



UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* FREDERICK HICKS and MAURICE BROOKHART

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Appeal 2007-2715  
Application 10/200,431  
Technology Center 1600

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Decided: November 13, 2007

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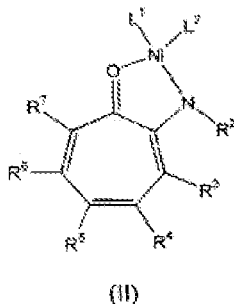
Before DEMETRA J. MILLS, ERIC B. GRIMES, and LORA M. GREEN,  
*Administrative Patent Judges.*

GREEN, *Administrative Patent Judge.*

#### DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 23-26. We have jurisdiction under 35 U.S.C. § 6(b). Claim 23 is representative of the claims on appeal, and reads as follows:

23. A compound of the formula



wherein:

R<sup>2</sup> is hydrocarbyl or substituted hydrocarbyl, provided that R<sup>2</sup> is attached to said nitrogen atom in (II) by a carbon atom that has at least 2 other atoms that are not hydrogen attached to it; and

R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup> and R<sup>7</sup> are each independently hydrogen, hydrocarbyl, substituted hydrocarbyl or a functional group, provided that any two of R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup> and R<sup>7</sup> vicinal to one another taken together may form a ring;

L<sup>1</sup> is a monodentate monoanionic ligand and L<sup>2</sup> is a monodentate neutral ligand or an empty coordination site, or L<sup>1</sup> and L<sup>2</sup> taken together are a monoanionic bidentate ligand.

We reverse.

## DISCUSSION

Claims 23-26 stand rejected under 35 U.S.C. § 112, first paragraph, on the grounds that the Specification does not enable the full scope of the claimed subject matter. According to the Examiner, the Specification,

while being enabling for compounds of the formula (II) wherein: R<sup>2</sup> is the compound of the formula (VI) wherein R<sup>11</sup>, R<sup>12</sup>, R<sup>13</sup>, R<sup>14</sup> and R<sup>15</sup> are each independently hydrogen, hydrocarbyl or substituted hydrocarbyl, provided that any two of R<sup>11</sup>, R<sup>12</sup>, R<sup>13</sup>, R<sup>14</sup> and R<sup>15</sup> vicinal to one another taken

together may form a ring; R3, R4, R5, R6 and R7 are each independently hydrogen, hydrocarbyl or substituted hydrocarbyl, provided that any two of R3, R4, R5, R6 and R7 vicinal to one another may form a ring; L1 is triphenylphosphino; and L2 is phenyl, does not reasonably provide enablement for compounds of the formula (II) wherein R3, R4, R5, R6 and R7 are a functional group; L1 is any monodentate monoanionic ligand; L2 is a monodentate neutral ligand or an empty coordination site; or L1 and L2 taken together are a monanionic bidentate ligand.

(Answer 3.)

The burden is on the Examiner to set forth a prima facie case of unpatentability. *See In re Alton*, 76 F.3d 1168, 1175 (Fed. Cir. 1996). “[E]nablement requires that the specification teach those in the art to make and use the invention without ‘undue experimentation.’ That *some* experimentation may be required is not fatal; the issue is whether the amount of experimentation required is not ‘undue.’” *In re Vaeck*, 947 F.2d 488, 495 (Fed. Cir. 1991) (citation omitted, emphasis in original). “Whether undue experimentation is needed is not a single, simple factual determination, but rather is a conclusion reached by weighing many factual considerations.” *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988). The factual considerations discussed in *Wands* are: (1) the quantity of experimentation necessary to practice the invention, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims. *Id.* We conclude that the Examiner has not met the burden of establishing a prima facie case that the Specification does not enable the

skilled artisan to practice the full scope of Appellants' claims, and the rejection is reversed.

Appellants argue that “nowhere does the Examiner allege that a person of ordinary skill in the pertinent art could not make Formula (II) compounds with various substituents and/or functional group and/or ligands cited in the application, but merely that perhaps some functional groups/substituents may not be useable.” (Br. 6.) We agree. A claim may encompass inoperative embodiments and still meet the enablement requirement of 35 U.S.C. § 112, first paragraph. *See Atlas Powder Co. v. E.I. Du Pont De Nemours & Co.*, 750 F.2d 1569, 1576 (Fed. Cir. 1984), *In re Angstadt*, 537 F.2d 498, 502-3, (CCPA 1976), *In re Cook*, 439 F.2d 730, 732 (CCPA 1971).

The Examiner goes through the *Wands* factors, focusing on the lack of working Examples, arguing that the “breadth of the rejected claims is broader than the disclosure.” (Answer 6.) According to the Examiner:

The only direction or guidance present in the instant specification is for the compounds of the formula (II) wherein: R2 is the compound of the formula (VI) wherein R11, R12, R13, R14 and R15 are each independently hydrogen, hydrocarbyl or substituted hydrocarbyl, provided that any two of R11, R12, R13, R14 and R15 vicinal to one another taken together may form a ring; R3, R4, R5, R6 and R7 are each independently hydrogen, hydrocarbyl or substituted hydrocarbyl, provided that any two of R3, R4, R5, R6 and R7 vicinal to one another may form a ring; L1 is triphenylphosphino; and L2 is phenyl. There is no data present in the instant specification for the preparation of compounds of the formula II with varying functional groups for R3, R4, R5, R6, R7, R11, R12, R13, R14

and R15, nor is there data present in the instant specification as to the preparation of compounds of the formula II with varying ligands.

(*Id.* at 5-6.) The Examiner argues further that “[t]here is no guidance or working examples present for compounds of the formula II with varying functional groups or ligands.” (*Id.* at 7.)

Initially, we note that the lack of working examples, in and of itself, is not fatal to a finding of enablement. *See LizardTech, Inc. v. Earth Resource Mapping, Inc.*, 424 F.3d 1336, 1345 (Fed. Cir. 2005) (“A claim will not be invalidated on section 112 grounds simply because the embodiments of the specification do not contain examples explicitly covering the full scope of the claim language. That is because the patent specification is written for a person of skill in the art, and such a person comes to the patent with the knowledge of what has come before. Placed in that context, it is unnecessary to spell out every detail of the invention in the specification; only enough must be included to convince a person of skill in the art that the inventor possessed the invention and to enable such a person to make and use the invention without undue experimentation.” (citations removed)).

In addition, Appellants have submitted evidence in the form of a Chemical Abstracts’ search, demonstrating that the synthesis of substituted aminotropones, wherein the nitrogen atom is a secondary amine, is known in the art (Br. 7). The Examiner responds that the evidence is not persuasive “as Appellants’ instant application does not provide enablement to one of skill in the art to determine what functional groups are being described, nor how to prepare compounds of the formula II with these varying functional groups.” (Answer 10.) Thus, the Examiner erred in basically dismissing the

evidence provided by Appellants, without providing argument or evidence rebutting Appellants' statements and evidence that such synthesis is known in the art.

Moreover, as to the use of the term "functional group," the Examiner asserts that the state of the prior art is that "compounds containing varying functional groups would be formed by various mechanisms." (Answer 4.) While acknowledging that the Specification defined functional group as "groups which are inert under the process conditions to which the compound containing the group is subjected and which do not substantially interfere with any process that the compound in which they are present may take part in" (*id.* at 6), the Examiner asserts that definition "does not enable one of skill in the art to determine what functional groups are being described, nor how to prepare compounds of the formula II with these varying functional groups." (*Id.* at 5.)

As noted above, as defined by the Specification:

By "(inert) functional group" herein is meant a group other than hydrocarbyl or substituted hydrocarbyl which is inert under the process conditions to which the compound containing the group is subjected. The functional groups also do not substantially interfere with any process described herein that the compound in which they are present may take part in. Examples of functional groups include halo (fluoro, chloro, bromo and iodo), ether such as  $-OR^{22}$  wherein  $R^{22}$  is hydrocarbyl or substituted hydrocarbyl. In cases in which the functional group may be near a nickel atom the functional group should not coordinate to the metal atom more strongly than the groups in those compounds are shown as coordinating to the metal atom, that is they should not displace the desired coordinating group.

(Specification 7.)

