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BEFORE THE PATENT TRIAL
AND APPEAL BOARD

Ex parte WU CHEN

Appeal 2011-004383
Application 11/412,564
Technology Center 1700

Before BRADLEY R. GARRIS, BEVERLY A. FRANKLIN, and
DEBORAH KATZ, *Administrative Patent Judges*.

FRANKLIN, *Administrative Patent Judge*.

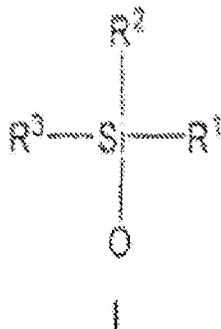
DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134 from the Examiner's
rejection of claims 1-3. We have jurisdiction under 35 U.S.C. § 6.

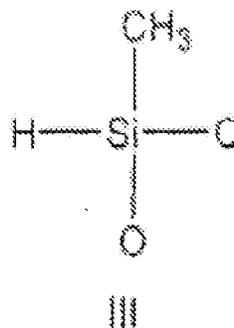
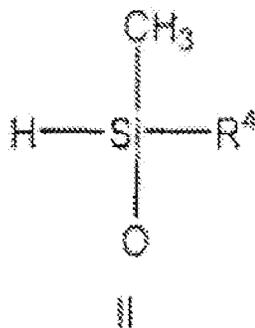
STATEMENT OF THE CASE

Claims 1 and 2 are representative of the subject matter on appeal and
are set forth below:

1. A chromatographic stationary phase, comprising a silica support
having bonded thereto, via Si-O bonds, at least one silane coupling agent of
the formula 1:



wherein, R^1 , R^2 and R^3 are independently hydrogen or C_1 to C_{30} hydrocarbyl, provided that at least one of R_1 , R_2 and R_3 is a C_4 hydrocarbyl or higher, and bonded thereto, via Si-O bonds, at least one end-capping silane selected from formulas II and III:



wherein, R^4 is hydrogen or methyl.

2. A chromatographic stationary phase for use in reversed-phase chromatography comprising a silica support having bonded thereto, via Si-O bonds, at least one hydrophobic ligand and an endcapping silane selected from the group consisting of methyldihydrosilane, methylhydrosilane, dimethylhydrosilane and mixtures thereof.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Bonomo	US 5,094,960	Mar. 10, 1992
Ohnaka et al. (Ohnaka)	US 5,194,333	Mar. 16, 1993

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Sakakura et al. (Sakakura)	US 5,252,766	Oct. 12, 1993
Gjerde et al. (Gjerde)	US 2001/0023848 A1	Sep. 27, 2001
Malik et al. (Malik)	US 2007/0095736 A1	May 3, 2007
Johnson	WO 00/71246 A1	Nov. 20, 2000

Snyder, "Practical HPLC Method Development" pages 190-191 (1997)

Kirkland, J. J., et al., "Stability of silica-based, endcapped columns with pH 7 and 11 mobile phases for reversed-phase high-performance liquid chromatography," *Journal of Chromatography A*, 762, 97-112 (1997).

THE REJECTIONS

1. Claims 1-3 are rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as being obvious over Kirkland.
2. Claims 1-3 are rejected under 35 U.S.C. § 103(a) as being obvious over Kirkland in view of Gjerde or Johnson, further in view of the combination of Malik and Snyder.
3. Claims 1-3 are rejected under 35 U.S.C. § 103(a) as being obvious over Kirkland in view of either Gjerde or Johnson in further view of either Ohnaka or Sakakura.
4. Claims 1-3 are rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as being obvious over Bonomo.
5. Claims 1-3 are rejected under 35 U.S.C. § 103(a) as being obvious over Bonomo in view of either Gjerde or Johnson, further in view of the combination of Malik and Snyder.
6. Claims 1-3 are rejected under 35 U.S.C. § 103(a) as being

obvious over Bonomo in view of either Gjerde or Johnson, further in view of either Ohnaka or Sakakura.

ANALYSIS

Rejection 1

With regard to the anticipation rejection, it is the Examiner's position that Kirtland's disclosed dimethylsilane is a dimethylhydrosilane, and therefore anticipates Appellant's claims. Ans. 4, 5, 6, 14, and 15. The Examiner states that "[h]ydrogen is often understood to be there" as part of his reasoning for determining that Kirtland's disclosed dimethylsilane is a dimethylhydrosilane. Ans. 4.

On the other hand, Appellant argues that the term "dimethylsilane" encompasses other compounds in addition to a monofunctional dimethylhydrosilane, such as difunctional dimethyl silanes or a monofunctional dimethyl silane that is not a hydrodimethylsilane. Br. 4-7.

