Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT CARSWELL, MARTIN C. CORNELL,
CYNTHIA K. GROSETH, JAMES R. PORTER, RALPH D. PRIESTER, JR.,
RICKY L. TABOR and MELISSA J. ZAWISZA

Appeal No. 1998-2733
Application 08/718,613

ON BRIEF

Before WARREN, WALTZ and TIMM, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

Decision on Appeal

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner finally rejecting claims 10 through 21, which are all of the claims in the application. Claim 10, as it stands of record, is illustrative of the claims on appeal:

10. An electrostatically painted object comprising at least two layers, a first layer being a layer of polymer prepared from a polymer formulation including

(1) materials which include or form urea groups, urethane groups or mixtures thereof, and

(2) a non-volatile metal salt conductivity inducing material, and a second layer, the second layer being a layer of electrostatically applied paint, wherein

(a) the polymer is efficiently electrostatically painted, and

(b) the polymer is not conductive but for the inclusion of the non-volatile metal salt conductivity inducing materials in the polymer.

The appealed claims, as represented by claim 10, are drawn to a painted article which comprises at least a layer of electrostatically applied paint over a layer of a polymer prepared from a polymer formulation including materials which include or form urea groups, urethane groups or mixtures thereof and a non-volatile metal salt conductivity inducing material, wherein the polymer formed from the formulation is not conductive but for the inclusion of the non-volatile metal salt conductivity inducing materials. According to appellants, and as stated in the claim, the polymer prepared according to the claim can be efficiently painted because of the presence of the non-volatile metal salt conductivity inducing material therein.

The references relied on by the examiner are:

Knobel et al. (Knobel)	4,806,571	Feb. 21, 1989
Pierce	5,188,783	Feb, 23, 1993
Ukai et al. (Ukai)[1]	2-166158	Jun. 26, 1990

(Published Japanese Patent Application)

The examiner has advanced the following grounds of rejection on appeal:[2,3]

claims 10 through 18 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ukai taken in view of Knobel; and

claims 10 through 13 and 15 through 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Pierce.

Appellants state in their brief (page 3) that they "group Claims 10-21 together as one group." Thus, we decide this appeal based on appealed claim 10 with respect to each ground of rejection. 37 CFR § 1.192(c)(7) (1997).

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[1] We refer in our opinion to the translation of Ukai prepared for the USPTO by Diplomatic Language Services, Inc. in 2001. A copy of the translation is attached to this decision.

[2] The examiner states in the answer that the two grounds of rejection are set forth in the Office action of June 27, 1997 (Paper No. 13; pages 5-9).

[3] The examiner has apparently dropped the grounds of rejection under 35 U.S.C. § 112, first and second paragraphs, set forth in Paper No. 13 (pages 3-4) because no mention is made thereof in the answer.

We affirm the ground of rejection over Ukai and Knobel but reverse the ground of rejection over Pierce.

Rather than reiterate the respective positions advanced by the examiner and appellants, we refer to the examiner's answer and to appellants' brief for a complete exposition thereof.

Opinion

The review of the grounds of rejection of the appealed claims involving the application of prior art necessarily entails the interpretation of the claimed painted object as encompassed by appealed claim 10. The interpretation of the scope of the appealed claim requires that the broadest reasonable interpretation must be given to the terms thereof consistent with the written description provided in appellants' specification as it would be interpreted by one of ordinary skill in this art, *see In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997) ("[T]he PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification."), without reading into these claims any limitation or particular embodiment which is disclosed in the specification. *See In re Zletz*, 893 F.2d 319**,** 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) ("During patent prosecution the pending claims must be interpreted as broadly as their terms reasonably allow. When the applicant states the meaning that the claim terms are intended to have, the claims are examined with that meaning, in order to achieve a complete exploration of the applicant's invention and its relation to the prior art. *See In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969)."); *In re Priest*, 582 F.2d 33, 37, 199 USPQ 11, 15 (CCPA 1978). Thus, the terms in the appealed claims must be given their ordinary meaning unless another meaning is intended by appellants as established in the written description of their specification. *See, e.g., Morris, supra*; *Zletz, supra*. When the specification does not contain an express definition, a reasonable, supported interpretation of the appealed claims that differs from that urged by applicants can be used to determine the patentability of the claims. *Morris*, 127 F.3d at 1055-56, 44 USPQ2d at 1028-30 ("Absent an express definition in their specification, the fact that appellants can point to definitions or usages that conform to their interpretation does not make the

