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 STEVEN A. FERRANTI, DANA L. ZAGARI,
LEVERN G. BURM, JR., and KARLA MARIE GOFF

Appeal 2006-2350
Application 10/444,104
Technology Center

Decided: February 12, 2007

Before CHARLES F. WARREN, CATHERINE Q. TIMM, and
LINDA M. GAUDETTE, *Administrative Patent Judges*.

TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal involves claims 19, 20, and 23-38, the only claims pending in this application. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

INTRODUCTION

The claims are directed to a method of polishing a glass or glass-ceramic substrate using a particular aqueous slurry composition that retards hard settling. Slurry compositions normally used to polish glass or glass-ceramic substrates contain abrasive particles dispersed in deionized water and/or other liquids (Specification ¶ 0004). Cerium oxide is a commonly used abrasive in such slurry compositions (*id*.). Unfortunately, cerium oxide abrasives tend to hard settle, i.e., the abrasive particles fall out of the dispersion and cannot be redispersed (Specification ¶ 0005). Hard settling results in a sludge that clogs pipes and processing equipment, a condition that is highly problematic in an industrial operation (*id*.). Appellants' Specification describes a number of additives useful for retarding hard settling among which is a combination of sodium alginate with a divalent metal salt, such as a calcium salt (Specification ¶¶ 0007 and 0022). Claim 19 is illustrative of the subject matter on appeal:

> 19. A method of polishing a glass or glass-ceramic substrate comprising introducing an aqueous slurry composition between a polishing pad and the substrate when the polishing pad and substrate are pressed into contact with each other and moving relative to each other, wherein the aqueous slurry composition comprises from about 1% to about 20% by weight of a solids portion comprising:
>
> abrasive particles, the abrasive particles comprising high purity cerium oxide and/or cerium-containing mixed rare earth oxides, provided that the amount by weight of cerium oxide present as a percent of the total rare earth oxide is greater than or equal to 50%;
>
> a polyacrylate in an amount within the range of from about 0.5% to about 10% by weight of the solids portion;
>
> sodium alginate in an amount within the range of from about 0.1% to about 10% by weight of the solids portion; and

a calcium compound selected from the group consisting of $CaCl_2$, $CaCO_3$, $CaSO_4$, $CaBr_2$, and CaO,

wherein the slurry is redispersible after remaining in a static state for a period of greater than about 24 hours.

The Examiner relies on the following prior art references to show unpatentability:

Uchino (Uchino 978)	US 2004/0010978 A1	Jan. 22, 2004
Uchino (Uchino 206)	US 2004/0031206 A1	Feb. 19, 2004

The Examiner maintains the following rejections:

1. Claim 20 is rejected under the written description requirement of 35 U.S.C. § 112, ¶ 1.
2. Claims 19, 20, and 23-38 are rejected under 35 U.S.C § 103(a) as unpatentable over Uchino 978.[1]
3. Claims 19, 20, and 23-38 are rejected under 35 U.S.C § 103(a) as unpatentable over Uchino 206.[2]

We find that the Examiner failed to establish a prima facie case of lack of written descriptive support under 35 U.S.C. § 112, ¶ 1 for the subject matter of claim 20. We further conclude that the Examiner failed to establish a prima facie case of obviousness under 35 U.S.C. § 103(a) over Uchino 206 with regard to claims 19, 20, and 23-38, i.e., all the claims so rejected, or a prima facie case of obviousness over Uchino 978 with regard to separately argued claim 29. We, however, conclude that the Examiner did establish a prima facie case of obviousness under 35 U.S.C. § 103(a) over Uchino 978 with regard to claims 19, 20, 23, 28, and 30-38. We, therefore, affirm-in-part the decision of the Examiner. Our reasons follow.

---

[1] Appellants refer to Uchino 978 as Uchino-1.
[2] Appellants refer to Uchino 206 as Uchino-2.

OPINION

Written Descriptive Support

Claim 20 requires that the slurry composition recited in claim 19 be redispersible after remaining in a static state for a period of greater than about 48 hours. According to the Examiner the range "greater than about 48 hours" lacks written descriptive support because "section 41 [of the Specification] only supports this value for an aqueous slurry that contains specific components [, i.e., the components of Example 4, namely, sodium alginate, calcium oxide, and a polyacrylate,] and thus does **not** provide support for a composition that contains the **broad** components (i.e. polyacrylate, **all** polysaccharide and **all** of the calcium compounds claimed)." (Answer 3). The Examiner further explains that, "[i]n other words, this section only provide [sic] support for a composition that contains sodium alginate, calcium oxide and a polyacrylate." (Answer 3).

