The opinion in support of the decision being entered
today is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GORDON K. GOLDMAN

Appeal 2007-4234
Application 10/929,891[1]
Technology Center 1700

Decided: 26 September 2007

Before TEDDY S. GRON, CAROL A. SPIEGEL, and MARK NAGUMO, *Administrative Patent Judges.*

SPIEGEL, *Administrative Patent Judge.*

DECISION ON APPEAL

I. Introduction

Gordon K. Goldman ("Appellant") appeals under 35 U.S.C. § 134 from the final rejections of claims 1-19 under 35 U.S.C. § 112, first

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[1] Application filed 30 August 2004 and said to be a continuation of application 09/994,390, filed 26 November 2001, now U.S. Patent 6,783,582 B2, issued 31 August 2004, said to be a continuation-in-part of application 09/317,669, filed 24 May 1999, now U.S. Patent 6,322,621 B1, issued 27 November 2001. The real parties-in-interest are said to be the applicant and his assignee, Nuritchem, L.L.C. (Appeal Brief filed 3 October 2006 ("Br.") at 2).

paragraph, and claims 1-9, 14-15 and 19 under 35 U.S.C. § 102(b). Claim 20, the only remaining claim, was indicated as allowable if rewritten in independent form.[2] We have jurisdiction under 35 U.S.C. § 6(b). We AFFIRM-IN-PART and REVERSE-IN-PART.

The subject matter on appeal relates to a method of treating a crystalline wax, e.g. paraffin, with a chemical composition comprising a surfactant to reduce its surface tension in order to disperse it in a diluent. Claims 1 and 4 are exemplary and read as follows:

> 1. A method of liquefying and dispersing crystalline wax in a petrochemical mixture comprising the steps of:
>
> (a) chemically treating the crystalline wax in the petrochemical product to reduce the surface tension of the crystalline wax, converting it to an amorphous form of wax; and
>
> (b) dispersing the amorphous wax in a diluent.
>
> 4. The method of Claim 1, wherein the crystalline wax is contained in slop oil, and there is further included in step "b" the step of:
>
> using crude oil as the diluent.

(Br. at 6).

[2] The Office Action mailed 3 April 2006 ("Final Rejection") at 4. In the event of further prosecution, the Examiner should consider whether the dependency of claim 20 on claim 4 provides proper antecedent basis for "the surface active agent" recited in claim 20.

The Examiner has rejected claims 1-19 under 35 U.S.C. § 112, first paragraph (not enabled for the full scope of the claimed invention), and claims 1-9, 14-15 and 19 under 35 U.S.C. § 102(b) (Answer[3] at 2-3). The Examiner relies upon the following prior art[4] of record:

Ohkura[5]	JP 09-296162A	18 November 1997

According to the Examiner, claims 1-9, 14-15 and 19 are anticipated by Okhura (Answer at 3).

II. Findings of Fact (FF)

The following findings of fact are supported by a preponderance of the evidence of record.

A. Appellant's Specification

[1] According to the specification, a large amount of heavy material separates and precipitates from crude oil when it is pumped from the ground and transported or stored (Specification at 5:8-10).

[2] The majority of the heavy material precipitate, in some cases up to 90%, is said to be high molecular weight paraffin waxes (Specification at 5:10-12).

[3] The amount of wax present in crude oil is said to be an indicator of its origin, e.g., Venezuela or Mexico (Specification at 5:13-14).

[4] Crude oil is said to contain a mixture of wax, oil, sand and water, referred to as "slop oil," typically in the range of 2 to 5 percent, which

[3] Examiner's Answer mailed 20 March 2007 ("Answer").
[4] No references to *et al.* are made in this opinion.
[5] This decision cites the English language translation of Ohkura made for the U.S. Patent and Trademark Office in January 2007 by Schreiber Translations, Inc.

varies with the type of crude and conditions under which it has been transported (Specification at 5:15 through 6:2).

