

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DAVID J. DOMINGUES

Appeal 2006-0891
Application 10/224,886
Technology Center 1700

Decided: October 23, 2006

Before GARRIS, PAK, and TIMM, *Administrative Patent Judges*.

TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals the rejection of claims 1-19 and 21-28, the only claims pending in this application. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 134.

INTRODUCTION

The claims are directed to methods of incorporating encapsulated chemical leavening agents into dough ingredients. According to Appellant's Specification, the chemical leavening agents are designed to react to produce a gas that leavens dough during baking (Specification 1:22-2:3). However, sometimes these agents react prematurely causing premature gas release and premature dough expansion during storage of the dough (Specification 2:4-10). One technique known in the art for minimizing premature dough leavening is to encapsulate the chemical leavening agents (Specification 2:11-18). But, according to the Specification, the encapsulated chemical leavening agents have been found to be sensitive to shear (Specification 3:19-20). Shear can cause breaking or other damage, thereby exposing the chemical leavening agents to the bulk dough composition and creating the possibility of premature leavening during storage (Specification 3: 12-28). According to Appellant, conventional dough forming methods use processes such as high speed (high shear) mixing to incorporate an encapsulated chemical leavening agent into dough ingredients or dough compositions without appreciating or accounting for the damage that can occur to the encapsulated particles (Specification 3:29 to 4:7). Appellant limits the breakage and damage by limiting the exposure of the encapsulated particles to high shear, high speed mixing or by using only low shear mixing (Specification 5). The Specification states that “[h]igh speed’ mixing generally refers to the use of standard bowl-type mixer with reciprocating, rotating, or spinning ‘beater’ or other mechanically impinging utensils that reciprocate or rotate at speeds in excess of 36 revolutions per minute (rpm).”

(Specification 26:26-30). Claims 1 and 18 are illustrative of the subject matter of appeal:

1. A method of preparing a chemically leavened dough composition, the method comprising
 - combining dough ingredients into a mixture using a mixer and a method comprising a high speed mixing step, and
 - uniformly distributing encapsulated chemical leavening agent particles into the dough ingredients by exposing the encapsulated chemical leavening agent to no more than 160 seconds of high speed mixing to limit the amount of damage that occurs to the encapsulated chemical leavening agent during high speed mixing.

18. A method of preparing a chemically leavened dough composition, the method comprising
 - combining dough ingredients into a dough ingredient mixture, and
 - uniformly distributing encapsulated chemical leavening agent into the dough ingredient mixture using a low shear method selected from the group consisting of sheeting, rolling, lapping, folding, kneading, enrobing, low speed mixing, and combinations thereof.

Claims 1-19 and 21-28 stand rejected under 35 U.S.C. § 103(a) as unpatentable over US Patent 6,436,458 issued on August 20, 2002 to Kuechle et al (Kuechle).¹

Appellant advances separate arguments under subheadings within the argument section of the Brief. We select one claim as representative of the issues on appeal for each of the separately argued groups of claims. Based on our review of the issues as they apply to the representative claims, we sustain the rejection of claims 1-13, 16-19, and 21-28. We, however, do not sustain the rejection of claims 14 and 15. Our reasons follow.

¹ Kuechle was effectively filed on March 19, 2000 thereby qualifying as prior art under 35 U.S.C. § 102(e).

OPINION

Kuechle describes preparing a scoopable dough that can be stored in the refrigerator or freezer (Kuechle, col. 1, ll. 52-58). Kuechle recognizes the problem of premature reaction of the leavening system (Kuechle, col. 1, ll. 36-57) and solves this problem by encapsulating at least a portion of the leavening system (Kuechle, col. 8, ll. 28-33). According to Kuechle, encapsulation delays the chemical reaction between the acidic and basic leavening agents and thereby allows a shelf life of up to about seven days at refrigeration and freezing temperatures (Kuechle, col. 8, ll. 29-33). Kuechle blends all the dry ingredients prior to adding the liquid ingredients (Kuechle, col. 11, ll. 27-32). The dry ingredients and liquid ingredients are mixed until the ingredients are substantially uniformly integrated (Kuechle, col. 11, ll. 32-33). The dough is generally subject to low shear and low work input during processing so that it is underdeveloped, i.e., by keeping the force applied and the level of power multiplied by time low enough to process an underdeveloped dough (Kuechle, col. 11, ll. 4-22). Kuechle exemplifies mixing speeds and times for each mixing step, but indicates that the times and speeds can vary depending on the amount of the scoopable dough being mixed (Kuechle, col. 12, ll. 15-17).

