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NATH, GOLDBERG & MEYER			HUHN, RICHARD A	
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* BEN ZHONG TANG  
and  
MATTHIAS HAEUSSLER

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Appeal 2011-012179  
Application 11/368,755  
Technology Center 1700

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Before CHARLES F. WARREN, ROMULO H. DELMENDO, and  
KAREN M. HASTINGS, *Administrative Patent Judges*.

DELMENDO, *Administrative Patent Judge*

DECISION ON APPEAL

The Appellants<sup>1</sup> seek our review under 35 U.S.C. § 134(a) of a final rejection of claims 1, 5, 6, and 8.<sup>2</sup> We have jurisdiction under 35 U.S.C.

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<sup>1</sup> The Appellants identify the real party in interest as “The Hong Kong University of Science and Technology.” Appeal Brief filed April 8, 2011 (“App. Br.”) at 1.

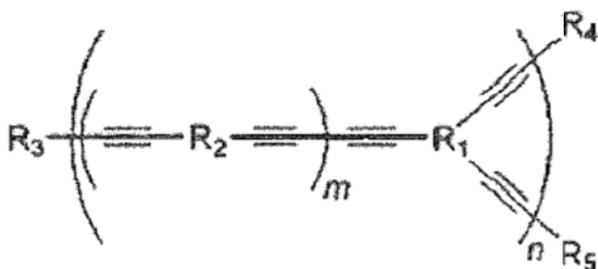
<sup>2</sup> The Appellants state that “[c]laims 1, 5, 6, 8 and 12-18 are finally rejected, of which claims 1, 5, 6 and 8 will be the subject of this appeal.” App. Br. 2. The Appellants clarify, however, as follows: “The rejection of claims 12-18

§ 6(b). We reverse the Examiner's rejections *pro forma* and enter a new ground of rejection pursuant to 37 C.F.R. § 41.50(b).

### STATEMENT OF THE CASE

The Appellants claim a diacetylene polymer. Representative claim 1, the only independent claim on appeal, is reproduced below:

1. A diacetylene polymer of formula (I):



(I)

wherein  $R_1$  and  $R_2$  are each independently any organic group;  $R_3$ ,  $R_4$  and  $R_5$  are all H; wherein  $m \geq 0$  and  $n > 1$ ; and  $m < n$ ; and wherein said polymer is made by polymerization without participation of any monoyne, and is processable, easily film-forming or curable.

App. Br. (Claims App'x.).

The Examiner rejected the claims as follows:

- I. Claims 1, 5, 6, and 8 under 35 U.S.C. § 112, ¶ 1, as failing to comply with the written description requirement;

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are not included in this appeal as they are dependant on claim 1, either directly or indirectly, and shall be deemed patentable if the Board finds claim 1 patentable." *Id.* at 3.

- II. Claims 1, 5, and 8 under 35 U.S.C. § 102(b) as anticipated by Haeussler (“Häußler” in German language);<sup>3</sup>
- III. Claims 1 and 5 under 35 U.S.C. § 103(a) as unpatentable over Yoshikawa;<sup>4</sup> and
- IV. Claim 6 under 35 U.S.C. § 103(a) as unpatentable over Haeussler in view of Peng.<sup>5</sup>

Examiner’s Answer entered May 25, 2011 (“Ans.”) 6-22.

#### DISCUSSION

The first step in analyzing whether claims comply with 35 U.S.C. § 112, ¶ 1, or are unpatentable under 35 U.S.C. § 102 or 103(a) is to ascertain the scope of the claims. *In re Moore*, 439 F.2d 1232, 1235 (CCPA 1971) (“For the sake of completeness we will treat the claims on appeal as if they were rejected under both the first and second paragraphs of § 112. Any analysis in this regard should begin with the determination of whether the claims satisfy the requirements of the second paragraph.”); *In re Paulsen*, 30

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<sup>3</sup> Matthias Haeussler, Jacky Wing Yip Lam, Han Peng, Ronghua Zheng, Charles Chi Wang Lew, and Ben Zhong Tang, *Synthesis of Hyperbranched Poly(aryleneethynylene)s by Glaser Coupling*, 89 *Polymeric Materials: Science & Engineering* 804-805 (2003).

<sup>4</sup> U.S. Patent Application Publication 2002/0001734 A1 published January 3, 2002.