[5] Numerous pumping lines are said to be clogged daily or monthly due to wax precipitating out of the crude oil (Specification at 6:11-12).

[6] Additionally, one of the main sites of corrosion in pipelines and storage tanks is said to be areas of paraffin wax buildup (Specification at 7:4-5).

[7] The specification describes chemical dispersants which preferably act as (i) wax liquifiers, converting slop oil waxes from crystalline to amorphous forms which are readily dispersible in crude oil; (ii) demulsifiers, separating out water, sand or grit present in the slop oil; (iii) degreasers; and, (iv) pour point depressants (Specification at 10:2-15).

[8] The wax is said to be dispersed as hydrocarbon into the crude oil (Specification at 10:15-16).

[9] Keeping the wax dispersed in the crude oil is said to lower maintenance costs and downtimes due to pipeline clogging and corrosion and to increase the throughput and flow rate of crude oil through the pipelines (Specification at 11:4-11).

[10] A preferred chemical dispersant is a homogenous mixture of (a) about 25% to about 99.5% by weight surface active agent, (b) about 15% to about 35% by weight butyl cellosolve (i.e., 2-butoxy-ethanol), and (c) about 5% to about 15% by weight of (i) pine oil and (ii) a catalyst made of saturated higher fatty acids, an alkylphenol and an oil-water soluble copolymer of partially sulfonated, maleic anhydride and polystyrene with a molecular weight ranging from about 2,000 to

about 2,000,000, wherein the catalyst mixture is typically present at a concentration of about 0.5% to 5% by weight (Specification at 22:3-13).

[11] Preferred surface active agents are said to be nonionic polyethyoxylated compounds having an HLB from about 10 to about 11.5 (Specification at 22-27).

[12] In particular, according to the specification, the HLB number

> of the surfactant determines the type of emulsion produced as well as the stability of the emulsion. A water-in-oil (W/O) type of emulsion requires emulsifiers of low H.L.B. number, *e.g.*, about four (4) [100% water insoluble-non-dispersible in water)], while an oil-in-water (O/W) type requires emulsifiers with higher H.L.B. numbers, *e.g.*, nine to sixteen (9-16). Surfactants with H.L.B. numbers near thirteen (13) are detergents, and those of fifteen to sixteen (15-16) are stabilizers. The surface active agents in the currently preferred, exemplary product preferably have a H.L.B. number ranging from about ten to about eleven and a half (10-11.5) and are considered to be good re-wetting agents (low contact angle) and are good emulsifying and dispersing agents for oils and solids. [Specification at 23:6-15.]

[13] A fluorocarbon alcohol may be added to the surfactant to increase its effectiveness, i.e., to further lower the surface tension of the composition of matter (Specification at 23:16 through 24:7).

[14] The butyl cellulosolve and pine oil are said to act as degreasers (Specification at 24:9-10).

[15] Plasticizers, e.g., phosphate esters, phthalate esters, adipate esters and/or benzoate esters, optionally, added to the chemical dispersant,

are said to increase the rate of conversion of crystalline wax to amorphous wax (Specification at 40:12-16).

[16] Optionally adding hydrotrope-demulsifiers and chelating agents to the chemical dispersant is said to increase the solubility of the wax in a hydrocarbon (Specification at 42:3-5).

[17] Useful hydrotrope-demulsifiers include sodium xylene sulfonate, sodium dodecyl sulfonate, sodium cumene sulfonate, ammonium cumene sulfonate, sodium naphthalene sulfonate and sodium napthenic acid sulfonate (Specification at 42:7-13).

[18] Useful chelating agents include ethylenediamine tetraacetic acid (EDTA) and its sodium salt, nitrilotriacetic acid (NTA), and polymeric chelating agents derived from copolymers of acrylic and maleic acids (Specification at 42:14 through 32:2).`

[19] Useful diluents for dispersing amorphous waxes are said to include diesel, light cycle oil, vacuum gas oil, middle distillate, kerosene, crude oil (heavy or light), crude oil tank bottoms, asphalt crude and fuel oil (Specification at 21:7-9).

