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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* SCOTT A. RANKIN

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Appeal 2021-001726  
Application 14/317,392  
Technology Center 1600

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Before DONALD E. ADAMS, ERIC B. GRIMES, and  
ULRIKE W. JENKS, *Administrative Patent Judges*.

JENKS, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from Examiner's decision to reject claims directed to a teat sealant. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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<sup>1</sup> We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Wisconsin Alumni Research Foundation. Appeal Br. 2.

### CLAIMED SUBJECT MATTER

The claims are directed to a teat sealant. Independent claims 15 and 40, reproduced below, are illustrative of the claimed subject matter:

15. An intra-mammary teat sealant comprising, in combination:  
a gel base; and  
barium sulfate *dispersed in the gel base* in an amount of from 50% to 75% by weight of the intra-mammary teat sealant, wherein the intra-mammary teat sealant is devoid of bismuth-containing salts.
40. An intra-mammary teat sealant comprising, in combination:  
a gel base consisting of:  
a wax or oil and;  
a salt; and  
titanium dioxide, zinc oxide, barium sulfate, or a combination thereof *dispersed in the gel base* in an amount of at least 30% by weight of the intra-mammary teat sealant, wherein the intra-mammary teat sealant is devoid of bismuth-containing salts.

Appeal Brief, Claims App. (emphasis added).

### REJECTIONS

Grounds of rejection before this Panel for review:

- I. claims 40–44 under pre-AIA 35 U.S.C. § 102(b) as being anticipated by Healy;<sup>2</sup>
- II. claims 40–43, 45, and 49 under pre-AIA 35 U.S.C. § 102(b) as being anticipated by Morrison;<sup>3</sup>
- III. claims 40–43, 45, and 49 under pre-AIA 35 U.S.C. § 102(b) as being anticipated by Fujisawa;<sup>4</sup> and

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<sup>2</sup> Healy et al., US 2005/0004274 A1, published Jan. 6, 2005 (“Healy”).

<sup>3</sup> Morrison et al., WO 98/38984, published Sept. 11, 1998 (“Morrison”).

<sup>4</sup> Fujisawa et al., US 4,931,096, issued June 5, 1990 (“Fujisawa”).

- IV. claims 15, 24–26, 36, and 40–55 under 35 U.S.C. § 103(a) as unpatentable over Morrison in view of Healy, Remington,<sup>5</sup> McNally,<sup>6</sup> Choudhury,<sup>7</sup> and Dalton.<sup>8</sup>

## OPINION

### *Claim construction*

“[D]uring examination proceedings, claims are given their broadest reasonable interpretation consistent with the specification.” *In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000).

### *Claim 15*

Claim 15 is directed to a composition that combines a gel with barium sulfate. Claim 15 does not have any limitations with respect to the gel. The barium sulfate component of claim 15, however, limits the concentration of barium sulfate to be in the range between 50–75% by weight of the composition. Claim 15 also contains a proviso that the composition is “devoid of bismuth-containing salts.”

We note that the preamble of claim 15 uses the term “comprising.” “‘Comprising’ is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim.” *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501 (Fed. Cir. 1997).

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<sup>5</sup> US 6,254,881 B1; issued July 3, 2001.

<sup>6</sup> Alfonso Gennaro, *Remington’s Pharmaceutical Sciences*, MACK PUBLISHING COMPANY (1985).

<sup>7</sup> Harial Choudhury, *Concise International Chemical Assessment document 34* (2001)

<sup>8</sup> Louisa Wray Dalton, *Barium*, C&EN: IT’S ELEMENTAL: The Periodic Table- Barium (2003)

Claim 15, therefore, is a composition made of a gel and barium sulfate, and because of the open claim language can contain a multitude of additional ingredients including active ingredients and still be within the bounds of the claim. The only limitation is that the claim does not contain a bismuth-containing salt.

*Claim 40*

Claim 40 is directed to a composition that combines a gel with titanium dioxide, zinc oxide, barium sulfate, or a combination thereof. Claim 40 further requires “a gel base consisting of: a wax or oil and; a salt.”

