous silica (col. 3, l. 38-col. 4, l. 29; Answer 3-4);
- (4) Nishino teaches that “[o]ne or more of other known various thickeners which are used in combination with the cyanoacrylate may be used” (col. 4, ll. 44-49);
- (5) Nishino teaches that various difficulties are encountered when thickeners are used which do not meet the requirements of the invention with respect to the weight average molecular weight and the amount (col. 3, ll. 26-30);

- (6) Nishino discloses examples where the fixturing times (set times) for the adhesive compositions are 20, 40, and 50 seconds (Examples 1-3; Answer 4);
- (7) Gleave discloses an adhesive composition of a cyanoacrylate with a VAC thickener, which thickener gives improved peel strength over the conventional PMM thickener, with the selection of molecular weight well within the skill of the art (col. 1, ll. 7-9, 55-68; col. 3, ll. 40-47; and col. 4, ll. 3-6, 58-62; Answer 4);
- (8) O'Connor teaches the well known use of fumed silica as a thixotropic agent and PMM as a thickener in cyanoacrylate adhesive compositions, as well as the amounts necessary to achieve these functions (col. 3, ll. 50-63);
- (9) O'Connor teaches the use of various accelerating agents to produce fixture times of less than 30 seconds, depending on the substrates (col. 4, ll. 11-13; Example 4 in Table 1; and Table 2);
- (10) Koga teaches that additives known as Aerosil R200 and R972 are fumed silicas (Table 1; Answer 4).

Implicit in our review of the Examiner's obviousness analysis is that the claim must first have been correctly construed to define the scope and meaning of each contested limitation. *See Gechter v. Davidson*, 116 F.3d 1454, 1457, 1460 n.3, 43 USPQ2d 1030, 1032, 1035 n.3 (Fed. Cir. 1994). The transition phrase "consisting essentially of" has a settled meaning in patent jurisprudence and opens the claim to the inclusion of any component

that does not materially affect the basic and novel characteristics of the claimed invention. *See In re Herz*, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976). However, the term “consisting essentially of” does not necessarily limit the claims to exclude certain materials when the specification clearly indicates that these same materials may be present. *See Herz, supra; Ex parte Boukidis*, 154 USPQ 444 (Bd. Pat. App. 1966). When relying on numerous references, it is incumbent upon the Examiner to identify some suggestion or motivation to combine the references as proposed. *See In re Mayne*, 104 F.3d 1339, 1342, 41 USPQ2d 1451, 1454 (Fed. Cir. 1997).

Applying the preceding legal principles to the factual findings in the record of this appeal, we determine that the claimed phrase “consisting essentially of” does not exclude accelerators since Appellant’s Specification and Claims clearly include accelerators in the adhesive compositions of the invention (*see* claims 7 and 9 on appeal; Specification 3:15, 6:2, and 7:3-9:11). *See Herz, supra.* Therefore, accelerators would not have affected the basic and novel characteristics of the claimed adhesive compositions (note that claim 9 on appeal recites a desired tensile shear strength, not a fixturing time). It appears that the “basic and novel characteristic” of the claimed composition is the “improved peel strengths” (Specification 1:13-14). Accordingly, we determine that the accelerators disclosed in the applied prior art are not excluded from the claims on appeal.

Applying the preceding legal principles to the factual findings in the record of this appeal, we determine that the Examiner has established a *prima facie* case of obviousness in view of the reference evidence. As shown by factual findings (1) through (3), (6) and (10) listed above, we determine that adhesive compositions of a cyanoacrylate component, PMM thickener, and fumed silica, with fixturing times of less than about 70 seconds, are disclosed by Nishino. We determine that the only difference between the claimed subject matter and the disclosure of Nishino is the particular thickener employed (Answer 4). We also determine that Gleave teaches the improved results achieved by using VAC thickeners in place of conventional PMM thickeners in cyanoacrylate adhesive compositions (*see* factual finding (7) listed above). Therefore, we determine that the Examiner has established sufficient motivation to modify the adhesive composition of Nishino.

We note that Nishino teaches that difficulties are encountered if the specific molecular weight and amount of PMM are not used (*see* factual finding (5) listed above). However, as taught by Gleave, the molecular weight of the thickener will affect solubility and thickening ability, but one of ordinary skill in this art would have routinely been able to select the appropriate molecular weight to achieve the desired properties (*see* factual finding (7) listed above). Similarly, the amount of thickener would affect the viscosity and flowability of the adhesive composition, but such amounts would have been well within the ordinary skill in the art (*see* factual finding

(8) listed above). Therefore, we determine that one of ordinary skill in this art would have been motivated to substitute the VAC thickener of Gleave for the conventional PMM of Nishino with the expectation of beneficial results, and with the ordinary skill to modify the molecular weight and amount to achieve the desired thickening properties. Additionally, we determine that one of ordinary skill in this art would also have been led to use the improved thickener (VAC) of Gleave in combination with the PMM thickener disclosed by Nishino, rather than as a substitute (*see* factual finding (4) listed above).

For the foregoing reasons and those stated in the Answer, we determine that the Examiner has established a *prima facie* case of obviousness in view of the reference evidence. Appellant has argued that unexpected results have been demonstrated (Br. 16-17). Therefore, we begin anew and consider the evidence for and against obviousness.

See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

We do not find Appellant's evidence persuasive for the following reasons. Expected beneficial results are evidence of obviousness, just as unexpected beneficial results are evidence of unobviousness. *See In re Skoll*, 523 F.2d 1392, 1397, 187 USPQ 481, 484 (CCPA 1975); *In re Skoner*, 517 F.2d 947, 950, 186 USPQ 80, 82 (CCPA 1975). Here Gleave teaches that improved results will occur by substituting the VAC thickener for a conventional PMM thickener (*see* factual finding (7) listed above). Additionally, Appellant's evidence of nonobviousness that is not

commensurate in scope with its claims cannot overcome the rejection of those claims. *See In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980); *In re Payne*, 606 F.2d 303, 315-16, 203 USPQ 245, 256 (CCPA 1979). The examples listed in the Table on page 13 of the Specification are limited to specific cyanoacrylates (e.g., ethylcyanoacrylate), specific copolymers of vinylidene chloride and acrylonitrile (e.g., PVeneCAN), and other specific additives (e.g., PMM and accelerators) in specific amounts, whereas the claims are not so limited. Furthermore, Appellant has not explained why these examples are considered to be the closest prior art. *See In re Burckel*, 592 F.2d 1175, 1179, 201 USPQ 67, 71 (CCPA 1979). Finally, Appellant has not explained why these results are considered “unexpected.” *See* Example 6 compared with Example 13 in the Table on page 13 of the Specification, where the addition of 3% silica *reduces* the peel strength of the adhesive composition from 3.3 to 3.2 N/mm.

Based on the totality of the record, including due consideration of Appellant’s arguments and evidence, we determine that the preponderance of evidence weighs most heavily in favor of obviousness within the meaning of § 103(a). Therefore, we affirm the rejection of claims 1-11 under § 103(a) over Nishino in view of Gleave, O’Connor, and Koga.

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C. Time Period for Response

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).

AFFIRMED

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