

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SUNNY E.L. HUANG

Appeal 2008-1796
Application 10/876,186
Technology Center 3600

Decided: August 26, 2008

Before JENNIFER D. BAHR, LINDA E. HORNER, and
JOSPEH A. FISCHETTI, *Administrative Patent Judges*.

HORNER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Sunny E.L. Huang (Appellant) seeks our review under 35 U.S.C. § 134 of the final rejection of claims 1-10. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

SUMMARY OF DECISION

We AFFIRM.

THE INVENTION

The Appellant's claimed invention is directed to collapsible shades designed to fit in an automobile window to prevent entrance of sun rays and the generation of heat in the interior of the automobile (Spec. 2). Claim 1, reproduced below, is representative of the subject matter on appeal (some paragraphing added).

1. A sunscreen for use in conjunction with an automobile window and
which is formed having front and back layers, and
an intermediate layer therebetween,
at least the front layer having reflective properties to reflect sunlight from the automobile to reduce the generation of heat within the automobile interior,
said intermediate layer formed from an insulating material, and arranged lamina-ly with the front and back layers of the formed sunscreen,
a series of fold lines formed within the sunscreen upon both of said front and said back layers to facilitate its folding into a reduced size,
said fold lines being formed by ultrasonic welding.

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THE REJECTIONS

The Examiner relies upon the following as evidence of unpatentability:

Rauenbusch	US 5,915,445	Jun. 29, 1999
Humphries	US 6,092,584	Jul. 25, 2000

The Appellant seeks our review of the Examiner's rejection of claims 1-10 under 35 U.S.C. § 103(a) as being unpatentable over Humphries and Rauenbusch.

ISSUES

The issue before us is whether the Appellant has shown that the Examiner erred in rejecting claims 1-10 under 35 U.S.C. § 103(a) as being unpatentable over Humphries and Rauenbusch. This issue turns, in part, on whether the claimed subject matter would have been obvious to one having ordinary skill in the art in view of the sun shade construction of Humphries and the welding technique disclosed in Rauenbusch.

FINDINGS OF FACT

We find that the following enumerated findings are supported by at least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d 1422, 1427 (Fed. Cir. 1988) (explaining the general evidentiary standard for proceedings before the Office).

1. Humphries discloses a foldable sunshield for automobile and vehicle windows (Humphries, col. 1, ll. 4-5 and 51-52).

2. In one embodiment of Humphries, the sunshield material 11 includes a foam core material layer 29 arranged laminarily with front and back layers 28 and 29 (Humphries, col. 6, ll. 56-60; Fig. 7).
3. Humphries discloses that the front layer film 28 may be a Mylar film, a polyester, an acrylic, a polyvinylchloride, a polyethylene, or other suitable exterior film coating and have a reflective coating on the inside surface 28A or the outside surface 28B of the film 28 (Humphries, col. 6, l. 60 – col. 7, ll. 2).
4. The sunshield of Humphries also includes a series of creases which allow the sunshield to be easily folded and put away and, later, unfolded and thus used many times (Humphries, col. 1, ll. 48-50).
5. Humphries discloses that a folded sunshield can be made with folds on each side of the folded sunshield resulting from a wide crease 65 followed by two v-shaped creases 66 and 67 on alternate sides of the sunshield material, followed by one wide crease 68 on the same side as crease 67 (Humphries, col. 8, ll. 25-39; Figs. 13 and 13A).
6. Humphries discloses the creases being formed by heated rollers or dies (Humphries, col. 6, ll. 42-50) and does not disclose the creases being formed by ultrasonic welding.
7. Rauenbusch describes a layered panel having a foam core member 13 and outer face plastic layers 11 and 12 (Rauenbusch, col. 2, ll. 30-53, Fig. 1).

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8. Rauenbusch discloses that depressions can be formed in the panels such that both outer face layers are connected to one another through welding to create jointless surfaces (Rauenbusch, col. 2, ll. 54-65).

PRINCIPLES OF LAW

“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 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) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 127 S. Ct. at 1734 (“While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.”)

