

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BRYAN WASYLUCHA

Appeal 2008-1945
Application 10/309,831
Technology Center 3700

Decided: November 21, 2008

Before DONALD E. ADAMS, ERIC GRIMES, and LORA M. GREEN,
Administrative Patent Judges.

ADAMS, *Administrative Patent Judge.*

DECISION ON APPEAL

This appeal under 35 U.S.C. § 134 involves claims 1-34, the only claims pending in this application. We have jurisdiction under 35 U.S.C. § 6(b).

STATEMENT OF THE CASE

The claims are directed to a dental apparatus (claims 1-18) and a method for treating a dental surface of a user (claims 19-34). Claims 1, 5, 11, 14, 15, 17, and 19 are illustrative:

1. A dental apparatus, the apparatus comprising:
 - a support structure composed of a material that is moldable by hand at room temperature and customized by application to the dentition of a user and adapted to be placed entirely within a user's mouth;
 - a dental whitening composition in contact with the support structure; and
 - a light source disposed on or in the support structure such that light emitted from the source impinges on the dental whitening composition, wherein the apparatus has a volume between 0.5-450 cm³.
5. The dental apparatus of claim 1, wherein the whitening composition is in a microencapsulated form.
11. The dental apparatus of claim 1, wherein the support structure is a dental tray.
14. The dental apparatus of claim 1, further comprising a reflective material disposed on or in the support structure such that light is reflected toward the whitening composition.
15. The dental apparatus of claim 1, wherein the support structure comprises a textured surface.
17. The dental apparatus of claim 1, wherein the light source comprises a microencapsulated chemiluminescence reaction component.
19. A method for treating a dental surface of a user comprising the steps of:
 - (a) providing a dental apparatus comprising:
 - a moldable support structure composed of a material that is moldable by hand at room temperature;
 - a dental whitening composition in contact with the support structure; and a light source disposed on or in the support structure such that light emitted from the source impinges on the dental whitening composition, wherein the apparatus has a volume between 0.5-450 cm³;

- (b) activating the light source such that light is emitted by the light source;
- (c) placing the apparatus entirely within the user's mouth;
- (d) customizing the support structure by manually molding it to the dentition of a user; and
- (e) exposing the dental surface to the light emitted by the light source, thereby treating the dental surface.

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

Gordon	US 5,403,578	Apr. 4, 1995
Oxman	US 5,718,577	Feb. 17, 1998
Burgio	US 6,435,873 B1	Aug. 20, 2002
Rizoiu	US 6,616,447 B1	Sep. 9, 2003

The rejections as presented by the Examiner are as follows:

1. Claims 19-34 stand rejected under the written description provision of 35 U.S.C. § 112, first paragraph.
2. Claims 1-4, 7-10, 12, 13, 19-26, 28, and 29 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Rizoiu.
3. Claims 5 and 6 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Rizoiu and Gordon.
4. Claims 11, 14, 27, and 30 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Rizoiu.
5. Claims 15, 16, 31, and 32 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Rizoiu and Burgio.
6. Claims 17, 18, 33, and 34 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Rizoiu and Oxman.

We reverse the rejection of claims 19-34 under the written description provision of 35 U.S.C. § 112, first paragraph. We reverse the rejection of

claims 11 and 27 under 35 U.S.C. § 103(a) as unpatentable over RizoIU. We affirm rejection of claims 1-4, 7-10, 12, 13, 19-26, 28, and 29 under 35 U.S.C. § 102(e) as being anticipated by RizoIU. We affirm the rejection of claims 5 and 6 under 35 U.S.C. § 103(a) as unpatentable over the combination of RizoIU and Gordon. We affirm the rejection of claims 14 and 30 under 35 U.S.C. § 103(a) as unpatentable over RizoIU. We affirm the rejection of claims 15, 16, 31, and 32 under 35 U.S.C. § 103(a) as unpatentable over the combination of RizoIU and Burgio. We affirm the rejection of claims 17, 18, 33, and 34 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of RizoIU and Oxman.

Written Description:

ISSUE

Does Appellant's Specification have written descriptive support for a support structure that is manually molded to the dentition of a user?

