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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JAYLA R. ALLEN and MARK D. PARRISH

Appeal 2015-004100
Application 11/792,445
Technology Center 1600

Before DEMETRA J. MILLS, JEFFREY N. FREDMAN, and
RACHEL H. TOWNSEND, *Administrative Patent Judges*.

FREDMAN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal¹ under 35 U.S.C. § 134 involving a method of improving yields in crops by applying isoxadifen. The Examiner rejected the claims as anticipated and as obvious. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

Statement of the Case

Background

“The invention relates to the technical field of crop protection products, in particular safeners and safeners in combination with herbicides

¹ Appellants identify the Real Party in Interest as the Bayer CropScience, LP (see App. Br. 2).

which are suitable for use against competing harmful plants in crops of useful plants” (Spec. ¶ 1).

The Claims

Claims 1–22 are on appeal. Claims 1 and 10 are representative and reads as follows:

1. A method of improving yields in crops of useful plants in need of yield improvement, consisting essentially of applying a yield-improving amount of isoxadifen or an ester thereof, alone, to the plants, parts of plants, plant seeds or the area under cultivation.

10. A method of improving yields in crops of useful plants in need of yield improvement, comprising applying a yield-improving amount of isoxadifen or an ester thereof and one or more herbicides and/or insecticides to the plants, parts of plants, plant seeds or the area under cultivation.

The Issues

A. The Examiner rejected claims 10–18 and 21 under 35 U.S.C. § 102(b) as anticipated by Willms² (Final Act. 2–3).

B. The Examiner rejected claims 10–19 and 21 under 35 U.S.C. § 102(b) as anticipated by Ziemer³ (Final Act. 4).

C. The Examiner rejected claims 1–6, 19, 20, and 22 under 35 U.S.C. § 103(a) as obvious over Willms (Final Act. 5–8).

D. The Examiner rejected claims 7–9 under 35 U.S.C. § 103(a) as obvious over Willms and Cornes⁴ (Final Act. 8–9).

² Willms et al., US 5,516,750, issued May 14, 1996 (“Willms”).

³ Ziemer et al., US 2004/0106518 A1, published June 3, 2004 (“Ziemer”).

⁴ Cornes et al., US 6,376,424 B1, issued Apr. 23, 2002 (“Cornes”).

E. The Examiner rejected claim 22 under 35 U.S.C. § 103(a) as obvious over Ziemer (Final Act. 9–10).

A. and B. 35 U.S.C. § 102(b) over Willms or Ziemer

The Examiner finds Willms teaches “the safener effect of isoxadifen-ethyl in combination with an herbicide (3-(4,6-dimethoxypyrimidin-2-yl)-1-(3-N-methyl-sulfonyl-Nmethylaminopyridin-2-yl)sulfonylurea in maize” (Final Act. 3). The Examiner finds that “any effects of isoxadifen-ethyl on crop yield must necessarily be present” (*id.*). The Examiner similarly finds that Ziemer teaches “application of 0.03 kg a.i./ha isoxadifen-ethyl with 0.288 kg a.i./ha dicamba and 0.112 kg a.i./ha diflufenzopyr reduced injury in maize” (Final Act. 4).

The issue with respect to this rejection is: Does the evidence of record support the Examiner’s finding that claims 10 and 21 are anticipated by Willms or Ziemer?

Findings of Fact

1. Willms teaches preparation of ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate as preparation 1, an isoxadifen compound (*see* Willms 18:23–36).

2. Willms teaches “[m]aize plants are grown in the greenhouse in plastic pots until they have reached the 4-leaf stage or the 6-leaf stage and treated with a tank mix composed of a herbicide and compounds of the formula (I) according to the invention” (Willms 25:38–41).

3. Table 5 of Willms is reproduced, in part, below:

TABLE 5

Effect of the compounds according to the invention
on maize plants

Substances	Dosage rate	Herbicidal activity in maize (in %)	
		4-leaf stage	6-leaf stage
H ₂	0.200	77	83
	0.100	70	73
	0.050	63	60
	0.025	33	40
H ₃ + No. 1	0.200 0.200	5	10
	0.100 0.100	0	0
	0.050 0.050	0	0
	0.025 0.025	0	0

“The test results, shown in Table[] 5 . . . demonstrate that the compounds according to the invention can prevent damage to plants in a highly efficient manner” (Willms 25:38–50).

4. Ziemer teaches “safener (Ib) is ethyl 5,5-diphenylisoxazoline-3-carboxylate” (Ziemer ¶ 112).

5. Table 1 of Ziemer is reproduced, in part, below:

TABLE 1

Active ingredients	Application rate g a. l./ha	% injury to ZEAMA
(B1-1)	10	18
(B1-1) + (Ib)	10 + 60	10
(B1-2)	30	32
(B1-2) + (Ib)	30 + 30	15
(B2-1) + (B2-2)	(288 + 112)	21
(B2-1) + (B2-2) + (Ib)	(288 + 112) + 30	6
(B2-3)	420	22
(B2-3) + (Ib)	420 + 100	11

“In a series of trials the ability of herbicides to be safened by safener (Ib) was evaluated. The results are summarized in Table[] 1” (Ziemer ¶ 158).

