

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 28

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

Ex parte RONALD D. CHAMBERLAIN and  
JOSEPH KORDES

---

Appeal No. 1999-1669  
Application 08/816,756<sup>1</sup>

---

ON BRIEF

---

Before WILLIAM F. SMITH, SCHEINER and MILLS, Administrative Patent Judges.

SCHEINER, Administrative Patent Judge.

---

<sup>1</sup> Application for patent filed March 7, 1997. According to appellants, this application is a continuation of application serial no. 08/289,402, filed August 12, 1994, now abandoned.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the final rejection of claims 1 through 17, all of the claims in the application. Claims 1, 3, 8 and 12 are representative, and read as follows:

1. A method of stimulating root growth of seedlings comprising the steps of :  
positioning a plurality of uncovered seeds in a furrow on the surface of the soil of the furrow;  
applying directly to the uncovered seeds in the furrow and to the furrow immediately adjacent the seeds in an unatomized form an effective amount of an aqueous ammoniacal ionic solution of a metal alkanoates, said solution containing alkanoate ions having from 2 to 6 carbon atoms each; and  
covering the seeds with soil.
3. The method of claim 1 wherein the solution is an aqueous ammoniacal ionic solution of zinc acetate.
8. A method of treating seeds prior to planting comprising the step of applying directly to the seeds an effective amount of an aqueous ammoniacal ionic solution of a metal alkanoates, said solution containing alkanoate ions having from 2 to 6 carbon atoms each.
12. A method of treating seeds at planting to stimulate root growth of seedlings germinating therefrom, the method employing a seed planting machine having a liquid dispenser having a tank, a pump, a microtubing having first and second open ends and specially adapted to be in fluid communication with said tank at least part of the time during planting, the method comprising the steps of:  
supplying an effective amount of an aqueous ammoniacal ionic solution of a metal alkanoates to the tank, said solution containing alkanoate ions having from 2 to 6 carbon atoms each;  
pumping the solution from said tank to said microtubing and out said first end of said microtubing;  
depositing said seeds in a furrow;  
applying said solution in an unatomized form directly to the seeds in the furrow; and  
covering said seeds with soil.

Appeal No. 1999-1669  
Application No. 08/816,756

The references relied on by the examiner are:

|                         |            |               |
|-------------------------|------------|---------------|
| Ott                     | 3,997,319  | Dec. 14, 1976 |
| Onoprienko <sup>2</sup> | SU 865,169 | Sep. 26, 1981 |

Claims 1 through 17 stand rejected under 35 U.S.C. § 103 as unpatentable over Ott and Onoprienko. We reverse.

### BACKGROUND

According to the specification, “traditionally, substantially anhydrous liquid ammonia has been injected below the soil surface, under pressure, for use by growing plants as a source of nitrogen,” sometimes combined with “[p]lant activants and other fertilizers and materials . . . to form augmented solutions for application to the soil . . . to further enhance plant growth and increase crop yields.” Page 1. “[F]or example[,] metal ammonium alkanoates and zinc ammonium acetate, are applied in conjunction with anhydrous ammonia, often by injection under pressure.” Id., page 2. Further according to the specification (pages 3 and 4):

One agricultural crop additive of the class of aqueous ammoniacal ionic solutions of metal alkanoates described above is commercially available . . . as a liquid containing approximately 15% by weight ammoniacal nitrogen and approximately 17% by weight zinc . . . [It] is typically applied at a rate of from  $\frac{1}{3}$  to  $\frac{2}{3}$  pint per acre . . . Application of alkanoates at these low rates is generally understood to require application of the alkanoate in conjunction with a liquid carrier, such as anhydrous ammonia or a nitrogen fertilizer

---

<sup>2</sup> Throughout prosecution of this application, the examiner has relied on an English language abstract of the Soviet patent, despite appellants’ submission of an English translation of the entire document with the Information Disclosure Statement of March 7, 1997. Appellants have resubmitted the translation as Appendix B of the Brief.

