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 Peter F. Heilmayr

Appeal 2007-1169
Application 09/850,857
Technology Center 1700

Decided: 31 July 2007

Before ADRIENE LEPIANE HANLON, MICHAEL P. TIERNEY and JAMES T. MOORE, *Administrative Patent Judges*.

TIERNEY, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a 35 U.S.C. § 134 appeal in the above-referenced case[1] of claims 1, 3 and 5-8. Claim 9, the only other pending claim in the application is withdrawn from consideration as being directed to a non-elected

[1] The real party in interest is Peter F. Heilmayr. (Br 3).

invention. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

STATEMENT OF THE CASE

Applicant's invention relates to panels used as decorative building materials, such as panels used to replace conventional vinyl siding. (Specification p. 2, ll. 8-10). According to Applicant, there is considerable commercial interest in "durable, lightweight building materials which are impact and weather resistant." (*Id*. at p. 2, ll. 14-15).

Applicant states that prior art panels are typically made up of single or double layers of polymers that contain a variety of additives such as pigments. (*Id*. at p. 2, ll. 17-20). Applicant states that its invention is directed to a three-layer panel that is economical, has high impact strength and a high heat distortion temperature and has enhanced scrap reclamation. (*Id*. at p. 3, ll. 1-4). In particular, Applicant's invention is directed to a composite panel having an inner and outer impact modified polymer layer formed of polyvinyl chloride ("PVC") polymer and a center layer. The center layer may be formed from calcium carbonate filled PVC, foamed PVC, a combination of foamed and calcium carbonate filled PVC, chlorinated PVC, polystyrene-PVC blend and regrind. (Br 9).

There are four independent claims on appeal, claims 1, 6, 7, and 8, each of which is directed to a panel with three layers where a center layer is coextruded with the inner and outer layers through a multi-manifold die. Claim 1 is representative of the claims on appeal and reads as follows:

> 1. A composite panel, comprising:
>
> an inner impact modified polymer layer and an outer impact modified polymer layer both formed of a rigid plastic, each of said layers having a uniform thickness between 0.004 inches and 0.020 inches, each of said inner and outer polymer layers comprising a polyvinyl chloride polymer formulation with a specific gravity range from 1.35 to 1.50, and wherein each of said inner and outer polymer layers contains from 2.0 to 8.0 parts per hundred parts of an impact modifier;
>
> a center layer selected from the group consisting of calcium carbonate filled polyvinyl chloride, foamed polyvinyl chloride, and foamed and calcium carbonate filled polyvinyl chloride, said center layer being coextruded by extrusion through a multi-manifold die so as to be fused to said inner and outer polymer layers, said inner and outer and center layers being formed together in a molten, liquid state which produces one compact unit of three layers, said center layer having a specific gravity ranging from 0.80 to 1.60 and having thickness ranging from 0.015 inches to 0.040 inches, and wherein said center layer is further characterized by the substantial absence of impact modifier;
>
> said composite panel having a thickness between 0.035 inches and 0.060 inches; and
>
> said composite panel having an impact resistance of 60 in. lbf. as measured in accordance with ASTM Standard D-3679-96.

Independent claim 6 is similar to claim 1 but requires a high heat distortion triwall panel where the center layer is a chlorinated PVC. (Br 20). Independent claim 7 differs from claim 1 in that claim 7 requires a triwall panel that has improved impact strength and is suitable for use in cold climates. (Br 19). Independent claim 8 is similar to the other independent claims but requires that the center panel be made of regrind or recycled type materials. (Br 20-21).

The Examiner has rejected the claims on appeal as obvious over the prior art. Specifically, the Examiner has set forth the following two prior art rejections:

i) Claims 1, 3, 5, 7, and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Heilmayr, U.S. Patent 4,911,628 ("Heilmayr")[2] in view of Lause, U.S. Patent 4,633,063 ("Lause").

ii) Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Heilmayr in view of Lause or further in view of Parker, U.S. Patent 4,350,798 ("Parker") or Greenlee, U.S. Patent 5,248,546 ("Greenlee").

Applicant generally contends that a key aspect of its invention is the recognition that a three layer product of specific makeup and composition, as opposed to the prior art two layer compositions, could achieve performance and economic benefits over the prior art. (Br 14). In particular, Applicant contends that its invention includes specific parameters, such as thickness, percent range of impact modifiers, specific gravity, and ability to meet ASTM standards. Applicant also contends that its invention is unobvious as the prior art relied upon earlier manufacturing techniques of "flow block" or "feed block" coextrusion as opposed to the claimed "multi-manifold coextrusion." (Br 15). Indeed, Applicant contends that its "claimed invention is only possible due to the recent advances in tooling for the extrusion of PVC sheets with enhanced control of layer distribution." (Br 14). Applicant further argues that one of ordinary skill in

[2] Heilmayr, U.S. Patent 4,911,628 is Applicant's own prior art work. (Br 10).

the art would not combine the disclosures of Heilmayr and Lause, and arrive at the claimed invention as Lause "differs in almost every pertinent respect from Appellant's claimed invention." (Br 19).