Claims 1-3 and 9-13

Turning to the first group of claims argued by Appellant (claims 1-3 and 9-13), we select claim 1 as representative of the issues on appeal. This claim requires that the encapsulated chemical leavening agent be exposed to no more than 160 seconds of high speed mixing, i.e., mixing at over 36 rpm.

The Examiner has established a prima facie case of obviousness with respect to the subject matter of claim 1 based on the findings and conclusions presented in the paragraph bridging pages 3 and 4 and those presented on page 4, line 16 to page 5, line 9 of the Answer. Kuechle suggests combining dough ingredients into a mixture using a mixer and a method including a high speed mixing step as required by the first clause of the claim. Furthermore, Kuechle includes an encapsulated leavening agent (Kuechle, col. 8, ll. 28-54) and this encapsulated leavening agent, along with the other ingredients, is mixed until substantially uniformly integrated, i.e., uniformly distributed into the dough ingredients, as claimed (Kuechle, col. 11, ll. 32-33). Kuechle exemplifies the following approximate speeds and times for use when mixing in a Horizontal Bar mixer:²

1. Dry ingredient blending: 32-40 rpm for 28-60 seconds.
2. Liquid addition: 32-40 rpm for 1.5-2 minutes (90-120 sec.)
3. Speed increase: 64-80 rpm for 1.5-2 minutes (90-120 sec.)

The evidence supports the Examiner's conclusion that it would have been obvious to one of ordinary skill in the art to select speeds below 36 rpm for the first two mixing steps, such speeds being within the exemplified ranges disclosed in the reference, and then increase the speed to about 64-80 rpm for only 1.5 to about 2 minutes (about 90 seconds to about 120 seconds) thereby exposing the encapsulated leavening agent to no more than 160 seconds of high speed mixing as claimed. One of ordinary skill in the art would have expected to obtain an underdeveloped dough composition with uniformly integrated ingredients by conducting the process within the exemplified parameters in accordance with the teachings of Kuechle.

² Kuechle precedes each range value with the word "about".

Appellant's arguments do not convince us that the Examiner made a reversible error with respect to the rejection of claim 1.

Appellant argues that Kuechle does not recognize that reducing the shear experienced by the encapsulated chemical leavening agent during dough preparation can limit the damage to the agent and, thereby, improve the stability of the dough product (Br. 14). This argument is not persuasive because the prior art need not recognize the problem solved by the appellant as long as there is some motivation for doing what is claimed. Here there is motivation to perform the process within the mixing and time ranges exemplified by Kuechle, including the lower values in the low shear steps, to obtain what Kuechle desired to obtain, i.e., an uniformly mixed but underdeveloped dough. *See In re Dillon*, 919 F.2d 688, 693, 16 USPQ2d 1897, 1901-1902 (Fed. Cir. 1990)(*en banc*) (“[T]he discovery that a claimed composition possesses a property not disclosed for the prior art subject matter, does not by itself defeat a prima facie case.”); *see also In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990) (It is a general rule that merely discovering and claiming a new benefit of an old process cannot render the process again patentable. While the processes encompassed by the claims are not entirely old, the rule is applicable here to the extent that the claims and the prior art overlap. (citations omitted)).

Appellant also argues that his Example 1 shows unexpected results for the process of claim 1. However, the burden is on Appellant to show unexpected results commensurate-in-scope with the claims. *In re Greenfield*, 571 F.2d 1185, 1189, 197 USPQ 227, 230 (CCPA 1978). Example 1 describes a process in which the addition of encapsulated

chemical leavening agent is delayed until the last 105 seconds of a second stage mix cycle. Claim 1 is broader in scope. First, claim 1 is not limited to delaying the addition of the encapsulated agent until the last 105 seconds of a second stage mixing process. Second, claim 1 encompasses times up to 160 seconds of high speed mixing. Example 1 is not shown to be commensurate-in-scope with the protection sought by the claims.

