

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TODD W. GUESK,
BASSAM F. JIRJIS
and IAN C. PURTLE

Appeal 2007-3415
Application 10/272,486
Technology Center 1700

Decided: January 31, 2008

Before EDWARD C. KIMLIN, PETER F. KRATZ, and
LINDA M. GAUDETTE, *Administrative Patent Judges*.

GAUDETTE, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 41-44, 133-139, and 141-170, the only claims pending in the application. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

The invention relates to a method for processing cocoa mass into cocoa powder and cocoa butter using a liquefied saturated hydrocarbon

The Examiner finds that Purtle discloses the invention as claimed in claim 161 with the exception of (1) a recitation of a specific mixing time and (2) a specific disclosure that the solvent and cocoa mass are passively mixed with a static mixer. (Ans. 4-5). The Examiner contends that it would have been obvious to vary the mixing time in Purtle's process based on the desired amount of cocoa butter in the final product. (Ans. 5). The Examiner further contends that it would have been obvious to one of ordinary skill in the art at the time of the invention to have used a motionless mixer in Purtle's process based on Perry's disclosure that such mixers provide enhanced heat transfer and uniform residence times. (Ans. 5).

Appellants contend that the present Specification provides the only motivation to modify Purtle's process to achieve the claimed invention and, therefore, the Examiner's rejection is based on improper hindsight reasoning. Appellants essentially argue that the Examiner has not supplied the requisite factual findings and reasons necessary to establish that one of ordinary skill in the art at the time of the invention would have been motivated to: (1) modify Purtle's mixing times and total solvent to cocoa mass ratios, and (2) use a motionless mixing device in Purtle's process.

With respect to Purtle's mixing times and total solvent to cocoa mass ratios, Appellants maintain that "the Examiner has selectively pointed to process parameters from disconnected embodiments discussed in Purtle '350 – a discriminatory pick and choose strategy that has been repeatedly been [sic] ruled impermissible as the basis for an obviousness rejection." (Reply Br. 3). According to Appellants, Purtle's embodiments employ higher extraction times and total solvent to cocoa mass ratios than those claimed. (Reply Br. 4). Appellants argue that one of ordinary skill in the art at the

time of the invention would not have had a reasonable expectation of success in reducing these parameters. (Reply Br. 3). In other words, Appellants maintain that one of ordinary skill in the art would anticipate achieving a *less efficient* extraction operation by reducing the extraction times and the total solvent to cocoa mass ratios of Purtle's embodiments. (Reply Br. 3).

With respect to the use of a motionless mixing device, Appellants argue that Purtle clearly uses a dynamic mixing device. (Reply Br. 2). Appellants note that Purtle "contains absolutely no mention or suggestion of the use of a static mixer" and only a dynamic mixing device, i.e., a tank equipped with a mixer paddle is depicted in Purtle's drawings. (Reply Br. 2). Appellants further argue that the Examiner failed to provide a reasonable basis for concluding that one of ordinary skill in the art would have been motivated to employ a motionless mixing device in Purtle's process based on "the mere existence of static mixers, as evidenced by the citation to Perry's." (Reply Br. 2).

Based on the contentions of the Examiner and the Appellants, the issues presented are: Has the Examiner made proper and sufficient factual findings to establish that it would have been *prima facie* obvious, within the meaning of 35 U.S.C. § 103(a): (1) to have employed the claimed mixing times and total solvent to cocoa mass ratios in Purtle's process? and (2) to have used a motionless mixing device in Purtle's process? We answer these questions in the affirmative.

Claim limitation: “wherein the mixing step is carried out with a mixing time before separation of no more than about 110 seconds”

A prima facie case of obviousness exists where the prior art and claimed ranges overlap, as well as in those cases where the claimed range and the prior art range, though not overlapping, are sufficiently close that one skilled in the art would have expected them to have the same properties. *See In re Geisler*, 116 F.3d 1465, 1469 (Fed. Cir. 1997). Purtle discloses that the volume of the mixing vessel should be sufficient to provide “a residence time of about 2-10 minutes.” (Ans. 7 (citing Purtle, col. 11, ll. 41-43)). Like Purtle, Appellants preface their mixing time with the term “about”, indicating that the inventors did not intend to limit the claimed ranges to their exact end-points. *See In re Harris*, 409 F.3d 1339, 1343 (Fed. Cir. 2005). Thus, the Examiner reasonably concluded that one of ordinary skill in the art would have expected a mixing time of 110 seconds to produce a process stream having similar properties to those produced by Purtle’s step of mixing for about 120 seconds. The burden was, therefore, properly shifted to Appellants to present persuasive arguments or evidence refuting the Examiner’s prima facie showing of obviousness, e.g., evidence which establishes that the claimed mixing time provides a new and unexpected result. *See In re Huang*, 100 F.3d 135, 139 (Fed. Cir. 1996) (Even though “[a] modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within the capabilities of one skilled in the art, unless the claimed ranges produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art.”). Appellants have not met this burden.