Thus, the Specification does give guidance as to the type of functional groups desired. As taught by the Specification, the invention is drawn to “new processes for the polymerization of olefins using as a polymerization catalyst a nickel complex of certain 2-aminotropones.” (Specification 1.) One process for polymerization of olefins comprises contacting compounds of Formula II with olefins at a temperature of  $-100^{\circ}\text{C}$  to about  $+200^{\circ}\text{C}$ . (*Id.* at 2.) Thus a functional group that would be useful would not interfere with the polymerization of the olefins when carried out at the desired temperature. The Examiner has provided no evidence or reasoning, other than the lack of working examples, of why it would require an undue amount of experimentation by the skilled artisan to determine such groups given the guidance provided by the Specification.

The Examiner also appears to be confusing the requirements of the first and second paragraphs of 35 U.S.C. § 112. For example, the Examiner asserts that in “the absence of the specific functional groups attached to the chemical core claimed or distinct language to describe the structural modifications or the chemical names of the functional groups, the identity of said functional groups would be difficult to describe and the metes and bounds of said functional groups applicants regard as the invention cannot be sufficiently determined because they have not been particularly pointed out or distinctly articulated in the claims and specification.” (Answer 4.) Similarly, according to the Examiner, “[i]n regards to the ligands, which are atoms around a central metallic ion, there is no definition found in applicants’ instant specification and again the metes and bounds of said ligands applicants regard as the invention cannot be sufficiently determined

because they have not been particularly pointed out or distinctly articulated in the claims or specification.” (*Id.* at 6.)

Claims 23-26 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that appellant regards as the invention.

According to the Examiner:

The term “substituted” as in “substituted hydrocarbyl” in claims 23 and 24 renders the claims indefinite as in the absence of the specific moieties intended to effectuate modification by “substitution” or attachment to the chemical core claimed, the term “substituted” renders the claims in which it appears indefinite in all occurrences wherein applicant fails to articulate by chemical name, structural formula or sufficiently distinct functional language, the particular moieties applicant regards as those which will facilitate substitution, requisite to identifying the composition of matter claimed. The phrase “taken together may form a ring” in claims 23 and 24 renders the claims indefinite as it is unclear what type of ring is formed, i.e. a carbocyclic ring, a heterocyclic ring, an aromatic ring, etc. It is also indefinite as it is unclear what atoms are involved and how the ring is formed.

(Answer 8.)

“The test for definiteness is whether one skilled in the art would understand the bounds of the claim when read in light of the specification.” *Miles Laboratories, Inc. v. Shandon, Inc.*, 997 F.2d 870, 875 (Fed. Cir. 1993). Claims are in compliance with 35 U.S.C. § 112, second paragraph, if “the claims, read in light of the specification, reasonably apprise those skilled in the art and are as precise as the subject matter permits.” *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1385 (Fed. Cir. 1987).



As to “substituted hydrocarbyl”, the Specification defines that term as a hydrocarbyl group that contains one or more substituent groups which are inert under the process conditions to which the compound containing these groups is subjected. The substituent groups also do not substantially interfere with the process. If not otherwise stated, it is preferred that substituted hydrocarbyl groups herein contain 1 to about 30 carbon atoms. Included in the meaning of “substituted” are heteroaromatic rings. When a heteroaromatic ring is present, it may be attached to another group through the heteroatom. In substituted hydrocarbyl all of the hydrogens may be substituted, as in trifluoromethyl.

(Specification 6.)

The Examiner, however, has not established why the skilled artisan would not understand the metes and bounds of “substituted hydrocarbyl” in light of the definition provided by the Specification.

As to the phrase “taken together to form a ring,” we agree with Appellants that one skilled in the art would understand that it is immaterial what type of ring is formed, so long as it would not adversely affect the catalytic properties of the claimed compound (Br. 11.)

Thus, the Examiner has not met the burden of establishing that one skilled in the art would not understand the metes and bounds of the objected to terms, and the rejection is reversed.

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## CONCLUSION

In summary, as the Examiner has failed to set forth a prima facie case of unpatentability under either 35 U.S.C. § 112, first paragraph or second paragraph, we are compelled to reverse the rejections of record.

REVERSED

Ssc:

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