We conclude that the Examiner has established a prima facie case of obviousness with respect to the subject matter of claim 1 and claims 2, 3, and 9-13 standing or falling therewith. Appellant has not sufficiently rebutted the prima facie case.

Claims 4-6

Turning to claims 4-6, we select claim 4 as representative of the issues on appeal for these claims. Claim 4 requires that the dough composition exhibit reduced carbon dioxide evolution compared to the carbon dioxide evolution of similarly processed dough exposed to 210 seconds or more of high speed mixing.

Appellant argues that Kuechle does not teach, motivate, or suggest how to prepare a chemically leavened dough with the reduced carbon dioxide evolution claimed. This argument is not persuasive because Kuechle teaches performing the process at speeds and times within the claimed range and performing the process as so suggested by Kuechle would result in the reduced carbon dioxide evolution that is claimed.

We conclude that the Examiner has established a prima facie case of obviousness with respect to the subject matter of claims 4-6 that has not been sufficiently rebutted by Appellant.

Claims 7 and 8

Turning to claim 7, the claim we select as representative of the issues presented by grouped together claims 7 and 8, we note that this claim requires that the percentage of damaged encapsulated chemical leavening agent particles be below 15 percent.³

Appellant argues that Kuechle does not teach, motivate, or suggest how to prepare a chemically leavened dough composition by exposing the encapsulated agent to no more than 160 seconds of high speed mixing to limit the damage to the low amounts of claim 7. However, Kuechle does suggest performing the process so that the encapsulated agent is exposed to no more than 160 seconds of high speed mixing. When one of ordinary skill in the art so performed the process, the damage would be less than 15 percent as claimed. This is because the amount of damage, as suggested by Appellant, is dependent on the length of time the encapsulated leavening agent is subjected to high speed mixing.

Claim 14

Turning to claim 14, we note that this claim requires two mixing stages, each of which comprises a low speed mixing step and a high speed mixing step. Claim 14, therefore, requires two high speed mixing steps. Kuechle teaches only one high speed mixing step. The Examiner provides

³ Appellant's Claims Appendix appended to the Brief recites "10 percent." The Examiner states that the claim should read "15 percent" because claim 7 was an original claim that had not been amended. We note that claim 7 was listed as an original claim in the Amendment filed on December 20, 2004, but that the claim 7 reproduced therein recited "10 percent." (Amendment filed December 20, 2004). Appellants have not disputed the Examiner's correction of the claims, and, therefore, we adopt the Examiner's correction.

no supporting evidence or convincing reasons supporting a conclusion that one of ordinary skill in the art would incorporate another mixing stage including both a low speed mixing step and a high speed mixing step into the process of Kuechle.

We conclude that the Examiner has failed to establish a prima facie case of obviousness with respect to the subject matter of claim 14.

Claim 15

Claim 15 is dependent on claim 14 and, for the reasons presented above, we conclude that the Examiner has failed to establish a prima facie case of obviousness with respect to the subject matter of claim 15.

Claim 26

Turning to claim 26, the next claim argued by Appellant, this claim is dependent on claim 1 and requires uniform distribution of the encapsulated chemical leavening agent particles after the step of combining the dough ingredients into a mixture.

