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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte LAUREN EVANS AND MAHMOUD HASSAN¹

Appeal 2018-001578
Application 14/974,723
Technology Center 1600

Before RICHARD M. LEBOVITZ, JEFFREY N. FREDMAN, and
JOHN E. SCHNEIDER, *Administrative Patent Judges*.

LEBOVITZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal involves claims directed to a tooth whitening composition which comprises a peroxide complex, sodium percarbonate, and a hydrophobic polymer carrier. The Examiner rejected the claims as obvious under 35 U.S.C. § 103(a). Pursuant to 35 U.S.C. § 134(a), Appellant appeals the Examiner's determination that the claims are unpatentable. We have jurisdiction under 35 U.S.C. § 6(b). The Examiner's decision is affirmed.

¹ The Appeal Brief ("Br."; entered May 30, 2017) lists Colgate-Palmolive Company as the real party in interest.

STATEMENT OF THE CASE

The Examiner finally rejected claims 1–7 under 35 U.S.C. § 103(a) as obvious in view of Zaidel et al., (US 2006/0045854 A1, published Mar. 2, 2006) (“Zaidel”). Final Act. 3.

Claim 1, the only independent on appeal, is reproduced below:

1. A tooth whitening composition comprising:
 - (a) a peroxide complex comprising hydrogen peroxide and an N-vinyl heterocyclic polymer;
 - (b) sodium percarbonate; and
 - (c) at least one hydrophobic polymer carrier,wherein the hydrogen peroxide of the peroxide complex is present in the tooth whitening composition in an amount ranging from about 3% to about 5% by weight and wherein the sodium percarbonate is present in an amount ranging from about 0.1 % to about 6% by weight.

DISCUSSION

The Examiner found that Zaidel describes an oral care composition with the same ingredients which are claimed and in amounts which make the claimed amounts obvious. Final Act. 3.

Specifically, the Examiner found that Zaidel describes (a) *hydrogen peroxide complex* in an amount of about 0.1% to about 25% which, while it doesn't disclose how much hydrogen peroxide is present, would make the claimed amount of about 3% to about 5% obvious in view of the broad range of complex disclosed by Zaidel.² Final Act. 3. Appellants concede that Zaidel discloses an amount of hydrogen peroxide which falls within the amount required by the claims. Br. 5.

² The Examiner cited “cPVP-H₂O₂” as one example of the claimed “peroxide complex comprising hydrogen peroxide and an N-vinyl heterocyclic polymer.” Final Act. 3; Zaidel 33, 92, and 105 (Example 2).

The Examiner also found that Zaidel describes (b) sodium percarbonate in an amount of about 0.1% to about 20% which encompasses the claimed amount of about 0.1% to about 6%. *Id.* Appellants state that the “crux of this Appeal comes down to Appellant’s limitation that the whitening composition comprises about 0.1 to 6% by weight of sodium percarbonate.” *Id.*

Appellants acknowledge that Zaidel discloses a second whitening agent, in addition to the required peroxide complex, but argue that Zaidel “teaches a vast number of these additional whitening agents, including both peroxide and non-peroxide compounds.” Br. 6. Based on these broad disclosures, Appellants contend:

one skilled in the art would have had no motivation to select any specific one of Zaidel’s whitening agents over any other one, nor would one skilled in the art have any expectation of success that a composition comprising cPVP-peroxide with any of these whitening agents would result in superior whitening compared to a composition comprising cPVP-peroxide as the sole whitening agent.

Br. 7.

To begin, we do not agree that the selection of sodium percarbonate as the second whitening agent would not have been obvious to one of ordinary skill in the art. Although there is a long list of whitening agents in Zaidel, contrary to Appellants contention that “Zaidel does not teach or express any basis for selecting any one of these whitening agents over the others” (Br. 7), example 2 of Zaidel specifically exemplifies cPVP-peroxide and sodium percarbonate as the second whitening agent (¶ 102), the same agents which are claimed. In addition, in the “Introduction” section of Zaidel, hydrogen peroxide and sodium percarbonate are listed among four commonly accepted

chemicals used in teeth whitening, making their choice obvious to one of ordinary skill in the art. Zaidel ¶ 4. In *Corkill*, an obviousness rejection was affirmed in light of prior art teachings that “hydrated zeolites will work” in detergent formulations, even though “the inventors selected the zeolites of the claims from among ‘thousands’ of compounds.” *In re Corkill*, 771 F.2d 1496, 1500 (Fed. Cir. 1985). For these reasons, a preponderance of the evidence supports the Examiner’s determination that it would have been obvious to one of ordinary skill in the art to have selected sodium percarbonate in combination with hydrogen peroxide.

Appellants also contend that they have demonstrated an “unexpected synergistic effect.” Br. 8. Appellants argue that, based on Zaidel’s disclosure, there would have been no expected difference in effect between the whitening agents disclosed in Zaidel. *Id.* at 7. However, Appellants state that the data in the Specification demonstrates:

the addition of either sodium peroxy disulfate or sodium monoperoxysulfate to a composition comprising cPVP-peroxide complex results in *decreased* whitening efficacy compared to cPVP-peroxide complex alone. Specification, Comparative Example 1. In contrast, Appellant’s data shows that combining cPVP peroxide complex with 2% sodium percarbonate results in *enhanced* whitening efficacy compared to cPVP peroxide complex alone. Specification, Example 3

Br. 8.

