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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte EDOUARD S. P. BOUVIER and HUA YANG

Appeal 2019-002309
Application 13/336,009
Technology Center 1700

Before KAREN M. HASTINGS, JAMES C. HOUSEL, and
DEBRA L. DENNETT, *Administrative Patent Judges*.

HASTINGS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant¹ requests our review under 35 U.S.C. § 134(a) of the Examiner’s decision rejecting claims 44–50 under 35 U.S.C. § 103 as unpatentable over the combined prior art of Granger (US 2006/0144770 A1; published July 6, 2006), Komiya (US 4,835,058; issued May 30, 1989), and Peters (US 5,929,214; issued July 27, 1999), and rejecting claims 45 and 46 under 35 U.S.C. § 112, second paragraph, as indefinite.

We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

¹ We use the word “Appellant” to refer to the “applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies Waters Technologies Corporation as the real party in interest (Appeal Br. 2).

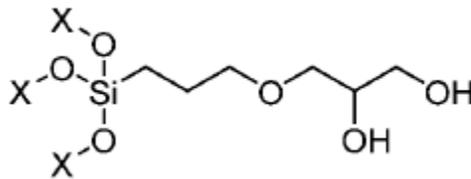
We AFFIRM.

CLAIMED SUBJECT MATTER

Claim 44 is illustrative of the subject matter on appeal:

44. A hydrophobic interaction chromatography separation method comprising:

providing a column having a stationary phase represented by formula:



wherein X comprises a silica core, a titanium oxide core, an aluminum oxide core, an iron oxide core, or an organic-inorganic hybrid core;

flowing a mobile phase having a salt concentration through the column;

injecting a sample comprising one or more analytes onto the column thereby contacting the sample and the stationary phase, wherein at least one of the one or more analytes is retained on the stationary phase; and

decreasing the salt concentration of the mobile phase thereby separating the sample into the one or more analytes by degree of hydrophobic interaction between the stationary phase and the one or more analytes, wherein the one or more analytes are separated in order of increasing hydrophobicity.

Appellant's arguments mainly focus on the sole independent claim 44, except for the arguments presented for the § 112, second paragraph, rejection of claims 45 and 46 (*see generally* Briefs).

OPINION

Upon consideration of the evidence of record and each of Appellant's contentions as set forth in the Appeal Brief, as well as the Reply Brief, we determine that Appellant has not demonstrated reversible error in the Examiner's rejections (e.g., *see generally* Ans.). *In re Jung*, 637 F.3d 1356, 1365–66 (Fed. Cir. 2011) (explaining the Board's long-held practice of requiring Appellant(s) to identify the alleged error in the Examiner's rejection). We sustain the rejections generally for the reasons expressed by the Examiner in the Final Office Action and the Answer.

We add the following primarily for emphasis.

The § 112, Second Paragraph, Rejection

During prosecution, claims are definite if they “set out and circumscribe a particular area with a reasonable degree of precision and particularity.” *In re Moore*, 439 F.2d 1232, 1235 (CCPA 1971).

The Examiner found the language of dependent claims 45 and 46 indefinite, since each claim requires isolating or detecting “the one or more compositions” but claim 44 does not recite any compositions (Final Act. 3, 4). Appellant points out that the Specification describes in one paragraph that the method can be used to separate “the one or more analytes/compositions” such that one of ordinary skill would have understood that the terms analyte and composition “to be synonymous” (Appeal Br. 13, 14 citing Spec. ¶ 90²; Reply Br. 10).

² For the Specification filed December 23, 2011, the relevant paragraph appears to be 87, not 90.

In prosecution before the PTO “[i]t is the applicants’ burden to precisely define the invention, not the PTO’s.” *In re Morris*, 127 F.3d 1048, 1056 (Fed. Cir. 1997). The purpose of this requirement is to provide the public with adequate notice of the boundaries of protection involved. The time to do so is during prosecution where an applicant has the ability to amend the claims to more precisely define the metes and bounds of the claimed invention. *See Ex parte Miyazaki*, 89 USPQ2d 1207, 1210–12 (BPAI 2008).

Notably, claim 44 does not recite separating one or more compositions, and claim 45 yet further requires a step of “isolating” and claim 46 requires a further step of “detecting” such that the reliance upon the Specification’s use of separating one or more analytes/compositions in a single paragraph does not make it clear that the isolating and detecting steps apply to an analyte or composition synonymously. As pointed out by the Examiner, the term “analytes” has a different scope than the term “compositions” (Ans. 19, 20). In light of the different scope of these terms which results in multiple interpretations applicable to the claims, it is appropriate for Appellant to amend the claims to make clear which interpretation is required.

Accordingly, we affirm the Examiner’s § 112, second paragraph, rejection of claims 45 and 46 for indefiniteness.

The § 103 Rejection

It has been established that the predictable use of known prior art elements performing the same functions they have been known to perform is normally obvious, and the combination of familiar elements is likely to be obvious when it does no more than yield predictable results. *KSR Int’l Co.*

v. Teleflex Inc., 550 U.S. 398, 418 (2007); *see also KSR*, 550 U.S. at 418 (“the [obviousness] analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.”). *See also In re Fritch*, 972 F.2d 1260, 1264–65 (Fed. Cir. 1992) (a reference stands for all of the specific teachings thereof as well as the inferences one of ordinary skill in the art would have reasonably been expected to draw therefrom).