[20] However, the dispersing medium may also include liquid hydrocarbon products derived from natural gas or its byproducts, organic solvents, and water (Specification at 15:6-12; 16:1-4).

Other findings of fact are cited as necessary below.

III. Scope of Enablement

Section 112 requires that the specification enable those skilled in the art to make and use the full scope of the claimed invention without undue experimentation. "The scope of enablement, in turn, is that which is disclosed in the specification plus the scope of what would be known to one

of ordinary skill in the art without undue experimentation." *Nat'l Recovery Techs., Inc. v. Magnetic Separation Sys., Inc.*, 166 F.3d 1190, 1196, 49 USPQ2d 1671, 1676 (Fed. Cir. 1999). When rejecting a claim for lack of enablement under section 112, the Examiner bears an initial burden of setting forth a reasonable explanation why he believes that the scope of the claims would not have been adequately enabled by the supporting specification. This explanation includes providing sufficient reasons for doubting assertions in the specification. If the Examiner satisfies this burden, the burden then shifts to the applicant to provide suitable proofs establishing that the specification is indeed enabling. *In re Marzocchi*, 439 F.2d 220, 223, 169 USPQ 367, 369-70 (CCPA 1971).

Claims 1-19 stand rejected under § 112, first paragraph, as not enabled throughout their scope.

[21] The Examiner found that Appellant's specification described a specific chemical dispersant on page 22 (Answer at 3).

[22] The Examiner concluded that "[m]erely reciting the desired result (the properties obtained) does not enable claims which are not limited to the specific compositions shown to achieve them" (Answer at 3).

This superficial analysis by the Examiner is insufficient to meet his initial burden of providing a reasonable explanation as to why the disclosure in the specification does not enable the full scope of claims 1-19.

For example, claim 1 recites a method of treating a crystalline wax in a petrochemical mixture to reduce its surface tension, thereby converting it to an amorphous form which is dispersed in a diluent. There are no limitations recited in claim 1 as to where the method is performed or at what temperature or how long the wax must minimally remain dispersed in the

diluent or type of diluent. Thus, it appears to us that claim 1 simply requires a surfactant which, for example, liquifies the wax, i.e., which reduces its surface tension sufficient to make it readily dispersible in a diluent, to satisfy step (a) of chemically treating the crystalline wax. The specification describes surfactants which are "good emulsifying and dispersing agents for oils and solids" (FF 12) as well as fluorocarbon alcohols said to enhance the action of a surfactant by further lowering the surface tension of the oil or solid (FF 13). The specification further describes plasticizers said to enhance the rate of conversion of crystalline wax to amorphous wax (FF 15). The specification still further describes hydrotrope-demulsifiers and chelating agents said to increase the solubility of the wax in a hydrocarbon (FF 16) (see e.g., claim 4 wherein the diluent is a hydrocarbon). Nothing more than objective enablement is required. It is irrelevant whether this teaching is provided through broad terminology or illustrative examples. *Marzocchi*, 439 F.2d at 223, 169 USPQ at 369.

Here, the Examiner has not explained why one skilled in the art, reading the disclosure of Appellant's specification plus the scope of what would have been known to the skilled artisan, would have required undue experimentation to make and use the methods of claims 1-19. The Examiner's finding that the specification only described one specific chemical dispersant (FF 21) is not a sufficient reason for doubting the scope of enablement provided by the specification. It is well established that even a broad claim can be enabled by disclosure of a single embodiment. *Spectra-Physics, Inc. v. Coherent, Inc.*, 827 F.2d 1524, 3 USPQ2d 1737 (Fed. Cir. 1987). Since the Examiner has not met his initial burden of setting forth a reasonable explanation as to why he believes that the scope of

the claim would not have adequately enabled by the description of the invention provided in the specification of the application, we REVERSE the rejection of claims 1-19 under § 112, first paragraph.

