

The opinion in support of the decision being entered today
is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte PIERRE GRAFF

Appeal 2007-2206
Application 10/181,977
Technology Center 1700

Decided: July 24, 2007

Before TONI R. SCHEINER, ERIC GRIMES, and LORA M. GREEN,
Administrative Patent Judges.

GRIMES, *Administrative Patent Judge.*

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to an embossed sheet of tissue paper. The Examiner has rejected the claims as anticipated and obvious. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

BACKGROUND

In the manufacture of toilet paper or paper towels, “it is known to produce paper sheets consisting of several plies of absorbent paper, for

example made of crêped cellulose wadding, also called tissue paper, with a grammage of between 12 and 30 g/m², endowed with protuberances which are obtained by embossing” (Specification 1). Embossing the paper is desirable because it “gives fullness to the sheet and it leads to improved liquid absorption, touch and softness” (*id.*).

The Specification discloses “an improved design of an embossed sheet comprising at least one ply with a background pattern having microprotuberances and especially, but not only, making it possible to combine it with a pattern having macroprotuberances” (*id.* at 4). The Specification discloses that using microprotuberances as the background pattern “improve[s] the final appearance of the sheet by better highlighting the pattern having macroprotuberances . . .” (*id.*).

DISCUSSION

1. CLAIMS

Claims 1, 3-10, 23, and 24 are on appeal. Claims 12-22 are also pending but have been withdrawn from consideration by the Examiner. Claim 1 is representative and reads as follows:

1. An embossed sheet comprising at least one ply of creped cellulose wadding with a basis weight of between 12 and 30 g/m² having an embossed pattern comprising at least a first series of protuberances formed so as to project from one face of the ply and the density of which is greater than 20 protuberances per cm², characterized in that each protuberance of the first series comprises a truncated polyhedron-shaped base and a flattened free-end portion with rounded edges.

Thus, claim 1 is directed to a sheet that has an embossed pattern comprising more than twenty protuberances per square centimeter. Each

protuberance has a “truncated polyhedron-shaped base and a flattened free-end portion having rounded edges.”

2. PRIOR ART

The Examiner relies on the following references:

Roussel	WO 99/36253 A1 (as translated) ¹	Jul. 22, 1999
Laurent	US 6,106,928	Aug. 22, 2000

3. ANTICIPATION

Claims 1, 8, and 10 stand rejected under 35 U.S.C. § 102(b) as anticipated by Roussel (Answer 3-4).²

The Examiner cites Roussel as disclosing a two ply embossed sheet of paper made from cellulose wadding having a grammage of between 10 and 40 g/m², “which reads on Appellant’s claimed range [of] 12-30 g/m²” (*id.* at 3). The Examiner states that, because it has a series of protuberances that form a background pattern with a density of embossments being greater than 30 per cm², Roussel’s sheet meets Appellant’s density of greater than 20 protuberances per cm² (*id.*). The Examiner states that “[e]ach protuberance comprises a truncated cone or polyhedron . . . with a flattened free-end portion with rounded edges (figure 2)” (*id.* at 3-4).

“It is well settled that a claim is anticipated if each and every limitation is found either expressly or inherently in a single prior art reference.” *Celeritas Techs. Ltd. v. Rockwell Int’l Corp.*, 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522 (Fed. Cir. 1998). Anticipation has been found even when a prior art range “does not exactly correspond to [the] claimed

¹ Translation entered October 29, 2004.

² Examiner’s Answer mailed August 17, 2006.

range,” but the prior art “range entirely encompasses, and does not significantly deviate from, [the] claimed ranges.” *See Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1368, 1377, 77 USPQ2d 1321, 1327 (Fed. Cir. 2005) (court found that a claimed range of 0.025 to 5% did not significantly deviate from a prior art range of 0.01 to 20%).

Roussel discloses “a sheet of absorbent paper made of cellulose wadding whose weight ranges from 10 and 40 g/m²” (Roussel 6). Roussel therefore meets the limitation in claim 1 requiring the sheet to have a weight between 12 and 30 g/m². Roussel also discloses that the sheet has a “first embossed zone [that] forms a background weave motif whose number of embossments . . . is greater than 30 per cm²” (*id.*). Roussel therefore meets the limitation in claim 1 requiring the sheet to have a series of protuberances with a density greater than 20 protuberances per cm².

Roussel discloses that the background embossments “have the shape of a truncated cone” (Roussel, abstract; *see also* Figure 2). Roussel also discloses that those embossments “have a generally tapered shape but may also have a tapered shape at the base and a cylindrical shape towards the top. The cross section may be circular, oval, polygonal, or another shape” (Roussel 18). Based on these teachings we agree with the Examiner that Roussel meets the limitation requiring the protuberances to have a “truncated polyhedron-shaped base and a flattened free-end portion.”