“‘[C]losed’ transition phrases such as ‘consisting of’ are understood to exclude any elements, steps, or ingredients not specified in the claim.” *AFG Indus., Inc. v. Cardinal IG Co.*, 239 F.3d 1239, 1245 (Fed. Cir. 2001).

The “consisting of” language of claim 40 thus excludes any ingredients other than a wax or oil and a salt from the gel base of the composition.

In addition to the “consisting of” language, claim 40 also recites “comprising” in describing the composition that contains a gel base in addition to “titanium dioxide, zinc oxide, barium sulfate, or a combination thereof.” “The reasonable interpretation of the claims containing both of the terms ‘comprising’ and ‘consists’ is that the term ‘consists’ limits the ‘said portion’ language to the subsequently recited numbered nucleotides, but the earlier term ‘comprising’ means that the claim can include that portion plus other nucleotides.” *In re Crish*, 393 F.3d 1253, 1257 (Fed. Cir. 2004).

We agree with Examiner that the “comprising” language in the claim allows the mixture of the gel base and titanium dioxide, zinc oxide, barium sulfate or combination to include additional components dispersed in the gel base.

We disagree, however, with Examiner's interpretation that the "comprising" language of the claim allows the *gel base* to contain additional components. Because of the "consisting of" language in relation to the gel base, the gel base may contain *only* the recited wax or oil and salt. In other words, the claim is directed to a composition that is made up of at least two components the first component being a gel base and the second component is selected from titanium dioxide, zinc oxide, barium sulfate or combination thereof. Although we agree with Examiner that additional ingredients can be added to this mixture, we do not agree that the claim language allows for the addition of ingredients to the gel base.

Finally, claim 40 additionally contains a negative limitation indicating that the composition needs to be devoid of bismuth-containing salts.

The broadest reasonable interpretation of claim 40 is a mixture made of a gel base and titanium dioxide, zinc oxide, barium sulfate, or a combination thereof. Additional components can be added to this mixture. The mixture, however, may not contain a bismuth salt.

I. *Anticipation by Healy*

Examiner finds that Healy "discloses a gel which contains an oil and a salt, i.e. soybean oil and titanium dioxide." Final Act. 3. Examiner finds that "the recitation of 'sealant comprising' indicates that other components besides those recited" can be incorporated in the composition and still be within the scope of the claim. Ans. 5. The issue is whether the preponderance of evidence of record supports Examiner's finding that Healy anticipates the claims.

We are not persuaded that Examiner has met the burden of establishing anticipation based on Healy. For the reasons discussed above in the claim construction section, we agree with Appellant that the "consisting

of’ language in claim 40 limits the gel base to a composition containing wax or oil in conjunction with a salt. Reply Br. 3.

We agree with Appellant that Healy’s gels include additional elements, such as a gelling agent, in the gel base that are expressly excluded from the gel base of claim 40 based on the claim language. Appeal Br. 3. Healy discloses that “gelled esters, gelled alcohols, gelled ethers, and gelled naturally-occurring fats and oils also are obtained by using one or more diblock copolymers, triblock copolymers, star polymers, radial polymers, multi-block copolymers, or mixtures thereof as a gelling agent.” Healy, *Abstr.*, *see id.* ¶¶ 5, 26, 45. In each of Healy’s examples, the gel base contains a gelling agent, and we note that none of the gelling agents are limited to a salt. *See* Healy, Examples 1–10. We, therefore, agree with Appellant that Examiner has not met the burden of establishing anticipation based on Healy. Accordingly, we reverse the rejection of claims 40–44.

