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Mark A. Litman & Associates, P.A. 7001 Cahill Road, Ste. 15A Edina, MN 55439			HAMMER, KATIE L	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte REGINA CELIA BERTOLDO DE BARROS, MICHELE ANN
FRENCH, FREDERIC JOHN RIGELHOF, and
LEE KENT FRENCH

Appeal 2012-001015
Application 12/214,773
Technology Center 1700

Before PETER F. KRATZ, MARK NAGUMO, and JAMES C. HOUSEL,
Administrative Patent Judges.

KRATZ, *Administrative Patent Judge.*

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 1, 2, 4-10, and 15-22. We have jurisdiction pursuant to 35 U.S.C. § 6. An oral hearing was conducted on February 13, 2013.

Appellants' claimed invention is directed to a process of extracting anthocyanin pigments/dyes from corn kernels. Appellants disclose that in their process (Spec. 6, ll. 27-30):

Anthocyanin pigments/dyes are extracted from corn kernels by adding com kernels with less than 10% and preferably less than 5% by weight comprised of broken kernels to an aqueous medium to form an aqueous-corn medium. The corn kernels have in excess of 0.1 of anthocyanin pigment/dye per gram of corn kernel therein.

According to Appellants (Spec. 44, ll. 14-18),

The extract preferably is provided free of any acids other than the acylated anthocyanins and other acids extracted from or formed by the corn kernels (e.g., some phenolic acids may be extracted). This implies that no acids, and especially no inorganic acids are added in the process to assist in extraction.

However, Appellants indicate that a limited amount of acid may be employed in the extraction stating that “[i]f acids are used in the extraction process, they may be used in amounts and concentrations that preferably do not significantly alter the stable pH of the extractant solution formed from the kernels in pure water” (Spec. 52, ll. 16-18).

Claims 1 and 20 are illustrative and reproduced below:

1. A process for extracting at least anthocyanin pigments/dyes from corn kernels to produce a pigment/dye extract having improved stability against hydrolysis comprising:

Adding total corn kernels with less than 10% by weight of the total corn kernels comprising broken kernels to an aqueous medium to form an aqueous-corn medium;

The total corn kernels having in excess of 0.1 mg of anthocyanin pigment/dye per gram of corn kernel therein;
exposing the aqueous corn medium at a temperature above 35°C;

separating solid corn kernels from the aqueous corn medium and forming an extract of anthocyanin in aqueous medium in which acids present in the aqueous medium consist essentially of acylated anthocyanin and other acids extracted from or formed by the corn kernels; and

concentrating the extract to provide an anthocyanin composition of commercial use.

20. A process for extracting at least anthocyanin pigments/dyes from corn kernels to produce a pigment/dye extract having improved stability against hydrolysis comprising:

adding total corn kernels with less than 10% by weight of the total corn kernels comprising broken kernels to an aqueous medium to form an aqueous-corn medium;

the total corn kernels having in excess of 0.1 mg of anthocyanin pigment/dye per gram of corn kernel therein;
exposing the aqueous corn medium at a temperature above 35°C in non-boiling water;

separating solid corn kernels from the aqueous corn medium and forming an extract of anthocyanin in aqueous medium; and

concentrating the extract to provide an anthocyanin composition of commercial use.

The Examiner relies on the following prior art references as evidence in rejecting the appealed claims:

Bergquist	US 5,706,603	Jan. 13, 1998
Ichi	US 2005/0125915 A1	Jun. 16, 2005
Smirnov	EP 1 191 071 A1	Mar. 27, 2002

Claims 1, 17, and 20 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 which applicant regards as the invention. Claims 1, 2, 4-10, 15-19, and 20-22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Smirnov in view of Ichi, and Bergquist.¹

We reverse the rejection of claims 1, 17, and 20 under 35 U.S.C. § 112, second paragraph and we reverse the rejections under 35 U.S.C. § 103(a) as to claims 1, 2, 4-10, 15-19, 21, and 22. We affirm the rejection under 35 U.S.C. § 103(a) as to claim 20. Our reasoning follows.

