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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/651,356	06/11/2015	Ronald O. Richardson	27843-857 (PF74684US03)	2273
76656	7590	08/27/2020	EXAMINER	
Patent Docket Department Armstrong Teasdale LLP 7700 Forsyth Boulevard Suite 1800 St. Louis, MO 63105			RICCI, CRAIG D	
			ART UNIT	PAPER NUMBER
			1611	
			NOTIFICATION DATE	DELIVERY MODE
			08/27/2020	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte RONALD O. RICHARDSON

Appeal 2019-005927
Application 14/651,356
Technology Center 1600

Before JEFFREY N. FREDMAN, ULRIKE W. JENKS, and
MICHAEL A. VALEK, *Administrative Patent Judges*.

VALEK, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant¹ submits this appeal under 35 U.S.C. § 134(a) involving claims to an extruded pesticide granular composition. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies BASF Corporation as the real party in interest. Appeal Br. 2. Herein, we refer to the Final Action mailed November 8, 2018 (“Final Act.”); Appellant’s Appeal Brief filed March 1, 2019 (“Appeal Br.”); Examiner’s Answer mailed June 28, 2019 (“Ans.”); and Appellant’s Reply Brief filed August 5, 2019 (“Reply Br.”).

STATEMENT OF THE CASE

The Specification describes “extruded pesticide granules including a urea carrier and at least one pesticide active agent that when mixed with water form long term stable near micro-emulsions suitable for pesticide application.” Spec. ¶ 1.

Claims 1, 3, 7, 8, and 10–14 are on appeal and can be found in the Claims Appendix of the Appeal Brief. Claim 1 is representative of the claims on appeal. It reads as follows:

1. An extruded pesticide granular composition comprising urea, a non-ionic surfactant, a pesticide active ingredient, and water, wherein the pesticide active ingredient has a water solubility of at least 25 g/L, and wherein the non-ionic surfactant is present in the composition in an amount of from about 5 wt.% to about 20 wt.%.

Appeal Br. 9.

Appellant seeks review of Examiner’s rejection² of claims 1, 3, 7, 8, and 10–14 under 35 U.S.C. § 103 as unpatentable over Hill,³ EPA,⁴ and Misselbrook.⁵ Appeal Br. 2. Appellant does not argue any claim separately from independent claim 1 so claims 3, 7, 8, and 10–14 stand or fall with claim 1. 37 C.F.R. § 41.37 (c)(1)(iv).

² Examiner rejected the claims as obvious over Hill and EPA “alone or, alternatively, in further view of Misselbrook.” Final Act. 4–5. Herein, we consider Examiner’s combination of Misselbrook with Hill and EPA.

³ US 5,709,871; issued January 20, 1998 (“Hill”).

⁴ EPA Pesticide Fact Sheet: Dinotefuran, EPA Publication No. 738F04015, available at <https://nepis.epa.gov>. (“EPA”).

⁵ US 6,872,689 B1; issued March 29, 2005 (“Misselbrook”).

The issue is whether the preponderance of the evidence supports Examiner's conclusion that the composition in claim 1 is obvious over the cited prior art.

FINDINGS OF FACT

FF1. Hill teaches "[a] water dispersible solid formulation comprising an active ingredient," such as a "pesticide," "a surfactant of non-ionic type, a surfactant of anionic type and at least 30 wt% of urea." Hill, Abstr., 1:65–2:6. Hill teaches that the "the term 'active ingredient' (or similar term) includes, within its scope, pesticides, for example, insecticides, fungicides, acaricides, ovicides, nematocides and herbicides." *Id.* at 2:7–9.

FF2. Hill discloses exemplary formulations in the form of granules comprising a pesticide active ingredient (triazamate), urea, water, and a non-ionic surfactant (Hoe S4004) in amount (18%) that is within the range recited in claim 1. Hill 7–8 (Ex. 5).

FF3. Hill teaches that the "solubility in water at 25°C of said active ingredient may be less than 10,000 ppm and is preferably less than 1,000 ppm." Hill 3:48–49. According to Hill, "It has, surprisingly, been found that a solid formulation which includes an active ingredient of low solubility in water does, in fact, disperse relatively rapidly in water." *Id.* at 3:52–55.

FF4. Hill teaches that its formulations are preferably prepared by melting the active ingredient and non-ionic surfactant together and then mixing them with urea before allowing the mixture to cool. Hill, 5:5–16. Hill teaches that the product of this process is "allowed to dry and may then be milled in order to produce a fine powder or formed into pellets or granules." *Id.* at 5:41–43.

FF5. EPA describes dinotefuran as “a broad-spectrum insecticide” used to control a variety of “insect pests.” EPA 1–2. EPA teaches that dinotefuran “has a solubility of 39.83 g/L in water.” *Id.* at 2.

FF6. Misselbrook teaches that “dispersible granules” comprising a pesticide and a dispersing agent such as a non-ionic surfactant “may be prepared by extrusion.” Misselbrook 1:6–10, 1:18. Misselbrook teaches that such extruded granules are “dry, free-flowing, [and] dustless.” *Id.* at 3:22.

ANALYSIS

Examiner finds that Example 5 of Hill discloses all of the limitations of claim 1, except that the pesticide in that example, triazamate, “does **not** have a **water solubility of at least 25 g/L**” and Hill “does not indicate that the composition is an **extruded** pesticide granular composition, as instantly claimed.” Final Act. 5–6.