## II. *Anticipation by Morrison*

Examiner contends that Morrison “expressly discloses a gel containing mineral oil and 50% by weight zinc oxide and a gel containing mineral oil and 30% by weight titanium dioxide.” Final Act. 4. Examiner interprets that “salt” in the gel of claim 40 does not exclude “the salt being titanium dioxide or zinc oxide.” *Id.* Examiner finds that “[t]he transitional phrase ‘consisting of’ with respect to the ‘gel base’ does not limit the claims as the test seal as whole is modified by the transition phrase ‘comprising’ which is open ended.” *Id.* According to Examiner,

[t]he instant Claim 40 recites “comprising, in combination” a gel base “consisting of” a wax or oil and salt, and titanium dioxide, zinc oxide, barium sulfate, or a combination thereof. . . This is interpreted to mean that the gel base consists of a wax or oil, and a salt, but it does not exclude addition of

other components, such as the block polymers taught by [Morrison] to make the final teat sealant product being claimed.

Ans. 9. “Since Claim 40 only requires at least 30% of ‘titanium dioxide, zinc oxide, barium sulfate, or a combination thereof’, the 50% in Example of [Morrison] reads on ‘titanium dioxide, zinc oxide, barium sulfate, or a combination thereof’, and the remainder 20% reads on the ‘salt’ recitation.” *Id.* at 10.

We are not persuaded that Examiner has met the burden of establishing anticipation based on Morrison. For the reasons discussed above in the claim construction section, we agree with Appellant that the “consisting of” closes the gel base to a composition containing wax or oil in conjunction with a salt, and nothing else. Reply Br. 3 (“These gels differ structurally from the gel of claims 40–55 due to the latter being composed exclusively of a wax or oil and salt and therefore excluding the polymers . . . as constituent structural components.”). Morrison describes a gel that is made of Drakeol 7 (a white mineral oil), Kraton 1702 (a polymer), and Kraton 1650 (a polymer). Morrison 12:32–34; 12:26–29. We agree with Appellant that there is no indication in Morrison of a gel containing only mineral oil and salt. Examiner, therefore, has not met the burden of establishing anticipation based on Morrison. Accordingly, we reverse the rejection of claims 40–43, 45, and 49.

### III. *Anticipation by Fujisawa*

Examiner finds that Fujisawa “expressly discloses a composition containing polyisoprene, 55% by weight zinc oxide, liquid paraffin, Japan wax and 15% by weight barium sulfate.” Final Act. 5. Examiner interprets that “salt” in the claim 40 gel does not exclude “the salt being zinc oxide or barium sulfate.” *Id.*



We are not persuaded that Examiner has met the burden of establishing anticipation based on Fujisawa. For the reasons discussed above in the claim construction section, we agree with Appellant that the “consisting of” closes the gel base to a composition containing wax or oil in conjunction with a salt, and nothing else. *See* Reply Br. 3 (“These gels differ structurally from the gel of claims 40–55 due to the latter being composed exclusively of a wax or oil and salt and therefore excluding the polymers . . . as constituent structural components.”), *see id.* at 2 (“[T]he prior art explicitly distinguishes gels and their constituent components from elements such as solids and liquids that are merely dispersed or suspended within the gels, and, importantly, provides gel bases that explicitly include elements other than the recited gel-base elements.”). Appellant contends that Fujisawa “does not teach a composition comprising a gel base consisting of a wax or oil and a salt.” Appeal Br. 11.

Fujisawa discloses a paste. Specifically, example 1 of Fujisawa discloses a paste made of 14 % gutta percha, 50% zinc oxide, 6% liquid paraffin, 4% Japan wax, and 26 % barium sulfate. *Id.* at 2:40–48, *see also id.* at 2:60–65 (Examples 3, using polyisoprene instead of gutta percha). Fujisawa discloses that barium sulfate is a radio-opaque material and is effective at a concentration of 2–30%. Fujisawa 2:14–15.

One of ordinary skill in the art would understand that creams, gels, and pastes are structurally different. A paste is not a gel. According to claim 40 the “titanium dioxide, zinc oxide, barium sulfate, or a combination thereof” are “dispersed in the gel base.” The language of the claim, therefore, makes clear that the titanium dioxide, zinc oxide, or barium sulfate is introduced into the gel base. In other words, the claim language does not allow for mixing all ingredients at the same time as is suggested by

Fujisawa's paste. Even assuming that titanium dioxide, zinc oxide, or barium sulfate read on the salt component of the gel, Examiner has not directed us to a gel component in Fujisawa. Examiner also has not articulated why a paste and a gel would be equivalent so that Fujisawa's paste would read on the claimed teat sealant.