Turning to paragraph 41 of the Specification, the portion of the Specification the Examiner relies upon for support of the rejection, we find that this paragraph discusses what Example 4 demonstrates. According to paragraph 41 "Example 4 *demonstrates* that the use of sodium alginate in combination with a *calcium salt* in an aqueous slurry comprised of mixed rare earth oxide abrasive particles and polyacrylate enhances the soft-settling characteristics of used polishing slurry." (emphasis added). The next sentence of Paragraph 41 states that "[a] slurry composition comprising *these components* can stay redispersible for more than 48 hours after the slurry composition is in a static state." (emphasis added). The words "these components" refer back to the previous sentence and, therefore, reference calcium salts in general.

Example 3 also provides support. As disclosed in paragraph 37, the slurry $CaCO_3$, and Na alginate slurry I can be redispersed after 96 hours.

The Examiner has the initial burden of presenting evidence of reasons why persons skilled in the art would not recognize in the disclosure a description of the invention defined by the claims. *In re Wertheim*, 541 F.2d 257, 263, 191 USPQ 90, 97 (CCPA 1976). It is the Examiner's position that because Example 4 provides data for slurries containing only one of the calcium salts, i.e., calcium oxide, support is lacking for the other calcium salts. But the problem with the Examiner's analysis is that paragraph 41 is more general in its discussion. While Example 4 presents data for only one of the calcium salts, i.e., calcium oxide, this data, according to paragraph 41, demonstrates results for the calcium salts as a group. The Examiner provides no reason to disbelieve the broader statement in the Specification. The written description requirement serves "to ensure that the inventor had possession, as of the filing date of the application relied on, of the specific subject matter later claimed by him; how the specification accomplishes this is not material." *In re Wertheim*, 541 F.2d at 262, 191 USPQ at 96. A broad statement in the specification can suffice to convey to one of ordinary skill in the art that an applicant had possession of the claimed subject matter. The Examiner has also overlooked the disclosure of paragraph 37 which indicates that $CaCO_3$ containing slurry I of Example 3 is redispersable after 96 hours.

We find that the Examiner failed to provide sufficient evidence that the claimed subject matter lacked written descriptive support as required by 35 U.S.C. § 112, ¶ 1.

Obviousness over Uchino 978

We now turn to the rejection of claims 19, 20, and 23-38 as obvious over Uchino 978. Appellants separately argue several groups of claims under separate headings. We will select one claim from each group and address each in turn.

Group A, Claims 19, 20, 23, and 25

We select claim 19 to represent the issues on appeal with respect to claims 19, 20, 23, and 25.

There is no dispute that Uchino 978 suggests a method of polishing glass wherein the polishing compound is a slurry containing abrasive particles as claimed and two additives, an anti-solidification agent, and a dispersant (Uchino 978 ¶ 12, ll. 1-5). There is further no dispute that Uchino 978 suggests using polyacrylate salts as a dispersant (Uchino ¶ 22-23). As found by the Examiner, Uchino 978 discloses, among others, sodium alginate and calcium-containing compounds such as calcium sulfate as useful anti-solidification agents (Answer 3; *see also* Uchino 978 ¶ 15). Calcium sulfate is one of the calcium compounds recited in claim 19, i.e., $CaSO_4$. The Examiner acknowledges that Uchino 978 does not specifically disclose the use of sodium alginate and calcium sulfate together, but concludes that such use together would have been obvious to one of ordinary skill in the art because the two compounds are taught as useful for the same purpose, i.e., for anti-solidification (Answer 3). The Examiner cites *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) in support.

As stated in *In re Kerkhoven*, "[i]t is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the

same purpose, in order to form a third composition which is to be used for the very same purpose." *Id.* The idea of combining the two anti-solidification agents, sodium alginate and calcium sulfate, flows logically from their having been individually taught in Uchino 978 as useful anti-solidification agents. Further, Uchino 978 states that "[t]he polishing material of the present invention may contain the above described anti-solidification agents and dispersants in any combination." (Uchino 978 ¶ 28). The particular combinations of the additives is, therefore, not shown to be critical. Table 9 of Uchino 978 lists mixtures of anti-solidification agents crystalline cellulose and sodium carboxymethylcellulose used in compositions of the third embodiment. Mixtures were contemplated. The evidence supports the Examiner's conclusion of prima facie obviousness.