Comparative Example 1 in the Specification compares a single concentration of hydrogen peroxide (“HP”) of 4.5% complexed to PVP to PVP combined with three different whitening agents, PDS (sodium peroxy disulfate), MPS (sodium monoperoxysulfate), and TKPP (sodium pyrophosphate) in an in vitro test for teeth bleaching. Spec. ¶ 78. Each of PDS, MPS, and TKPP are present in the amount of 1%. *Id.*

Table 1, summarizing the results, shows that after 8 treatments, the hydrogen peroxide alone (5.66) was greater in whitening teeth than any of the combinations with it (5.10 for PDS, 4.36 for MPS, and 3.81 for TKPP). Spec. ¶ 78.

With regard to the TKPP, Appellants did not identify where in Zaidel TKPP is listed as a whitening agent. We found it to be listed as a pH modifying agent (¶ 67), an abrasive (¶ 78), and tartar control agent (¶ 79). Thus, we do not find the comparison in Table 1 to be pertinent to the issue of the obviousness of combining two different whitening agents as claimed.

Table 1 shows that HP alone was higher in its teeth whitening effect than either combination of HP/PDS and HP/MPS. Spec. ¶ 78. It was not disclosed how many trials for each treatment were performed nor whether the differences are statistically significant. The table did not show the effect on whitening of PDS and MPS, alone.

Example 3 in the Specification (¶ 83) compared the effect on teeth bleaching of a composition comprising 4.5% HP to a composition containing the same amount of HP combined with 2.5% sodium percarbonate by weight. Spec. ¶¶ 20–21. The HP is in the form of a complex of 20.5% PVP and 4.5% HP. The results, summarized in Table 4, show that the combination of 4.5% HP and 2.0% sodium percarbonate was better at whitening teeth than the 4.5% HP alone. The table did not show the effect on whitening of sodium percarbonate, alone. It was not disclosed how many trials for each treatment were performed nor whether the differences are statistically significant.

We do not find this data persuasive.

Appellants contend that sodium percarbonate increased whitening combined with HP while whitening was decreased when PDS or MPS were present. Br. 8. However, the comparison between the different whitening agents are not side by side. In Table 1, the amounts of PDS and MPS utilized are 1%, while the amount of sodium percarbonate in Table 4 is 2%. Thus, it cannot be determined whether the percarbonate performed better because it was present in larger amounts or if there was another reason for its improvement in whitening as compared to PDS and MPS. Further, neither agent alone was tested so the individual contribution of the whitening agent cannot be discerned.

The composition used in the experiments summarized Table 4 comprised 20.5% PVP, but the amount of PVP utilized in the results displayed in Table 1 is not disclosed. Additional ingredients are also listed in Table 4 which are not said to present in the compositions used to generate the results in Table 1. Thus, there appear to be differences in the compositions utilized in the experiments summarized in Tables 1 and 4 (additional amounts and ingredients in the composition of Example 3). Therefore, it cannot be determined whether the results differ because of the whitening agent or other differences in the compositions used to whiten the teeth.

In addition, as indicated by the Examiner, Zaidel teaches that its compositions “afford advantages over oral care compositions among known in the art, including one or more of enhanced whitening efficacy, providing a higher available concentration of bleaching agent.” Zaidel ¶ 16 (see Ans. 3). Thus, it would have been *expected* that the addition of sodium percarbonate, a preferred whitening agent of Zaidel – exemplified in Example 2 of Zaidel

– would show a greater affect than HP, alone. Appellants state that the results are synergistic – not cumulative as expected by Zaidel (Br. 8) – but the data in Table 4 does not demonstrate synergy because the effect of the sodium percarbonate alone is not measured. Therefore, it cannot be determined from the data in Table 4 whether the effect of the HP and sodium percarbonate is additive or more than would be expected from each agent alone (synergistic). Indeed, as pointed out by the Examiner, Zaidel shows whitening values which exceed those shown in Tables 1 and 4. *See* Zaidel ¶ 11; Ans. 3.

Only one concentration of each of HP and sodium percarbonate were compared in the experimental results shown in Table 4. Appellants did not demonstrate that single amount of sodium percarbonate tested shows properties any different from the amounts in the disclosed range of peroxide compounds described by Zaidel (at ¶ 38).

The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims These cases have consistently held that in such a situation, the applicant must show that the particular range is *critical*, generally by showing that the claimed range achieves unexpected results relative to the prior art range. *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990) (internal citations omitted.)

Appellants have not established the criticality of the claimed amount by showing that it is any different from amounts disclosed by Zaidel which are outside the claimed range.

Claim 3 and 4

Claim 3 depends from claim 1 and further recites “sodium percarbonate is present in an amount ranging from about 1% to about 2% by weight.” Claim 4 depends from claim 1 and further recites “the sodium percarbonate is present in an amount of about 2% by weight.” While these ranges are narrower than in claim 1, the results described in the Specification are insufficient for the reasons stated above, namely, Appellants have not done a side-by-side comparison of sodium percarbonate to PDS and MPS (differences in amount of whitener and differences in the ingredients in compositions), the amount of 2% percarbonate was not established to be synergistic, and criticality of the 2% was not established.

Accordingly, the obviousness rejection of claims 1–7 is affirmed.

TIME PERIOD

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).

AFFIRMED