PTO's definition unreasonable when the PTO can point to other sources that support its interpretation."). Thus, "[i]t is the applicants' burden to precisely define the invention, not the PTO's. See 35 U.S.C. § 112 ¶ 2 [statute omitted]." *Morris*, 127 F.3d at 1055-56, 44 USPQ2d at 1029.

It is clear that claim 10 is drawn in product-by-process format with respect to the preparation of the polymer layer from a polymer formulation containing certain components and with respect to the preparation of the paint layer by electrostatically applied paint. S*ee, e.g.*, *In re Thorpe*, 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985). The painted object comprises at least two layers which are the polymer layer and the paint layer. The polymer layer is derived from the polymer formulation specified as "including," that is, containing, at least two ingredients: *any* materials which in turn "include," that is, contain, either urea groups or urethane groups or materials which will form such groups, mixtures of such ingredients; and a non-volatile metal salt conductivity inducing material. The "materials" would additionally "include" any other ingredient, such as an enhancer for a non-volatile salt. Thus, we interpret the claim language to require that the non-volatile salt must be associated with the other ingredients of the polymer formulation including those materials that provide or form urea and/or urethane groups, and provide conductivity to the polymer layer such that a layer of paint can be electrostatically applied thereto. There is no limitation on the manner in which the formulation is used to form the polymer or how the polymer is formed into a layer of the object. In view of the product-by-process format, a painted object having the same characteristics of the electrostatically painted object as specified in the claim but prepared by any other process would, of course, be encompassed by claim 10.

The interpretation to be made of the claim language "a non-volatile metal salt conductivity inducing material" is in dispute. The examiner finds that this language does not exclude thiocyanate salts, such as sodium thiocyanate, and points to conflicting disclosure in the written description on page 8 of the specification, stating that "page 8, line 17 appears to include thiocyanate as a possible anion, but later on the page [sic] disagrees with the use of thiocyanate, and . . . while thiocyanate may not be the best salt to use, there is no claim that it is excluded from" (Paper No. 13, pages 7-8). Appellants submit that "[t]he present invention excludes the SCN salts of [Ukai] by definition . . . [i]n the specification, at page 8, line 23" (brief, page 6; emphasis in the original omitted).

We reproduce here in context the relevant parts of the written description in the specification:

> The anion is more preferably the conjugate base of an inorganic acid having one or more delocalizable electrons, e.g., a fluoroalkyl sulfonate or a tetraorganoboron ion. Such anions include, for example, . . . SCN^-, . . . particularly tetraalkyl and tetraarylboron ions and non-alkyl or non-aryl substituted sulfonic acids, and the like.
>
> For the purposes of the present invention, the term non-volatile metal salt is further defined to exclude those salts which are incompatible with or undesirable in formulations for polymers having urethane and/or urea groups. For example, the anion of a non-volatile metal salt of the present invention is not an SCN- [sic] anion because the salts of these anions can cause handling problems due to viscosity growth in polyurea formulations. SCN- [sic] anions are also known to be water extractable in some polyurethane formulations. This property can cause handling problems in some painting applications. In contrast, non-volatile metal salts having good compatibility with formulations for polymers having urethane and/or urea groups are included and are preferred. For example, tetraphenylboron and hexafluorophosphate anions are particularly preferred as conductivity inducing materials for the present invention because of their compatibility and handling properties. Mixtures of the non-volatile metal salts of the present invention can also be used to practice the present invention. Most preferably, the non-volatile metal salts of the present invention are salts wherein the non-volatile metal salt anion is selected from the group consisting of a perfluoroalkyl sulfonate, a hexafluorophosphate anion. or mixtures thereof. [Page 8, line 14, to page 9, line 6.]