Appellant's emphasis on the word "after" as used in the claim and the tenor of their arguments implies that they interpret the claim as requiring an addition of encapsulated leavening agent after the combining step. The claim is not so narrow. This is because the words "uniformly distributed" require just that, uniform distribution. These words say nothing about the timing of the addition of the encapsulated chemical leavening agent. Looking to the Specification, as we must to determine the broadest reasonable interpretation one of ordinary skill in the art would give the terms, *see In re Am. Acad. of Sci. Tech. Ctr.*, 70 USPQ2d 1827, 1830, 367

F.3d 1359, 1364 (Fed. Cir. 2004), we note that the Specification uses the terminology “uniformly distribute” to indicate the thoroughness of the mixing (*see, e.g.*, Specification 27:28-31; 28:19-24; 28:27-30). On the other hand, when discussing the timing of the addition, the Specification refers to exposing the encapsulated particles to less than all of the high speed mixing (Specification 28:27-30) by adding the encapsulated particles during a later portion of the high speed mixing (Specification 29:1-3 and 30:8-10). This timing language is not present in claim 26. Claim 26 encompasses uniform distribution of encapsulated chemical leavening agent already present in the mixture including uniform distribution of encapsulated chemical leavening agent added to the dough ingredients during dry ingredient mixing as suggested by Kuechle.

We conclude that the Examiner has established a *prima facie* case of obviousness for the same reasons presented with respect to claim 1 which has not been sufficiently rebutted by Appellant.

Claims 16, 17, 23, and 24

Turning to the next argued group of claims, i.e., claims 16, 17, 23, and 24, we select claim 16 to represent the issues on appeal for this group. Focusing on claim 16, we note that this claim incorporates limitations similar to those of claim 26 and claim 7. Unlike claim 1, claim 16 is not limited to exposing the encapsulated chemical leavening agent to no more than 160 seconds of high speed mixing. For the reasons provided above in the discussion of claims 1, 7, and 26, we conclude that the Examiner has established a *prima facie* case of obviousness that has not been sufficiently rebutted by Appellant.

Claim 25

The next argued claim is claim 25. Claim 25 is a product-by-process claim. It is directed to the dough composition made by the process of claim 16 further including a percentage of damaged encapsulated chemical leavening agent particles below 5% (claim 24) and having a particular property of carbon dioxide evolution after 10 weeks at 45 °F.

Appellant argues that Kuechle does not teach, motivate, or suggest a dough composition having the refrigerator stability featured in claim 25. Appellant argues that Kuechle does not discuss the carbon dioxide evolution from their dough and further states that Kuechle discloses that their dough composition can be stable at refrigeration temperatures for a maximum of seven days, preferably between about one day and about four days citing Kuechle at, e.g., column 3, lines 5-33, especially lines 27-29.

As a first matter, the fact that Kuechle does not expressly state a value for carbon dioxide evolution does not mean that the evolution in Kuechle's dough is not in the claimed range. Second, the reason Kuechle encapsulates the chemical leavening agent is to delay the leavening reaction, i.e., delay the evolution of carbon dioxide, and thereby increase shelf life (Kuechle, col. 8, ll. 28-33). While Kuechle discloses a shelf life of up to seven days, how this compares to Appellant's limitation of carbon dioxide evolution is unknown, and neither we, nor the Examiner, are in a position to perform the tests necessary to make a comparison. Given the similarities in the mixing process, it is reasonable to shift the burden to Appellant to show that mixing according to the process of Kuechle does not, in fact, result in the carbon dioxide evolution of claim 25. Appellant has provided no convincing objective evidence in support of a patentable difference.

We conclude that the Examiner has established a prima facie case of obviousness with respect to the subject matter of claim 25 that has not been sufficiently rebutted by Appellant.

Claims 18, 19, and 21

Turning to claim 18, the claim we select to represent the issues for the group of claims 18, 19, and 21, we note that this claim requires a step of combining dough ingredients into a dough ingredient mixture and a step of uniformly distributing encapsulated chemical leavening agent into the dough ingredient mixture using a low shear method. The low shear method can be a low speed mixing method. There is no dispute that a mixing method conducted at less than 36 rpm is a low speed mixing method.

