

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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 MINGCHIH M. TSENG, and CARL M. PHILBROOK

Appeal No. 2006-3223
Application No. 10/663,352

ON BRIEF

Before ADAMS, GREEN, LEBOVITZ and, Administrative Patent Judges.

LEBOVITZ, Administrative Patent Judge.

DECISION ON APPEAL

This appeal involves claims to a color changing matrix comprising a layer that contains water-insoluble polymer, water-soluble polymer, and water-leachable colorant. The Examiner has rejected the claims as anticipated. We have jurisdiction under 35 U.S.C. § 134. We reverse.

Background

Tooth decay and periodontal disease are caused by bacteria in the mouth. Specification, page 1, lines 7-8. Brushing the teeth is a common of way of reducing mouth bacteria. Id., page 1, lines 11-12. “After a toothbrush has been used, there are a large number of bacteria clinging to the bristles, even after the brush has been rinsed.”

Id., page 1, lines 17-19. “[T]hese bacteria typically will multiply on the bristles between uses.” Id., page 1, lines 20-21. To address this problem, the instant application provides a toothbrush which contains a sustained-release matrix loaded with an anti-microbial agent that kills bacteria. Id., page 2, lines 13-15; page 4, line 4-5. Colorants can also be included which leach from the sustained release matrix over time, providing an indication of brush wear and depletion of the anti-microbial agent. Id., page 2, lines 17-20; page 6, lines 14-30.

Claim construction

Claims 45-52 are appealed. These are all the pending claims in this application. Because separate reasons for patentability were not provided for any of the individual claims, all the claims stand or fall together. 37 CFR § 41.37(c)(1)(vi). We select claim 45 as representative of the appealed claims for the purpose of deciding this appeal.

45. A color-changing matrix comprising a layer including a mixture of a water-insoluble polymer, a water-soluble polymer, and a water-leachable colorant that leaches from the matrix when the matrix is exposed to water to provide a change in color.

The first step of an anticipation analysis is claim construction because that is necessary to understand the scope and meaning of the claims. See Gechter v. Davidson, 116 F.3d 1454, 1457, 43 USPQ2d 1030, 1032 (Fed. Cir. 1997).

The Examiner construes the term “mixture” recited in claim 45 to cover embodiments where the polymer and colorant components are arranged in different sublayers of the claimed layer. Answer, page 5. Appellants argue that the Examiner’s

construction is improper, and that the claimed mixture is drawn to a single layer containing all three components. Brief, page 8.

The claim requires that the matrix comprises “a layer including a mixture of” three components: water-insoluble polymer, water-soluble polymer, and a water-leachable colorant. The Examiner argues that the “mixture” in the “layer” could be further structured as a “plurality of sublayers.” Answer, page 5. To support this construction, he cites a dictionary definition of “mixture.” Id., page 6. He also refers to the application’s description of a preferred two-layered matrix, which he argues indicates that “the matrix may have individual sublayers . . . but the matrix is still one overall layer.” Id., page 7. As evidence that he correctly construed the claim, the Examiner introduces Iijima,¹ which he characterizes as describing “an individual layer” which comprises a plurality of sublayers. Id., page 5.

The claims are directed to a “color changing matrix.” In preferred embodiments, the matrix is a “flat template” attached to a toothbrush at the base of the bristles. Specification, page 4, lines 11-13. Three preferred templates (matrices) are described in the application: 1) “Single-layer template including chlorhexidine” (page 7, line 29); 2) “Two-layer template including chlorhexidine” (page 17, line 1); and 3) “Template including a colorant” (page 18, line 10). The template containing the colorant is described to preferably contain two layers, each with a different colorant. Id., page 18, lines 11-12. From this written description, it is clear that the matrix can contain more than one layer. However, to resolve the dispute between Appellants and the Examiner,

¹ Iijima et al. (Iijima), U.S. Pat. No. 4,701,404, issued Oct. 20, 1987

we must determine whether the “mixture” recited in claim 45 can also be comprised of more than one layer.

As described in the specification, each single layer in a matrix is formed by mixing its components together. To prepare a preferred single-layer matrix, Appellants describe mixing a water-insoluble polymer (“ELVAX 360”), a water-soluble polymer (“Polyox”), and an anti-microbial agent (“chlorhexidine”) in a blender (“The ELVAX 360, Polyox, and chlorhexidine digluconate are mixed in a blender”). Specification, page 11, line 33-page 12, line 2. The “mixture” of the three components is then extruded as a flat matrix. Id., pages 12-13. The section in which this process description is found is titled “Blending of Materials.” In sum, the application’s written description in this section indicates that the “mixture” is a commingling of the polymers and anti-microbial agent into one mass, consistent with the dictionary definition of “mix”² which is evidence of its ordinary usage.