IV. Anticipation

Claims 1-9, 14-15 and 19 stand rejected under 35 U.S.C. § 102(b) as anticipated by Ohkura. Appellant has not argued the separate patentability of claims 1-3, 5-9, 14-15 and 19. Therefore, we decided this issue on the basis of claims 1 and 4. 37 C.F.R. § 41.37(c)(1)(vii).

A. Additional Findings of Fact

[23] Ohkura discloses a chemical dispersant for treating highly viscous oil which comprises (a) a polyoxyethylene sorbit fatty acid ester having an HLB of 10-13, (b) a nonionic surfactant having an HLB of 2-6 and (c) a hydrocarbon solvent (Ohkura at 7-8, ¶ 8, and 18, ¶ 39).

[24] Polyoxyethylene sorbit fatty acid esters having HLBs of 10-13 are said to show a high emulsification performance against highly viscous oil (Ohkura at 10, ¶ 12).

[25] The HLB 2-6 nonionic surfactant is said to improve "soaking characteristics into highly viscous oil" (Okhura at 16, ¶ 33).

[26] The hydrocarbon solvent may be a paraffin type solvent, a naphthalene type solvent, spindle oil, n-decane, kerosene or light oil (Ohkura at 8-9, ¶ 8).

[27] The hydrocarbon solvent is said to be effective in reducing the viscosity of the highly viscous oil (Okhura at 16-17, ¶ 35).

[28] According to Ohkura, the dispersant can be used for dispersion treatment of oil, without restriction as to the type of oil (Ohkura at 18, ¶ 39).

[29] Preferably, the dispersant is used to treat crude oil or fuel oil that has run off into the ocean, e.g., as a result of an oil spill from a tanker (Ohkura at 5, ¶ 2; 7, ¶ 7; and, 18, ¶ 39).

[30] According to the Examiner, the translation of Ohkura used "the awkward construction 'run off oil' in substitution for authoritative 'slop oil'" as used by the Japanese Patent Office (Answer at 4).

[31] Indeed, the abstract of Ohkura, copyrighted by the Japanese Patent Office in 1997 and made of record in the Office Action mailed 18 October 2005, reads, in relevant part:

> PROBLEM TO BE SOLVED: To obtain the subject low-toxic treating agent which contains a specific polyoxyethylenesorbitol fatty acid ester, a nonionic surfactant and a solvent, can effectively disperse the *slop oil* even when it is highly viscous and is readily producible in a large scale and suitable for dispersion of the oil slopped or spilled out on the sea. [Emphasis added.]

[32] The Examiner found that Ohkura

> teaches the same method steps, treating the crystalline wax and dispersing it in a diluent, performed using components meeting every compositional requirement of the instant claims. The explicit teaching that the prior art effectively disperses slop oil, a mixture containing crystalline wax, as exemplified in claim 4, implicitly teaches lowering of the surface tension (to permit dispersion at sea) and the conversion to the amorphous form necessary for crystalline wax to be dispersed. . . . [Answer at 4.]

[33] According to the Examiner, "[t]he instant specification clearly indicates the art-recognized composition of slop oil as including

crystalline paraffin wax. See, page 4, lines 11-16; page 5, lines 8-13; page 5, line 15 through page 6, line 7 and; page 8, lines 1-6" (Answer at 5).

[34] Appellant argues that dealing with slop oil does not mean that Ohkura is dealing with crystalline paraffin wax because not all slop oil contains crystalline paraffin wax (Br. at 4).

[35] Moreover, Appellant contends that "slop oil" should be narrowly construed as "residual waste oil remaining from emulsion breaker-dehydration treatment of heavy and light crude oils [sic, in] a production or pipeline terminals [sic]" (Reply Br.[6] at 2).

[36] According to Appellant, Ohkura and the present claims were invented for two different, mutually exclusive purposes (Reply Br. at 3).

