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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte OLIVER WALTER GUTSCHE and JOHN HENRY GREEN[1]

Appeal 2015-001180
Application 13/392,103
Technology Center 1600

Before ERIC B. GRIMES, ULRIKE W. JENKS, and
KRISTI L. R. SAWERT, *Administrative Patent Judges*.

JENKS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) involving claims directed to an insecticidal suspension concentrate. The Examiner rejects the claims as obvious. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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[1] According to Appellants, the real party in interest is E. I. du Pont de Nemours and Company. (Br. 2.)

STATEMENT OF THE CASE

Claims 1–9 and 13 are on appeal, and can be found in the Claims Appendix of the Appeal Brief.[2] Claim 1 is representative of the claims on appeal, and reads as follows:

> 1. An insecticidal suspension concentrate composition comprising by weight based on the total weight of the composition:
>
> (a) from about 0.3 to about 30% of 3-bromo-1-(3-chloro-2-pyridinyl)-*N*-[4-cyano- 2-methyl-6-[(methylamino)carbonyl]phenyl]-1*H*-pyrazole-5-carboxamide; [3]
>
> (b) from about 5 to about 70% of a nonionic ethylene oxide-propylene oxide block copolymer component having a water solubility of at least 5% by weight at 20°C, a hydrophilic-lipophilic balance value ranging from about 5 to about 18 and an average molecular weight ranging from about 900 to about 20000 daltons; and
>
> (c) from about 20 to about 95% of water.

Appellants seek review of the following grounds of rejection:

I. claims 1–9 under 35 U.S.C. § 103(a) as unpatentable over Gutsche[4] in view of Finch;[5] and

II. claim 13 under 35 U.S.C. § 103(a) as unpatentable over Gutsche in view of Finch as applied to claim 1 and further in view of Schlatter.[6]

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[2] Appellants acknowledge that claims 10–12 are withdrawn from consideration in response to a restriction requirement (Br. 2).
[3] For reference convenience we will refer to the claimed compound as "compound X."
[4] Gutsche et al., WO 2008/069990 A1, published June 12, 2008 ("Gutsche").
[5] Finch et al., US 2007/0184983 Al, published Aug. 9, 2007 ("Finch").
[6] Schlatter, WO 00/35284, published June 22, 2000.

I. Obviousness over Gutsche and Finch

Does the preponderance of evidence of record support the Examiner's conclusion that the claimed insecticidal suspension concentrate would have been obvious over the cited references?

Findings of Fact

FF1. Gutsche teaches a suspension concentrate composition including carboxamide arthropodicides such as:

> 3-bromo-*N*-[4-chloro-2-methyl-6-[(methylamino)carbonyl]phenyl]-1-(3-chloro-2-pyridinyl)-1*H*-pyrazole-5-carboxamide, [and]
> 3-bromo-1-(3-chloro-2-pyridinyl)-*N*-[4-cyano-2-methyl-6-[(methylamino)carbonyl] phenyl]-1*H*-pyrazole-5-carboxamide ["compound X")].

(Gutsche 5:27–30; Ans. 4.)

FF2. Gutsche's arthropodicidal suspension concentrate composition contains:

> (a) from about 0.1 to about 50% of one or more carboxamide arthropodicides that are solid at room temperature;
> (b) from 0 to about 50% of one or more biologically active agents other than the carboxamide arthropodicides;
> (c) from about 20 to about 70% of water;
> (d) from about 10 to about 60% of one or more water-immiscible liquid compounds; and
> (e) from about 1 to about 55% of a surfactant component having a dispersing property.

(Gutsche 2:5–14 and 4:14–23.) The percentages are "by weight based on the total weight of the composition" (*id*).

FF3. "The term 'suspension concentrate composition' and derivative terms such as 'an arthropodicidal suspension concentrate composition' refer to compositions comprising finely divided solid particles of an active

ingredient dispersed in a continuous liquid phase. Said particles retain identity and can be physically separated from the continuous liquid phase" (Gutsche 2:35 to 3:2; Ans. 5).

FF4. "Surfactants (also known as 'surface-active agents') generally modify, and most often reduce, the surface tension of a liquid" (Gutsche 32:9–10; Ans. 7). Gutsche teaches a variety of surfactants including non-ionic surfactants (*see generally* Gutsche 32:8 to 33:24).

> A non-ionic surfactant is a surface-active molecule that does not contain ionizable polar end groups but does contain hydrophilic and lipophilic portions. Examples of nonionic surfactants include ethoxylated alcohols, ethoxylated alkylphenols, ethoxylated sorbitol esters, ethoxylated fatty acid esters, polyoxyethylene/ polyoxypropylene block copolymers, glycerol esters, and alkylpolyglycosides where the number of glucose units, referred to as degree of polymerization (D.P.), can range from 1 to 3 and the alkyl units can range from C_6 to C_{14}.