In *KSR*, the Supreme Court emphasized “the need for caution in granting a patent based on the combination of elements found in the prior art,” *id.* at 1739, and discussed circumstances in which a patent might be determined to be obvious. In particular, the Supreme Court emphasized that “the principles laid down in *Graham* reaffirmed the ‘functional approach’ of

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Hotchkiss, 11 How. 248.” *KSR*, 127 S. Ct. at 1739 (citing *Graham*, 383 U.S. at 12), and reaffirmed principles based on its precedent that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Id.* The Court explained:

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

Id. at 1740. The operative question in this “functional approach” is thus “whether the improvement is more than the predictable use of prior art elements according to their established functions.” *Id.*

The Supreme Court stated that there are “[t]hree cases decided after *Graham* [that] illustrate the application of this doctrine.” *Id.* at 1739. “In *United States v. Adams*, ... [t]he Court recognized that when a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.” *Id.* at 1739-40. “*Sakraida and Anderson’s-Black Rock* are illustrative – a court must ask whether the

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improvement is more than the predictable use of prior art elements according to their established function.” *Id.* at 1740.

The Supreme Court stated that “[f]ollowing these principles may be more difficult in other cases than it is here because the claimed subject matter may involve more than the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement.” *Id.* The Court explained:

Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.

Id. at 1740-41. The Court noted that “[t]o facilitate review, this analysis should be made explicit.” *Id.* (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”). However, “the analysis 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.*

“A product-by-process claim is ‘one in which the product is defined at least in part in terms of the method or process by which it is made.’”

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SmithKline Beecham Corp. v. Apotex Corp., 439 F.3d 1312, 1315 (Fed. Cir. 2006) (quoting *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 158 (1989)). “The purpose of product-by-process claims is to allow inventors to claim ‘an otherwise patentable product that resists definition by other than the process by which it is made.’” *SmithKline*, 439 F.3d at 1315 (quoting *In re Thorpe*, 777 F.2d 695, 697 (Fed. Cir. 1985)). Such claims are still directed to the ultimate product, not the underlying process. *See id.* at 1317 (“Regardless of how broadly or narrowly one construes a product-by-process claim, it is clear that such claims are always to a product, not a process.”). “Once a product is fully disclosed in the art, future claims to that same product are precluded, even if that product is claimed as made by a new process” *SmithKline*, 439 F.3d at 1315. Thus, “[i]f the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.3d at 697. In other words, “[t]he patentability of a product does not depend on its method of production.” *SmithKline*, 439 F.3d at 1317.

ANALYSIS

The Examiner found that Humphries discloses a sunscreen panel construction as claimed having front and back layers and an intermediate layer (Ans. 3). We agree with the Examiner’s findings (Facts 1-5). The Examiner further found that while Humphries does not set forth the use of ultrasonic welding for forming fold lines, Rauenbusch discloses a panel

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construction which uses welding to form fold lines between layers, and to incorporate such a well known technique as ultrasonic welding, as exemplified by Rauenbusch, into the construction of the sunscreen of Humphries would have been obvious to one of ordinary skill (Ans. 3). The Examiner further noted that claim 1 has been drafted as a product-by-process claim in that the last limitation of the claim recites the method by which the fold lines are formed (Ans. 5).

The Appellant argues that the Examiner erred in rejecting claim 1 because the creases in Humphries are either all on one side of the sunshield or, in those situations where the creases are provided on both sides, the same creases extend all the way to the opposite side (Br. 8). The Appellant concludes that Humphries does not disclose fold lines formed within the sunscreen on both of the front and back layers, as in claim 1 (Br. 8). We are not persuaded of error in the rejection, because this argument is not commensurate in scope with claim 1. Claim 1 requires only that fold lines are formed within the sunscreen on both of the layers. It does not require that the same fold line be formed in both layers. Humphries discloses multiple fold lines or creases, some of which are formed within the screen on the front layer and others of which are formed within the screen on the back layer (Fact 5). Thus, the sunscreen of Humphries contains fold lines formed on both of the front and back layers, as claimed.