We agree with Appellant that there is no indication in Fujisawa that a gel was prepared that contained only oil and salt, to which the zinc oxide or titanium dioxide was added. We, therefore, agree with Appellant that Examiner has not met the burden of establishing anticipation based on Fujisawa. Accordingly, we reverse the rejection of claims 40–43, 45, and 49.

IV. *Obviousness over Morrison in view of Healy, Remington, McNally, Choudhury, and Dalton*

The issue is whether the preponderance of evidence of record supports Examiner's conclusion that the claimed teat sealant is obvious based on the combined references.

Examiner finds that Morrison "expressly discloses a gel containing mineral oil and 50% by weight zinc oxide and a gel containing mineral oil and 30% by weight titanium dioxide" that are suitable for suspending solids. Final Act. 8. Examiner finds that "the solids [of Morrison] include zinc oxide and titanium oxide." *Id.*

Examiner finds that Healy "discloses that gels are typically made by mixing one or more compounds to be gelled with gelling agents, that gelling agents commonly include fatty acid metal soaps of aluminum and that gelled mineral oils are available." *Id.* (citing Healy ¶ 5).

Examiner finds that McNally teaches "an anti-infect[ive] free physical barrier for the teat canal of a nonhuman animal where the seal contains a non-toxic heavy metal salt in a gel base containing at least 40%, 50%–75%

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or 65% said salt and the gel is based on aluminum stearate and can include liquid paraffin as vehicle.” *Id.* at 8–9.

Examiner relies on Choudhury for teaching that barium sulfate is non-toxic and Dalton for teaching that barium sulfate is a heavy metal. *Id.*

Examiner concludes that based on the combined teachings

one of ordinary skill in the art would expect that aluminum stearate would be suitable for forming the gel base in the WO’981 [Morrison] prior art composition. . . . As such, one of ordinary skill in the art would expect that barium sulfate [a known non-toxic heavy metal] would be suitable for use as the heavy metal salt in amounts up to 75% by weight in the prior art gels. Therefore, the claimed invention, as a whole, would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, because every element of the invention has been collectively taught by the combined teachings of the references.

Final Act. 9. Examiner further reasons that

[i]t would have been prima facie obvious to one of ordinary skill in the art before the effective filing date to substitute bismuth sub-nitrate of McNally et al. with barium sulfate, obtaining the claimed composition. One would be motivated to do so because barium sulfate is already shown to be successfully incorporated in sealant compositions (See Fujisawa), and Choudhury teaches that barium sulfate is non-toxic (Abstract), and therefore would be a good alternative to the bismuth sub-nitrate of McNally et al in a teat sealant composition.

Ans. 16.

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*Claims 40–55*

With respect to claims 40–55, Appellant contends that the gel base of Morrison “explicitly includes additional elements other than a wax or oil and a salt. These additional elements include esters as well as diblock, triblock, multiblock, and/or radial block copolymers.” Appeal Br. 12. Appellant contends that Examiner has not articulated a rationale to remove these additional elements. *Id.*

For the reasons discussed above (*see, supra*, Section II), we find that Morrison does not disclose gels that include a gel base made up solely of a oil or wax and a salt. Examiner’s articulated rationale begins with Morrison’s oil-containing gel composition to which McNally’s aluminum stearate could be added for forming the gel base in Morrison. *See* Final Act. 9 (“one of ordinary skill in the art would expect that aluminum stearate would be suitable for forming the gel base in the WO’981 prior art composition.”). However, what is missing from Examiner’s analysis is evidence that an artisan would have a reason to remove the diblock and triblock polymers of Morrison. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007)(obviousness rejections require “some articulated reasoning with some rational underpinning”). Accordingly, we agree with Appellant that Examiner not met the burden of presenting a prima facie case because Examiner has not articulated why one of ordinary skill in the art would have removed the polymers from Morrison’s gel base in the first place and then been motivated to added a salt to arrive a gel base as recited in claim 40. Accordingly, we reverse the rejection of claims 40–55.

