UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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Ex parte GERALD J. VAN HANDEL and REBECCA E. WHITMORE

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Appeal 2008-0040
Application 10/170,675
Technology Center 3700

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Decided: April 23, 2008

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Before TONI R. SCHEINER, DONALD E. ADAMS, and ERIC GRIMES, *Administrative Patent Judges*.

GRIMES, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to crush-resistant disposable lids. The Examiner has rejected the claims as obvious and as lacking an adequate written description in the Specification. We have jurisdiction under 35 U.S.C. § 6(b). We affirm-in-part.

BACKGROUND

"Disposable lids … are generally employed in connection with disposable plates, platters, bowls" and "typically … are made of paper, plastic or foil. Since it is highly desirable to make disposable lids as

lightweight as possible, lid rigidity and especially crush-resistance are frequently product issues" (Specification 1).

The Specification discloses design features "that impart crush-resistance to thermoformed lids" (*id.*).

DISCUSSION

1. CLAIMS

Claims 1-53 are pending and on appeal. Claims 1, 5, 10, 28 and 36 are representative and read as follows (some formatting added):

Claim 1: A crush-resistant disposable lid made from a thermoplastic material for plates, platters, bowls and the like comprising

a dome having a generally planar upper surface portion and a downwardly extending sidewall provided with a plurality of outwardly convex flutes formed in said sidewall,

said flutes having a characteristic cylindrical diameter,

said sidewall extending downwardly to an engagement portion of said lid adapted to be secured to said plate, platter or bowl about an engagement perimeter of said lid,

wherein said lid includes about 1.85 or fewer outwardly convex flutes per inch of engagement perimeter, and

wherein the flutes formed in the sidewall consist essentially of outwardly convex flutes.

Claim 5: The crush-resistant disposable lid according to Claim 1, wherein said flutes have a characteristic cylindrical diameter of from about 0.4 inches to about 0.6 inches.

Claim 10: The crush-resistant disposable lid according to Claim 1, wherein the inward extension length of said flutes is at least about 0.35 inches.

Claim 28: A thermoformed, crush-resistant disposable lid for plates, platters, bowls and the like comprising

a dome having a generally planar upper surface portion and a downwardly extending sidewall provided with a plurality of outwardly convex flutes formed in said sidewall,

said flutes having a characteristic cylindrical diameter and

said sidewall extending downwardly to an engagement portion adapted to be secured to said plate, platter or bowl about an engagement perimeter of said lid,

wherein said lid includes about 1.85 or fewer outwardly convex flutes per inch of engagement perimeter,

said flutes being characterized by a ratio of the characteristic cylindrical diameter of said flutes to the engagement perimeter of said lid of at least about 0.0125, and

wherein the flutes formed in the sidewall consist essentially of outwardly convex flutes.

Claim 36. The crush-resistant disposable lid according to Claim 28, wherein the inward extension length of said flutes is at least about 0.35 inches.

As an initial matter, we interpret the meaning of the term "flutes having a characteristic cylindrical diameter." "[T]he PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification." *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

The Specification provides that "flutes are provided with a characteristic cylindrical diameter" (Specification 2) and that each flute "is shaped as a partial surface of an inclined outwardly convex cylinder . . . The cylinder has a characteristic radius which is the radius of curvature, r, of [the] flute. . . Thus the flute may be said to have a characteristic cylindrical

diameter, D, of twice the radius of curvature of the flute" (*id.* at 5). The ordinary meaning of the term cylindrical is that it relates to the shape of a cylinder, particularly a circular cylinder. The Specification confirms this to be the intended meaning by its reference to the "radius of curvature" and "cylindrical diameter"; a radius and diameter are properties of a circle, or a shape with a circular cross-section.

Given the ordinary meaning of the term "cylindrical" as particularly relating to a circular cylinder and the description in the specification of a characteristic cylindrical radius and a characteristic cylindrical diameter, we interpret the phrase "flutes having a characteristic cylindrical diameter" to refer to flutes that are portions of circular cylinders.