FINDINGS OF FACT

1. Claim 19 is drawn to a method for treating a dental surface of a user.

The method comprises the following five steps:

- (a) a dental apparatus comprising a moldable support structure composed of a material that is moldable by hand at room temperature and a dental whitening composition in contact with the support structure is provided;
- (b) a light source is activated such that light is emitted by the light source;
- (c) the apparatus is placed entirely within the user's mouth;

- (d) the support structure of the apparatus is customized by manually molding it to the dentition of a user; and
- (e) the dental surface is exposed to the light emitted by the light source to treat the dental surface.

Claim 19 further requires that the light source is disposed on or in the support structure such that light emitted from the source impinges on the dental whitening composition, wherein the apparatus has a volume between 0.5-450 cm³.

2. Appellant discloses a moldable support structure “composed of a pliant material such as wax or other material which readily conforms to the shape of the teeth. The support material may be molded by hand at room temperature or rendered moldable by application of heat” (Spec. 9: 9-12).

PRINCIPLES OF LAW

The ‘written description’ requirement . . . serves both to satisfy the inventor’s obligation to disclose the technologic knowledge upon which the patent is based, and to demonstrate that the patentee was in possession of the invention that is claimed. . . . The descriptive text needed to meet these requirements varies with the nature and scope of the invention at issue, and with the scientific and technologic knowledge already in existence.

Capon v. Eshhar, 418 F.3d 1349, 1357 (Fed. Cir. 2005).

ANALYSIS

The Examiner finds that Appellant’s Specification “does not describe a method comprising step (d) of claim 19 of customizing the support structure by manually molding it to the dentition of a user” (Ans. 3; *see* FF 1(d)). We disagree. Appellant’s Specification discloses a support structure

that can be customized by molding the support material by hand at room temperature to conform to the shape of the user's teeth (FF 2).

CONCLUSION OF LAW

Appellant's Specification has written descriptive support for a support structure that is manually molded to the dentition of a user. Accordingly, the rejection of claims 19-34 under the written description provision of 35 U.S.C. § 112, first paragraph is reversed.

Anticipation:

Appellant provides separate arguments for the following two groups of claims: (I) claims 1-4, 7-10, 12, and 13; and (II) claims 19-26, 28, and 29. Claims 1 and 19 are representative. 37 C.F.R. § 41.37(c)(1)(vii).

FINDINGS OF FACT

3. Claim 1 is drawn to a dental apparatus. The apparatus comprises the following three elements:
 - (a) a support structure composed of a material that is moldable by hand at room temperature and customized by application to the dentition of a user and adapted to be placed entirely within a user's mouth;
 - (b) a dental whitening composition in contact with the support structure; and
 - (c) a light source disposed on or in the support structure such that light emitted from the source impinges on the dental whitening composition.

Claim 1 further requires the apparatus to have a volume between 0.5-450 cm³.

4. Appellant does not dispute and therefore concedes that Riziou teaches a dental apparatus comprising:

- (a) a support structure that is adapted to be placed entirely within a user's mouth;
- (b) a dental whitening composition in contact with the support structure; and
- (c) a light source disposed on or in the support structure such that light emitted from the source impinges on the dental whitening composition.

In addition, Appellant does not dispute and therefore concedes that Riziou's dental apparatus has a volume between 0.5-450 cm³.

5. Riziou teaches “[a] dental device for exposing teeth to electromagnetic radiation [that] may include a carrier to be applied to at least one tooth” (Riziou, col. 2, ll. 11-13). According to Riziou, the carrier “may be a dental tray, a dental band, or dental tape” (Riziou, col. 2, ll. 16-17). Riziou teaches that the use of “whitening agents provided on dental tape” is known in the art (Riziou, col. 1, ll. 43-45).

6. Appellant discloses that a “[p]articularly preferred” support is “in the form of a tape” (Spec. 4: 15). Appellant discloses that supports in tape form are known in the art and are useful in the present invention because of their ability to conform to an individual's dentition (Spec. 4: 17-23).