[37] Appellant further argues that

> [w]hile the agent disclosed in the present patent application also works as a degreaser and can disperse slop oil in water like any other nonionic surfactant (such as the one used in the Japanese patent document), the method disclosed in the Japanese patent document will not convert crystalline paraffin wax to amorphous wax, and thus the Japanese patent document does not anticipate these claims (Br. at 4).

[38] Appellant still further argues that a plasticizer is required to practice the invention of claim 1 in the conditions mentioned in Ohkura because plasticizers are needed to convert crystalline wax to an amorphous wax in the absence of heat (Reply Br. at 1-2).

[6] Reply Brief filed 13 May 2007 ("Reply Br.").

[39] Appellant contends that the translation of Ohkura makes clear that, contrary to the Examiner's position, Ohkura is not concerned with slop oil (Reply Br. at 3).

[40] Finally, Appellant also argues that just because crystalline wax is present in slop oil (as required by claim 4), it does not follow that dispersing slop oil in water will convert crystalline wax to amorphous wax as recited in claim 1 (Br. at 4; Reply Br. at 2).

B. Discussion

Anticipation requires disclosure of each and every claim limitation in a single prior art reference, either explicitly or inherently. *MEHL/Biophile Int'l Corp. v. Milgraum*, 192 F.3d 1362, 1365, 52 USPQ2d 1303, 1305 (Fed. Cir. 1999). Anticipation by a prior art reference does not require either the inventive concept of the claimed subject matter or recognition of inherent properties that may be possessed by the reference. *Verdegaal Brothers Inc. v. Union Oil Co. of California*, 814 F.2d 628, 633, 2 USPQ2d 1051, 1054 (Fed. Cir. 1987). When a claimed method reasonably appears to be the same or substantially the same as a method disclosed in the prior art, it is reasonable to shift the burden to applicant to show that they are, in fact, patentably different methods. *In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657-58 (Fed. Cir. 1990); *In re King*, 801 F.2d 1324, 1326, 231 USPQ 136, 138 (Fed. Cir. 1986); *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 432-33 (CCPA 1977).

The method of claim 1 comprises chemically treating the crystalline wax in a petrochemical mixture to reduce the surface tension of the crystalline wax, converting it to an amorphous wax, and dispersing the amorphous wax in a diluent. There are no limitations recited in claim 1 as to

where the method is performed or at what temperature or how long the wax must minimally remain dispersed in the diluent or type of diluent. The Examiner found that Ohkura teaches the same method steps using substantially the same reagents (FF 32).

As discussed in the "Background" section of Appellant's specification, it is known in the art that a large amount of heavy material separates and precipitates from crude oil when it is being transported (FF 1), the majority of which comprises high molecular weight paraffin waxes (FF 2), and that the amount of wax and "slop oil" varies with the source and type of crude oil, as well as the conditions under which it is being transported (FFs 3-4). The specification expressly defines "slop oil" as a mixture of wax, oil, sand and water (FF 4). Ohkura teaches treating a petrochemical mixture, i.e., any type of highly viscous oil, e.g., crude oil that has spilled into an ocean as result of an oil tanker accident, with a specific chemical dispersant (FFs 23, 28 and 29). Ohkura's dispersant comprises a surface active agent having the same or substantially the same HLB as used by Appellant in his dispersant (compare FFs 10-12 to FFs 23-24). According to Appellant's specification, the diluent into which the amorphous wax is dispersed includes diesel, kerosene, crude oil tank bottoms and water (FFs 19-20). Ohkura's dispersant further comprises a hydrocarbon solvent, e.g., a paraffin type solvent or kerosene (FF 26). Thus, we find that claim 1 is *prima facie* anticipated by Ohkura. Appellant has not introduced evidence to the record sufficient to establish the contrary.