2. WRITTEN DESCRIPTION

Claims 1-53 stand rejected under 35 U.S.C. § 112, first paragraph, on the basis that they lack adequate written description in the Specification, because "the disclosure as originally filed does not limit the shape of the flutes to 'outwardly convex'" (Answer 3). The Examiner further finds that the Specification (citing the Specification at page 5, lines 21-23) states the following:

> in the embodiment shown, the flutes have the same characteristic cylindrical diameter; however, there may be flutes of other configuration interspersed without departing from the spirit and scope of the invention.

(*Id.*)

Appellants argue that "the language 'consist essentially of' does not limit the invention to lids with only convex flutes" and "only excludes those additional flutes which would alter the basic and novel characteristics of the invention—improved crush-resistance" (Appeal Br. 12). Appellants also

argue that the Specification discloses that, in one embodiment shown, the flutes have the same characteristic cylindrical diameter but that other flutes may be interspersed, thus indicating that additional flutes are optional (*id.;* citing the Specification at page 5, lines 20 and following). The referenced embodiment is shown in Fig. 1 through Fig. 6 of the instant Specification. Fig. 1 is reproduced below:

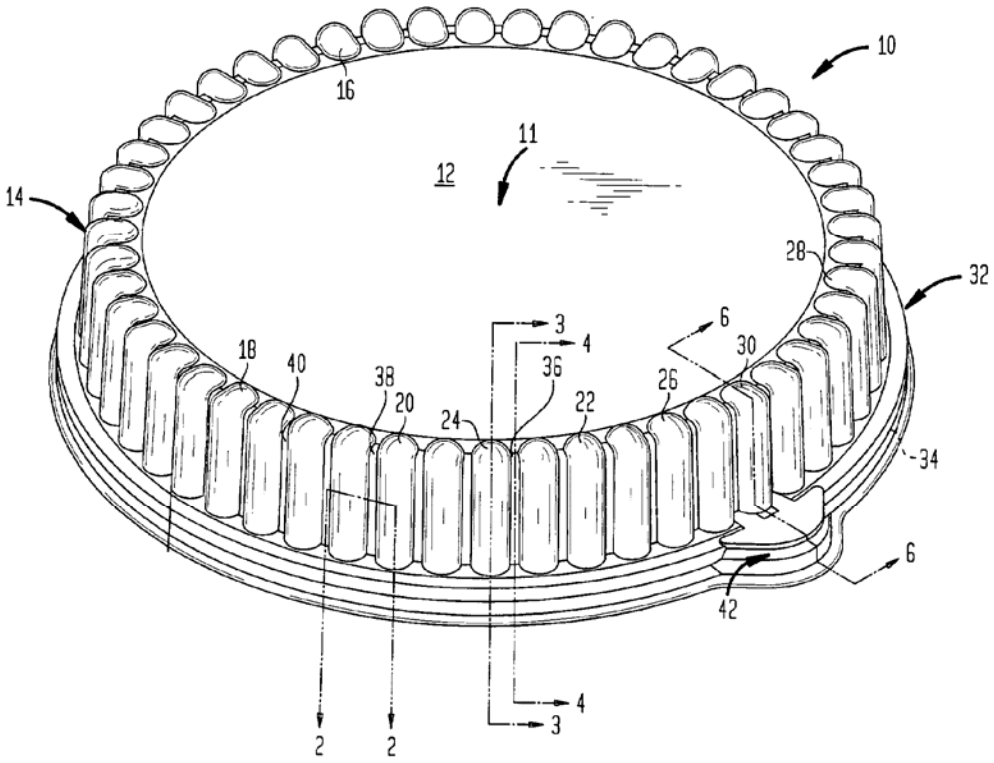

Figure 1 shows a perspective view of a disposable lid having 50 flutes (Specification 2).

The purpose of the written description requirement is to "ensure that the scope of the right to exclude, as set forth in the claims does not overreach the scope of the inventor's contribution to the field as far as described in the patent specification." *Reiffin v. Microsoft Corp.,* 214 F.3d 1342, 1345 (Fed. Cir. 2000). To that end, to satisfy the written description

requirement, the inventor "must convey with reasonable clarity to those skilled in the art that, *as of the filing date sought*, he or she was in possession *of the invention*" [first emphasis added]. *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991). "One shows that one is 'in possession' of *the invention* by describing *the invention*, with all its claimed limitations". *Lockwood v. American Airlines*, 107 F.3d 1565, 1572 (Fed. Cir. 1997).