PRINCIPLES OF LAW

Anticipation requires the disclosure, expressly or inherently, of all the limitations of a claimed invention in a prior art reference. *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987) (“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.”). “[I]n an *ex parte* proceeding to obtain a patent, . . . the Patent Office has the initial burden of coming forward with some sort of evidence tending to disprove novelty.” *See In re Wilder*, 429 F.2d 447, 450 (CCPA 1970). Nevertheless, “when the PTO shows *sound basis* for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990) (emphasis added).

It is well settled that argument by counsel cannot take the place of evidence. *In re Cole*, 326 F.2d 769, 773 (CCPA 1964); *In re Geisler*, 116 F.3d 1465, 1471 (Fed. Cir. 1997).

Arguments not made are waived. *See* 37 C.F.R. § 41.37(c)(1)(vii) (“Any arguments or authorities not included in the brief or a reply brief . . . will be refused consideration by the Board, unless good cause is shown.”).

Claim 1:

ISSUE

Does RizoIU teach a support structure composed of a material that is moldable by hand at room temperature and customized by application to the dentition of a user?

ANALYSIS

The Examiner finds that RizoIU teaches a dental apparatus as claimed wherein the support structure is composed of a “material such as dental tape . . . which is moldable and capable of conforming by hand at room temperature” (Ans. 3-4; FF 5). Appellant concedes that RizoIU teaches a dental apparatus as set forth in claim 1, but contends that the support structure of the apparatus is not composed of a material that is moldable by hand at room temperature and customized by application to the dentition of a user (FF 4 and App. Br. 4). Appellant further contends that “under any reasonable definition, tape would not be considered to be ‘moldable’” (Reply Br. 1). Appellant provides no evidence to support this contention, which conflicts with Appellant’s disclosure (FF 6).

CONCLUSION OF LAW

For the foregoing reasons we find that the preponderance of evidence on this record supports a conclusion that RizoIU teaches a support structure composed of a material that is moldable by hand at room temperature and customized by application to the dentition of a user.

Accordingly, we affirm the rejection of claim 1 under 35 U.S.C. § 102(e) as being anticipated by RizoIU. Since they are not separately argued claims 2-4, 7-10, 12, and 13 fall together with claim 1.

Claim 19:

ISSUE

Does RizoIU teach a support structure that is customized by manually molding it to the dentition of a user?

ANALYSIS

The Examiner finds that RizoIU teaches the method as claimed including a dental apparatus wherein the support structure is composed of a “material such as dental tape . . . which is moldable and capable of conforming by hand at room temperature” (Ans. 3-4; FF 5). Appellant contends that “RizoIU is silent with respect to any material that would facilitate the molding of a support structure by hand at room temperature” (App. Br. 7). We disagree, for the reasons set forth with regard to the anticipation of claim 1.

CONCLUSION OF LAW

For the foregoing reasons we find that the preponderance of evidence on this record supports a conclusion that RizoIU teaches a support structure that is customized by manually molding it to the dentition of a user.

Accordingly, we affirm the rejection of claim 19 under 35 U.S.C. § 102(e) as being anticipated by RizoIU. Since they are not separately argued claims 20-26, 28, and 29 fall together with claim 19.

Obviousness:

FINDINGS OF FACT

7. Claim 5 depends from and further limits the whitening composition of claim 1 to be in microencapsulated form.
8. The Examiner finds that RizoIU fails to teach a dental whitening composition in a microencapsulated form (Ans. 4).

9. Appellant does not dispute and therefore concedes to the Examiner's finding that "Gordon teaches a dental composition comprising whitening composition being microencapsulated (column 3[,] line 31)" (*id.*).
10. Rizoiu teaches that "[p]eroxy compounds may be preferred for teeth-whitening applications" (Rizoiu, col. 7, ll. 10-11).
11. Gordon teaches the microencapsulation of peroxide to provide for enhanced stability in a dental composition (Gordon, col. 2, ll. 7-8).
12. Claim 11 depends from and further limits the support structure of claim 1 to a dental tray.
13. Appellant's Specification discloses that a "typical dental tray has a U-shape in order to fit the average dental arch and channels are formed therein for insertion of the teeth during treatment" (Spec. 4: 10-12).
14. Rizoiu teaches that a

[d]ental tray . . . may be generic or custom designed. The dental tray will fit within a person's mouth, and may cover all of the upper or lower teeth or a portion thereof. In certain embodiments, one dental tray may fit over both the upper and lower teeth, such as a mouth guard typically worn by athletes.

(Rizoiu, col. 4, ll. 48-53.)
15. Rizoiu teaches that "a custom dental tray may be made by making an impression of a subject's teeth, and may be vacuum or thermoformed over the impression" (Rizoiu, col. 4, l. 65 - col. 5, l. 1).
16. Claim 14 depends from and further limits the dental apparatus of claim 1 to further comprise a reflective material disposed on or in the support structure to reflect light toward the whitening composition.
17. Rizoiu teaches that the

effectiveness and efficiency of the emitted electromagnetic radiation may be enhanced by adding a reflector, such as [a] reflective panel . . . , positioned against the non-illuminated side of [the] light source panel. . . . Any suitable reflector may be used including mirrors and foils. The reflector should be made of a material that causes most, if not all, of the light to be reflected back toward the tooth surface.

(Rizoiu, col. 5, ll. 56-63.)

18. Claim 15 depends from and further limits the support structure of the dental apparatus of claim 1 to comprise a textured surface.

19. The Examiner finds that Rizoiu does not teach a “support structure . . . comprising a textured surface” (Ans. 5).

20. Appellant does not dispute and therefore concedes to the Examiner’s finding that “Burgio teaches a dental apparatus for whitening teeth having a support structure . . . comprising a textured surface” (*id.*).

21. Burgio teaches that an “advantage of the present invention is the use of microstructures on the backing” that

by virtue of their size, shape, and location create barriers or obstacles to reduce the flow of the medicaments away from the target oral structure. The microstructures when disposed on the backing, also functions as a non-compressible space thereby allowing the medicament to be retained against the target oral structure. In this way, the oral structures are exposed to the medicaments for a longer period of time than compared to devices that do not use microstructures.

(Burgio, col. 2, ll. 27-41.)

22. Claim 17 depends from and further limits the light source of the dental apparatus of claim 1 to comprise a microencapsulated chemiluminescence reaction component.

23. Riziou teaches a dental apparatus comprising a light source that “may be a light emitting diode, an optical fiber, or an electrochemiluminescent material” (Riziou, col. 2, ll. 16-19). Riziou teaches that a user may control the speed of a dental whitening application by selecting, among other things, the wavelength of the light used in the application (Riziou, col. 8, ll. 29-31).

24. The Examiner finds that Riziou does not teach a light source comprising a chemiluminescence reaction component in microencapsulated form (Ans. 6).

25. Oxman teaches a dental apparatus that may also comprise a light source with a chemiluminescent composition (Oxman, Abstract). Oxman teaches that “chemiluminescence is the emission of electromagnetic radiation of wavelength between about 250-1400 nanometers by means of a chemical reaction” (Oxman, col. 6, ll. 17-20). Oxman teaches that the chemiluminescent composition may be contained in microcapsules by a microencapsulation process, wherein the components of the chemiluminescent composition are mixed by breaking the microcapsules and releasing their constituents (Oxman, col. 9, ll. 60-64). Oxman teaches that “[l]ight emission from a chemiluminescent reaction can be controlled through use of an acceptor molecule or a mixture of acceptor molecules to provide light that overlaps with the absorption region of a photoreactive molecule” and thereby offers an advantage over solid-state light sources such as lasers, laser diodes, and LEDs that have regions within their wavelength range “that cannot readily or currently be accessed” (Oxman, col. 6, l. 60 - col. 7, l. 7).

PRINCIPLES OF LAW

In proceedings before the Patent and Trademark Office, the Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art. On appeal to this Board, Appellant must show that the Examiner has not sustained the required burden.¹

“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1739 (2007).

When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.