The test is that if one of ordinary skill in the art is able to "at once envisage" the specific compound within the generic chemical formula, the compound is anticipated. *In re Petering*, 301 F.2d 676, 133 USPQ 275 (CCPA 1962).

In the instant case, the burden is upon the Examiner to direct us to facts that show why one of ordinary skill in the art is able to "at once envisage" the specific compound (Appellant's claimed monofunctional dimethylhydrosilane) within the generic chemical formula (Kirtland's dimethylsilane). The Examiner's position does not adequately meet this burden. The assumption that "[h]ydrogen is often understood to be there" is

not enough. Also, the Examiner's reliance upon Appellant's original claim 2 or the Abstract of Appellant's Specification does not adequately show why one of ordinary skill in the art is able to "at once envisage" Appellant's claimed compound in view of the disclosure of Kirtland, for at least the reasons provided by Appellant on pages 4-7 in his Brief. Ans. 4.

With regard to the obviousness rejection over Kirtland, the Examiner states that "if a difference exists between the claims and Kirkland . . . it would reside in optimizing the elements of Kirkland." The Examiner then concludes that "[i]t would have been obvious to optimize the elements of Kirkland . . . to enhance separation." Ans. 5. However, Appellant rightly points out that the Examiner's reasoning is flawed because:

[t]he Examiner's theory that it would have been obvious to optimize Kirkland to arrive at the silane structures of appellants' claims requires a showing that the alleged variables being optimized were recognized as result-effective variables. In other words, the Examiner must at least identify a teaching or motivation in the art that would suggest the desirability of monofunctionality and the presence of a hydrogen atom to enhance separation. However, there is no teaching or suggestion in Kirkland that the degree of functionality of the dimethyl silane endcap and the possible additional substituents that could be present on the dimethyl silane endcap are result-effective variables that could be optimized to enhance separation as the Examiner suggests.

Br. 7.

In other words, though the Examiner relies on optimization as the basis for arriving at the claimed invention, the Examiner does not direct us to any portion of the applied prior art reference establishing that the desirability of monofunctionality and the presence of a hydrogen atom are

result effective variables that would have been optimized. *See In re Antonie*, 559 F.2d 618, 620 (CCPA 1977) (obviousness is not established where parameter optimized was not recognized to be result effective).

We, therefore, reverse the anticipation and obviousness rejection over Kirtland.

In view of the above, we reverse Rejection 1.

Rejections 2 and 3

It is the Examiner's position that the combination of Kirkland in view of Gjerde or Johnson, and further in view of the combination of Malik and Snyder makes obvious Appellant's claimed invention, for the reasons stated on pages 5-7 of the Answer, which we do not repeat herein.

The issue here is similar to the issue addressed, *supra*, in Rejection 1. That is, the Examiner relies upon the secondary references in an effort to show that the compound named in Kirtland is a monofunctional dimethylhydrosilane. Again, the Examiner does not adequately direct us to facts that show why one of ordinary skill in the art is able to "at once envisage" the specific compound (Appellant's claimed monofunctional dimethylhydrosilane) within the generic chemical formula (Kirtland's dimethylsilane), based upon the teachings of the secondary references, for at least the reasons provided by Appellant on pages 8-10 of the Brief. We additionally note that the Examiner's obviousness position does not include a rationale of why one skilled in the art would have modified Kirtland to arrive at the claimed invention; but, rather that the compound named in

Kirtland is a monofunctional dimethylhydrosilane based upon the teachings of the secondary references.

In view of the above, we reverse Rejections 2 and 3.

Rejection 4

Rejection 4 is similar to Rejection 1, the only difference being that the Examiner relies upon Bonomo instead of Kirtland in making his determination of anticipation and obviousness. Hence, for similar reasons, we agree with Appellant that the Examiner has not presented a prima face case of anticipation or obviousness. The burden is upon the Examiner to direct us to facts that show why one of ordinary skill in the art is able to “at once envisage” the specific compound (Appellant’s claimed monofunctional dimethylhydrosilane) within the generic chemical formula (Bonomo’s dimethylsilane). The Examiner’s position does not adequately meet this burden, for at least the reasons provided by Appellant on pages 10 and 11 of the Brief. The obviousness rejection is also deficient for the same reasons discussed supra, with regard to the Examiner’s obviousness rejection over Kirtland.

We thus reverse Rejection 4.

Rejections 5 and 6

Rejections 5 and 6 are similar to Rejections 2 and 3, except that Bonomo is used as the primary reference rather than Kirtland in each of these rejections. We thus also reverse Rejections 5 and 6 in a similar manner

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in which we reversed Rejections 2 and 3, for at least the reasons provided by Appellant on pages 12-13 of the Brief.

CONCLUSIONS OF LAW AND DECISION

Each rejection is reversed.

REVERSED

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