

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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

Appeal 2008-4347
Application 10/272,511
Technology Center 1700

Decided: November 28, 2008

Before CHUNG K. PAK, TERRY J. OWENS, and
JEFFREY T. SMITH, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the Primary Examiner's rejection of claims 1-21 and 24-30. We have jurisdiction pursuant to 35 U.S.C. § 6.¹

¹ In rendering this decision, we have considered the Appellants' arguments presented in the Appeal Brief dated October 16, 2006 and the Reply Brief dated November 15, 2007.

Appellants' invention is directed to processing cocoa mass into cocoa powder and cocoa butter. The process includes mixing cocoa mass, which includes cocoa butter, with liquified saturated hydrocarbon to provide a slurry, and separating the slurry to provide a stream enriched in cocoa butter and a stream enriched in cocoa solids. (Spec. 2). Claims 1 and 19 are representative of the invention and are reproduced below:

1. A process for continuous cocoa powder production comprising the steps of:

producing a first cocoa powder on a continuous production line from a first cocoa mass having a first cocoa butter content, wherein the production line comprises at least one passive mixer for extracting cocoa mass with liquefied hydrocarbon solvent without use of a dynamic mixer, and at least one zone for removing solvent from the mass after extraction;

producing a second cocoa powder using the same production line from a second cocoa mass having a second cocoa butter content,

wherein the difference between the first and second cocoa butter contents is at least about 8 wt.%; and

the operation of producing the first cocoa powder is characterized by a total mass ratio of liquefied hydrocarbon solvent to the first cocoa mass of no more than about 2: 1.

19. A process comprising the step of:

producing first and second cocoa powders from a single continuous production line using liquefied gas extraction at temperature of less than about 34°C, the first cocoa powder having a first cocoa butter content of about 9 wt.% to about 13 wt.% and the second cocoa powder having a second cocoa butter content of less than about 2 wt.%, wherein the continuous production line comprises at least one

passive mixer without use of a dynamic mixing device and at least one filter device for solvent removal.

ISSUES ON APPEAL

Claims 1-21 and 24-30 stand rejected under 35 U.S.C. § 103(a) over Purtle, U.S. Pat. 6,066,350, issued May 23, 2000, in view of Gurfinkel-Castillo, U.S. Patent No. 6,677,387 B2, issued January 13, 2004, and Herbert, U.S. Patent No. 5,654,008, issued August 5, 1997.

The Examiner contends that Purtle discloses a process for continuous cocoa powder production that differs from the claimed invention in that Purtle does not disclose mixing of the solvent with the cocoa mass using at least one passive mixer and no dynamic mixer. The Examiner contends that Gurfinkel-Castillo and Herbert are evidence that it is well known to employ either static or dynamic mixer when mixing a solvent with a component. The Examiner concluded that a person of ordinary skill in the art would have utilized known mixing apparatus to obtain the advantages associated with the particular device. (Ans. 4).

Appellants contend that the Examiner has failed to explain why it would have been obvious to modify the structure of Purtle with the mixing apparatus described by Gurfinkel-Castillo and Herbert.² Purtle is directed to techniques for processing cocoa mass into cocoa butter and cocoa powder using dynamic mixing (e.g., in large stirred tanks) (as shown in Figs. 1 and 2) to carry out the extraction operation. (App. Br. 6-12; Reply Br. 2-9).

² Appellants have grouped their arguments into two claim groupings (1) claims 1-18, 21-22, and 24-30; and (2) claims 19-20. Consequently, the appealed claims stand or fall with claim 1 and 19. Our analysis will be limited to these claims.

The issue presented is: did Appellants identify reversible error in the Examiner's rejection of claims 1 and 19 under § 103? We answer this question in the negative. Regarding claim 1, the issue turns on whether it would have been obvious to a person of ordinary skill in the art to utilize a known mixing apparatus (passive mixer) in a conventional manner in a process for the continuous cocoa powder production? Regarding claim 19, the issue turns on whether Appellants have established that the temperatures within the scope of the appealed claim achieve a new, unexpected result in the continuous production of cocoa powder?

We have thoroughly reviewed each of Appellants' arguments for patentability. However, we are in complete agreement with the Examiner that the claimed subject matter is not patentable within the meaning of § 103 in view of the applied prior art. Accordingly, we will sustain the Examiner's rejection.

OPINION

We determine the following Findings of Fact (FF) from the record presented in this appeal:

- (1) The claimed invention includes mixing cocoa mass with a solvent system to begin the extraction process. The solvent system suitable for the claimed invention is based on saturated hydrocarbons including alkane solvents and mixtures thereof. (Spec. [0029]).
- (2) The Specification does not distinguish between mixing elements for extracting cocoa mass with liquefied hydrocarbon solvent. The Specification discloses

suitable mixers, which provide the short mixing times and include a dynamic mixer and a passive, non-dynamic mixer. (Spec. [0034]).