Appellants argue that the rationale of *In re Kerkhoven* does not apply in the current case (Br. 6-7). According to Appellants, the data in their Specification contradicts the Examiner's rationale (Br. 6-7). We are not persuaded that there is such a contradiction. According to Appellants, their Example 4 shows that slurries containing polyacrylate, sodium alginate, and CaO (slurries M and N) are redispersible after 24 hours whereas slurries containing only polyacrylate and sodium alginate are not (slurry L) (Br. 6). This shows, according to Appellants, that when one of the "anti-solidification" agents listed in paragraph 13 of Uchino 978 is used (sodium alginate), redispersibility cannot be obtained (Br. 6). Appellants argue that this is contrary to the general teachings of Uchino 978 and demonstrates why Appellants' combination of sodium alginate and a calcium compound would have been unobvious to one of ordinary skill in the art (Br. 6).

Appellants are arguing that Uchino is inoperable or nonenabled for the use of sodium alginate without a calcium-containing compound.

First, we are not persuaded that the Example 4 data is contrary to the teachings of Uchino 978. At best Appellants have merely shown that it is possible to follow the process in one instance without success, it does not establish that one of ordinary skill in the art, making routine adaptations within the skill of the art such as concentration optimization, could not have successfully employed the disclosed anti-solidification agents. *See, e.g., In re Lamberti*, 545 F.2d 747, 751, 751 n.2, 192 USPQ 278, 281, 281 n.2 (CCPA 1976). There is a strong presumption that the teachings of a patent, such as Uchino 978, if used by one skilled in the art will produce the results alleged by the patentee. *See In re Weber*, 405 F.2d 1403, 1406-07, 160 USPQ 549, 552-53 (CCPA 1969). Appellants have not overcome that presumption. Once one of ordinary skill in the art is taught that the compounds are useful for the purpose of anti-solidification, it is a routine matter to determine optimal or workable ranges of concentration for the compounds that will work for that purpose.

The Examiner has established a prima facie case of obviousness and, that being the case, the burden has shifted to show, through secondary considerations such as a showing of unexpected results, that what Appellants are claiming would not have been obvious to one of ordinary skill in the art. We note that Appellants have not argued, much less shown, that the data evinces a result unexpected to one of ordinary skill in the art.

Group B, Claims 24, 27, 28, and 30-34

Appellants group claims 24, 27, 28, and 30-34 separately. We select claim 24 to represent the issues on appeal with respect to this group of

claims. Claims 24 further limits claim 19 to polyacrylates having a number average molecular weight of about 2,000 to about 90,000, a very large range.

Appellants argue that there is no teaching in the prior art that a number average molecular weight in the claimed range should be preferred. They also argue that the prior art provides no basis for deducing that this range should be preferred (Br. 9).

We are not persuaded by Appellants' argument. Once one of ordinary skill in the art knew to select a polyacrylate salt as the dispersant, the particular polyacrylate salt chosen and its number average molecular weight would be determined based upon knowledge within the art and/or through routine experimentation.

Group C, Claims 26 and 35-38

For group C we select claim 26 to represent the issues on appeal. Claim 26 further narrows the polyacrylate molecular weight requirement to about 4,000 to about 10,000. Appellants' argument is the same as that for group B. We are not persuaded for the reasons stated above with regard to group B.

Group D, Claim 29

Claim 29 is directed to the method of claim 27 wherein the calcium compound is $CaCO_3$, i.e., calcium carbonate. The Examiner acknowledges that Uchino 978 does not disclose calcium carbonate as an anti-solidification agent. The Examiner, however, concludes that the use of calcium carbonate would have been obvious because "the references clearly make mention of calcium containing compounds and this makes the claimed species obvious because a generic disclosure renders a claimed species prima facie obvious."

(Answer 12). The Examiner refers to case law applied in a previous office action. It appears that the Examiner is referencing *Ex parte George*, 21 USPQ2d 1058, 1060 (BPAI 1991) and cases cited therein, namely, *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed.Cir. 1990); *Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir. 1989); *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971).