Appeal No. 1999-1669  
Application No. 08/816,756

solution . . . [because of] the relatively high viscosity of aqueous ionic solutions of metal alkanoates . . . and the inability of planting equipment to deliver such fluids at the desired lower flow rates.

Because of the concentrated character of many nitrogen fertilizers, including pressured anhydrous ammonia, care is taken to avoid applying these fertilizers directly to the roots of growing plants or in contact with newly planted seeds. Instead, these fertilizers are conventionally applied a distance from the plant roots. For example, [an aqueous ammoniacal ionic solution of zinc acetate], when mixed with liquid or dry granular fertilizer and applied as a starter simultaneously with the planting of corn seeds, is typically applied 2" or more to the side of a furrow in which the seeds are placed and 2" or more below the level of the seeds in the furrow. By distancing the fertilizer/alkanoate mixture from the corn seeds, the seeds are not burned by the fertilizer and the sprouted plants eventually can access [] the fertilizer/alkanoate mixture after the plants are established.

Thus, application of . . . aqueous ammoniacal ionic solutions of metal alkanoates near plant roots has traditionally been limited by restrictions on placement of the carrier ammonia or other fertilizer liquids or solids.

According to appellants, the claimed invention "relates to a method of pretreating seeds with an aqueous ammoniacal ionic solution of metal alkanoates and of applying such solutions to seeds, in-furrow, at planting." Specification, page 1.

#### DISCUSSION

Independent claims 1, 8 and 12 represent the broadest aspects of the invention. Claims 1 and 12 require depositing seeds in a soil furrow; applying an unatomized aqueous ammoniacal ionic solution of a metal alkanoate directly to the seeds, in an amount effective to stimulate root growth of seedlings; and, finally, covering the seeds with soil. The solution contains alkanoate ions of from 2 to 6 carbons each. Claim 8 requires applying an aqueous ammoniacal ionic solution of a metal alkanoate directly to seeds,

Appeal No. 1999-1669  
Application No. 08/816,756

prior to planting. Claims 1 through 17 stand rejected under 35 U.S.C. § 103 as unpatentable over Ott and Onoprienko.

Ott describes field tests wherein “a liquid solution consisting essentially of an ionic solution of a zinc alkanoate in substantially anhydrous liquid ammonia [is] used as a liquid fertilizer to provide nutrient amounts of nitrogen and zinc for [] growing plants.” Column 1, lines 44-47. “The term ‘substantially anhydrous liquid ammonia’ means liquid ammonia containing up to about 2 wt. % water.” Column 2, lines 4-6. According to Ott, “the nitrogen-zinc solutions used in the fertilizing method . . . [are] obtained by simply dissolving [] zinc carboxylate, in amounts sufficient to provide the desired amount of zinc, directly in the liquid ammonia; or by first forming an aqueous ammoniacal solution of the zinc carboxylate and adding this solution to the liquid ammonia.” Column 1, line 65 to column 2, line 3. The anhydrous nitrogen-zinc solutions are applied to zinc-sufficient soils before planting, and as a side dressing for corn plants in zinc-deficient soils. Example I. There is nothing in the reference to indicate that an aqueous ammoniacal solution of zinc carboxylate could or should be used without diluting it in anhydrous ammonia, nor is there any indication that the anhydrous solution could or should be applied directly to seeds.

According to the examiner, the English abstract of Onoprienko “teaches a seed drill [] consisting of a housing, suspension system and seed and fertilizer tubes, designed to treat seeds with protective and growth-stimulating substances during the sowing operation by incorporating a foam-generating mixer and a seed treating chamber in the form of two

Appeal No. 1999-1669  
Application No. 08/816,756

compartments.” The examiner fails to mention that the seed, treated with growth and protective substances, is deposited in a furrow through an atomizer. Moreover, while it is not apparent from the abstract, the translation of the entire document shows that “the purpose of the device is to make it possible to treat seed with protective and growth-stimulating substances during the sowing operation,” thus fertilizer is applied to the seed only in combination with a foamed protective substance.<sup>3</sup>