Appellant’s main contentions focus on a change in principle of operation of Granger and thus a lack of a reason to use the claimed known hydrophilic ligand of 3-glyceryloxypropyl as found in Komiya’s column material in the column of Granger because Granger is directed to capillary electrochromatography (CEC) and Peters is directed to hydrophobic interaction chromatography (HIC), while Komiya is directed to packing materials for normal phase liquid chromatography and aqueous gel permeation chromatography (Appeal Br. 8–12; Reply Br. 3–9). Appellant also argues that there is no reasonable expectation of success or motivation to combine the teachings of the references, especially since Komiya teaches this ligand is not fully satisfactory (Appeal Br. 11, 12). Appellant also states that the Examiner cannot “cherry-pick” elements of different chromatography methods within Granger (Reply Br. 8). Appellant’s arguments are not persuasive of reversible error for reasons presented by the Examiner (Ans. 9–19).

As pointed out by the Examiner, all of the references are directed to chromatographic separation (e.g., Ans. 10, 11). Indeed, Appellant’s Specification discusses in the Background section that hydrophobic

interaction chromatography (HIC) processes using a stationary phase through which the mobile phase flows is known in the prior art (Spec. ¶¶ 7, 8).³ Appellant's invention is directed to the use of a stationary phase that comprises particles with a hydrophobic surface and a plurality of hydrophilic ligands attached thereto (Spec. ¶ 11). There is no dispute that, as found by the Examiner, Granger teaches a hydrophobic core column material having hydrophilic diol ligands are known for their use in chromatography separations and Komiya exemplifies that hydrophilic ligands encompassed by claim 44 are known for their use in chromatography separations (Final Act. 3, 4), such that the substitution of one known diol ligand for another in Granger's column material would have been obvious (Final Act. 4, 5; Ans. 18).

It is well established that a prior art reference must be considered in its entirety, i.e., as a whole, when determining if it would lead one of ordinary skill in the art away from the claimed invention. *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1550 (Fed. Cir. 1983); *In re Harris*, 409 F.3d 1339, 1341 (Fed. Cir. 2005) (whether a reference teaches away from a claimed invention is a question of fact).

³ An applicant cannot defeat an obviousness rejection by asserting that the cited references fail to teach or suggest elements which the applicant has acknowledged are taught by the prior art. *Constant v. Advanced Micro-Devices, Inc.*, 848 F. 2d 1560, 1570 (Fed. Cir. 1988) (“A statement in a patent that something is in the prior art is binding on the applicant and patentee for determinations of anticipation and obviousness.”) and *In re Nomiya*, 509 F.2d 566, 571n.5 (CCPA 1975) (A statement by an applicant that certain matter is prior art is an admission that the matter is prior art for all purposes).

Furthermore, “[t]he Supreme Court’s decision in *KSR* . . . directs us to construe the scope of analogous art broadly, stating that ‘*familiar items may have obvious uses beyond their primary purposes*, and a person of ordinary skill often will be able to fit the teachings of multiple patents together like pieces of a puzzle.’” *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1238 (Fed. Cir. 2010) (quoting *KSR*, 550 U.S. at 420).

While Komiya may teach some disadvantages of an inorganic support with e.g., 3-glyceroloxypyl, as a hydrophilic stationary phase, Komiya also uses these same 3-glyceroloxypyl diol ligands in the invention disclosed therein (Komiya col. 2, ll. 54–55; Ans. 17 (explaining that such a situation does not amount to teaching away from the use of 3-glyceroloxypyl diol ligands as a substitute for diol ligands of Granger).

One of ordinary skill in the art would have inferred and readily appreciated that a known or obvious material for use in a chromatography separation, such as that discussed by the Examiner in Granger/Komiya (Granger, Example 9 chromatographic column; Komiya, e.g., col. 2, ll. 14–56), may predictably be used in the known HIC process as exemplified in Peters and admitted to be prior art.

Likewise, Appellant’s arguments regarding the lack of motivation to combine the cited art are also unpersuasive for the reasons given above. That is, the arguments fail to account for “the inferences and creative steps that a person of ordinary skill in the art would employ.” *See KSR*, 550 U.S. at 418. *Cf.*, *In re Beattie*, 974 F.2d 1309, 1312 (Fed. Cir. 1992) (“[T]he law does not require that the references be combined for the reasons contemplated by the inventors.”); *see also In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

It has been established that obviousness does not require absolute predictability of success; all that is required is a reasonable expectation of success. *In re Kubin*, 561 F.3d 1351, 1360 (Fed. Cir. 2009). Furthermore, inasmuch as the material as recited was obvious and/or known in the art as suitable for a chromatographic separation process, it is incumbent upon Appellant to establish that the present inventors had to resort to more than routine experimentation to determine if it would have been effective in a known HIC chromatographic separation, e.g., of the type disclosed by Peters. However, no such evidence is of record.

Thus, Appellant has not shown reversible error in the Examiner's position that it would have been obvious for one of ordinary skill to have used a known/obvious chromatography column material as exemplified in Granger/Komiya for the chromatography column of a known HIC process as exemplified in Peters. *See KSR*, 550 U.S. at 417 (the predictable use of known prior art elements or steps performing the same functions they have been known to perform is normally obvious; the combination of familiar elements/steps is likely to be obvious when it does no more than yield predictable results); *see also In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) ("Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references.") and *In re Sneed*, 710 F.2d 1544, 1550 (Fed. Cir. 1983) ("[I]t is not necessary that the inventions of the references be physically combinable to render obvious the invention under review.").

Accordingly, we sustain the Examiner's rejection of independent claim 44, as well as all claims dependent thereon since none are argued separately (*see generally* Appeal Br.).

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
44–50	103	Granger, Komiya, Peters	44–50	
45, 46	112, second paragraph	Indefiniteness	45, 46	

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED