UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BRIAN FRANCIS GRAY and KEITH JOSEPH STONE

Appeal 2007-2198
Application 10/324,181
Technology Center 1700

Decided: September 20, 2007

Before THOMAS A. WALTZ, PETER F. KRATZ, and
LINDA M. GAUDETTE, *Administrative Patent Judges*.

KRATZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal from the Examiner's final rejection of claims 1-13, the only claims that remain pending in this application. We have jurisdiction pursuant to 35 U.S.C. §§ 6 and 134.

Appellants' claimed invention is directed to a forming structure. The structure is said to be useful in making three-dimensional, polymeric webs having apertures. Claim 1 is illustrative and is reproduced below:

1. A forming structure for use in making macroscopically expanded, three-dimensional, apertured polymeric webs; said forming structure comprising:

   a. a plurality of forming structure interconnecting members that define a plurality of forming structure apertures, said forming structure apertures permitting fluid communication between opposing first and second surfaces of said forming structures;

   b. a plurality of protrusions extending from said first surface of said forming structure; and

   c. said protrusions being generally columnar forms having an average aspect ratio of at least about 1.

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

Trokhan	US 4,528,239	Jul. 9, 1985
Curro	US 4,695,422	Sep. 22, 1987
Turi	US 5,567,376	Oct. 22, 1996
Ahr	WO 97/00656	Jan. 9, 1997
Shimalla	US 6,312,640 B1	Nov. 6, 2001

Claims 1 and 5-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Curro taken with Ahr, Shimalla, and Turi. Claims 2-4 and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Curro taken with Ahr, Shimalla, Turi, and Trokhan. Claims 1-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Turi in view of Shimalla.

Under 35 U.S.C. § 103, the factual inquiry into obviousness requires a determination of: (1) the scope and content of the prior art; (2) the

differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) secondary considerations. *See Graham v. John Deere of Kansas City,* 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966). The analysis supporting obviousness should be made explicit and should "identify a reason that would have prompted a person of ordinary skill in the art to combine the elements" in the manner claimed. *KSR Int'l Co. v. Teleflex, Inc.,* 127 S. Ct. 1727, 1739, 82 USPQ2d 1385, 1396 (2007).

Appellants argue the rejected claims for each of the stated rejections as a group. Accordingly, we select claim 1 as the representative claim on which we decide this appeal as to the Examiner's first and third stated rejections, and we select claim 2 as the representative claim for the Examiner's second stated rejection.

§ 103(a) Rejection Over Curro, Ahr, Shimalla, and Turi

The Examiner has taken the position that Curro discloses a forming structure corresponding to the representative claim 1 structure including rounded aberrations (protrusions) extending from a first surface of the forming structure with the exception of an explicit description of an aspect ratio defining a columnar shape for the raised protrusions as here claimed (Answer 4 and 5; Curro, figs. 10 and 11; col. 15, l. 1 – col. 16, l. 68; Abstract). The forming structure with raised aberrations can be used to form films having a surface roughness corresponding to an aberration – bearing surface of the forming structure on a film surface (Curro, col. 16, ll. 32-52).

The Examiner has found that Ahr discloses that tactile impressions or projections on a web surface are desirable in a variety of shapes, including columnar hair-like shapes wherein the projections have relatively high

aspect ratios (Answer 4 and 5; Ahr 7:25 – 8:18). Also, the Examiner has determined that Turi discloses projections on a forming surface for forming a product having ridges and valleys (Answer 5; Turi, col. 5, ll. 40-58; example 1). In addition, the Examiner has found that a forming structure of Shimalla can be used to form a product of Turi using water pressure and that Shimalla discloses that such a forming member can have a projection having an aspect ratio greater than 1 (Answer 5; Shimalla, col. 7, l. 52 – col. 10, l. 36; figs. 1-6).

Based on these teachings, the Examiner has taken the position that it would have been obvious to one of ordinary skill in the art to modify the height of the aberrations on the top surface of forming member of Curro to have an aspect ratio greater than 1 and a columnar shape so as to make a product sheet with corresponding roughness features on a surface to allow for better separation of such a sheet product from skin contact with a user and for an improved feel of the sheet given the combined teachings of the applied references (Answer 4-6).

Appellants do not argue that Curro does not describe a forming structure having structure corresponding to elements (a) and (b) of representative claim 1.[1] Also, "Appellants agree that Curro teaches 'raised projections' that are similar in structure to the claimed protrusions, but lack the claimed columnar form and aspect ratio" (Br. 6). Furthermore, "Appellants agree that Ahr teaches high aspect ratio projections on a film surface" (*id.*). However, Appellants contend that the combined teachings of

[1] Arguments not made in the Briefs are considered to be waived. *See* 37 C.F.R. § 41.37(c)(vii) (2006).

the applied prior art do not suggest modifying the raised projections of Curro to a high aspect ratio columnar projection (*id.*).

Hence, the principal issue before us with respect to the Examiner's first stated rejection is: Have Appellants identified reversible error in the Examiner's obviousness rejection by their assertion of a lack of suggestion for one of ordinary skill in the art to undertake a modification of Curro's forming structure (aberrations) protrusions based on the combined teachings of the applied references? We answer this question in the negative, and we affirm the Examiner's first stated rejection for the reasons set forth above and in the Answer and as further explained below.

As Appellants have acknowledged, Ahr discloses the formation of high aspect ratio projections on a film surface. Moreover, as the Examiner has pointed out (Answer 4 and 5), Ahr teaches or suggests that such high aspect ratio projections on a film surface used as a skin contact layer in an absorbent article are particularly advantageous in enhancing the dryness of the film layer containing such projections and are a comfort feature for the user (Ahr, Abstract, p. 7, l. 25 *et seq*.).

The thrust of Appellants' argument with the Examiner's obviousness position rests on the assertion that because Ahr did not use a forming structure for forming the high aspect ratio film surface projections, it would not have been obvious to one of ordinary skill in the art to recognize that such high aspect ratio film surface projections could also have been made by using a forming structure as taught by Curro for making film surface projections by modifying the projection forming portion of Curro's forming structure so that high aspect ratio film surface projections would result. We are not persuaded by this argument for substantially the reasons stated by the

Examiner (Answer 8-10). As evidenced by the Examiner's presentation, we have no doubt that one of ordinary skill in the art would have been led to the proposed modification of the projection forming device of Curro based on the combined teachings of the references. This modification represents an obviously available technique for forming the desired high aspect ratio film surface projections as an alternative to the spraying or printing methods described by Ahr.

Just as unexpected results are evidence of unobviousness, expected beneficial results are evidence of obviousness. *In re Skoner*, 517 F.2d 947, 950, 186 USPQ 80, 82 (CCPA 1975); *In re Skoll*, 523 F.2d 1392, 1396, 187 USPQ 481, 484 (CCPA 1975). Moreover, obviousness is determined, not on whether one reference suggests combining its teachings with another reference, but on what the combined teachings of the references would have fairly suggested to one of ordinary skill in the art. *See In re Napier*, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995). In our opinion, a person of ordinary skill in the art, based on the combined teachings of the references, would reasonably have expected that raising the height of the surface aberrations (156, fig. 10) of the film projection forming structure of Curro to furnish a higher aspect ratio columnar aberration, as claimed, would have resulted in the predictable formation of the desired high aspect ratio projections on a film formed therewith.

On this record, it follows that we shall sustain the Examiner's obviousness rejection of claims 1 and 5-12 over Curro taken with Ahr, Shimalla, and Turi.

§ 103(a) Rejection Over Curro, Ahr, Shimalla, and Turi and Trokhan

Representative rejected claim 2 additionally requires that the forming structure includes a polymeric material.

We are in complete agreement with the Examiner that the selection of a polymeric material as a material of construction used in the forming structure of Curro would have been a matter within the ordinary skill of the art given that such materials are well-known as being available for constructing a component of a web forming device as evidenced by Trokhan (Answer 6 and 7; Trokhan, Abstract). Moreover, we note that Turi discloses that a backing member of a film forming device can be made from a specified acetal copolymer resin as an alternative to a metal, such as aluminum (Turi, col. 9, l. 66 – col. 10, l. 3). Also, Shimalla teaches that acetyl or other polymers can be used in making a forming apparatus sleeve (Shimalla, col. 9, ll. 26-28). Weighed against these factual determinations, Appellants' contention that it would not have been obvious to one of ordinary skill in the art to employ polymer material as a construction material for the forming apparatus of Curro is not persuasive. In this regard, we note that representative claim 2 does not require that all parts of the forming structure are made solely using a polymer; but, only that a polymer is used somewhere in the forming structure.