Appellants further point to the affidavit under 37 CFR § 1.132 of appellant Porter[4] as "sufficient evidence to demonstrate that the [NaSCN and NH_4SCN] salts of [Ukai] are undesirable in the present invention," because it shows that "a formulation that includes the SCN salts . . . experience an undesirable build in formulation viscosity," "mixtures of the SCN salts . . . in polyols separate over time, forming hazy suspensions," and "SCN salts are water-extractable from the polymer parts in which they are included" (brief, page 4). In response to the examiner's contention that the evidence is not commensurate in scope with the claims because "the tests were conducted under RIM conditions" (Paper No. 13, page 2), which indeed is not a limitation in appealed claim 10, appellants argue that "RIM formulations were chosen because the viscosity build in RIM formulations is likely to be more pronounced, and therefore more demonstrative of the undesired effect. This should not negative the conclusions regarding the sufficiency of the affidavit as applied to non-RIM formulations" (brief, page 5; emphasis in the original omitted).

[4] The affidavit was filed with the amendment of April 4, 1997 (Paper No. 12).

We begin our consideration of this issue with the common dictionary meaning of the term "definition:"

> 1. The act of stating a precise meaning or significance. 2. The statement or meaning of a word phrase or term. 3. The act of making clear and distinct . . . 4. The state of being closely outlined or determined. 5. A determination of outline, extent or limits . . . ."

The American Heritage Dictionary Second College Edition 375 (Boston, Houghton Mifflin Company, 1982). There is no place in a "definition" for equivocation and arbitrariness. It is clear that a "definition" is required in order to define a claimed invention in compliance with 35 U.S.C. § 112, second paragraph: "The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which applicant regards as his invention." *See Morris*, 127 F.3d at 1055-56, 44 USPQ2d at 1029.

We determine that the language "to exclude those salts which are *incompatible* with or *undesirable* in formulations for polymers having urethane and/or urea groups" on page 8 of the specification begs the question of whose and/or which standard of "incompatibility" and of "undesirability" will be applied to determine whether a non-volatile metal salt is to be excluded from the common meaning of the term. Indeed, Ukai discloses that the polyurethane formulations containing thiocyanate salts had "good molding properties" and provided moldings having properties "necessary for automotive components" and "a superior finish after being [electrostatically] painted" (page 7; see also page 2). There is *no* indication that in the formulations of Ukai, the thiocyanate salt is either "incompatible with or undesirable" in at least the disclosed "formulations for a polymer having urethane . . . groups," and thus would reasonably appear to flunk the exclusion test set forth in appellants' specification.

However, appellants urge, on the basis of evidence involving RIM formulations which are related to the teachings of Ukai *solely* in that a thiocyanate salt *per se* is used, that unsatisfactory results are shown and would carry over to "non-Rim formulations" even after admitting that a formulation, otherwise completely *different* from that of Ukai, was selected because an undesirable result was "likely to be more pronounced, and therefore more demonstrative of the undesired effect" (brief, page 5). As pointed out by the examiner, the thiocyanate anion, SCN^-, is at once disclosed in the written

description of the specification to be preferred and to be "undesirable." In view of the clear dichotomy between the disclosure of Ukai and the arranged evidence in the affidavit, it is difficult on this record to see how *any* of the anions set forth in the specification, including the preferred "FC-98" salt,[5] used in a formulation in the affidavit (¶¶ 8 through 10 and 18, and Table 1), could perform in *all* possible polyurethane and/or urea group providing formulations in a manner so as *not* to be considered "incompatible" and/or "undesirable" in even *one* of them by at least *one* of ordinary skill in this art, thus passing the test for exclusion, and appealed claim 10 does encompass *all* such formulations.