Regarding the first distinction, Examiner determines that Hill teaches that its water dispersible formulations “may comprise ‘an active ingredient of low solubility’” and, therefore, “it would have been obvious (and **not surprising**) to one of ordinary skill in the art that [such formulations] could also include **water soluble active ingredients** . . . which would similarly ‘disperse relatively rapidly in water.’” *Id.* at 6. Examiner finds that EPA teaches a known pesticide, i.e., dinotefuran, which has a water solubility exceeding 25 g/L. *Id.* at 7. Examiner concludes that it would have been obvious to utilize dinotefuran in Hill’s formulation because

[t]he simple substitution of one known . . . active ingredient in a pesticide formulation for another known pesticide as an active ingredient in a pesticide formulation is *prima facie* obvious. And, as noted by the court in *in re Fout*, 675 F.2d 297 (CCPA 1982), an express suggestion to substitute one equivalent component (i.e., **an equivalent pesticide**) for another is not

necessary to render such substitution obvious. In the instant case, (1) the prior art element of *Hill* performs the function specified in the claim with only insubstantial differences; (2) the claimed component and its function was known in the art; (3) a person of ordinary skill in the art would have recognized the interchangeability of the elements and could have substituted one known element for another; and (4) the results of the substitution would have been predictable.

Id. at 7.

Regarding the “extruded” limitation in the claim preamble, Examiner finds that Misselbrook teaches that “dispersible granule formulations of pesticides ‘may be prepared by extrusion.’” *Id.* at 8. Examiner concludes that it would have been obvious to formulate the granular composition of Hill “via extrusion, in an effort to provide ‘a dry, free-flowing, dustless and rapidly dispersing granular formation,’” as taught in Misselbrook. *Id.*

We adopt Examiner’s findings of fact and reasoning regarding the scope and content of the prior art (Final Act. 4–11; FF1–FF6) and agree that the claims are obvious over the articulated combination of Hill, EPA, and Misselbrook. We are not persuaded by Appellant’s arguments to the contrary, as explained below.

Appellant first argues “that one of the main focuses of Hill is the use of an active ingredient having a solubility in water of less than 10,000 ppm, preferably less than 1,000 ppm” and “nowhere does Hill . . . mention any active ingredients that have a water solubility of at least 25 g/L.” Appeal Br. 4. Thus, urges Appellant, “it simply cannot be concluded that one skilled in the art would have any motivation to modify the formulation of Hill . . . with an active ingredient that has a solubility that is the opposite of what is disclosed as preferred by Hill.” *Id.* at 5. We disagree.

The rejection is premised on a finding that it would have been prima facie obvious to use dinotefuran, i.e., a known pesticide, as the pesticide active ingredient in Hill's granules. Final Act. 7. As Examiner correctly observed, "when a patent simply arranges old elements [here, substituting one known pesticide for another] with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious." *Id.* (quoting *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (internal quotations omitted)). In other words, contrary to the implication of Appellant's argument, Examiner need not show that there was an express teaching in the prior art that would have motivated a skilled artisan to use dinotefuran as the active ingredient in Hill's granules because, as Examiner found, substituting one pesticide for another is no "more than the predictable use of prior art elements according to their established functions." *KSR*, 550 U.S. at 418. The record here supports that finding. *See* FF1, FF5.

Hill's teaching that the solubility of its active ingredient "may be less than 10,000 ppm and is preferably less than 1,000 ppm" (FF3) does not demonstrate otherwise. This teaching refers to Hill's preferred embodiment. Nothing in Hill suggests that one of ordinary skill in the art would lack a reasonable expectation that a *more* soluble active ingredient, e.g., dinotefuran, could be successfully substituted for the exemplified pesticide in Hill's water-dispersible granules.⁶

⁶ Appellant asserts that "under the Office's line of reasoning *any* active ingredient . . . no matter its respective water solubility, would be obvious to include in the formulation disclosed by Hill" because Hill teaches that "a solid formulation which includes an active ingredient of low solubility in water does, in fact, disperse relatively rapidly in water." Reply Br. 4.

Appellant’s argument that “Hill fails to disclose extruded granules” is also unpersuasive. Appeal Br. 6–7. Misselbrook teaches that dispersible granules may be prepared by extrusion and describes certain advantages in doing so. FF6. Based on those teachings, Examiner concluded that it would have been obvious to prepare Hill’s granules via extrusion as opposed to milling them. Final Act. 8. Appellant asserts “even assuming it would be *possible* to form the composition of Hill by extrusion, there is no reason one skilled in the art when reading Hill would be motivated to prepare the compositions of Hill to be in any other form than what is specifically disclosed therein.” Appeal Br. 7. However, that argument is unpersuasive because Examiner’s rationale for combining the references is based on the teachings in Misselbrook, not Hill. *See Soft Gel Techs., Inc. v. Jarrow Formulas, Inc.*, 864 F.3d 1334, 1341 (Fed. Cir. 2017) (quoting *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986)) (“[N]on-obviousness cannot be established by attacking references individually where the rejection is based on the teachings of a combination of references.”). Appellant does not challenge Examiner’s findings concerning Misselbrook in its Appeal Brief. Moreover, we agree those findings are supported by the record (*see* FF6) and that Examiner has articulated a sufficient rationale for modifying Hill’s process to form granules via extrusion, as taught in Misselbrook.

For these reasons, we determine that the preponderance of the evidence supports Examiner’s rejection of claim 1. Appellant does not

Appellant has not presented persuasive argument, nor evidence, to explain why Examiner’s reasoning is not supported by the teachings in Hill. Indeed, we note that Appellant’s own Specification states that “[s]uitable pesticide active ingredients include both water-soluble . . . and water-insoluble . . . pesticide active ingredients.” Spec. 5.

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argue any of the other claims separately from claim 1. Thus, we affirm Examiner's rejection of claims 3, 7, 8, and 10–14 for the same reasons.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 3, 7, 8, 10–14	103	Hill, EPA, Misselbrook	1, 3, 7, 8, 10–14	

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