- (3) Purtle discloses a process of continuously producing cocoa powder involving extracting cocoa mass with solvent (e.g., butane) to provide a solvent phase containing dissolved cocoa fat and a residual solids phase. (Purtle, col. 3, ll. 34-64).
- (4) Purtle does not specifically describe preference for a particular type of mixer. However, Purtle appears to depict some type of mixing apparatus in the tank (2) and (17) of Fig 1 and tank (60) of Fig. 2. (*See* Purtle generally; Figs. 1 and 2).
- (5) Purtle discloses that the extraction is preferably performed at a temperature above the melting point of the fat (above 35° C. but less than 90° C.). Purtle discloses operation above the melting point of the fat is desirable to obtain high solubility and miscibility of the cocoa fat and the liquid solvent and to provide a desirable reduction in the viscosity of the mixture. (Purtle, col. 8, ll. 7-13).
- (6) Gurfinkel-Castillo and Herbert are evidence that it was well known to employ either static (passive) or dynamic mixer when mixing a solvent with a component. (Herbert, cols. 12-13; Gurfinkel-Castillo, cols. 5-6).

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1734 (2007). The legal question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) secondary considerations, if any. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 127 S. Ct. at 1734.

“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR*, 127 S. Ct. at 1739. The question to be asked is “whether the improvement is more than the predictable use of prior art elements according to their established functions.” *KSR*, 127 S. Ct. at 1740.

Applying the preceding legal principles to the Factual Findings (FF) in the record of this appeal, we determine that the Examiner has established a *prima facie* case of obviousness, which *prima facie* case has not been adequately rebutted by Appellants’ arguments. As shown by FF (3) above, Purtle discloses a process of continuously producing cocoa powder involving extracting cocoa mass with solvent. As shown by FF (4-6), Purtle does not specifically describe preference for a particular type of mixer. However, Gurfinkel-Castillo and Herbert are evidence that it was well known to employ either static or dynamic mixer when mixing a solvent with

a component. Therefore, the Examiner properly concluded that it would have been obvious to a person of ordinary skill in the art to utilize either passive or dynamic mixer for Purtle's process of continuously producing cocoa powder. As set forth above FF (2), the Specification does not distinguish between mixing elements for extracting cocoa mass with liquefied hydrocarbon solvent. Appellants have not directed at us to evidence to establish that unexpected results are achieved by utilization of a passive mixer. (*See* Briefs generally).

Appellants allege that Gurfinkel-Castillo and Herbert are non-analogous art. (App. Br. 6). This argument is not persuasive. Appellants have not explained why the references are not within the field of the inventor's endeavor and if the references are not within the field of the inventor's endeavor, why the references are not reasonably pertinent to the particular problems with which the inventor was involved. *See In re GPAC Inc.*, 57 F.3d 1573, 1577 (Fed. Cir. 1995); *In re Wood*, 599 F.2d 1032, 1036 (CCPA 1979).

Appellants allege that the claimed invention provides unexpectedly efficient removal of cocoa butter from cocoa masses. (App. Br. 7; Rely Br. 4). However, Appellants have not directed us to evidence that exhibits unexpected results which would not have been recognized by a person of ordinary skill in the art.

Regarding claim 19, Appellants argue that Purtle teaches away from conducting the extraction at a temperature in the range recited in these claims. (App. Br. 8; Reply Br. 5). Appellants' argument is not persuasive. It is axiomatic that where patentability is predicated upon a change in a

condition of a prior art element, such as a change in temperature or configuration, the burden is on the Appellants to establish with objective evidence that the change in the condition is critical, i.e., it leads to a new, unexpected result. *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990); *In re Aller*, 220 F.2d 454, 456 (CCPA 1955). In the present case, Purtle discloses (FF (5)) operation above the melting point of the fat (above 35° C) is desirable to obtain high solubility and miscibility of the cocoa fat in the liquid solvent and to provide a desirable reduction in the viscosity of the mixture. Appellants have not established on this record that the temperatures within the scope of the appealed claims achieve a new, unexpected result regarding the continuous production of cocoa powder. Appellants have not established that utilizing a temperature below the melting point of the fat described by Purtle achieves results that were unexpected by a person of ordinary skill in the art. That is, it appears that Appellants are willing to accept the less desirable solubility and miscibility of the cocoa fat in the liquid solvent and an increase in the viscosity of the mixture as described by Purtle FF (5). Appellants have not rebutted the *prima facie* case of obviousness established by the Examiner.

For the foregoing reasons and those stated in the Answer, we affirm the rejection presented in this appeal.

ORDER

The rejection of claims 1-21 and 24-30 under 35 U.S.C. § 103(a) is affirmed.

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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

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