Accordingly, on this record, we must conclude that the written description at lines 23-26 of page 8 of the specification does not provide a "definition" of the term "non-volatile metal salt" which particularly points out and distinctly claims the subject matter which appellants regard as their invention within the meaning of § 112, second paragraph, if applied as a modification of the common meaning of the claim term. Thus, we interpret the term as having its common, unlimited meaning in the art of a metal salt that is non-volatile and will not read into any appealed claim any limitation found in the specification because there is no basis in any of the claims to do so. *See, e.g., Zletz, supra*. Thus, we agree with the examiner that none of the appealed claims exclude non-volatile thiocyanate metal salts.

In applying Ukai to appealed claim 10, as we have interpreted it above, we find that, *prima facie*, the reference would have specifically disclosed to one of ordinary skill in the art polymer formulations containing materials which include or form urethane groups and a non-volatile sodium thiocyanate salt that is formed into polymers which are shaped into objects that are efficiently electrostatically painted (e.g., pages 2, 3, 4-5 and 6-7), thus meeting all of the limitations for the claimed painted object defined in claim 10. Indeed, Ukai as a whole clearly and unequivocally directs one of ordinary skill in the art to the claimed invention without *any* need for picking, choosing, and combining various disclosures not directly related to each other by its teachings. *See In re Arkley*, 455 F.2d 586, 587, 172 USPQ 524, 526 (CCPA 1972). Thus, while the issue here has been framed by the examiner as one of obviousness under § 103, it is apparent that Ukai describes a painted object that falls within appealed claim 10, which is indeed evidence of a lack of novelty of the claimed invention as

[5] "FC-98 is a trade designation of 3M and is a mixture of potassium perfluoro cyclohexyl alkyl

encompassed by the claim that is, of course, "the ultimate of obviousness." *In re Fracalossi*, 681 F.2d 792, 794, 215 USPQ 569, 571 (CCPA 1982). Thus, to the extent that the Ukai anticipates the claimed painted object encompassed by appealed claim 10, the case of obviousness is irrebuttable. *Id.*

Furthermore, on this record, we also agree with the examiner that the combination of Ukai and Knobel would have reasonably suggested to one of ordinary skill in this art that the thiocyanate salts used in polymer formulations to form polyurethane that can be molded into a shaped object that is then electrostatically painted, can be supplemented or interchanged with perfluoroalkyl sulfonic acid anion non-volatile metal salts, accompanied an enhancer, which non-volatile salts are shown by Knobel to provide polymers formed from formulations containing materials that include or form urethane and/or urea groups with conductivity (e.g., cols. 1-2, col. 2, lines 38-49, cols. 5-6, col. 6, line 35, to col. 9, line 52, and col. 9, line 53, to col. 10, line 63), with the reasonable expectation that such a shaped object can be electrostatically painted as shown by Ukai. Accordingly, one of ordinary skill in the art following the combined teachings of these references would have reasonably arrived at the claimed invention. *In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531(Fed. Cir. 1988) ("The consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have reasonable likelihood of success, viewed in the light of the prior art."); *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981) ("The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.").

Accordingly, since a *prima facie* case of obviousness has been established over Ukai and Knobel, we have again evaluated all of the evidence of obviousness and nonobviousness based on the record as a whole, giving due consideration to the weight of appellants' arguments and the evidence in the submitted affidavit. *See generally, In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d

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sulfonates" (specification, page 24, Table 2; see also, e.g., page 7).

1443, 1444 (Fed. Cir. 1992); *In re Johnson*, 747 F.2d 1456, 1460, 223 USPQ 1260, 1263 (Fed. Cir. 1984); *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984).