When two-layer embodiments are described, it is the matrix itself which is characterized as being composed of layers, not a component of it. See e.g., specification, page 4, lines 27-30; page 6, lines 1-2; page 17. The Examiner’s construction of the claim puts the layers into the mixture, rather than into the matrix. The specification, as indicated above, expressly refers to “mixture” in its description of the process for blending the components to produce a single layer. When more than one layer is included, the specification refers to this layer as being present in the matrix. Thus, the specification does not use the term “mixture” when it intends to refer to the

² Mix: “1 a (1): to combine or blend into one mass (2) to combine with one another b: to bring into close association ... 2: to form by mixing components ... syn mix. MINGLE, COMMINGLE, BLEND, MERGE ...” Webster’s New Collegiate Dictionary 737 (1976).

presence of more than one layer. See e.g., description of three preferred embodiments beginning at id., page 7, line 29; page 17, line 1; and page 18, line 10.

The claim expressly states that the layer is a mixture of three different components. In examining the claims of an application, the PTO is permitted to adopt “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.” In re Morris, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997). See also In re Crish, 393 F.3d 1253, 1256, 73 USPQ2d 1364, 1367 (Fed. Cir. 2004). As explained above, when read in light of the specification, the person of ordinary skill in the art would understand that the components in the recited “layer” were blended together, rather than being a mixture of layers. This does not rule out the presence of an additional layer in the claim. Because claim 45 uses “comprising” terminology, it is open to the presence of more than one layer in the claimed color-changing matrix. However, as we have construed this claim, the additional layers are not defined by the recited “mixture” of three components.

The Examiner points to the description on page 4 of a matrix that includes two layers, and concludes that “the matrix is still one overall layer.” Answer, page 7. We agree with Appellants that the cited passage does not refer to the matrix as being “one overall layer.” Reply Brief, page 1. Rather, it expressly states that “the matrix includes two layers, joined together.” Specification, page 4, lines 27-28.

The Examiner relies on the dictionary definition of “mixture” to support his claim construction. Answer, page 6. This dictionary defines “mixture” as referring to, inter

alia, “an instance of mixing” or “a product of mixing.” The definition also states that it can be a “portion of matter consisting of two or more components . . . that retain their own properties.” It describes “a fabric woven of variously colored threads” as an example. The Examiner concludes that this means a mixture can include separate components in separate locations, a description that would cover a layered structure. Answer, page 6. We do not agree. Even a homogenous aqueous salt solution of NaCl (which is mixture of NaCl and water) can be described as having “separate components in separate physical locations” because the water molecules and the salt ions each would occupy different spatial positions in the aqueous solution. Consequently, we do not find this argument to be persuasive.

Iijima was introduced by the Examiner to support the position that a layer can be comprised of sublayers. Answer, pages 5 and 7. We have considered this evidence, but do not find it persuasive. As indicated by the Examiner, Iijima refers to “sublayers” within a single layer. Id. However, Iijima also refers to a “mixture” of silver halide emulsions which are incorporated into a single sub-layer. “[A] mixture of two or more monodispersed silver halide grains may be incorporated in at least one of the blue-, green- and red-sensitive silver halide emulsion layers.” Iijima, column 8, lines 21-25. Iijima uses the term “mixture” to mean a blend or commingling of components, the same meaning we have interpreted it to have in instant claim 45. Like the instant specification, when Iijima means to refer to a “layer,” he expressly uses that term. Thus, we do not find Iijima to support the Examiner’s construction.

In sum, we conclude that the broadest reasonable construction of claim 45 in view of the specification and the knowledge of the person of ordinary skill in that art is

that the matrix contains at least one layer, where the layer comprises three recited components blended together to form a single layer.

Anticipation

Claims 45-52 stand rejected under 35 U.S.C. § 102(b) as anticipated by Barclay.³

The Examiner rejects the claims as anticipated by Barclay, which describes an osmotic delivery device with an outer layer made from a water-insoluble polymer and an inner layer comprising a water-soluble polymer. Answer, page 4. The device contains a water-soluble drug which is yellow in color and which leaches from the delivery device. Id. There is no dispute between the Examiner and Appellants about what Barclay teaches. The Examiner applies Barclay to the claims because, under his claim construction, claim 45 covers a device in which the water-insoluble polymer, water-soluble polymer, and colorant are arranged in different layers, rather than being limited to a single layer containing a blend of all three components. The former structure is described by Barclay, but the latter structure is not. Having concluded that the Examiner's claim construction is not proper, we are led to the conclusion that Barclay's device does not anticipate the claims. We reach this conclusion because, as Appellant argues, Barclay does not teach a device containing the recited water-insoluble polymer, water-soluble polymer, and water-leachable colorant in a single layer. Brief, page 11.

For the forgoing reasons, we find that the Examiner has failed to establish a case of prima facie obviousness. This rejection is reversed.

³ Barclay et al. (Barclay), U.S. Pat. No. 5,021,053, issued Jun. 4, 1991

Other issues

In making the decision to reverse the rejection, we have reached a different claim construction than the one set forth by the Examiner. Upon return of this application to the technology center, we suggest that the Examiner reconsider the prior art in light of the revised claim construction.

REVERSED

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