We agree with Appellants that the Specification provides adequate descriptive support for the disputed limitation. Figure 1 of the Specification (shown above) shows an embodiment of the invention that contains only outwardly convex flutes. Given the embodiment of Figure 1, we conclude that the written description of the invention, as originally filed, conveys to those of skill in the art that the inventor was in possession of the claimed invention at the time the application was filed.

The rejection of claims 1-53 under 35 U.S.C. § 112, first paragraph, on the basis of lack a written description in the specification is reversed.

3. OBVIOUSNESS I

Claims 1-21, 25-47, and 51-53 stand rejected under 35 U.S.C. § 103 as obvious in view of Luker.[1] The claims have been argued in four groups and the claims in each group stand or fall together. 37 C.F.R. § 41.37(c)(1)(vii). Claims 1-4, 14-21, and 25-27 stand or fall together; claims 5-9, 28-35, 40-47, and 51-53 stand or fall together; claims 10-13 stand or fall together; and claims 36-39 stand or fall together.

The Examiner finds that Luker discloses "a fluted, thin-walled, vacuum-molded, plastic lid that is crush-resistant in that it allows stacking of

[1] Luker, US 3,303,964, Feb. 14, 1967

assembled container bodies and pan members each with a cake" and a "preferred embodiment [that] has thirty-six outwardly convex flutes" (Answer 3). The Examiner concludes that it "would have been obvious to one having ordinary skill in the art at the time the invention was made to select 1.85 or fewer flutes per inch of engagement perimeter, since … discovering an optimum value of a result effective variable involves only routine skill in the art" and "one would have used any number of flutes on the lid side wall necessary in view of its overall size to make it crush-resistant" (*id.* at 3-4).

We agree with the Examiner that claim 1 would have been obvious to the ordinary artisan in view of Luker's teachings. Luker discloses a "light-weight thin-walled molded plastic container structure adapted for stacking without crushing the walls" (Luker, col. 1, ll. 17-19 and Fig. 1). Fig. 1 of Luker is shown below:

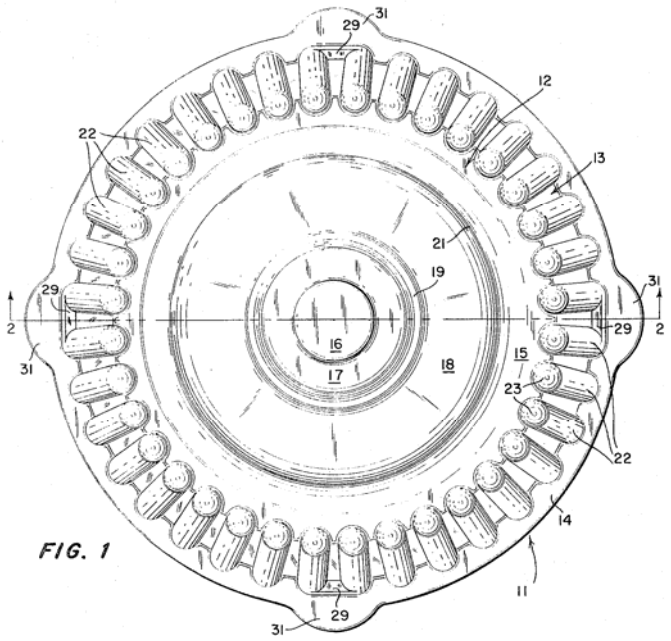

FIG. 1

The figure shows "a top plan view of the container body according to a preferred embodiment of the invention" (*id.* at col. 1, ll. 44-45). Luker also discloses that "[f]ormed in side wall 13 are a multiplicity of equally spaced outwardly convex inwardly concave rounded fluted sections 22" (*id.* at col. 2, ll. 31-33). Luker also discloses that the outwardly convex flutes are separated by relatively small, relatively flat sections of the sidewall 13 (*id.* at Fig. 1, col. 2, ll. 39-45). Luker also discloses that "[i]n the preferred embodiment thirty six flutes … are formed" (*id.* at col. 3, ll. 21-22).