Id. at 1742. It is proper to “take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 127 S.Ct. at 1741. *See also id.* at 1742 (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”). “In determining whether obviousness is established by combining the teachings of the prior art, the test is what the combined teachings of the references would have suggested

¹ *See* (1) *Ex parte Yamaguchi*, Appeal 2007-4412, slip op. at 5 and 23 (Bd. Pat. App. & Int. Aug. 29, 2008); (2) *Ex parte Fu*, Appeal 2008-0601, slip op. at 5 and 20 (Bd. Pat. App. & Int. Mar. 31, 2008); (3) *Ex parte Catan*, Appeal 2007-0820, slip op. at 3 and 21 (Bd. Pat. App. & Int. Jul. 3, 2007) and (4) *Ex parte Smith*, Appeal 2007-1925, slip op. at 4, 9 and 23 (Bd. Pat. App. & Int. Jun. 25, 2007). Opinions in support of the decisions in these four appeals are (a) precedential opinions of the Board and (b) available on the USPTO website.

to those of ordinary skill in the art.” *In re GPAC Inc.*, 57 F.3d 1573, 1581 (Fed. Cir. 1995) (internal quotations omitted).

Claim 5:

ISSUE

Does the combination of Rizioiu and Gordon make obvious a dental apparatus wherein the whitening composition is in a microencapsulated form?

ANALYSIS

Appellant argues claims 5 and 6 together. Claim 5 is representative. 37 C.F.R. § 41.37(c)(1)(vii). Based on the combined teachings of Rizioiu and Gordon, the Examiner concludes that “[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Rizioiu et al. to have [a] microencapsulated whitening composition in order to enhance stability to the composition in view of Gordon” (Ans. 4-5; *see also* FF 4, 5, and 8-11).

Appellant contends that “Rizioiu et al. had a great opportunity to disclose microencapsulation and/or the advantages thereof, but failed to do so. Accordingly, *prima facie* obviousness has not been established” (App. Br. 4). We are not persuaded. Modifying the apparatus of Rizioiu to have a microencapsulated whitening composition as taught by Gordon is no more than combining familiar elements for their established functions. “The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR Int’l Co.*

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v. Teleflex Inc., 127 S. Ct. 1727, 1739 (2007). Appellant has not shown that the combination yields more than predictable results.

CONCLUSION OF LAW

The combination of Rizioiu and Gordon makes obvious a dental apparatus wherein the whitening composition is in a microencapsulated form. Accordingly, we affirm the rejection of claim 5 under 35 U.S.C § 103(a) as unpatentable over the combination of Rizioiu and Gordon. Claim 6 is not separately argued and therefore falls with claim 5.

Claim 11:

ISSUE

Does Rizioiu make obvious a dental tray that is moldable by hand at room temperature?

ANALYSIS

The Examiner finds that Rizioiu teaches a dental apparatus, wherein the support structure is a “dental band or dental tape” (Ans. 5; FF 5). The Examiner therefore concludes that since Rizioiu’s support structure (e.g., tape) is a moldable material “it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify support structure to be in the form of a tray” (Ans. 5). We disagree.

Rizioiu recognizes that a dental tray is different from dental tape (FF 5 (the support structure “may be a dental tray, a dental band, or dental tape”)). Appellant’s Specification discloses that a typical dental tray has a U-shape that fits the average dental arch with channels formed therein for insertion of

the teeth during treatment (FF 13; *see also* App. Br. 5 (“[t]o anyone of skill in the art in the dental practice, a ‘dental tray’ would be understood to mean a curved tray of sufficient dimensions to be placed over the user’s teeth”)). Rizioiu supports Appellant’s disclosure by teaching that a dental tray is similar to a mouth guard typically worn by athletes (FF 14).

The Examiner does not identify, and we do not find, a teaching in Rizioiu that a person of ordinary skill in this art would consider dental tape and a dental tray to be equivalent support structures. While dental tape may be moldable according to the requirements of Appellant’s claimed invention, Rizioiu teaches that a dental tray is customized by vacuum or thermoforming the tray over an impression of the user’s teeth (FF 15). The Examiner does not identify, and we do not find, a teaching in Rizioiu that a dental tray can be customized for a particular user by molding the dental tray by hand at room temperature.