Principles of Law

Anticipation under 35 U.S.C. § 102 requires that “each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999).

Analysis

Appellants contend:

There is no teaching or suggestion in the reference of a method of improving yields in crops of useful plants in need of yield improvement, i. e., plants that have somehow been compromised, as recited in the claims, comprising applying a yield-improving amount of isoxadifen or an ester thereof and one or more herbicides and/or insecticides to the plants, parts of plants, plant seeds or the area under cultivation.

(App. Br. 15; *cf.* App. Br. 17). Appellants contend that “[c]onventional safening methods as taught by the reference serve to protect a plant against damage, and while maintaining plant foliage and structural integrity, does not inherently increase *crop yield*; i. e., the amount of *harvestable fruit* produced” (App. Br. 16; *cf.* App. Br. 17).

We find these arguments unpersuasive because both Willms and Ziemer teach performance of the only step of claims 10 and 21, applying isoxadifen and an herbicide to plants (FF 1). Both Willms and Ziemer teach that the combination reduces injury to maize (FF 3, 5). Finally, the amounts used in the examples of Willms (25 to 200 g) and Ziemer (30 to 100 g) fully fall within the 10 g to 3 kg range disclosed by claim 14, dependent upon claim 10.

Having demonstrated that Willms and Ziemer apply a composition within the scope of the claims to a useful plant, maize, within the scope of the claims and Specification (titled “Methods for increasing maize yields”), the Examiner reasonably finds that any yield improvement represents an inherent result of performing the same process (*see* Final Act. 3–4). A prior art reference without express reference to a claim limitation may nonetheless anticipate by inherency. *See In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349 (Fed. Cir. 2002).

Just as the functional preamble in *Cruciferous Sprout* requiring “preparing a food product rich in glucosinolates” was anticipated by an identical prior art process of growing sprouts, the process of either Willm[s] or Ziemer of contacting plants with isoxadifen and an herbicide is identical in process to claims 10 and 21 and therefore, inherently satisfies the functional preamble of claims 10 and 21 requiring “improving yields”. “Newly discovered results of known processes directed to the same purpose are not patentable because such results are inherent.” *Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc.*, 246 F.3d 1368, 1376 (Fed. Cir. 2001).

Conclusion of Law

The evidence of record supports the Examiner’s finding that claims 10 and 21 are anticipated by Willms or Ziemer.

C. 35 U.S.C. § 103(a) over Willms

The Examiner finds that Willms teaches “a method of protecting crops, including maize against phytotoxic side-effects of crop protection products, comprising applying an effective amount to the plants, seeds or area under cultivation before, after or simultaneously with the active

substances” (Final Act.. 6). The Examiner finds “Willms teach the compounds of formula (1), which encompasses isoxadifen, may be used to reduce or prevent phytotoxic side-effects of herbicides and insecticides on the crop plants” (*id.*).

The Examiner finds it obvious “to add isoxadifen alone because Willms et al. teaches applying the isoxazolines compounds alone to plants, including maize, before or after the application of other active plant protection substances. Therefore, it would have been prima facie obvious to apply isoxadifen alone to crop plants, including maize.” (*Id.* 7).

The issue with respect to this rejection is: Does the evidence of record support the Examiner’s conclusion that Willms renders claims 1–6, 19, 20, and 22 obvious?

Findings of Fact

6. Willms teaches:

a method of protecting crop plants. . . against phytotoxic side-effects of crop protection products, such as herbicides, insecticides and fungicides, which comprises applying an effective amount of at least one compound of the formula (I) or a salt thereof to the plants, the seeds of the plants or the area under cultivation, before, after or simultaneously with the active substances in question.

(Willms, 8:62 to 9:3).

7. Willms teaches nicosulfuron herbicides (Willms 12:13).

8. The Specification teaches that “[i]soxadifen alone or when combined with at least one herbicide according to the methods of the present invention is suitable for improving crop yield in a number of crop plants, for

example in economically important crops such as cereals wheat, barley, rice, maize and sorghum” (Spec. ¶ 47).

Principles of Law

“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007). “If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.” *Id.* at 417.

Analysis

Claims 1–6 and 20

Appellants contend that the “Willms et al. reference is drawn to the use of substituted isoxazolines as safeners in combination with plant treatment products, in particular, herbicides. The reference does not address the treatment of plants *in need of yield improvement*, as in the method of the present invention” (App. Br. 9). Appellants contend that “[w]hen isoxadifen is applied ‘alone’ to a plant in the method of the present invention, it is added by itself ***without any prior, simultaneous, or subsequent application of an herbicide or pesticide***, contrary to the Examiner's understanding of ‘alone’” (App. Br. 9–10).

We find Appellants’ claim interpretation argument unpersuasive. In particular, claim 1 requires a process of “applying a yield-improving amount of isoxadifen . . . alone”. Claim 4 clarifies that such amounts may encompass at least the range of 0.001 kg to 5 kg per hectare.