Indefiniteness Rejection

Concerning the rejection under the second paragraph of 35 U.S.C. § 112, the Examiner maintains that the recited clause “other acids extracted from or formed by the corn kernels” renders the rejected claims indefinite within the meaning of 35 U.S.C. § 112, second paragraph apparently because the Examiner thinks the other acids are not adequately identified or defined in the subject Specification and the possible other acids may vary with the particular type of corn kernel subjected to extraction (Ans. 4; Supp. Ans. 4, 14, and 15).²

¹ The Examiner presents the rejection of claims 1, 2, 4-10, 15, and 16 under 35 U.S.C. § 103(a), the rejection of claims 17-19 under 35 U.S.C. § 103(a) and the rejection of claims 20-22 under 35 U.S.C. § 103(a), each over Smirnov in view of Ichi, and Bergquist as three separate rejections. We combine them for convenience. The inclusion of cancelled claim 3 in the rejection statements in several locations of the Briefs and Answers presented is considered harmless error.

² We refer to the second Examiner’s Answer of October 21, 2011 as a Supplemental Examiner’s Answer (Supp. Ans.).

The test for definiteness under 35 U.S.C. § 112, second paragraph, is whether "those skilled in the art would understand what is claimed when the claim is read in light of the specification." *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576 (Fed. Cir. 1986) (citations omitted). Here, we agree with Appellants' argument that one having ordinary skill in this art would understand the contested claim terminology of claims 1 and 17 to provide that the other acids are acids derived from the corn kernels, which other acids that are extracted from or formed by corn kernels would have been readily identifiable by one of ordinary skill in the art (Reply Br. 14-15; 2nd Reply Br. 9-10).³ We further observe that Appellants exemplify phenolic acids as one type of other acid that could be derived from corn kernels, which is contrary to the Examiner's seeming assertion that Appellants do not furnish any examples of such other acids (Spec. 44, ll. 14-18; Supp. Ans. 14). In light of the above, the artisan would not consider the rejected claims to be indefinite based on the reasons expressed by the Examiner.

It follows that we will not sustain the Examiner's rejection under § 112, second paragraph of claims 1, 17, and 20.

Obviousness Rejections

A dispositive issue raised by Appellants' opposition to the Examiner's obviousness rejection of claims 1 and 17, the respective claims which depend therefrom, and dependent claim 22 can be phrased as a question as

³ Claim 20 does not include the clause that is alleged to be indefinite; manifestly, the rejection fails as to this claim. The second Reply Brief (2nd Reply Br.) was filed November 25, 2011.

follows: Does the “consists essentially of” transitional phrase employed in the rejected claims exclude non-trace amounts of the acids (particularly HCl) used by Smirnov or Ichi from being present in the aqueous medium, as recited in method claims 1, 17, and 22? We answer this question in the affirmative.

The “phrase ‘consisting essentially of’ limits the scope of a claim to the specified ingredients and those that do not *materially affect* the *basic and novel* characteristic(s) of a composition.” *In re Herz*, 537 F.2d 549, 551-52 (CCPA 1976); *see also PPG Indus., Inc. v. Guardian Indus. Corp.*, 156 F.3d 1351, 1354 (Fed. Cir. 1998) (“By using the term ‘consisting essentially of,’ the drafter signals that the invention necessarily includes the listed ingredients and is open to unlisted ingredients that do not materially affect the basic and novel properties of the invention”).

Here, the Examiner fails to properly take the transitional claim term “consists essentially of” into account in describing the acids that can be present in the aqueous extraction medium after separation from the corn kernels in applying the assembled prior art as regards almost all of these rejected claims.⁴

In particular, the Examiner maintains that Smirnov teaches, *inter alia*, that “separating corn from the aqueous corn medium and forming an extract of anthocyanin in aqueous medium in which acids present in the aqueous medium consist essentially of acylated anthocyanin (see para. 0038)” (Ans. 4-5; Supp. Ans. 5; *see also* Ans. 8, 10-11, and 15-19). However, the cited paragraph (“para.0038”) of Smirnov states that:

⁴ Claim 21 employs the closed term “consist of” and will be discussed separately below.

Vegetable pulp [stems and leaves] of maize plants is dried in shadow at temperatures of 15-20 °C and natural ventilation. Dried material must have maximum 7 – 10% of moisture. The primary material is grinded (particles size is 1-2mm), loaded into extractor and covered with extracting agent: water + HCl 10% + 1% of citric acid. During extraction process the mix is subject to ultrasonic vibration. Then the processed primary material is separated from the extract (solution of coloring matter), the extract is settled for 24 hours at $t = 20-30^{\circ}\text{C}$. Then it is centrifuged at 2,000 rpm. The colorant is concentrated by evaporation in vacuum at temperatures of 50-60°C and with depression of 750-800 mm of Mercury column.