(Gutsche 32:26–31; Ans. 7). Additional examples of non-ionic surfactants include "fatty alcohol ethers, polyoxyethylene/ polyoxypropylene block copolymers (e.g., Pluronic® F108 polyoxyethylene/ polyoxypropylene block copolymer) and other polyoxyalkylene-containing polymers" (Gutsche 34:16–18).

FF5. Gutsche teaches that "the most commonly used surfactants hav[e] a [HLB] value between 1 and 20. The number increases with increasing hydrophilicity" (Gutsche 32:13–14). "Non-ionic surfactants such as ethoxylated castor oil, ethoxylated sorbitan oleates, ethoxylated alkyl phenols and ethoxylated fatty acids can be in the intermediate HLB range, depending upon chain length and degree of ethoxylation"

(Gutsche 33:18–21). "HLB numbers between 7 and 12 are considered intermediate" (Gutsche 33:16).

FF6. Finch teaches the production of a liquid pesticide concentrate composition (*see* Finch ¶¶ 9–13) containing anthranilamide actives (Finch ¶ 139; Ans. 5; *see also* Final Act. 10 ("3-bromo-N-[4-chloro-2-methyl-6-[(methylamino}carbonyl]phenyl]-1-(3-chloro-2-pyridinyl)-1H-pyrazole-5- carboxamide (the anthranilamides used in the Finch reference above; see Gutsche reference: page 5, lines 27-28)")). The liquid concentrate comprising "at least one non-ionic blockcopolymer P comprising at least one polyethyleneoxide moiety PEO and at least one hydrophobic polyether moiety consisting of repeating units selected from C_3-C_{10}-alkyleneoxides and styrene oxide" (Finch ¶ 12.)

FF7. Finch teaches that "[a]mong the blockcopolymers P those are preferred which have a HLB-value ranging from 5 to 20 and in particular from 7 to 18" (Finch ¶ 26; Ans. 5). Finch teaches that "[n]on-ionic blockcopolymers P are known in the art and commercially available under the trade names [for example] Pluronic®, such as Pluronic® P 65, P84, P 103, P 105, P 123 and Pluronic® L 31, L 43, L 62, L 62 LF, L 64, L 81, L 92 and L 121" among others (Finch ¶ 39).

FF8. The Examiner finds that the typical properties of Pluronic L43 include: Average molecular weight of 1850, HLB is 7-12, and Solubility in water is > 10% (BASF-Pluronic L43 Product Information) (*see* Ans. 6).

Principle of Law

"[W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result." *KSR Int'l Co. v. Teleflex Inc.,* 550 U.S. 398, 416 (2007) (citing *United States v. Adams*, 383 U.S. 39, 50–51 (1966)).

Analysis

The Examiner relies on Gutsche for teaching a suspension concentrate including compound X (*see* Ans. 4–5, FF1). According to Gutsche, suspension concentrates are "compositions comprising finely divided solid particles of an active ingredient dispersed in a continuous liquid phase. Said particles retain identity and can be physically separated from the continuous liquid phase" (FF3). Gutsche's suspension concentrate minimally includes from about 0.1 to about 50% of a carboxamide arthropodicides, from about 20 to about 70% of water, from about 10 to about 60% of one or more water-immiscible liquid compounds, and from about 1 to about 55% of a surfactant component having a dispersing property (*see* FF2). Gutsche teaches that surfactants function to reduce the surface tension of liquids and describes the use of a variety of surfactants in the formulation including non-ionic surfactants (FF4). Gutsche teaches that commonly used surfactants have HLB values ranging between 1 and 20, and describes several non-ionic surfactants as having intermediate HLB values ranging from 7–12 (*see* FF5).

The Examiner acknowledges that "Gutsche does not expressly teach component (b), the nonionic ethylene oxide-propylene oxide block copolymer of claim 1" (Ans. 5). The Examiner looks to Finch for disclosing

a nonionic ethylene oxide-propylene oxide blockcopolymer meeting the limitation of claim 1 (Ans. 5; FF7). The Examiner identifies Pluronic L43, one of Finch's listed copolymers, as meeting the requisite claim limitations (Ans. 6; FF8).