CONCLUSION OF LAW

Rizioiu does not make obvious a dental tray that is moldable by hand at room temperature. Accordingly, the rejection of claims 11 and 27 under 35 U.S.C. § 103(a) as unpatentable over the combination of Rizioiu is reversed.

Claim 14:

ISSUE

Does Rizioiu make obvious a dental apparatus comprising a reflective material disposed on or in the support structure to reflect light toward the whitening composition?

ANALYSIS

Appellant argues claims 14 and 30 together. Claim 14 is representative. 37 C.F.R. § 41.37(c)(1)(vii). The Examiner finds that Rizoiu teaches a dental apparatus that meets the limitations of Appellant's claimed invention wherein the support structure is dental tape and a reflective material is used with the light source and support structure (Ans. 5; FF 4, 5, and 17). Based on these findings the Examiner concludes that "it would have been obvious to one of ordinary skill in the art to include the reflective material disposed on the support structure of a tape in order to have the light reflected back toward the tooth surface in view of Rizoiu" (Ans. 5). Appellant contends that the Examiner's position is in error because Rizoiu "fail[s] to disclose a reflective material disposed on the support structure" and the Examiner's conclusion is "without any factual evidence" to support it (App. Br. 5).

The preponderance of the evidence falls in favor of the Examiner. Appellant has failed to present a persuasive argument as to why a person of ordinary skill in the art would not apply the teachings of Rizoiu as presented by the Examiner. "In determining whether obviousness is established by combining the teachings of the prior art, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art." *In re GPAC Inc.*, 57 F.3d at 1581 (internal quotations omitted). In this regard, it is proper to "take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR*, 127 S. Ct. at 1741. *See also id.* at 1742 ("A person of ordinary skill is also a person of ordinary creativity, not an automaton.").

CONCLUSION OF LAW

Rizioiu makes obvious a dental apparatus comprising a reflective material disposed on or in the support structure to reflect light toward the whitening composition. The rejection of claim 14 under 35 U.S.C. § 103(a) as unpatentable over Rizioiu is affirmed. Because it is not separately argued claim 30 falls together with claim 14.

Claim 15:

ISSUE

Does the combination of Rizioiu and Burgio make obvious a dental apparatus wherein the support structure comprises a textured surface?

ANALYSIS

Appellant does not separately argue claims 15, 16, 31, or 32. Claim 15 is representative. 37 C.F.R. § 41.37(c)(1)(vii). The Examiner relies on Rizioiu as discussed above (FF 4 and 5). The Examiner finds that Rizioiu does not teach a support structure comprising a textured surface (FF 19). The Examiner relies on Burgio to teach a dental apparatus comprising a textured surface (FF 20). Appellant does not dispute and therefore concedes to the Examiner's findings regarding Burgio (*id.*). Burgio teaches the advantages of using a textured surface on a dental apparatus (FF 21). Based on this evidence the Examiner concludes that it

would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Rizioiu et al. to have the support structure with textured surface as in Burgio in order to minimize the flow of the composition

away from the target oral structure and to retain the composition at the desired area longer thereby being more effective at treating the oral structure in view of Burgio.

(Ans. 5-6.)

Appellant asserts that the Examiner has failed to demonstrate the requisite suggestion or motivation and reasonable expectation of success in combining the references. We disagree. Modifying the apparatus of Rizoiu to have a textured surface as taught by Burgio is no more than combining familiar elements for their established functions. “The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR*, 127 S. Ct. at 1739. Appellant has not shown that the combination yields more than predictable results

The preponderance of the evidence on this record falls in favor of the Examiner. Appellant has failed to present a persuasive argument as to why a person of ordinary skill in the art would not combine the teachings of Rizoiu and Burgio as presented by the Examiner. In addition, Appellant provides no evidence to suggest that a person of ordinary skill in this art would not have a reasonable expectation of success in combining the references as relied upon by the Examiner.