The cases cited by the Examiner do not support a per se rule that disclosure of a genus always renders a claimed species within the genus prima facie obvious. Whether the selection of a species within a disclosed genus would have been obvious depends on the facts of the case. In some situations, a reference may even be considered to anticipate the claimed subject matter within the meaning of 35 U.S.C. § 102. *See In re Schaumann*, 572 F.2d 312, 316-17, 197 USPQ 5, 9 (CCPA 1978) (Reference anticipated because the genus embraced a very limited number of compounds closely related to one another in structure such that the reference provided a description of each of those compounds just as surely as if they were identified in the reference by name, one of those compounds being the claimed compound). Prima facie obviousness can be established where the claimed species is specifically named, even if the claimed species is disclosed among a multitude of effective combinations. *Merck & Co. v. Biocraft Labs.*, 874 F.2d at 807, 10 USPQ2d at 1846. But in other situations where a prior art genus is extremely broad, a prima facie case of obviousness under 35 U.S.C. § 103 may not arise at all. *See In re Baird*, 16 F.3d 380, 382, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994) (Generic diphenol formula disclosed in the reference encompassed more than 100 million diphenols, only one of which was the claimed bisphenol A and there was nothing in the

disclosure of the reference suggesting the selection of chemical groups leading to bisphenol A). Generally, prima facie obviousness requires that there be some direction in the prior art indicating which of the species within the disclosed genus will provide the desired properties, the species cannot merely be "obvious to try." *See Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d at 807, 10 USPQ2d at 1845 ("An invention is 'obvious to try' 'where the prior art [gives] either no indication of which parameters [are] critical or no direction as to which of many possible choices is likely to be successful.'" *citing In re O'Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988)).

In the present case, in order to establish prima facie obviousness more is required than just a statement that calcium carbonate is within the calcium-containing compound genus of Uchino 978. This is because Uchino 978 provides no guidance as to how to select the calcium-containing compound, and the selection criteria is not readily apparent from the calcium-containing compounds exemplified. The examiner must provide some evidence or reasoning indicating that the claimed species, calcium carbonate, would have been an obvious selection to one of ordinary skill in the art. This teaching, for instance, could come from what is known in the art about the particular calcium compounds used as anti-solidification agents in Uchino 978 (Uchino 978, e.g.,[0015]). We do not find such evidence or reasoning in the record.

We conclude that the Examiner failed to establish a prima facie case of obviousness with respect to the subject matter of claim 29.

Obviousness over Uchino 206

The rejection over Uchino 206 fails for reasons analogous to those discussed above with regard to the rejection of claim 29 over Uchino 978. This is because the Examiner rejects claims 19, 20, and 23-38 over Uchino 206 on the basis that the disclosure of calcium-containing compounds in Uchino 206 "broadly makes obvious calcium carbonate because AA [sic] **generic disclosure renders a claimed species prima facie obvious**." (Answer 5). Uchino 206 provides no guidance with respect to the selection of the calcium-containing compound and only exemplifies calcium dibasic phosphate. The Examiner has provided no convincing evidence or reasoning supporting the conclusion that it would have been obvious to one of ordinary skill in the art to select one of the claimed calcium compounds for use in the slurry of Uchino 206.

CONCLUSION

In summary, the Examiner rejected claim 20 under the written description requirement of 35 U.S.C. § 112, ¶ 1 and claims 19, 20, and 23-38 under 35 U.S.C § 103(a) as unpatentable over either Uchino 978 or Uchino 206. We do not sustain the rejection of claim 20 under 35 U.S.C. § 112, ¶ 1, nor do we sustain the rejection of claims 19, 20, and 23-38 under 35 U.S.C. § 103(a) over Uchino 206 or the rejection of claim 29 under 35 U.S.C. § 103(a) over Uchino 978. We, however, do sustain the rejection of claims 19, 20, 23-28, and 30-38 under 35 U.S.C. § 103(a) over Uchino 978. We, therefore, affirm-in-part.

No time period for taking any subsequent action in connection with this appeal maybe extended under 37 C.F.R. § 1.136(a)(1)(iv)(2005).

AFFIRMED-IN-PART

clj

Rankin, Hill, Porter & Clark, LLP
925 Euclid Avenue, Suite 700
Cleveland, OH 44115-1405