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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte STEPHAN RUPPERT, CLAUDIA STEIKERT, and
ALEXANDRA BLOHM¹

Appeal 2019-004116
Application 15/359,841
Technology Center 1600

BEFORE RYAN H. FLAX, RACHEL H. TOWNSEND, and
CYNTHIA M. HARDMAN, *Administrative Patent Judges*.

HARDMAN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) involving claims to a process for the preparation of a cosmetic oil-in-water (“O/W”) emulsion. The Examiner rejected the claims for lack of adequate written description and as obvious over the prior art. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

¹ Appellants identify the real party in interest as “Beiersdorf AG.” Appeal Br. 3.

STATEMENT OF THE CASE

The claims are directed to a process for the preparation of a cosmetic O/W emulsion containing UV filters and a licorice extract. Spec. 3:25–4:7. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A process for the preparation of a cosmetic O/W emulsion, wherein the process comprises
 - (i) adding a heated oil phase comprising 2-ethylhexyl 2-cyano-3,3-diphenylacrylate, 4-(tert-butyl)-4'-methoxydibenzoylmethane and, optionally, one or more further oil-soluble UV filters to a hot aqueous phase,
 - (ii) homogenizing the oil and water phases to obtain an O/W emulsion,
 - (iii) externally cooling the emulsion, and
 - (iv) adding at least one of licorice extract dissolved in ethanol and licochalcone A dissolved in ethanol to the cooled emulsion with stirring.

Appeal Br. 18 (Claims Appendix).

REFERENCES

The Examiner relied upon the following prior art references:

Binder	US 2005/0058680 A1	Mar. 17, 2005
Blatt	US 2007/0196289 A1	Aug. 23, 2007

REJECTIONS

The claims stand rejected as follows:

Claims 1–16 and 18–21 are rejected under 35 U.S.C. § 112, as failing to comply with the written description requirement (new matter rejection).
Final Act. 3.

Claims 1–16 and 18–21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Blatt and Binder. *Id.*

ANALYSIS

Written Description

The Examiner rejected claims 1–16 and 18–21 as failing to comply with the written description requirement, asserting that independent claims 1, 18, and 21 contain new matter. Final Act. 3. These claims recite “externally cooling the emulsion,” but according to the Examiner, Appellants’ Specification “fails to provide any support for such method.” *Id.*

While the Specification refers to “cooling” (*see, e.g.*, Spec. 4:4, 9:25–26), Appellants concede that it “does not disclose in which specific way the cooling of the emulsion was accomplished.” Appeal Br. 8. However, relying on *Binder*, they assert that both internal and external cooling of emulsifications were well known in the art, and as such, “it cannot reasonably be assumed that the instant inventors did not know that external cooling during emulsification is possible and did not consider external cooling as a method of cooling the formed emulsion.” *Id.*

To satisfy the written description requirement, the specification must “clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed.” *Ariad Pharms. Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc) (citations omitted). “For generic claims, [the Federal Circuit has] set forth a number of factors for evaluating the adequacy of the disclosure, including ‘the existing knowledge in the particular field, the extent and content of the prior art, the maturity of the science or technology, [and] the predictability of the aspect at issue.’” *Id.* (quoting *Capon v. Eshhar*, 418 F.3d 1349, 1359 (Fed. Cir. 2005)). “[T]he level of detail required to satisfy the written description requirement

varies depending on the nature and scope of the claims and on the complexity and predictability of the relevant technology.” *Ariad Pharms. Inc.*, 598 F.3d at 1351.

Appellants admit that “the instant specification does not disclose in which specific way the cooling of the emulsion was accomplished.” Appeal Br. 8. We are mindful that “a description that merely renders the invention obvious does not satisfy” the written description requirement. *Ariad Pharms. Inc.*, 598 F.3d at 1352. Yet we are also mindful of the Federal Circuit’s directive to apply the written description requirement “in the context of the particular invention and the state of the knowledge.” *Capon v. Eshhar*, 418 F.3d at 1358.