We have carefully considered all of appellants' arguments and the evidence presented in the affidavit. For the reasons set forth above, we find that appealed claim 10 does not exclude painted objects formed from polymer formulations that contain thiocyanate salts such as the painted objects taught by Ukai (see brief, pages 6-7 and pages 8-9). We further interpreted claim 10 to include *any* polymer formulation which meets the requirements for materials which include or form urea and/or urethane groups, which contrary to appellants' arguments (*id.*, page 7), is not limited to RIM formulations. It follows from the specific teaching of a painted object that meets the limitations of appealed claim 10, that the examiner has not engaged in hindsight as appellants allege (*id.*, pages 7-8). To the extent that appellants' argue that the evidence in the affidavit establishes unexpected results (*id.*, page 8), even if it is held that the formulation of Ukai does not constitute an anticipation of appealed claim 10, it follows from our discussion of the evidence in the affidavit above, that there is no element in common between the teachings of Ukai and the composition representing claim 10 with respect to either the materials or the non-volatile salt of the polymer formulation, such that the evidence is entitled to little, if any weight, with respect to a showing of unobvious results over either Ukai alone or combined with Knobel. It is well settled that appellants can present as evidence of nonobviousness a showing which establishes that the claimed invention provides unexpected results with respect to the closest prior art by submitting direct or indirect evidence which permits a conclusion respecting the relative effectiveness of the claimed invention over the teachings of the closest prior art. *See, e.g., In re Burckel*, 592 F.2d 1175, 1179-80, 201 USPQ 67, 71 (CCPA 1979) (the claimed subject matter must be compared with the closest prior art in a manner which addresses the thrust of the rejection); *In re Blondel*, 499 F.2d 1311, 1317, 182 USPQ 294, 297-98 (CCPA 1974) (the indirect evidence provided a reliable indication of the performance of the closest claimed and prior art compounds). Finally, contrary to appellants' arguments (*id.*, page 9), we interpreted claim 10 above to include enhancers such as that taught by Knobel to be used with perfluoroalkyl sulfonic acid anion non-volatile metal salts.

Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of obviousness found in the combined teachings of Ukai and Knobel with

appellants' countervailing evidence of and argument for nonobviousness and conclude that the claimed invention encompassed by appealed claims 10 through 18 and 20 would have been obvious as a matter of law under 35 U.S.C. § 103(a).

Turning now to the ground of rejection based on Pierce, we must agree with appellants (brief, pages 9-10) that the difference between the painted object of appealed claim 10 and the painted object of the reference resides in the manner in which the conductive inducing material is incorporated into the polymer. Indeed, Pierce prepares an ion-conductive polymer which does not contain urea and/or urethane groups and then either dopes this polymer into the matrix of a generally non-ion-conductive structural polymer, which can be a thermoplastic polyurethane, or copolymerizes the ion-conductive polymer with that polymer (cols. 5-8). Either method would not result in the claimed painted object and the examiner has not provided any scientific explanation or evidence either explaining why the objects so prepared fall within appealed claim 10 or establishing an objective teaching, suggestion or motivation in the applied prior art taken as a whole and/or knowledge generally available to one of ordinary skill in the art would have led that person to the claimed invention as a whole from the teachings of Pierce alone. *See generally, In re Rouffet*, 149 F.3d 1350, 1358, 47 USPQ2d 1453, 1458 (Fed. Cir. 1998) ("hindsight" is inferred when the specific understanding or principal within the knowledge of one of ordinary skill in the art leading to the modification of the prior art in order to arrive at appellant's claimed invention has not been explained); *B.F. Goodrich Co. v. Aircraft Braking Sys. Corp.*, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996) ("When obviousness is based on a particular prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference. [Citation omitted.] This suggestion or motivation need not be expressly stated. [Citation omitted.]"). Accordingly, we reverse this ground of rejection.

The examiner's decision 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

CHARLES F. WARREN Administrative Patent Judge	)	
THOMAS A. WALTZ Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
CATHERINE TIMM Administrative Patent Judge	)	

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