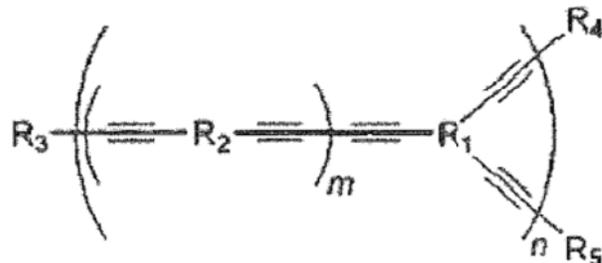
<sup>5</sup> Han Peng, Jacky Wing Yip Lam, Ronghua Zheng, Matthias Haussler, Jingdong Luo, Kaitian Xu, and Ben Zhong Tang, *Hyperbranched Polyphenylenes: Synthesis, Light Emission, and Optical Limiting Properties*, 44 *Polymer Preprints* 1159-60, vol. 1 (2003).

F.3d 1475, 1479 (Fed. Cir. 1997) ([T]o properly compare [the prior art] with the claims at issue, we must construe the [disputed] term...to ascertain its scope and meaning.”).

To determine definiteness, “the claims must be analyzed first in order to determine exactly what subject matter they encompass . . . This first inquiry therefore is merely to determine whether the claims do, in fact, set out and circumscribe a particular area with a reasonable degree of precision and particularity.” *Moore*, 439 F.2d at 1235.

For the reasons given below, we reject (pursuant to 37 C.F.R. § 41.50(b)) claims 1, 5, 6, 8, and 12-18 under 35 U.S.C. § 112, ¶ 2, as indefinite. Because these claims are indefinite, unwarranted assumptions and speculations are necessary to decide whether the Examiner’s rejections are appropriate. Therefore, we reverse Rejections I-IV *pro forma* without deciding the substantive merits. *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970); *In re Steele*, 305 F.2d 859, 862-63 (CCPA 1962).

Claim 1 recites: “A diacetylene polymer of formula (I):



....”

The claim further recites: “R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> are all H.” Because the molecule represented by formula (I) shows only three terminal hydrogen atoms in the structure, one skilled in the relevant art would be unable to ascertain how the repeating units defined by the two outer parentheses are actually bonded to each other.

Furthermore, one skilled in the relevant art would be unable to determine what the inventors mean by a “diacetylene polymer of formula (I).” Specifically, when read in light of the Specification, the claim is insolubly ambiguous because it is unclear whether the recited “diacetylene polymer” *possesses* the structure defined by formula (I) or whether the “diacetylene polymer” is produced from a compound defined by formula (I). The Specification appears to indicate that a compound defined by formula (I) is polymerized to form a molecule having a different structure. *See* Schemes 1 and 2, Spec. ¶ [0010]. The inventors may have intended to claim a product generally corresponding to Scheme 2 without the participation of any monoyne, but the claim itself does not reflect this intent. Any conflict between the inventors’ intent and the actual scope of the claims results in indefiniteness. *In re Cormany*, 476 F.2d 998, 1000-02 (CCPA 1973); *cf. In re Morris*, 127 F.3d 1048, 1056 (Fed. Cir. 1997) (“It is the applicants’ burden to precisely define the invention, not the PTO’s.”).

The indefiniteness of the claims is exacerbated by the Appellants refusal to specifically point out the exact structure of the claimed “diacetylene polymer of formula (I)” to support the argument that the

claimed structure differs from the structures disclosed in the prior art references. App. Br. 5 (“[T]he Haeussler reference never disclosed or suggested the same polymer of the present invention because the particular polymer disclosed in the reference is already cured, cross-linked, and insoluble, clearly indicating a very different structural configuration.”); *id.* at 7 (“[T]he polymers disclosed in the [Yoshikawa] reference for achieving the intended technical effects are predominantly linear polymer, that is, not branched at all.”).

For these reasons, we conclude that claims 1, 5, 6, 8, and 12-18 are indefinite.

37 C.F.R. § 41.50(b) provides that “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.” 37 C.F.R. § 41.50(b) also provides that the Appellants, *WITHIN TWO MONTHS FROM THE DATE OF THE DECISION*, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution*. Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the Examiner, in which event the proceeding will be remanded to the Examiner . . . .

(2) *Request rehearing*. Request that the proceeding be reheard under § 41.52 by the Board upon the same record . . . .

Appeal 2011-012179  
Application 11/368,755

SUMMARY

The Examiner's Rejections I-IV are reversed *pro forma*.

Claims 1, 5, 6, 8, and 12-18 are newly rejected under 35 U.S.C. § 112, ¶ 2, as indefinite.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

REVERSED  
37 C.F.R. § 41.50(b)

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