Here, although the Specification does not mention external cooling—or any particular method of cooling for that matter—the prior art indicates that with respect to preparing emulsions, it was well known that various methods are commonly used to cool products, including both internal and external cooling methods. *See, e.g.*, Binder ¶ 5 (noting that product temperatures can be kept low using cold aqueous phases or a heat exchanger), ¶ 48 (exemplifying both internal and external cooling). The Examiner and Appellants appear to agree that both cooling methods were common and well-known. *See* Final Act. 9–10 (“Binder clearly teaches both either internal or external cooling in emulsification are well known”); Appeal Br. 8 (acknowledging that “externally cooling a liquid doubtlessly is a wide-spread cooling method”). Thus, in view of the existing knowledge as demonstrated by Binder, we determine that the Specification’s generic disclosure of “cooling” sufficiently signals to a person of ordinary skill in the art that the inventors invented processes that include externally cooling

the emulsion. We therefore reverse the rejection of claims 1–16, 18, 19, and 21 under 35 U.S.C. § 112 for the inclusion of new matter.

Independent claim 20 is cited in the heading for the written description rejection, but is not addressed in the body of that rejection. *See* Final Act. 3. To the extent the Examiner also rejected claim 20 under 35 U.S.C. § 112, we note that this claim does not include the “externally cooling” limitation. *See* Appeal Br. 21 (Claims Appendix). Accordingly, we summarily reverse the rejection of claim 20 under 35 U.S.C. § 112 for lack of adequate written description.

Obviousness

Claims 1–16

With respect to obviousness, the Examiner found that in Example 14, Blatt discloses a water-in-oil (“W/O”) emulsion comprising the three active ingredients recited in appealed claim 1 (i.e., 2-ethylhexyl 2-cyano-3,3-diphenylacrylate (also known as octocrylene), 4-(tert-butyl)-4'-methoxydibenzoylmethane (also known as butyl methoxydibenzoyl methane), and licochalcone A. *See* Final Act. 3–4 (citing Blatt ¶ 62). The Examiner found, however, that Blatt fails to disclose method steps to make an O/W emulsion. *Id.* at 4.

The Examiner found that Binder teaches a continuous process for preparing an emulsion containing temperature-sensitive active ingredients such as perfume oil or plant extracts. *Id.* The Examiner found that Binder teaches that “O/W emulsions with improved quality (e.g., stability, no oil loss, etc) [are] obtained by employing the continuous process and adding temperature sensitive active ingredients in a stepwise cooling stage to avoid thermal stress.” *Id.* (citing Binder ¶ 8). The Examiner found that

Binder Example (5) illustrates such process comprising (i) adding a heated oil phase comprising organic UV filters (octyl methoxycinnamate, etc) to 60-95 °C to a heated water phase (80 °C), (ii) mixing the mixture at a stirring speed [of] 1000 revolutions per minute, where emulsification takes place; (iii) cooling the mixture to 35-38 °C with cold water; (iv) adding the phase containing temperature sensitive agents, namely preservatives and perfume in ethanol to the cooled emulsion and further homogenizing the mixture to obtain the final emulsion.

Id.

With respect to motivation to combine, the Examiner stated:

Given the Blatt formulation of a sunscreen O/W emulsion comprising a plant extract, one of ordinary skill in the art would have been motivated to search [for] and apply prior art teachings such as Binder which teaches specific method steps to make cosmetic O/W emulsions containing temperature sensitive actives which include plant extracts. Since Binder also teaches specific examples of process[es] of making O/W emulsions comprising organic sunscreen and temperature sensitive actives in ethanol, the skilled artisan would have had a reasonable expectation of successfully producing a stable O/W emulsion comprising the UV filters and licochalcone A/licorice extract by combining the Blatt and Binder teachings and following the method steps as taught and suggested by the latter.

Id. at 5.

We adopt the Examiner's findings of fact and reasoning regarding the scope and content of the prior art (*id.* at 3–10; Ans. 5–7), and agree that claim 1 would have been obvious over the identified prior art for the reasons the Examiner articulated. We address Appellants' arguments below.

Appellants argue that a person of ordinary skill in the art would not have been motivated to combine the composition of Example 14 of Blatt with the process of Example 5 of Binder because the former is a W/O emulsion, whereas the latter relates to an O/W emulsion. Appeal Br. 10.

Appellants also assert that the question to be answered is not whether one of ordinary skill in the art would have known how to formulate an O/W emulsion, but rather

whether one of ordinary skill in the art would assume that a W/O emulsion which contains significant amounts (> 8 wt.%) of oil-soluble UV filter substances in the continuous phase of the emulsion (BLATT) can be prepared in substantially the same way as an O/W emulsion which contains significant amounts of oil-soluble UV-filter substances in the discontinuous phase of the emulsion.

Appeal Br. 11; *see also* Reply Br. 3–4.

We are not persuaded by these arguments. Blatt demonstrates that the combination of octocrylene, butylmethoxydibenzoyl methane, and licochalcone A was known in the prior art. *See* Blatt ¶ 133 (Ex. 14). While Blatt exemplifies this particular combination of active ingredients in a W/O emulsion, we agree with the Examiner that both Binder and Blatt indicate that both W/O and O/W emulsions are “well known in the art, and there is nothing unobvious, surprising or inventive about formulating a[n] O/W emulsion containing well known active ingredients such as licorice extract or licochalcone A in a conventional method set out in Binder.” Final Act. 9. Indeed, Blatt teaches that the active ingredients disclosed therein “can advantageously be incorporated in[to] conventional cosmetic and dermatological preparations,” including either W/O or O/W emulsions. Blatt ¶ 68. Moreover, nothing in the Examiner’s rejection requires that a person of ordinary skill in the art convert the entire formulation disclosed in Example 14 of Blatt from a W/O formulation to an O/W formulation, let alone do so without modifying the concentration of any ingredient therein.

Appellants further argue that Binder's process differs from the claimed process based on when the "homogenization" step takes place. That is, Appellants argue that Binder's process is different because in Binder, "homogenization takes place after the temperature-sensitive components" are added, which "expose[s] these components to the heat generated during the homogenization." Appeal Br. 12; *see also* Reply Br. 4. This argument is not persuasive, because it conflates two different steps in Binder's process—the emulsification step, and the homogenization step.

In Example 5, Binder first combines heated oil-phase ingredients, heated water-phase ingredients, and thickeners. Binder ¶ 48. The mixture passes through a static inline mixer, and "is then emulsified in a loop mixer." *Id.* The resulting emulsion is "cooled suddenly" with cold water; the temperature-sensitive ingredients (i.e. perfume oil and active ingredients) are added; and the mixture passes through a static mixer. *Id.* The emulsion is then homogenized, followed by cooling using a heat exchanger. *Id.*

Step 1(ii) of Appellants' claim 1 recites, "homogenizing the oil and water phases to obtain an O/W emulsion." This step reads on Binder's step of emulsifying in the loop mixture. *See also* Ans. 6 (explaining why Appellants' "homogenizing" step 1(ii) reads on Binder's emulsification step). Both Binder's emulsification step and step 1(ii) of claim 1 occur prior to the addition of temperature-sensitive components. Thus, contrary to Appellants' argument, the timing of addition of the temperature-sensitive components relative to formation of the emulsion does not distinguish Appellants' claimed process from Binder's process. Moreover, that Binder includes a further homogenization step after addition of temperature-sensitive components does not distinguish the claimed invention. Claim 1

(and claim 18) use the transition term “comprising,” which “indicates that the claim is open-ended and allows for additional steps.” *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1368 (Fed. Cir. 2003).

Appellants additionally argue that Binder cools the emulsion by adding cold water (internal cooling), and does not teach or suggest external cooling, as recited in the claims. Appeal Br. 13–14. We are not persuaded by this argument. As discussed above and, in fact, as urged by Appellants as the basis for their arguments over the written description rejection here, persons of ordinary skill in the art were well aware of both internal and external methods for cooling products. *See, e.g.*, Binder ¶ 5. Moreover, as noted by the Examiner, “there is nothing in appellant’s original disclosure indicating any significance of one cooling method over another.” Final Act. 7; *see also* Ans. 7. Accordingly, on this record we determine that the recited step of “externally cooling” does not patentability distinguish the claims from the prior art.

For the reasons discussed above, we affirm the rejection of claim 1 as being obvious over Blatt and Binder. Appellants did not provide separate arguments for claims 2–16, which depend directly or indirectly from claim 1. Accordingly, we affirm the rejection of dependent claims 2–16 for the same reasons discussed above with respect to claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Claims 18–19

Independent claim 18 is similar to claim 1, but adds specific temperature ranges to process steps (i), (iii), and (iv), and adds a specific time period and stirring speed range to process step (ii). The Examiner and Appellants focused their additional arguments for this claim on step (iv),

which recites: “adding at least one of licorice extract dissolved in ethanol and licochalcone A dissolved in ethanol to the cooled emulsion with stirring at a temperature of below 30°C.” Appeal Br. 21 (Claims Appendix).