It follows that we shall affirm the Examiner's § 103(a) rejection of claims 2-4 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Curro taken with Ahr, Shimalla, Turi, and Trokhan.

§ 103(a) Rejection over Turi and Shimalla

Appellants do not dispute that Turi teaches or suggests a forming apparatus including a forming surface with projections corresponding to the representative appealed claim 1 apparatus but for the argued high aspect ratio of one or greater and a columnar form of the claimed forming apparatus projections (Answer 7). In this regard, the Examiner notes that Turi discloses a pyramidal shaped forming apparatus projection without specifying any height limitation of the projection (Answer 11; Turi, figs. 23 and 24, element 121 and example 3). Based on the above and a disclosed ridge shaped projection height disclosed by Shimalla, the Examiner maintains that it would have been prima facie obvious to one of ordinary skill in the art to have constructed the forming apparatus projections of Turi in a high aspect ratio columnar (needle) form, a projection form within the required aspect ratio and shape required by representative claim 1. We agree.

Appellants note that the ridge form of projection of Shimalla is not the same as the projections of the forming apparatus (figs. 23 and 24) of Turi and that Turi's pyramid shape projections are not of a generally columnar form as required for the projections of representative claim 1 (Br. 11 and 12). Because of these two argued distinctions, Appellants maintain that the rejection lacks the requisite showing of a suggestion and/or or a reasonable expectation of success for the proposed modification of the projections of Turi (Br. 11-13).

We are not persuaded of any reversible error in the Examiner's rejection by this argument. In this regard, it is not necessary that suggestion or motivation be found within the four corners of the references themselves;

a conclusion of obviousness may be made from common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion in a particular reference. *See In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969). Further, in an obviousness assessment, skill is presumed on the part of the artisan, rather than the lack thereof. *In re Sovish*, 769 F.2d 738, 742, 226 USPQ 771, 774 (Fed. Cir. 1985). Also, we are bound to consider the disclosure of each reference for what it fairly teaches one of ordinary skill in the art, including not only the specific teachings, but also the inferences which one of ordinary skill in the art would reasonably have been expected to draw therefrom. *See In re Boe*, 355 F.2d 961, 965, 148 USPQ 507, 510 (CCPA 1966); and *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

Giving representative claim 1 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 a generally columnar shape as required by representative claim 1 is inclusive of a variety of geometrically designed columnar forms, including pyramidal columnar forms as taught or suggested by Turi.

Based on the above, we understand the Examiner's position to be that it would have been within the province of one of ordinary skill in the art to determine a workable height and base ratio for the projections of the forming apparatus of Turi based on consideration of other known forming projection heights, such as the ridge height of Shimalla while taking into account the differences in their respective shapes and the desired film surface to be obtained in the use of such a forming device. In so doing, and based on routine experimentation, one of ordinary skill in the art would have been

reasonably expected to arrive at a workable protrusion height for the pyramidal column of Turi with an aspect ratio, as here claimed.

We note that Appellants have not furnished evidence to establish criticality for the claimed aspect ratio range or otherwise argued, much less substantiated with persuasive evidence, that the claimed forming apparatus is attended by unexpected results.

For the reasons stated above, we shall affirm the Examiner's § 103(a) rejection of claims 1-13 over Turi in view of Shimalla.

CONCLUSION

The decision of the Examiner to reject claims 1 and 5-12 under 35 U.S.C. § 103(a) as being unpatentable over Curro taken with Ahr, Shimalla, and Turi; to reject claims 2-4 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Curro taken with Ahr, Shimalla, Turi, and Trokhan; and to reject claims 1-13 under 35 U.S.C. § 103(a) as being unpatentable over Turi in view of Shimalla is affirmed.

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

AFFIRMED

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THE PROCTER & GAMBLE COMPANY
INTELLECTUAL PROPERTY DIVISION - WEST BLDG.
WINTON HILL BUSINESS CENTER - BOX 412
6250 CENTER HILL AVENUE
CINCINNATI, OH 45224