Claim limitation: “the total mass ratio between the mass of the liquefied saturated hydrocarbon solvent and the mass of the cocoa mass is no more than about 2:1”

In an obviousness determination, the relevant inquiry is: what would the prior art as a whole have suggested to the ordinary artisan? *See KSR Int’l Co. Teleflex, Inc.*, 127 S. Ct. 1727, 1741 (2007) (*quoting In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (While the analysis in support of an obviousness determination should “identify a reason that would have prompted a person of ordinary skill in the art to combine the elements” in the manner claimed, the “analysis [of whether the subject matter of a claim is obvious] 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.”) The Examiner found, and Appellants do not dispute, that the amount of solvent required in treating cocoa mass is dependent on the level of fat in the cocoa mass and the production requirements. .¹ (Ans. 6). This

¹ In rejecting claim 161, the Examiner also specifically relied on the experimental method in column 20 of Purtle, in which extractions were conducted in two steps using solvent to feed ratios of 2:1. (Ans. 4). Appellants maintain that the claimed total mass ratio refers to “the ratio of the overall amount of solvent used in all extraction and optional wash operations” and “is not, as suggested in the Office Actions, the solvent to feed ratio in a single extraction stage of a multi-stage extraction process.” (App. Br. 6). Appellants argue that because each of Purtle’s stages employs a 2:1 solvent/cocoa liquor ratio, the total solvent/cocoa ratio is 4:1. (Reply Br. 3). We do not agree with Appellants’ narrow claim construction. The Specification states that “[i]n considering the total ratio, the total process *is considered* including the mixing step and any washes in the separation.” Spec. [0055] (emphasis added). In our view, this statement does not amount to an explicit definition of the claim term “total mass ratio” as *equal to* the

finding is clearly supported by Purtle's disclosure that the ratio of solvent to cocoa mass may be varied depending on initial fat content of the cocoa mass (*see, e.g.*, Purtle, col. 12, ll. 19-23 (noting that cocoa mass having a lower fat content requires less solvent)) and that the extraction process may be either one stage or multi-stage (*see, e.g.*, Purtle, col. 8, ll. 48-52). Thus, in our view, the Examiner reasonably concluded that achieving the claimed total mass ratio would have involved nothing more than the determination of a workable or optimum range for a parameter recognized in the prior art as being result effective and, therefore, would have been obvious to one of ordinary skill in the art at the time of the invention. *See In re Woodruff*, 919 F.2d 1575, 1578 (CCPA 1976); *In re Boesch*, 617 F.2d 272, 276 (CCPA 1980); *In re Aller*, 220 F.2d 454, 456 (CCPA 1955).

Appellants appear to suggest that Purtle teaches away from the claimed total mass ratio because one of ordinary skill in the art would have expected a reduction in efficiency by lowering the total solvent to cocoa mass ratio (Reply Br. 3). However, this argument is not persuasive in overcoming the Examiner's prima facie showing of obviousness because Appellants have not established that one of ordinary skill in the art would have actually been discouraged from using the claimed total mass ratio. *See*

ratio of the sum total of all solvent used in the process to the cocoa mass. Rather, claim 161 limits the total mass ratio *in the recited mixing step*. Appellants' use of the term "comprising" in claim 161 means that additional processing steps, including additional solvent extraction steps, are not precluded. In other words, while claim 161 limits the solvent to cocoa mass ratio in the first mixing step to 2:1, claim 161, given its broadest reasonable construction, does not preclude the addition of solvent in subsequent steps such that the ratio of solvent used in all process steps to cocoa mass would exceed 2:1.

In re Gurley, 27 F.3d 551, 553 (Fed. Cir. 1994). *Cf. In re Mayne*, 104 F.3d 1339, 1343-44 (Fed. Cir. 1997) (noting that unsupported assertions are not sufficient to establish that “the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would find surprising or unexpected”)

*Claim limitation: “the mixing step . . . is conducted
without use of a dynamic mixer”*

Contrary to Appellants’ contention, the Examiner also properly established that use of a motionless mixing device in Purtle’s method would have involved nothing more than the predictable use of a known prior art element according to its established function. *See KSR*, 127 S. Ct. at 1739 (“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”). While drawings are useful in understanding a disclosed invention², we do not agree with Appellants’ assertion that Purtle’s simple depiction of a tank equipped with a mixer paddle would have led one of ordinary skill in the art to conclude that Purtle’s processing equipment is limited to a dynamic mixing device, since Purtle broadly refers to a “mixing vessel” or “mixer” (*see, e.g.*, col. 11, ll. 41-62 and col. 12, ll. 43-58). Moreover, contrary to Appellants’ contention, we find that the Examiner provided a reasonable basis to conclude that one of ordinary skill in the art would have been motivated to employ a static mixing device in Purtle’s process based on Perry’s disclosure that these types of mixers were known in the art and had

² *Cf. Autogiro Co. of Am. v. United States*, 384 F.2d 391, 398 (Ct. Cl. 1967) (“In those instances where a visual representation can flesh out words, drawings may be used in the same manner and with the same limitations as the specification.”)

Appeal 2007-3415
Application 10/272,486

the advantage of providing enhanced heat transfer and uniform residence times (Ans. 5).³ See *KSR*, 127 S.Ct. 1727, 1740 (2007) (quoting *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282 (1976)) (“When a patent ‘simply arranges old elements with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement, the combination is obvious.”).

ORDER

The decision of the Examiner rejecting claims 41-44, 133-139, and 141-170 under 35 U.S.C. § 103 as unpatentable over Purtle in view of Perry is affirmed.

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

AFFIRMED

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³ We note that Purtle references the same edition of Perry’s for a description of centrifuges useful in the disclosed process. (Purtle, col. 11, ll. 46-49).

Appeal 2007-3415
Application 10/272,486

SCOTT T. PIERING
CARGILL, INC.
P O BOX 5624
MINNEAPOLIS, MN 55440-5624