*Claims 15, 24–26, and 36*

With respect to claims 15, 24–26, and 36, Appellant contends that the rejection is predicated on “the allegation that barium sulfate would have been expected to be suitable for use as a ‘non-toxic heavy metal salt’ as taught by McNally.” Appeal Br. 13; *see* Reply Br. 5–6. According to Appellant, the “the use of barium sulfate as an X-ray-blocking agent in gastrointestinal tracts does not predict suitability for use in an intramammary seal composition as taught by McNally.” Appeal Br. 16; *see* Reply Br. 6.

“[E]xaminer bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability.” *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). In satisfying this initial burden, “[i]t is impermissible to use the claimed invention as an instruction manual or ‘template’ to piece together the teachings of the prior art so that the claimed invention is rendered obvious.” *In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992). Stated differently, to establish obviousness, there must be “an apparent reason to combine the known elements in the fashion” recited in the claims. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

McNally discloses a teat sealing composition that contains a gel base made of liquid paraffin and aluminum stearate to which bismuth sub-nitrate is added. McNally 2:21–48 (Example 1). McNally identifies that the preferred “heavy metal salt is bismuth sub-nitrate,” but does not identify any other heavy metals that are suitable for the teat sealing composition. McNally 1:61–63. Choudhury teaches that “barium sulfate has been extensively used . . . as an oral radiocontrast medium . . . [and] due to the limited absorption of barium sulfate from the gastrointestinal tract or skin, it is unlikely that any significant systemic effects would occur.” Choudhury 1;

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Dalton 1 (“[I]nsoluble barite is used as a tracer for X-raying the human intestinal tract because it is extremely dense and opaque to X-rays.”).

Fujisawa discloses a paste. Specifically, example 1 of Fujisawa discloses a paste made of 14 % gutta percha, 40% zinc oxide, 6% liquid paraffin, 4% Japan wax, and 26 % barium sulfate. *Id.* at 2:40–48, *see also id.* at 2:60–65 (Examples 3, using polyisoprene instead of gutta percha).

Fujisawa discloses that barium sulfate is a radio-opaque material and is effective at a concentration of 2–30%. Fujisawa 2:14–15.

We find that Appellant has the better position. At best Examiner has identified the presence of individual components in the art but has not provided an articulated rationale why one of ordinary skill in the art would have been motivated to make the requisite substitutions to arrive at the claimed teat sealing composition. In other words, just because barium sulfate and bismuth sub-nitrate are known in the art as radio-opaque contrast agents does not provide a reason to substitute one for the other in the teat sealing composition of McNally. Examiner has not identified any advantages associated with barium sulfate that may provide motivation to substitute it for the bismuth sub-nitrate in McNally’s composition. Because the Examiner has not articulated a reason why the ordinary artisan would select the barium sulfate component from Fujisawa’s paste and incorporate it into McNally’s gel while at the same time removing bismuth subnitrate from McNally’s gel we are constrained to reverse Examiner’s rejection. *See In re NTP, Inc.* 654 F.3d 1279, 1299 (Fed. Cir. 2011) (Fed. Cir. 2011) (“Care must be taken to avoid hindsight reconstruction by using ‘the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit.’”). Accordingly, we reverse the rejection of claims 15, 24–26, and 36.

DECISION SUMMARY

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
40–44	102(b)	Healy		40–44
40–43, 45, 49	102(b)	Morrison		40–43, 45, 49
40–43, 45, 49	102(b)	Fujisawa		40–43, 45, 49
15, 24–26, 36, 40–55	103	Morrison, Healy, Remington, McNally, Choudhury, Dalton		15, 24–26, 36, 40–55
<b>Overall Outcome</b>				15, 24–26, 36, 40–55

REVERSED