The Specification does not define the term “alone” as excluding prior or subsequent administration of a different compound to the crop, nor does

the Specification identify this as a basic and novel characteristic of the method. Indeed, all three tables use isoxadifen in combination with the herbicide dicamba (*see* Spec. ¶¶ 75, 77, 88). Therefore, absent a clear indication in the Specification or claims of the basic and novel characteristics of the claimed method, the term “consisting essentially of” is reasonably construed as equivalent to “comprising” insofar as it reasonably encompasses methods in which an herbicide or insecticide is administered prior to or after administration of isoxadifen. And the word “alone” simply excludes concurrent administration. *See PPG Industries v. Guardian Industries Corp.*, 156 F.3d 1351, 1354 (Fed. Cir. 1998). (“By using the term ‘consisting essentially of’ the drafter signals that the invention necessarily includes the listed ingredients and is open to unlisted ingredients that do not materially affect the basic and novel properties of the invention.”) *See also In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989) (“[D]uring patent prosecution when claims can be amended, ambiguities should be recognized, scope and breadth of language explored, and clarification imposed. ... An essential purpose of patent examination is to fashion claims that are precise, clear, correct, and unambiguous. Only in this way can uncertainties of claim scope be removed, as much as possible, during the administrative process.”)

Willms teaches “applying an effective amount of at least one compound of the formula (I) or a salt thereof to the plants, the seeds of the plants or the area under cultivation, before, after or simultaneously with the active substances in question” (FF 6). We agree with the Examiner that Willms’ suggestion reasonably renders it obvious to apply the isoxadifen

compound “alone” and apply other active substances such as herbicides or insecticides before or after application of isoxadifen (*see* Ans. 2–3).

We also find the argument regarding “yield improvement” unpersuasive. As already noted, the ordinary artisan would reasonably expect that administration of the same compound, isoxadifen, to the same crop, maize, in overlapping amounts (*see* FF 3, 5; instant claim 4) would inherently satisfy the functional preamble requiring “improving yields”. “We have recognized that inherency may supply a missing claim limitation in an obviousness analysis.” *PAR Pharm., Inc. v. TWI Pharm., Inc.*, 173 F.3d 1186, 1194 (Fed. Cir. 2014). “[O]ur early precedent, and that of our predecessor court, established that the concept of inherency must be limited when applied to obviousness, and is present only when the limitation at issue is the ‘natural result’ of the combination of prior art elements.” *Id.* at 1195.

Here, Appellants provide no evidence that the limitation of “improving yields” is not the natural result of applying isoxadifen. By contrast, the evidence in *Willms* is that isoxadifen treatment, in combination with an herbicide, results in reduction of herbicidal damage from a high of 83% to a low of 0%, a result reasonably expected to improve yields (FF 3; *cf.* Ans. 4).

Claims 19 and 22

Appellants contend that “the Examiner’s assertion that protecting against plant damage would inherently increase crop yield is unfounded. Protecting a plant against damage by application of a safener is not the same as increasing crop yield and would not inherently lead to increased crop yield” (App. Br. 12).

We do not find this argument persuasive. As already discussed, Willms demonstrates that treatment with isoxadifen is identical to that required by the claim. Because “[p]roducts of identical chemical composition can not have mutually exclusive properties” *In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990), we agree with the Examiner’s logic that because “the method steps of the present invention and the invention of Willms et al. are the same and Willms et al. teaches that isoxadifen was known to protect crops, a yield improvement in useful plants would naturally flow.” (Ans. 4).

Appellants provide no evidence supporting their position, only attorney argument. However, “attorney argument [is] not the kind of factual evidence that is required to rebut a prima facie case of obviousness.” *In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997).

Conclusion of Law

The evidence of record supports the Examiner’s conclusion that Willms renders claims 1–6, 19, 20, and 22 obvious.

D. 35 U.S.C. § 103(a) over Willms and Cornes

Appellants do not separately argue that the Examiner’s reliance on Cornes is incorrect, but reiterate their argument that “[n]either reference addresses a method of improving yields in crops of useful plants *in need of yield improvement*” and the argument that “isoxadifen is applied alone to a plant” (App. Br. 14). We remain unpersuaded for the reasons already discussed above.

E. 35 U.S.C. § 103(a) over Ziemer

Appellants reiterate the argument that “[o]ne skilled in the art seeking to treat plants in need of yield improvement would not reasonably look to Ziemer et al. for guidance because the problem is not considered by the reference” (App. Br. 19). We remain unpersuaded for the reasons given above. We note that claim 22 recites a single step of applying isoxadifen and an insecticide to plants and Ziemer teaches the “active components of the combination can be applied simultaneously or in sequential order in pre- or postemergence application” (Ziemer ¶ 48) and that “pesticides which can be combined with the invention combination are for example: Insecticides” (Ziemer ¶¶ 50–52). Thus, Ziemer expressly suggests application of isoxadifen with insecticides and any resultant yield improvement represents an inherent result. *Bristol-Myers Squibb Co.*, 246 F.3d at 1376.

SUMMARY

In summary, we affirm all of the rejections.

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