As contended by Appellants, the Examiner's reliance on the above-reproduced portion of Smirnov and the other sections thereof relied upon as teaching the formation of a separated aqueous medium (solution of colorant) that includes acids present therein that consist essentially of acylated anthocyanin is based, in large part, on the Examiner's erroneous assertion that the claim term "acids present in the aqueous medium consist essentially of acylated anthocyanin and other acids from or formed by the corn kernels" does not exclude the presence of any other acids therein, such as hydrochloric acid (HCl) and/or sulfuric acid that would be expected to be in the solution of coloring matter (aqueous medium) separated by Smirnov.

Appellants make it apparent throughout the subject Specification that the extraction process they employ is a departure from prior art extraction processes that employ significant amounts of acids, particularly inorganic acids (Spec. 44, ll. 14-18; *see also* Spec. 14, l. 4 - 17, l. 24). Appellants counsel against the use of acids that may "significantly alter the stable pH of the extractant solution formed from the kernels in pure water" (Spec. 52, ll. 16-18).

Hence, in giving the contested claim term its broadest reasonable construction when read in light of the specification as it would be understood by one of ordinary skill in the art, we determine that these rejected claims do not permit non-trivial amounts of non-kernel derived acids in the aqueous medium, including non-trivial amounts of acids added to the medium for the extraction that may significantly modify the stable pH of an extractant medium formed from kernels in pure water given the “consists essentially of” transitional term employed therein. The Examiner has not established that the solution of coloring matter (aqueous medium) obtained in the process of Smirnov, even if that process were modified to employ whole kernels in light of the additional teachings of Ichi and include oleic acid therein as the Examiner found to be suggested by Bergquist, would have amounts of hydrochloric acid and acetic acid therein that are non-trivial given that the latter acids are employed for the extraction by Smirnov. Rather, the Examiner basically argues that the claim term “consists essentially of” should be interpreted as an open “comprising” term (Ans. 15-17; Supp. Ans. 16).

Consequently, we reverse the Examiner’s obviousness rejections of claims 1 and 17 and the claims which depend therefrom, on this record.

We likewise reverse the Examiner’s obviousness rejection of dependent claim 22 on this basis as the latter claim includes the “consists essentially of” transitional phrase and corresponding limitation as to the aqueous medium set forth in claim 1 and Appellant argues claims 20-22 on the basis of arguments presented with respect to claim 1 (Reply Br. 18).

As for dependent claim 21, we determine that the “consist of” transitional phrase employed therein closes the aqueous medium to the

inclusion of acids other than those derived from the corn kernels extraction; hence, we shall also reverse the Examiner's obviousness rejection of this claim based on the argued claim construction error.

Our disposition of the Examiner's obviousness rejection of independent claim 20 is another matter. Claim 20 does not include language that precludes the use of hydrochloric acid and acetic acid in the extraction step; hence Appellants' claim 1 claim construction arguments are unavailing to claim 20 (Reply Br. 18). Moreover, Appellants do not specifically contest the Examiner's rationale for the proposed combination of Smirnov and Ichi; that is, the use of whole corn kernels for Smirnov's extraction process in light of the additional teachings of Ichi. Nor have Appellants reasonably articulated why the selection of a whole corn kernel having anthocyanin content above 0.1 mg per gram of corn kernel for use in the process of Smirnov would have been non-obvious to an ordinarily skilled artisan given that Smirnov, in combination with Ichi, requires selecting corn for extraction of such a colorant. In this regard, Appellants have not established that such a corn was unavailable or unknown to one of ordinary skill in the art practicing the proposed extraction process of Smirnov (taken with Ichi) on total corn kernels.

Accordingly, we affirm the Examiner's obviousness rejection of claim 20, on this record.

CONCLUSION/ORDER

The Examiner's decision to reject claims 1, 17, and 20 under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly

Appeal 2012-001015
Application 12/214,773

point out and distinctly claim the subject matter which applicant regards as the invention is reversed.

The Examiner's decision to reject claims 1, 2, 4-10, 15-19, 21 and 22 under 35 U.S.C. § 103(a) as being unpatentable over Smirnov in view of Ichi, and Bergquist is reversed.

The Examiner's decision to reject claim 20 under 35 U.S.C. § 103(a) as being unpatentable over Smirnov in view of Ichi, and Bergquist is affirmed.

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

AFFIRMED-IN-PART

kmm/sld