The Examiner concludes that

> [i]t would have been obvious to one of ordinary skill in the art to incorporate the Pluronic L43 as the surfactant of Gutsche, as suggested by Gutsche and Finch and produce the claimed invention. One of ordinary skill in the art would have been motivated to do so because both Gutsche and Finch teach[] a liquid pesticide formulation as defined above, wherein Gutsche teaches that a non-ionic surfactant such as a polyoxyethylene/ polyoxypropylene block copolymer can be added to the composition to reduce the surface tension of a liquid.
>
> (Ans. 7)

Appellants contend that an ordinarily skilled artisan would not have been motivated to combine the references. Specifically, Appellants' position is that Gutsche is directed to making aqueous suspension concentrates while Finch makes concentrates that dissolve the active in a solvent (*see* Br. 12 ("the active in the [Gutsche] concentrate composition is in the form of finely divided solid particles dispersed in a continuous liquid phase" and "[t]he use of a block copolymer in Finch [is] as part of a mixture in which the active is soluble")). Appellants contend that because of these differences in concentrate formulations one of ordinary skill in the art would not look to Finch for selecting polymers that are useful in a suspension concentrate (*see* Br. 12–13).

We are not persuaded by Appellants' contention. Insofar as Appellants are arguing that Gutsche and Finch are non-analogous art because Gutsche makes insecticidal suspension concentrates while Finch is

directed to making liquid insecticidal concentrates, we are not persuaded that the surfactants disclosed in Finch would not be applicable for the production of suspension concentrates. Two criteria have evolved for determining whether prior art is analogous: (1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. *In re Clay,* 966 F.2d 656, 658–9 (Fed. Cir. 1992). Here, both Gutsche and Finch are directed to making liquid insecticidal compositions and are thereby from the same field of endeavor. As recognized by the Examiner "both Gutsche and Finch teach[] a liquid pesticide formulation" that uses surfactants, such as a polyoxyethylene/ polyoxypropylene block copolymer, "to reduce the surface tension of a liquid" (Ans. 7). Surfactants will function as surfactants regardless of their environmental milieu.

Appellants contend that Finch's "copolymer P [] is compatible with, and has the ability to contribute to, the solubility of the active C in the concentrate composition," while the block polymer is "described in Gutsche with respect to its ability to serve as a dispersant or as a wetting agent, but not as a solvent" (Br. 12).

We are not persuaded by Appellants' contention. As explained by the Examiner

> Gutsche disclosed Pluronic F108 as an example of a polyoxyethylene/polyoxypropylene block copolymer (page 34, line 17 of Gutsche), however Gutsche does not exclude other forms of Pluronics such as P and L forms because embodiment 16R of Gutsche teaches generically polyoxyethylene/ polyoxypropylene block copolymers can be added as non-ionic surfactants in the suspension concentrate composition

(Ans. 11). We agree with the Examiner that Gutsche's disclosure does not limit the polyoxyethylene/polyoxypropylene block copolymer. Furthermore, there is sufficient evidence in Gutsche that shows that there a numerous usable surfactants and that these surfactants have HLB values ranging from 7–16 (*see* FF5; *see also* Gutsche 10:34–35 ("acrylic graft copolymers having an HLB number in the range from about 10 to about 16"), 10:38–39 ("methyl methacrylate graft copolymers having an HLB number in the range from about 10 to about 13"), 15:29–31 ("anionic surfactants selected from acrylic graft copolymers having an HLB number in the range from about 10 to about 16")). Thus, based on the teachings in Gutsche it would have been reasonable to look for polyoxyethylene/polyoxypropylene block copolymers with HLB values in this intermediate range because those are already identified by Gutsche as being applicable to the suspension concentrates.

Unlike Finch, Gutsche does not disclose the use of a solvent to dissolve compound X. Instead Gutsche relies on the combination of compound X, in conjunction with water, a water immiscible liquid and a surfactant component to arrive at the suspension concentrate that contains finely divided solid particles (FF2 & FF3). In Finch the copolymer is added to a solvent that already contains the insecticidal compound dissolved in solution and functions to maintain the solubility of the active ingredient (FF6 & FF7). The Examiner explains that Gutsche teaches the use of polyoxyethylene/polyoxypropylene but does not limit the copolymers in the suspension concentrates (*see* Ans. 11). The Examiner has identified a group of non-ionic blockcopolymers in Finch (Ans. 9; FF7; *see* Finch ¶ 39) any one of which could be used for the production of the suspension concentrate of Gutsche with a reasonable expectation of success. Gutsche adequately

shows that surfactants with HLB range from 7–16 would reasonably function in the production of the suspension concentrate. Therefore, selecting non-ionic blockcopolymers from the list disclosed in Finch that meet the HLB criteria taught in Gutsche would reasonably provide an expectation that other non-ionic blockcopolymers with the same HLB values would function to produce a suspension concentrate when used in Gutsche's formulation (*see* FF2). *See In re O'Farrell*, 853 F.2d 894, 903–04 (Fed. Cir. 1988) (stating that "[o]bviousness does not require absolute predictability of success . . . all that is required is a reasonable expectation of success"); *see also Hoffmann-La Roche Inc. v. Apotex Inc.,* 748 F.3d 1326, 1331 (Fed. Cir. 2014) ("Conclusive proof of efficacy is not necessary to show obviousness."). Appellants fail to identify any evidentiary basis on this record that rebuts the Examiner's reasoning that the surfactants listed in Finch can reasonably be applied in Gutsche's suspension concentrate production.

We conclude that the evidence cited by the Examiner supports a prima facie case of obviousness with respect to claim 1, and Appellants have not provided sufficient rebuttal evidence or evidence of secondary considerations that outweighs the evidence supporting the prima facie case. As Appellants do not argue the claims separately, claims 2–9 fall with claim 1. 37 C.F.R. § 41.37 (c)(1)(iv).

II. Obviousness over Gutsche, Finch, and Schlatter

Does the preponderance of evidence of record support the Examiner's conclusion that the claimed insecticidal suspension concentrate would have been obvious over the cited references?

Findings of Fact

FF9. Schlatter teaches "pesticidal compositions in form of aqueous suspension concentrates" (Schlatter Abstract).

FF10. Schlatter teaches that suitable water-immiscible solvents include mineral oil, fatty acid esters, plant oils such as castor oil, soybean oil and cotton seed oil to name a few (Schlatter 6). The composition "may comprise additional adjuvants, wetting, dispersing and emulsifying agents, organic solvents, cosolvents and oils, as (in % by weight) a dispersing agent, 0 to 20%, preferably 0.5 to 5%, e.g. fatty alcohol[] ethers, fatty acid esters" . . . a defoaming agent, 0 to 5%, preferably 0.1 to 2%, e.g. silicone oil, alcohols, fluoroorganics or mineral oils" (Schlatter 5).

Analysis

Claim 13 adds the limitation that the composition contains less the 5% by weight of water-immiscible liquids. The Examiner acknowledges that Gutsche and Finch "do not expressly teach the composition [does] not comprise[] more than 5% by weight of water-immiscible liquid compounds of claim 13" (Ans. 9). The Examiner finds that "Schlatter discloses pesticidal compositions in the form of aqueous suspension concentrates comprising ethylene oxide-propylene oxide blockpolymer, 20-85% by weight of water, 0.5 to 5% by weight of fatty acid esters and 0.1 to 2% by weight of mineral oils" (Ans. 9; FF9 & FF10). The Examiner concludes that

> It would have been obvious to one of ordinary skill in the art to modify the suspension concentrate composition of Gutsche to contain not more than 5% by weight of water-immiscible liquid compounds, as suggested by Schlatter and produce the claimed invention. One of ordinary skill in the art would have been motivated to do so because Schlatter teaches that a pesticidal

> composition in the form of aqueous suspension concentrates can contain 0.5 to 5% by weight of fatty acid esters or 0.1 to 2% by weight of mineral oil and thus, the concept of adding not more than 5% by weight of water-immiscible liquid compounds as claimed [is] well-known in the art.
>
> (Ans. 9–11).

Appellants contend that "Schlatter does nothing to rectify this deficiency since the block copolymers disclosed for use in Schlatter are described only by EO/PO content and molecular weight" (Br. 16).

We are not persuaded. As explained above (*I.*) we find no deficiency with the Examiner's combination of Gutsche and Finch to arrive at the limitations of claim 1. We agree with the Examiner that Appellants' arguments against the references individually are not persuasive because the obviousness rejection is premised on the combination of references (Ans. 14).

Appellants contend that there is no apparent reason to modify Gutsche's water immiscible component to less than 5% (*see* Br. 16).

We are not persuaded. We agree with the Examiner's rationale that routine optimization of Gutsche's water-immiscible component would have directed the ordinary artisan to the use of water-immiscible components at lower concentrations (*see* Ans. 15). The Examiner explains that "fatty acid esters, mineral oil and vegetable oil are known to be added in a suspension concentrate composition in amounts less than 5% by weight to help stabilize the active ingredient (Finch: abstract; paragraphs [0193] and [0202]) and to prevent crystal growth of the insecticide/pesticide (active ingredient)(Schlatter: abstract and page 5)" (Ans. 15). "[T]he motivation in the prior art to combine the references does not have to be identical to that of

the applicant to establish obviousness" *In re Kemps*, 97 F.3d 1427, 1430 (Fed. Cir. 1996). Here, the Examiner's reason to optimize the water-immiscible component is to stabilize the active ingredient and to reduce crystal growth. Appellants' arguments do not address, and thus fail to adequately rebut, the Examiner's rationale for combining the references.

On the record before us, we conclude the Examiner did not err in rejecting claim 13 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Gutsche, Finch, and Schlatter.

SUMMARY

We affirm the rejection of claim 1 under 35 U.S.C. § 103(a) over Gutsche and Finch. Claims 2–9 were not separately argued and fall with claim 1.

We affirm the rejection of claim 13 under 35 U.S.C. § 103(a) over Gutsche, Finch, and Schlatter.

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).

AFFIRMED