We agree with the Examiner that it would have been prima facie obvious to one of skill in the art at the time the invention was made to modify the disclosure of Luker and thereby arrive at the claimed invention. As set forth above, Luker discloses that the perimeter of the container is primarily composed of outwardly convex cylindrical flutes with relatively small flat areas between the flutes. Luker does not expressly teach that the lid includes 1.85 or fewer flutes per inch. However, Luker teaches that a preferred embodiment of the disclosed lid has thirty-six flutes in its perimeter. Those of skill in the art would have recognized that the number of flutes per inch in Luker's lid would vary depending on the length of the perimeter, and therefore the diameter, of the lid. For example, a lid with a diameter of 10 inches would have a perimeter of about 31 inches, since the circumference of a circle is its diameter times π. Thirty-six flutes distributed over a thirty-one inch perimeter is fewer than 1.85 flutes per inch.

Appellants argue that Luker does not disclose or suggest "the claimed disposable lid, wherein the lid includes about 1.85 or fewer outwardly convex flutes per inch of engagement perimeter" and that "the references

[sic] are completely devoid of any suggestion or motivation to modify the lids in the prior art in the manner claimed" (Br. 15).

We are not persuaded by this argument. As discussed above, Luker discloses that the preferred number of flutes in the disclosed lid is thirty-six, and the number of flutes per inch will therefore vary depending on the size of the lid: a smaller lid will have a shorter perimeter and therefore more flutes per inch of perimeter than a larger lid. In our view, Luker's disclosure would have made obvious to the skilled artisan the limitation of claim 1 requiring 1.85 or fewer flutes per inch.

Appellants argue that "Luker teaches away from the invention because it teaches to intersperse an equal number of outwardly concave flutes … between convex flutes" (*id.*, citing Luker at Figure 3 and col. 2, ll. 39-45).

We are not persuaded by this argument. The cited section of Luker discloses that the "inwardly concave surfaces of the fluted sections 22" (i.e. the inwardly concave surfaces of the outwardly convex flute) "merge into internal surfaces 24 that all lie in a circular envelope" (i.e. flat surfaces) giving the appearance of internally projecting flutes when looking into the open end of the container body. Thus, Luker does not describe the internal surfaces 24 as "outwardly concave flutes" but flat (unfluted) portions. It is apparent that the "internal surfaces that all lie in a circular envelope 24" of Fig. 1 of Luker are analogous to the "unfluted sidewall portions 36-40" (Spec. 5: 7-8) of Appellants' invention (see also Figs. 1 and 2). Thus, Luker's lid reasonably appears to consist essentially of outwardly convex flutes.

Appellants further argue that "[a]s seen in the March, 2004 *Declaration of Gerald J. Van Handel*, concave flutes greatly reduce crush-resistance" (Br. 16, citing Figure 1 of the declaration).

We do not find this argument to be persuasive. "Mere improvement in properties does not always suffice to show unexpected results." *In re Soni*, 54 F.3d 746, 751 (Fed. Cir. 1995). "[W]hen unexpected results are used as evidence of nonobviousness, the results must be shown to be unexpected compared with the closest prior art." *In re Baxter-Travenol Labs.*, 952 F.2d 388, 392 (Fed. Cir. 1991).

Here, the record contains statements and evidence to indicate superior crush resistance for lids having outwardly convex flutes versus lids having outwardly concave flutes. However, there is no evidence of record to establish that these results are unexpected. More importantly, the Van Handel declaration does not provide a comparison to the lid taught by Luker, which – like the claimed lid – has outwardly convex flutes. Therefore, the record as currently constituted does not establish that the claimed lids are unexpectedly superior to lids taught by the closest prior art.

With regard to claims 5, 10, and 36, the Examiner further concludes that it "would have been an obvious matter of design choice obvious to one having ordinary skill in the art at the time the invention was made to make the extension length … and cylindrical diameter of the flutes … of any desired dimension or within a desired range, since such a modification would have involved a mere change in the size of a component" and discovering the "optimum or workable value or ranges involves only routine skill in the art" (Answer 4).

Appellants argue, with regard to claim 5, that Luker fails to suggest the "diameter of the cylindrical flutes" (Appeal Br. 16); with regard to claim 10, that "Luker fails to suggest the inward extension length claimed" (*id.*); and with regard to claim 36, that Luker fails to suggest the specific combination of convex flute geometry recited, including the flute diameter and flute inward extension length (*id.* at 17).