According to the examiner, Ott “reflects that the claimed formulations were available before the claimed invention and that the use of such material in the root zone of crops from shortly before to shortly after planting was recommended,” while Onoprienko “placed within the domain of the skilled artisan a process for planting seeds by the steps of forming a furrow, depositing the seeds and treating and spraying the seeds in the furrow with a liquid . . . fertilizer.” Examiner’s Answer, page 4. On this basis, the examiner concludes that “it would have been obvious . . . to have modified the use of the product lines of [Ott] by using an available seed planting machine and adding to it any commercially available liquid dispensing unit to plant and treat seeds . . . combin[ing] cultural operations like sowing with fertilization in order to reduce labor expense and increase profitability.” *Id.*, pages 4 and 5.

The statement of the rejection is flawed in that it does not address any claim individually, moreover, is not clear which aspects of Ott and Onoprienko the examiner

---

<sup>3</sup> See n. 2, above.

Appeal No. 1999-1669  
Application No. 08/816,756

proposes to modify and/or combine, much less why. Independent claims 1 and 12 require depositing seeds in soil, and applying an unatomized aqueous ammoniacal ionic solution of a metal alkanoate directly to the seeds, in an amount effective to stimulate root growth; independent claim 8 requires treating seeds, prior to planting, with the same aqueous solution.

Ott never uses the ammoniacal ionic solution of zinc carboxylate without first diluting it in anhydrous ammonia, and does not apply even the diluted solution to seeds directly; Onoprienko applies fertilizer (of unspecified formula) to seeds, but always in combination with a foamed protective substance, and always in atomized form. Presumably, under the examiner's rationale, one skilled in the art would have found it obvious to refrain from diluting Ott's ionic solution of zinc carboxylate in anhydrous liquid ammonia; to apply the undiluted solution directly to seeds, instead of soil; and to apply it in unatomized form. Nevertheless, the examiner fails to identify anything in the prior art which would have led a person having ordinary skill in the art to do so. While one would recognize from Onoprienko that some fertilizers can be applied to seed during sowing, rather than to the soil before or after sowing, this fact alone does not provide a reason, suggestion or motivation to modify Ott's formulation and application protocol in the manner required by the claims.<sup>4</sup>

---

<sup>4</sup> As stated in Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1629 (Fed. Cir. 1996) (citation omitted), "It is well-established that before a conclusion of obviousness may be made based on a combination of  
(continued...)"

Appeal No. 1999-1669  
Application No. 08/816,756

We have no doubt that the prior art could be modified in a manner consistent with appellants' specification and claims, but the fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification. In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). The only reason or suggestion we find on the record to combine the cited references comes from appellants' specification. "Combining prior art references without evidence of such a suggestion . . . simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability -- the essence of hindsight." In re Dembiczac, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999).

We find that the examiner's burden of establishing a prima facie case of obviousness has not been met for even claims 1 , 8 and 12, which represent the invention in its broadest aspect. Accordingly, on this record, we are constrained to reverse the rejection of claim 1 through 17 under 35 U.S.C. § 103.<sup>5</sup>

---

<sup>4</sup>(...continued)  
references, there must have been a reason, suggestion, or motivation to lead an inventor to combine those references."

<sup>5</sup> Having determined that a prima facie case of obviousness has not been  
(continued...)

Appeal No. 1999-1669  
Application No. 08/816,756

REVERSED

William F. Smith )  
Administrative Patent Judge )  
)  
)  
) BOARD OF PATENT  
Toni R. Scheiner )  
Administrative Patent Judge ) APPEALS AND  
)  
) INTERFERENCES  
)  
Demetra J Mills )  
Administrative Patent Judge )

Carol W. Burton  
Holland & Hart  
P.O. Box 8749  
Denver CO 80201

---

<sup>5</sup>(...continued)  
established, to the extent it is relied on by appellants, we do not find it necessary to comment on the Affidavit of Dr. Louis Ott (attached to paper no. 20, February 3, 1998).