CONCLUSION OF LAW

The combination of RizoIU and Burgio makes obvious a dental apparatus wherein the support structure comprises a textured surface. The rejection of claim 15 under 35 U.S.C. § 103(a) as unpatentable over the combination of RizoIU and Burgio is affirmed. Claims 16, 31, and 32 fall together with claim 15.

Claim 17:

ISSUE

Does the combination of RizoIU and Oxman make obvious a light source for a dental apparatus that comprises a microencapsulated chemiluminescence reaction component?

ANALYSIS

Appellant does not separately argue claims 17, 18, 33, or 34. Claim 17 is representative. 37 C.F.R. § 41.37(c)(1)(vii). The Examiner relies on RizoIU as discussed above (FF 4, 5, and 23). The Examiner finds that RizoIU does not teach a light source comprising a chemiluminescence reaction component in microencapsulated form (FF 24). The Examiner finds that Oxman teaches a dental apparatus with a light source comprising a microencapsulated chemiluminescent composition (Ans. 6; FF 25). Based on this evidence the Examiner concludes that it would have been obvious to modify RizoIU's dental apparatus to utilize Oxman's microencapsulated chemiluminescent light source (Ans. 6).

Appellant contends that the Examiner failed to identify a suggestion in the prior art to support the combination of references and that the

Examiner's rationale for combining Oxman with Rizoui runs "counter to the disclosure of Rizoui" (App. Br. 6). We are not persuaded.

"In determining whether obviousness is established by combining the teachings of the prior art, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art." *In re GPAC Inc.*, 57 F.3d at 1581 (internal quotations omitted). The light source in the dental apparatuses of Rizoiu and Oxman emits electromagnetic radiation (FF 5 and 25). The Examiner finds that Oxman offers the advantage of providing the components of the chemiluminescent reaction in the same composition through the use of microencapsulation as opposed to separate chambers or providing a barrier to keep the components separate until needed (Ans. 8-9). In addition, Rizoiu teaches that the wavelength of the light used in a dental whitening application contributes to the speed of whitening (FF 23). Oxman teaches that light emissions from a chemiluminescent reaction can be controlled more readily than solid state light sources, such as a light emitting diode taught by Rizoiu, to obtain light that more readily overlaps with the absorption region of a photoreactive molecule (FF 25; *cf.* FF 23). Thus, a person of ordinary skill in this art interested in tuning the wavelength of light to the particular photoreactive molecule (e.g., peroxy compounds) used in a dental whitening application would look to the use of light emissions from a chemiluminescent reaction which, as taught by Oxman, can be more readily controlled to overlap the absorption region of the photoreactive molecule chosen (FF 10, 23, and 25). It is proper to "take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR*, 127 S.Ct. at 1741. *See also*

id. at 1742 (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”).

CONCLUSION OF LAW

The combination of RizoIU and Oxman makes obvious a light source for a dental apparatus that comprises a microencapsulated chemiluminescence reaction component. The rejection of claim 17 under 35 U.S.C. § 103(a) as unpatentable over the combination of RizoIU and Oxman. Since they are not separately argued claims 18, 33, and 34 fall together with claim 17.

CONCLUSION

In summary, we

- reverse the rejection of claims 19-34 under the written description provision of 35 U.S.C. § 112, first paragraph.
- reverse the rejection of claims 11 and 27 under 35 U.S.C. § 103(a) as unpatentable over RizoIU.
- affirm rejection of claims 1-4, 7-10, 12, 13, 19-26, 28, and 29 under 35 U.S.C. § 102(e) as being anticipated by RizoIU.
- affirm the rejection of claims 14 and 30 under 35 U.S.C. § 103(a) as unpatentable over RizoIU.
- affirm the rejection of claims 5 and 6 under 35 U.S.C. § 103(a) as unpatentable over the combination of RizoIU and Gordon.
- affirm the rejection of claims 15, 16, 31, and 32 under 35 U.S.C. § 103(a) as unpatentable over the combination of RizoIU and Burgio.

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- affirm the rejection of claims 17, 18, 33, and 34 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of RizoIU and Oxman.

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

AFFIRMED-IN-PART

Ssc:

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