We agree with the Examiner that claims 5, 10 and 36 would have obvious to the ordinary artisan. As set forth above, the law recognizes that it is not inventive to discover the optimum or workable values by routine experimentation. *See, e.g.*, *In re Geisler*, 116 F.3d 1465, 1469 (Fed. Cir. 1997). Given Luker's teaching that outwardly convex cylindrical flutes provide a "light-weight thin-walled molded plastic container structure adapted for stacking without crushing the walls" (Luker, col. 1, ll. 17-19), optimizing the flute diameter and inward extension length, for a particular container size, would be routine optimization.

4. OBVIOUSNESS II

Claims 1-20, 25-47, and 51-53 stand rejected under 35 U.S.C. § 103 as obvious in view of Krupa.[2]

The Examiner finds that "Krupa teaches the claimed disposable lid except for the number and dimensions of the flutes and material used to manufacture the lid" (Answer 4). The Examiner concludes that it would have been an obvious matter of design choice to one having ordinary skill in the art at the time the invention was made (i) "to select 1.85 or fewer flutes per inch of engagement perimeter because applicant has not disclosed that

[2] Krupa, US Des. 345,912, Apr. 12, 1994

1.85 or fewer flutes per inch of engagement perimeter has criticality" (*id.* at 5) and (ii) to "modify Krupa to obtain the invention as specified in the rejected claims" and to "make the extension length, height, and cylindrical diameter of the flutes … of any desired dimension, since such a modification would have involved a mere change in the size of a component" (*id.*).

Appellants argue that Krupa has "no relevant description relating to the claimed subject matter" (*id.* at 17) and that Krupa fails to suggest the diameter and extension length of the cylindrical flutes (*id.*).

We agree with Appellants that Krupa does not support a prima facie case of obviousness. In particular, the Examiner has not adequately explained how Krupa would have suggested "flutes having a characteristic cylindrical diameter". As set forth above, we interpret this term to refer to flutes that are portions of circular cylinders. Given this interpretation, we do not agree with the Examiner's conclusion that the invention of claim 1 is disclosed or suggested by Krupa because flutes that have the geometry of a circular cylinder are not disclosed or suggested.

Krupa is a design patent showing a design for a "container for baked food products" (Krupa 1). The disclosed container has a circular sidewall made of a series of oblong tubes attached together (*id.* at Fig. 1- Fig. 5). Without more, the teaching of Krupa of a baked goods container sidewall that comprises a series of oblong tubes cannot be reasonably extrapolated to suggest the claimed invention. In particular, the design in Krupa differs substantially from the claimed invention in disclosing linked tubes rather than flutes and in showing an oblong shape versus a cylindrical shape.

Thus, we agree with Appellants that the Examiner has not adequately shown that Krupa would have suggested to one of ordinary skill in the art at the time the invention was made the claim limitation of "flutes having a characteristic cylindrical diameter".

We therefore agree with Appellants that the Examiner has not made out a prima facie case of obviousness based on Krupa.

5. OBVIOUSNESS III

Claims 1-20, 25-47, and 51-53 stand rejected under 35 U.S.C. § 103 as obvious in view of Hansen.[3]

The Examiner finds that Hansen discloses the "claimed disposable lid except for the shape, number, and dimensions of the flutes of the lid" (Answer 6). The Examiner concludes that it "would have been an obvious matter of design choice to one having ordinary skill in the art at the time the invention was made to select 1.85 or fewer flutes per inch of engagement perimeter" because the criticality of this number was not disclosed and "to modify Hansen to … make the extension length, height, and cylindrical diameter of the flutes … of any desired dimension" because a "change in size is generally recognized as being within the level of ordinary skill in the art" (*id.*).

Appellants argue that Hansen does not specify flute frequency or suggest that outwardly convex flutes are a preferred design and that Hansen "shows trapezoidal flutes" (Appeal Br. 18). Appellants further argue that Hansen "teaches away from flutes consisting essentially of outwardly convex flutes" because Hansen teaches that the cover is strengthened by a

[3] Hansen et al., US 5,287,959, Feb. 22, 1994

plurality of vertical inwardly extending ribs and a plurality of vertical outwardly extending ribs (*id.* at 18-19; citing Hansen at col. 4, ll.60-63).