Roussel states that “[F]igures 8a and 8b show two photos of cross sections of samples made according to the invention” (Roussel 11). The photos show that the background embossments have rounded edges, as required by claim 1 (Roussel, Figures 8a and 8b). Because Roussel

discloses an embossed sheet that meets all of the limitations of claim 1, we agree that Roussel anticipates claim 1.

Appellant argues³ that Roussel's Figure 2 does not disclose "a first series of protuberances, each having a flattened free-end portion with rounded edges, with sufficient clarity and detail to establish that the subject matter existed in the cited reference" (Br. 11; *see also* Reply Br. 4). Appellant argues that Figures 6 and 7 show that "the protrusions on the embossing roll have sharp edges, which the specification describes as to concentrate stress and sharply mark the sheet in order to provide greater contrast between the embossed and unembossed zones" (Br. 11; *see also* Reply Br. 5-6). Appellant argues that the neither of the frustoconical "salients" (embossments) 110L and 210S shown in Figure 8b have rounded edges, nor do the crater-shaped recesses have flattened free end portions (Reply Br. 6). Therefore, Appellant argues, "[t]he combination of graphical and textual disclosure makes it abundantly clear that every salient in the sheet of Roussel et al. (as shown in Figures 2, 4, 8a and 8b) are not necessarily intended to have rounded edges" (Br. 11). Appellant concludes that because claim 1 requires "'each' protuberance in a first series [to] have rounded edges, Roussel et al. cannot serve to anticipate" (*id.*).

We are not persuaded by this argument. In our view, protuberances 110L and 210S in Figure 8b of Roussel have flattened ends with rounded edges rather than sharply creased edges. While the steel cylinder A' in

³ Rather than citing to the Roussel translation of record, Appellant cites column and line numbers from U.S. Patent No. 6,524,683, the issued U.S. national stage of the Roussel PCT application. (*See, e.g.*, Br. 10-12; Reply Br. 3-6.)

Roussel's Figure 7 appears to have sharply creased edges which are impinged upon by the cellulose wadding and rubber cylinder C', Roussel discloses that "the cellulose wadding, since it has been creped, has a certain level of elastic recovery after the constraint exerted by the rubber cylinder is removed" (Roussel 19). Thus, despite the apparently sharp edges of the embossing surface of the steel cylinder, we agree with the Examiner that it is reasonable to conclude that all of Roussel's background embossments have the rounded edges shown in Roussel's Figure 8b, because of the elasticity in the cellulose wadding.

Appellant argues that it is improper to rely on "numerical measurement of unscaled drawings" and that Figures 2 and 4 are too ambiguous to be considered anticipatory disclosures (Br. 12-13; *see also* Reply Br. 7-8). Rather, Appellant argues, Figures 6 and 7 and the underlying discussion in Roussel provide a clear disclosure "that, when Roussel et al. meant to indicate the impact of the particular shape or configuration of particular elements in the drawings, it did so with express recitation in the specification to avoid ambiguity" (Br. 13).

We are not persuaded by this argument. We agree that "it is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue." *Hockerson-Halberstadt, Inc. v. Avia Group Int'l*, 222 F.3d 951, 956, 55 USPQ2d 1487, 1491 (Fed. Cir. 2000).

However, rather than being mere drawings, Roussel's Figures 8a and 8b are "two photos of cross sections of samples made according to the

invention” (Roussel 11). These photographs unambiguously show that the protuberances made by the disclosed methods have rounded edges.

Moreover, as discussed above, Roussel discloses that the “the cellulose wadding, since it has been creped, has a certain level of elastic recovery after the constraint exerted by the rubber cylinder is removed” (Roussel 19).

From these disclosures, we agree with the Examiner that it was reasonable to conclude that all of the protuberances of Roussel’s sheet had rounded edges, as recited in claim 1.

“[W]hen the PTO shows sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). In the instant case, we do not see, and Appellant does not point to, any evidence that undermines the soundness of the Examiner’s conclusion of anticipation. We therefore affirm the Examiner’s rejection of claim 1. Because claims 8 and 10 were not argued separately, they fall with claim 1. 37 C.F.R. § 41.37(c)(1)(vii).