First, we decline to read "slop oil" as narrowly argued by Appellant (see FF 35). The proffered definition is inconsistent with the definition of the term set forth in the specification, which expressly defines slop oil as a

component of crude oils (see FF 4). Moreover, Appellant failed to submit any evidence establishing that the narrow definition proffered is the art accepted definition of the term; nor has Appellant explained the discrepancy between the proffered definition and his specification. Attorney argument and conclusory statements, absent evidence, are entitled to little, if any, weight. *Velander v. Garner*, 348 F.3d 1359, 1371, 68 USPQ2d 1769, 1778 (Fed. Cir. 2003); *Meitzner v. Mindick*, 549 F.2d 775, 782, 193 USPQ 17, 22 (CCPA 1977). For similar reasons, Appellant's argument that not all slop oil contains crystalline paraffin wax is also unpersuasive. Both Appellant's and Ohkura's specifications relate to dispersing heavy oils, including crude oils, without qualification.

Second, Appellant argues that Ohkura's dispersant will not convert crystalline paraffin wax to amorphous wax . In particular, Appellant argues that a plasticizer would be needed to convert crystalline wax to amorphous wax in the absence of heat. However, Appellant has not pointed to evidence of record to support these arguments. For example, the absence of heat may only mean that dispersion by Ohkura's dispersant takes place more slowly.

Third, whether or not the method of Ohkura is intended for the same circumstances Appellant disclosed, is irrelevant in an anticipation analysis as long as the claim limitations are met. A method that reduces the surface tension of a crystalline wax, converting it to an amorphous form, and then disperses the wax in a diluent is within the scope of claim 1 whether it cleans up heavy sludge material fouling beaches and wildlife after a crude oil spill or cleans up the heavy material clogging crude oil pumping lines and storage tanks.

Fourth, Appellant's contention that the translation of Ohkura makes it clear that Ohkura is not concerned with "slop oil" as defined by Appellant is wrong. The totality of the evidence weighs in favor of the Examiner's position. Specifically, the abstract of Ohkura by the Japanese Patent Office clearly recites "slop oil" and Appellant has not established that the term translated as "run off oil" is materially different from "slop oil," e.g., an affidavit from a qualified translator.

Based on the foregoing, we affirm the rejection of claim 1 under 35 U.S.C. § 102(b) as anticipated by Ohkura. Since Appellant has not offered independent arguments against the rejection of claims 2-3, 5-9, 14-15 and 19 under § 102(b) as anticipated by Ohkura, we affirm that rejection without further discussion. 37 C.F.R. § 41.37(c)(1)(vii).

As to claim 4, Appellant argues that just because crystalline wax is present in slop oil, it does not follow that dispersing slop oil in water will convert crystalline wax to amorphous wax. Appellant argues, in relevant part, that the diluent for the dispersed wax in Ohkura is water. Indeed, the Examiner appears to agree with Appellants that Ohkura "teaches lowering of the surface tension (*to permit dispersion at* sea)" (Answer at 4, emphasis added). Claim 4, however, requires the diluent for the dispersed wax to be crude oil. The Examiner has not made any specific finding that Ohkura discloses, expressly or inherently, crude oil as the diluent for the dispersed wax as required by claim 4. On this record, we decline to undertake such fact finding in the first instance. Therefore, we REVERSE the rejection of claim 4 under § 102(b) as anticipated by Ohkura.

V. Conclusion

In view of the record and for the reasons given, it is

ORDERED that the rejection of claims 1-19 under 35 U.S.C. § 112, first paragraph, is REVERSED;

FURTHER ORDERED that the rejection of claims 1-3, 5-9, 14-15 and 19 under 35 U.S.C. § 102(b) as anticipated by Ohkura is AFFIRMED;

FURTHER ORDERED that the rejection of claim 4 under 35 U.S.C. § 102(b) as anticipated by Ohkura is REVERSED; and,

FURTHER ORDERED that the time for taking further action is not extendable under the provisions of 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART; REVERSED-IN-PART

TEDDY S. GRON, *Administrative Patent Judge*, concurs in the result only.

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