The Examiner found that “lowering the cooling temperature in step (iv) to below 30° C would have been obvious to protect the temperature sensitive ingredients.” Final Act. 7. The Examiner found that “Binder teaches that emulsions are cooled to ‘less than 40° C’ before temperature sensitive actives are added,” and stated: “[t]hus, manipulation of the temperature to make a stable composition would have been obvious.” *Id.* at 7–8. The Examiner also noted that “differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical.” *Id.* at 7.

In response, Appellants state that in Example 5 of Binder, the temperature-sensitive ingredients are added to an emulsion that has a temperature of 35–38° C, but the temperature of the emulsion subsequently rises to 49° C (due to the heat generated during homogenization). Appeal Br. 14. Appellants argue that in view of this temperature increase, “it is not seen that ‘lowering the cooling temperature in step (iv) to below 30° C would have been obvious to protect the temperature sensitive ingredients.’” *Id.* (quoting Final Act. 7).

We are not persuaded by Appellants’ argument, which narrowly focuses on the temperatures in Binder Example 5, while ignoring the broader teachings of Binder. Binder teaches and suggests the benefits of protecting temperature-sensitive ingredients, including by maintaining emulsions containing such ingredients at temperatures below 30° C. For example,

Binder teaches that a preferred temperature range for homogenization after addition of temperature-sensitive ingredients is 20–50° C, with a range of 28–40° C being particularly preferable. *Id.* ¶ 16; *see also id.* at ¶ 22 (stating that homogenization at a temperature range of 28–45° C is particularly preferred). These temperature ranges overlap with the claimed range of “below 30° C.” Such overlap between the prior art temperature ranges and the claimed range is evidence of obviousness, and the record lacks any evidence of criticality of the claimed range. *In re Applied Materials, Inc.*, 692 F.3d 1289, 1295 (Fed. Cir. 2012) (obviousness affirmed where prior art taught groove dimensions that overlapped with claimed dimensions).

Appellants further argue that neither Blatt nor Binder indicate that licorice extract or licochalcone A is temperature-sensitive. Appeal Br. 14–15, 16–17; *see also* Reply Br. 5. They assert that without this knowledge, persons of ordinary skill in the art would have had no reason to look for ways to increase the stability of licorice extract and licochalcone A in O/W emulsions. Appeal Br. 14–15, 17.

We are not persuaded by this argument. Binder teaches that plant extracts are temperature-sensitive, and Blatt teaches that licorice extract and licochalcone A are plant extracts. Binder ¶¶ 6, 29; Blatt ¶¶ 50, 51. Further, as indicated by the Examiner, both Binder and Blatt concern sunscreen emulsions that can comprise plant extracts. *See, e.g.*, Final Act. 5. Accordingly, we find sufficient motivation to combine Binder and Blatt, despite the lack of an express statement in these references that licorice extract or licochalcone A is temperature-sensitive.

Accordingly, for the reasons discussed above for both claims 1 and 18, we affirm the rejection of claim 18 as being obvious over Blatt and

Binder. Claim 19 depends from claim 18. Appellants did not provide separate arguments for claim 19. Accordingly, we affirm the rejection of dependent claim 19 for the same reasons discussed above with respect to claim 18. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Independent Claim 20

Claim 20 recites (spacing added):

20. A method of increasing the stability of one or both of a licorice extract and licochalcone A in a cosmetic O/W emulsion that comprises one or both of a licorice extract and licochalcone A, wherein the method comprises

including in the emulsion a combination of (a) 2-ethylhexyl 2-cyano-3,3-diphenylacrylate and (b) 4-(tert-butyl)-4'-methoxydibenzoylmethane in an amount that is sufficient to increase the stability of one or both of the licorice extract and licochalcone A in the emulsion.

Appeal Br. 21 (Claims Appendix). The Examiner found that the amounts of octocrylene and butyl methoxydibenzoyl methane disclosed in Blatt (e.g. Example 14) are within the ranges disclosed in the Specification as amounts sufficient to stabilize the emulsion during storage. Final Act. 8; Spec. 5. The Examiner also stated that the “prior art shows that [any problems with stabilizing licorice extract and licochalcone A] had been solved before the time of the present invention: Blatt teaches formulating stable compositions with licorice extract and Binder specifically teaches how to make a stable O/W emulsion comprising temperature-sensitive actives.” Ans. 7.