The Appellant further notes that the claimed screen can fold with either side facing out and the welds must withstand folding of the sections to at least a 360° exterior angle (Br. 10). The Appellant argues that even if

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Humphries were modified by the teaching of Rauenbusch, the combination suggests folding in one direction and in a 90° angle, but not a complete folding in both directions, along the front or back layers (Br. 10). These arguments are not commensurate in scope with claim 1. Claim 1 does not require that the screen can fold with either side facing out¹, nor does it require that the welds must withstand folding of the sections to at least a 360° exterior angle. Rather, claim 1 merely requires that the series of fold lines formed within the sunscreen upon both of the front and back layers facilitate its folding into a reduced size. Such fold lines or creases are disclosed in Humphries (Facts 4 & 5).

The Appellant further notes that the claimed screen is specifically welded by ultrasound, with little or no heat buildup (Br. 10). This claim limitation fails, however, to distinguish the claimed product from the sunscreen of Humphries, because even though Humphries does not disclose forming the creases by ultrasonic welding (Fact 6), it discloses a sunscreen having the structural features as recited in claim 1 (Facts 1-5). *In re Thorpe*, 777 F.3d at 697 (“If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.”).

Even if one were to find that the ultrasonic welding limitation were a patentable distinction, the Examiner still set forth a prima facie case of obviousness based on the combination of Humphries and Rauenbusch. The

¹ The Appellant makes a similar argument with regard to claim 9, which is addressed *infra*.

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Appellant argues that Rauenbusch is directed to an overhead gate and not a sunscreen, and when welding is performed on both faces of the gate, as shown in Figure 7, the depressions are covered on both sides with cover sheets (Br. 8). First, as correctly noted by the Examiner, “the claims of the instant application do not preclude the presence of cover sheets” (Ans. 4). Second, the fact that Rauenbusch is directed to an overhead gate does not persuade us that the Examiner erred in determining that one having ordinary skill in the art would have applied the welding technique for creating depressions in a layered panel, as taught by Rauenbusch, to the sunscreen of Humphries. Rauenbusch describes a layered panel having a foam core member 13 and outer face plastic layers 11 and 12 (Fact 7). Rauenbusch discloses that depressions can be formed in the panels such that both outer face layers are connected to one another through welding to create jointless surfaces (Fact 8). We agree with the Examiner that it would have been obvious to one having ordinary skill in the art to use ultrasonic welding to form the fold lines in Humphries, in view of the teaching of using welding to join a similarly layered panel in Rauenbusch. *See KSR*, 127 S. Ct. at 1740 (“if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.”).

As such, the Appellant has failed to persuade us of error in the Examiner’s rejection of claim 1. The Appellant does not present any separate arguments for patentability of dependent claims 2-8 and 10.

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Accordingly, these claims fall with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2007).

The Appellant further contends that the shade of Humphries does not appear capable of being collapsed optionally with either the front layer outwards or the back layer outwards, as recited in claim 9 (Br. 8). Claim 9 further limits claim 3 and recites, “wherein the fold lines provide for a reduction in the size of the sunscreen for storage as said sunscreen is collapsed optionally with either said front layer outwards or said back layer outwards.” We must construe what is meant by “optionally” in the language of claim 9. In particular, we must determine whether “optionally” modifies “collapsed,” such that the claim is met by a sunscreen that provides the option to collapse, or whether “optionally” is referring to the option to fold the sunscreen in either of two ways, *viz.*, with the front layer outwards or the back layer outwards.

We determine the scope of the claims in patent applications not solely on the basis of the claim language, but upon giving claims “their broadest reasonable interpretation consistent with the specification” and “in light of the specification as it would be interpreted by one of ordinary skill in the art.” *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). When we consulted the Appellant’s Specification, we found no description of the configuration of the sunscreen once the screen has been collapsed. The Specification does not provide a figure showing the screen in a collapsed configuration, nor does the Specification describe such a configuration. The Specification describes only that the sun shade is

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provided with fold lines 32 which extend from one edge to the opposite edge to facilitate folding (Spec. 5). The Specification does not, however, provide any detail as to whether the front layer or the back layer is directed outwardly when the screen is collapsed. We further note that the claims as originally filed do not contain the language now presented in appealed claim 9. As such, we construe claim 9 broadly to cover a sunscreen that is collapsible, and we construe the limitation of claim 9 following the word “optionally” as being purely optional claiming that does not further limit the scope of claim 9. Humphries discloses a collapsible sun shade (Fact 4). As such, we sustain the rejection of claim 9.