We agree with Appellants that Hansen does not support a prima facie case of obviousness. In particular, the Examiner has not adequately explained how Hansen would have suggested "flutes having a characteristic cylindrical diameter". As set forth above, we interpret this term to refer to flutes that are portions of circular cylinders. Given this interpretation, we do not agree with the Examiner's conclusion that the invention of claim 1 is disclosed or suggested by Hansen because flutes that have the geometry of a circular cylinder are not disclosed or suggested.

Hansen discloses "a domed container" (Hansen 1, abstract and Fig. 1) which shows container having a generally circular sidewall with trapezoidal convex flutes (Hansen, Fig. 1). Without more, the disclosure of Hansen of a disposable foods container having a sidewall that comprises a series of trapezoidal convex flutes cannot be reasonably extrapolated to suggest the claimed invention. Although Hansen refers to flutes having a cylindrical shape (Hansen, col. 5, ll. 15-21), this reference pertains to inwardly convex flutes between the outwardly convex trapezoidal flutes, and no alternatives for the outwardly convex trapezoidal flutes are provided.

Thus, we agree with Appellants that the Examiner has not adequately shown that Hansen would have suggested to one of ordinary skill in the art at the time the invention was made the claim limitation of "flutes having a characteristic cylindrical diameter".

We therefore agree with Appellants that the Examiner has not made out a prima facie case of obviousness based on Hansen.

5. OBVIOUSNESS IV

Claims 1-53 stand rejected under 35 U.S.C. § 103 as obvious in view of McCann.[4]

The Examiner finds that McCann discloses "the claimed disposable lid except for the number and dimensions of the flutes" (Answer 7). The Examiner concludes that it "would have been an obvious matter of design choice to one having ordinary skill in the art at the time the invention was made to select 1.85 or fewer flutes per inch of engagement perimeter" because the Specification did not disclose this limitation as being critical and "to make the extension length, height, and cylindrical diameter of the flutes … of any desired dimension" because a "change in size is generally recognized as being within the level of ordinary skill in the art" (*id.*).

Appellants argue that McCann "has no relevant description relating to the claimed subject matter" (Appeal Br. 20), that McCann fails to suggest the diameter and inward extension length of the cylindrical flutes (*id.* at 21), and that the specific geometry recited in the claims is not suggested by McCann (*id.*).

We agree with Appellants that McCann does not support a prima facie case of obviousness. In particular, the Examiner has not adequately explained how McCann would have suggested "flutes having a characteristic cylindrical diameter". As set forth above, we interpret this term to refer to flutes that are portions of circular cylinders. Given this interpretation, we do not agree with the Examiner's conclusion that the invention of claim 1 is

[4] McCann, US Des. 415,024, Oct. 12, 1999

disclosed or suggested by McCann because flutes that have the geometry of a circular cylinder are not disclosed or suggested.

McCann is a design patent showing "a disposable food container" having a circular sidewall made of a series of oblong tubes attached together (McCann 1 and Fig. 1-Fig. 9). Without more, the disclosure of McCann of a disposable food container having a sidewall that comprises a series of oblong tubes cannot be reasonably extrapolated to suggest the claimed invention. In particular, the design in McCann differs substantially from the claimed invention in disclosing linked tubes rather than flutes and showing an oblong shape versus a cylindrical shape

Thus, we agree with Appellants that the Examiner has not adequately shown that McCann would have suggested to one of ordinary skill in the art at the time the invention was made the claim limitation of "flutes having a characteristic cylindrical diameter".

We therefore agree with Appellants that the Examiner has not made out a prima facie case of obviousness based on McCann.

SUMMARY

The Examiner's obviousness rejection based on Luker is supported by the preponderance of the evidence of record. We therefore affirm the rejection of claims 1-21, 25-47, and 51-53 under 35 U.S.C. § 103 over Luker. However, we reverse the following rejections: claims 1-53 under 35 U.S.C. § 112, first paragraph; claims 1-20, 25-47, and 51-53 under 35 U.S.C. § 103 over Krupa; claims 1-20, 25-47, and 51-53 under 35 U.S.C. § 103 over Hansen; and claims 1-53 under 35 U.S.C. § 103 over McCann.

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

AFFIRMED-IN-PART

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