4. OBVIOUSNESS

Claims 3-7, 9, 23, and 24 stand rejected under 35 U.S.C. § 103 as obvious over Roussel and Laurent (Answer 4-6). Appellant argues the claims in four groups (Br. 15-18). We will consider claims 3, 5, 7, and 9 to be representative. Claims 4, 6, 23, and 24 will fall with the claim with which they were grouped. 37 C.F.R. § 41.37(c)(1)(vii).

Claim 3 is directed to the sheet of claim 1, where the base of each protruberance is a truncated pyramid. Claim 5 further limits claim 3 by requiring that each side of the pyramid “forms an angle, with respect to the

height of the truncated pyramid, which is between 30° and 45°.” Claim 7 depends on claim 1 and requires that the protruberances be 0.05 to 0.5 mm in height. Claim 9 also depends from claim 1 and requires that the series of protruberances recited in claim 1 form a background pattern, and be combined with a second, taller series of protruberances “in order to constitute a main pattern.”

The Examiner concedes that Roussel “fails to disclose the height of the protuberances, the base as a truncated pyramid or a second series of protuberances” (*id.* at 4). To meet these limitations, the Examiner cites Laurent as disclosing an embossed absorbent paper having two series of protrusions, with the first series of protrusions being higher than the second series of protrusions, “the second protrusions forming a background for the first protrusions (figure 5). The first protrusions correspond to Appellant’s ‘second series of protuberances’ and the second protrusions correspond to Appellant’s ‘first series of protuberances’” (*id.*). The Examiner states that “[t]he second protrusions have frusta, i.e. truncated cone or pyramid shape, with a height of less than 0.5 mm” (*id.*).

The Examiner concludes that one of ordinary skill would have considered it obvious “to use Laurent’s frusta pyramid projections with heights of less than 0.5 mm as the truncated polygon protuberances of Roussel in order to change the aesthetic look of the absorbent article” (*id.* at 5). The Examiner states that the artisan of ordinary skill “would have been motivated to use Laurent’s frusta pyramid because of the visual attractiveness of the projections (see col. 2, line 7 of Laurent),” and to add Laurent’s series of higher “first projections” to Roussel’s sheets in order to

enhance the “visual attractiveness” of the sheet (*id.*). The Examiner also concludes that the artisan of ordinary skill “would have been motivated to change the angle and baseplate shape of the truncated pyramid in order to changes the visual attractiveness of the projections/protuberances” (*id.*).

We agree with the Examiner that Roussel and Laurent render the rejected claims obvious. Laurent discloses a sheet of creped paper having “first and second protrusions respectively arrayed in a first and second pattern. The first pattern is composed of pattern elements comparatively well spaced apart . . . being constituted of . . . the first protrusions. The second pattern, called the background pattern, compris[es] the second protrusions arrayed more tightly between the pattern elements . . .” (Laurent, col. 3, ll. 27-33).

Laurent discloses that the “second protrusions evince . . . the shapes of frusta of cone or pyramid of a height less than 0.5 mm, and preferably less than 0.1 mm. . . . [T]he height difference between the [second] protrusions . . . and the first protrusions shall be 0.3 mm” (*id.* at col. 6, ll. 19-26). Laurent discloses that “the embossing structure of the invention imparts an eye-pleasing textile look because of the high density of the protrusions in the background pattern” (*id.* at col. 3, ll. 54-56).

Thus, Laurent discloses that protuberances having a truncated pyramid shape (claim 3) and a height between 0.05 and 0.5 mm (claim 7) were suitable for imparting a visually pleasing look to embossed tissue paper. Laurent also discloses that an arrangement of two series of protuberances, with the background series being shorter (claim 9) gives an attractive look to the tissue paper. We therefore agree with the Examiner

that one of ordinary skill would have considered it obvious to apply these elements to Roussel's sheet of tissue paper, to enhance its attractiveness.

As to claim 5, the angles of the sides of the protuberances shown in Roussel's photographs (Figures 8a and 8b) appear to be within the range of 30° to 45°. (And, even if they are not, it was within the skill of the art to vary the angle of protruberances in embossed sheets by varying the shape of the teeth shown in, e.g., Roussel's Figure 7.) We therefore agree with the Examiner that a sheet meeting the limitations of claim 5 would have been obvious to a person of ordinary skill in the art.

Appellant argues that Roussel and Laurent do not render claim 3 obvious because "neither reference discloses a sheet with protuberances having a base as a truncated pyramid wherein each protuberance of a first series has a flattened free-end portion with rounded edges, as recited in independent claim 1" (Br. 15).