Appellants respond that

[I]t must not be overlooked that instant claim 20 refers to an O/W emulsion, whereas the composition of Example 14 of BLATT is a W/O emulsion. The Examiner has not provided any evidence that the difference between an O/W emulsion and a W/O emulsion does not play any role in this regard, let alone

has provided any explanation why one of ordinary skill in the art would allegedly have assumed that the concentrations of octocrylene and butyl methoxydibenzoyl methane in the W/O emulsion of Example 14 of BLATT are sufficient to stabilize licorice extract and/or licochalcone in an O/W emulsion.

Appeal Br. 16.

We are not persuaded by this argument. Appellants have not cited any evidence of record to establish that the concentrations of octocrylene and butyl methoxydibenzoyl methane in Blatt's Example 14 could not have been used to form an O/W emulsion, or are insufficient to stabilize licorice extract and/or licochalcone in an O/W emulsion. *See, e.g., Johnston v. IVAC Corp.*, 885 F.2d 1574, 1581 (Fed. Cir. 1989) (noting that attorney argument is "no substitute for evidence"). Nor have Appellants argued any reason why a person of ordinary skill in the art would not have modified the concentrations of octocrylene and butyl methoxydibenzoyl methane in Blatt's Example 14 when making an O/W emulsion. Accordingly, for the reasons above, we affirm the rejection of claim 20 as being obvious over Blatt and Binder.

Independent Claim 21

Claim 21 recites the same steps as claim 1, but while claim 1 uses the transition term "comprises," claim 21 uses the transition term "consists of." *See* Appeal Br. 18, 21 (Claims Appendix). The Examiner again relied on Binder Example 5, finding that it "teaches to mix separately heated oil and aqueous phases, mix to emulsify the composition, cool the composition and add heat-sensitive ingredients and mix." Final Act. 8. The Examiner stated:

Although the present claim recites the mixing step in (iii) is 'homogenizing' the phases to obtain an O/W emulsion and the mixing step in (iv) is stirring, there is nothing significantly and patentably different in these two processes, as both methods

simply require steps of i) mixing heated phases before cooling to form emulsions, ii) cool the mixed composition, and iii) adding heat-sensitive ingredients to the composition and iv) mixing.

Id. at 8–9.

In response, Appellants argue that Binder Example 5 includes an emulsification step (corresponding step (ii) in claim 21), *and* a separate homogenization step. Appeal Br. 15. Appellants argue that the “Examiner has not explained why it would allegedly have been obvious to one of ordinary skill in the art to modify the process of Example (5) of BINDER to result in the process of instant claim 21.” Appeal Br. 15.

We agree. “[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). Here, the process in Binder’s Example 5 not only includes steps corresponding to each of the steps enumerated in appealed claim 21, but includes additional steps as well. Specifically, claim 21 ends with step (iv), which recites “adding at least one of licorice extract dissolved in ethanol and licochalcone A dissolved in ethanol to the cooled emulsion with stirring.” Appeal Br. 21 (Claims Appendix). The corresponding step in Binder is addition of the perfume oil and active ingredients from mixing container (5), with the resulting composition being passed through a static mixer. Binder ¶ 48. The Binder process then goes on to homogenize the emulsion in a homogenizer, and cool the resulting product using a heat exchanger. *Id.*

The Examiner did not address these additional steps and their interplay with the “consisting of” transition language. Because of this omission in the Examiner’s analysis, we conclude that the Examiner has not

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met the initial burden of establishing a prima facie case of obviousness of claim 21. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

Accordingly, for the reasons discussed above for both claims 1 and 21, we reverse the rejection of claim 21 as being obvious over Blatt and Binder.

SUMMARY

We reverse the rejection of claims 1–16 and 18–21 under 35 U.S.C. § 112 as failing to comply with the written description requirement.

We affirm the rejection of claims 1–16 and 18–20 under 35 U.S.C. § 103(a) as being unpatentable over Blatt and Binder.

We reverse the rejection of claim 21 under 35 U.S.C. § 103(a) as being unpatentable over Blatt and Binder.

TIME PERIOD FOR RESPONSE

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-IN-PART