The Examiner has established a prima facie case of obviousness with regard to the subject matter of claim 18. Kuechle suggests both a step of combining dough ingredients into a dough ingredient mixture and a step of uniformly distributing encapsulated chemical leavening agent into the dough ingredient mixture using low speed mixing, i.e., mixing at speeds of less than 36 rpm. In fact, there are two steps of combining dough ingredients into a dough ingredient mixture that meet the requirements of Appellant's combining step. Kuechle describes forming a dough ingredient mixture by combining dry ingredients (col. 12, ll. 3-8) and further describes forming a second dough ingredient mixture by adding liquid ingredients to the blended dry ingredients (col. 12, ll. 9-13). For each combining step Kuechle suggests uniformly distributing the encapsulated chemical leavening agent present in the dough ingredient mixture to blend the ingredients together. (Kuechle, col. 11, ll. 27-31 for the dry ingredients and col. 11, 31-32 for the

second ingredient mixture (“dry ingredients and liquid ingredients are mixed until the ingredients are substantially uniformly integrated.”)). In both steps Kuechle suggests the selection of low speeds under 36 rpm, therefore, suggests uniformly distributing the ingredients within a dough ingredient mixture using low speed mixing as claimed.

Appellant argues that the Examiner has misconstrued claim 18 because the Examiner fails to appreciate that claim 18 recites combining dough ingredients into a dough ingredient *mixture*, and uniformly distributing encapsulated chemical leavening agent into the dough ingredient *mixture* using a recited low shear method (Br. 22). Appellant appears to interpret the claims as requiring a step of combining dough ingredients into a mixture and then subsequently adding encapsulated chemical leavening agent to that mixture. The claims are not so limited. The combining step does not exclude the presence of encapsulated leavening agent in the mixture and the “uniformly distributing” step encompasses the uniform distribution of encapsulated chemical leavening agent already present in the mixture. See the discussion of claim 26 above.

Appellant further argues that there is no teaching, motivation, or suggestion in Kuechle to deviate from the mixing procedure described in the reference and, instead, uniformly distribute encapsulated chemical leavening agent into a dough ingredient *mixture* using one of the low shear methods recited the claim (Br. 22). As we discussed above, claim 18 is not limited to subsequent addition of the encapsulated chemical leavening agent, it only requires uniform distribution and Kuechle teaches or suggests uniform distribution of the encapsulated chemical leavening agent present in the dry dough ingredient mixture as well as in the wet dough ingredient mixture.

Kuechle also suggests using low speed mixing at less than 36 rpm.

Moreover, Appellant admits that mixing techniques that conventionally use low shear are known (Br. 22).

We conclude that the Examiner has established a prima facie case of obviousness with respect to the subject matter of claim 18 and dependent claims 19 and 21 grouped therewith. Appellant has not sufficiently rebutted the prima facie case.

Claim 22

With respect to claim 22, Appellant argues that there is no teaching, suggestion, or motivation to deviate from the mixing procedure described by Kuechle. This argument is not persuasive because no deviation from the mixing procedure of Kuechle is required to meet the limitations of the claim. Kuechle suggests combining flour, water, fat (shortening), and a leavening system (Kuechle, col. 3, ll. 47-48) by a mixing process including low speed and high speed mixing steps. Kuechle suggests using non-encapsulated acidic chemical leavening agent and encapsulated basic chemical leavening agent (Kuechle, col. 8, ll. 28-42). Kuechle further suggests that uniform distribution is obtained during low speed mixing (Kuechle, col. 11, ll. 31-33).

We conclude that the Examiner has established a prima facie case of obviousness with respect to the subject matter of claim 22 that has not been sufficiently rebutted by Appellant.

Claims 27 and 28

With respect to claim 27, Appellant repeats the argument made in connection with claim 22. This argument is not persuasive for the reasons we presented above.

We conclude that the Examiner has established a prima facie case of obviousness with respect to the subject matter of claims 27 and 28 that has not been sufficiently rebutted by Appellant.

CONCLUSION

In summary, with respect to claims 1-13, 16-19, and 21-28, we sustain the rejection made under 35 U.S.C. § 103(a). We, however, do not sustain the rejection as applied to claims 14 and 15. Accordingly, the decision of the Examiner is affirmed-in-part.

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

AFFIRMED-IN-PART

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KAGAN BINDER, PLLC
SUITE 200, MAPLE ISLAND BUILDING
221 MAIN STREET NORTH
STILLWATER, MN 55082