We are not persuaded by this argument. As discussed above, Roussel's photographs unambiguously show protuberances having rounded edges, resulting from the disclosed elastic recovery of the cellulose wadding (*see* Roussel 19). As also discussed above, Laurent discloses the suitability of using the truncated pyramid shape recited in claim 3 as the shape of the background protuberances in a visually attractive sheet of tissue paper. We therefore affirm the Examiner's obviousness rejection of claim 3.

Appellant argues that Roussel and Laurent do not render claim 5 obvious because "[n]one of the references applied by the Examiner teach or suggest such angled side faces" (Br. 16). Appellant argues that the claimed range of angled side faces is more than a mere change in size, shape, or

proportion because Roussel and Laurent do not disclose “any particular angled side faces at all or even a sheet with protuberances that each have flattened free-end portions with rounded edges” (*id.*). Therefore, Appellant argues, “the proposed modification goes beyond a mere change in size or shape and must be the product of improper hindsight in order to support the rejection” (*id.*).

We are not persuaded by this argument. Recently addressing the issue of obviousness, Supreme Court stated that “[a] person of ordinary skill is . . . a person of ordinary creativity, not an automaton.” *KSR Int’l v. Teleflex Inc.*, 127 S. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007). Thus, the analysis under 35 U.S.C. § 103 “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.” *Id.* at 1741, 82 USPQ2d at 1396. Regarding hindsight reasoning, the Court noted that “[a] factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning. Rigid preventative rules that deny factfinders recourse to common sense, however, are neither necessary under our case law nor consistent with it.” *Id.* at 1742, 82 USPQ2d at 1397 (citations omitted).

As discussed above, Figures 8a and 8b of Roussel are photographs of cross sections protuberances prepared according to Roussel’s disclosure (Roussel 11). The angles of the protuberance faces in the photograph appear to be the same as, or very similar to, the angles recited in claim 5. Given the angles in the Roussel’s photographs, we agree with the Examiner that, being

a person of ordinary creativity, one of ordinary skill preparing an embossed sheet with truncated pyramid-shaped protrusions would have considered the angles recited in claim 5 obvious. We therefore affirm the rejection of claim 5.

Appellant argues that Roussel and Laurent do not render claim 7 obvious because “neither reference teaches or suggests a sheet with protuberances having a total height of between 0.05 mm and 0.5 mm wherein each protuberance has a flattened free-end portion with rounded edges” (Br. 17).

We do not find this argument persuasive. Laurent discloses that a visually attractive tissue paper sheet should contain a series of tightly packed background protrusions that “evince . . . the shapes of frusta of cone or pyramid of a height less than 0.5 mm, and preferably less than 0.1 mm . . .” (Laurent, col. 6, ll. 19-21). Thus, we agree with the Examiner that one of ordinary skill would have recognized the desirability of using that shape and size of protrusion as the background embossment in Roussel’s sheet. We therefore affirm the Examiner’s rejection of claim 7.

Appellant argues that Roussel and Laurent do not render claim 9 obvious because Roussel emphasizes a graphic pattern using a single embossed zone and an unembossed zone, whereas Laurent uses two embossed zones (Br. 17). Thus, Appellant argues, Roussel “actually teaches away from using two embossed zones” (*id.* at 18). Appellant argues that “modifying the sheet of Roussel et al. to include two embossed zones, such as may be described in Laurent et al., may de-emphasize the graphics

pattern, rendering the sheet unsatisfactory for its intended purpose and leading the skilled artisan away from the change” (*id.*).

We do not find this argument persuasive. “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *In re Kahn*, 441 F. 3d 977, 990, 78 USPQ2d 1329, 1338 (Fed. Cir. 2006) (quoting *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994)). However, it is well settled that “[n]on-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references. . . . [The reference] must be read, not in isolation, but for what it fairly teaches in combination with the prior art as a whole.” *In re Merck & Co.*, 800 F.2d 1091, 1097, 231 USPQ 375, 380 (Fed. Cir. 1986).

Laurent discloses that, “[b]y arraying the second [(shorter)] protrusions to create protrusion-free zones . . . between the pattern elements and the background pattern, *the contrast is raised and the visual appearance improved*” (Laurent, col. 6, ll. 38-42). Thus, Laurent teaches that unembossed zones, such as disclosed by Roussel, raise the contrast and improve the visual appearance of sheets having two embossment patterns. We therefore do not agree that Roussel teaches away from a tissue paper sheet having two series of protrusions with different heights, when Roussel is read in light of Laurent’s teachings. We affirm the Examiner’s rejection of claim 9.

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SUMMARY

We affirm the Examiner's rejection of claims 1, 8, and 10 as being anticipated by Roussel. We also affirm the Examiner's obviousness rejection of claims 3-7, 9, 23, and 24.

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

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