CONCLUSION

We conclude the Appellant has failed to show that the Examiner erred in rejecting claims 1-10 under 35 U.S.C. § 103(a) as being unpatentable over Humphries and Rauenbusch.

DECISION

The decision of the Examiner to reject claims 1-10 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED

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FISCHETTI, *Administrative Patent Judge*, concurring in result.

The record supports the Examiner having made out a prima facie case that the prior art generally discloses that weld lines are formed in the laminate of Rauenbusch (Final 2), which weld lines although not specifically disclosed as being ultrasonic welds, appear to result in structure reasonably the same as Appellant's ultrasonically formed weld lines recited in the claims as fold lines.

The Final Office Action dated January 9, 2006 maintains that "...Rauenbusch disclose[es] [*sic*] a panel construction which utilizes welding to form fold lines 17 between layers 11,12,13, wherein, to incorporate such a well known technique such as ultrasonic welding as exemplified by Rauenbusch into the construction of the sunscreen of Humphries would have been obvious to one of ordinary skill in the art." (Final 2) Thus, Examiner took the position that Rauenbusch's disclosure of welding encompasses ultrasonic welding.

Appellant does not challenge the Examiner's position that ultrasonic welding is exemplified by Rauenbusch, and hence the issue is deemed conceded.

However, had the issue not been conceded, it is important to note what response would have constituted a proper challenge to a product by product claim limitation. In such a case, Appellant must show how the *structure* of his fold lines formed by ultrasonic welding, *differs* from that of the prior art. Once the PTO has made out a prima facie case that the applicant's claimed product and the product of the prior art reasonably

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appear to be the same, the burden shifts to the applicant to demonstrate how the structure of the invention differs from the prior art to make that structure patentable. *See In re Fessman*, 489 F.2d 742, 744-745 (CCPA 1974). The burden of proof on the PTO in making out a case of prima facie obviousness for product-by-process claims is less than when a product is claimed in the more conventional fashion. *Id.*

In the case at hand, even if the point was not conceded, I cannot see how Appellant could have pointed to significant differences in the laminate structures created by the weld lines at issue. Specifically, Appellant's Specification describes that the fold lines are formed as a result of ultrasonically welding a three-ply laminate comprised of a front layer 24, a back layer 26 and an intermediate layer 28 (Specification 5:6,7). Appellant further describes that "[t]he intermediate layer 28 is preferably made from a pliable insulating material, such as an expanded foam, which can be a closed cell foam." (Specification 5:12,13) The ultrasonic welding process described by Appellant causes the intermediate layer 28 to become "compressed (and melted) by the ultrasonic welding process, to bring the front and back layers closer together." (Specification 5: 18,19) Thus, the end result of Appellant's ultrasonic welding process is a reduced thickness section of laminate at the weld lines defined by a portion of the intermediate layer being compressed to effect the reduction in overall thickness of the laminate at these lines.

Similarly, Rauenbusch discloses a laminate made up of face layers 11 and 12 (analogous to Appellant's front and back layers 24 and 26) and a core

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member 13 (analogous to Appellant's intermediate layer 28) (FF 6). Also, Rauenbusch discloses that the core layer may be made from a compressible foamed or honeycombed material (Rauenbusch, col. 4, ll. 7, 8). Depressions 14 (analogous to Appellant's fold lines 32) are formed in the laminate by a welding process (FF 8) which, like the process disclosed by Appellant's ultrasonic method, also compresses or compacts the core member 13 (Rauenbusch, col. 4, ll.53-55) along the weld lines to define the depressions 14. Thus, the resulting structure of the laminate along the weld lines in the laminates of both Rauenbusch and Appellant are reasonably similar, if not identical, to one another.

Appellant's present arguments which distinguish the prior art weld in Rauenbusch from his own by alleging an increased ability of his weld line to swing through a greater desired angle (Appeal Br. 10) would fail under this test because such arguments are directed to the behavior of the weld line and not to differences in the resultant *structure* of the laminate as reformed by the welding process. Since Appellant does not point out any dissimilarities between the *structure* of the welds forming his fold lines 32 and those forming the depressions 14 in Rauenbusch, he would not have met his burden of showing how the *structure* of these welds differs from one another sufficient make Appellant's fold line *structure* patentable.

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