The Examiner found that Heilmayr describes three-layer extrusions of flat siding ("triwall siding") that were preferably formed from PVC. (Answer 3). The Examiner further found that Heilmayr describes a center layer having a thickness within Applicant's claimed range and an upper and lower layer thickness that overlaps that of Applicant. (*Id*.). The Examiner also found that while Heilmayr lacks a teaching of Applicant's specific impact modified PVC, one of ordinary skill in the art would recognize that Lause teaches that the addition of impact modifiers to PVC would improve the impact strength of the panels. (*Id*. at 3-4).

As to Applicant's claimed parameters, the Examiner found that the general conditions were known and the specific parameters are the result of routine optimization by one of ordinary skill in the art motivated to obtain impact resistant siding. (*Id*.). As to the alleged benefits achieved by a multi-manifold extrusion process, the Examiner states that Applicant has failed to provide sufficient evidence that this process affects the chemistry or structure of the resulting triwall product.

We affirm the Examiner's rejections.

ISSUE

The issue is whether Applicant has shown that the Examiner erred in rejecting the claims. Specifically, the issues are:

> Has Applicant demonstrated that the Examiner was incorrect in finding that one of ordinary skill in the art would have been

> able to follow the teachings of the prior art and employ an impact modifier for its known effect?
>
> Has Applicant demonstrated that the Examiner was incorrect in requiring evidence of an unobvious difference between the claimed triwall product formed by multi-manifold coextrusion and the prior art triwall product formed by flow block or feed block coextrusion?

FINDINGS OF FACT

A. Applicant's '857 Specification

1) Applicant's claims on appeal are directed to a panel having three layers with a center layer coextruded with the inner and outer layers through a multi-manifold die. (Br. Claims Appendix e.g., Independent Claim 1).

2) Applicant's claims require that the inner and outer layers have an impact modifier. (*Id*.).

3) The Background section of Applicant's specification teaches that there is considerable commercial interest in "durable, lightweight building materials which are impact and weather resistant." (Specification p. 2, ll. 14-15).

B. The Prior Art

1. Heilmayr, U.S. Pat. 4,911,628

4) Heilmayr describes a highly uniform three-layer extrusion for siding and paneling, preferably formed of PVC. (Heilmayr, Abstract).

5) Heilmayr teaches that the three-layer extrusion employs a main extruder for a central synthetic resin stream, such as foamed PVC, and a pair of extruders connected to the flow block for providing synthetic resins, such as filled PVC. (*Id*. at col. 2, ll. 5-14).

6) Heilmayr states that the advantages of the flow block system is that it provides a three-member construction that is simple and economical in design. (*Id*. at col. 2, ll. 28-31).

7) Heilmayr teaches that its three-layer product can be siding having strong outer layers and a foamed-core center layer where the resulting product is strong, low-cost, low-weight and of high uniformity. (*Id*. at col. 2, ll. 32-34).

8) Heilmayr's middle layer has a thickness ranging from 0.02 to 0.03 inches and the upper and lower layers range in thickness from 0.005 to 0.1 inches. (*Id*. at col. 2, ll. 35-39).

2. Lause, U.S. Patent 5,633,063

9) Lause is directed to a building panel and method of forming it. (Lause, Abstract).

10) Lause states that its panel includes inner and outer polymer facing sheets that are joined securely together to form a rigid foam core. (*Id*.).

11) Lause teaches that its outer layer is preferably formed from PVC. (*Id*. at col. 3, ll. 4-6).

12) Lause teaches that various additives, such as impact modifiers, may be added to the PVC. (*Id*. at col. 3, ll. 11-18).

13) Lause states that suitable impact modifiers include chlorinated polyethylene, acrylic copolymers, acrylonitrile-butadiene-styrene resins and ethylene vinyl acetate copolymers. (*Id*. at col. 3, ll. 28-33).

14) Lause teaches that its impact modifiers are typically employed in amounts ranging from 0.4 to 10 parts per hundred parts of unplasticized PVC resin. (*Id*. at col. 3, ll. 24-34).

15) Lause teaches that inexpensive scrap materials may be used in the inner facing sheet as the inner sheet is not seen when installed on a building. (*Id*. at col. 3, ll. 6-10).

16) Lause teaches that scrap manufacturing materials can be comminuted to form particles of reclaim materials that are then blended with the starting materials for use in forming the panels. (*Id*. at col. 2, ll. 51-65).

3. Parker, U.S. Patent 4,350,798

17) Parker is directed to processes for photochlorinating PVC. (Parker, Abstract).

18) Parker teaches that it was known in the art that chlorinated PVC ("CPVC") possesses excellent heat distortion characteristics. (Id. at col. 1, ll. 7-11).

4. Greenlee, U.S. Patent 5,248,546

19) Greenlee teaches that CPVC and blends of CPVC and PVC exhibit a suitable heat distortion temperature range for multilayer articles. (Greenlee, Abstract and col. 20, ll. 54-61).

C. Examiner's Answer

20) The Examiner found that Heilmayr teaches all material limitations of Applicant's claims 1, 3, 5, and 7, except for the use of an impact modifier in the outer layers. (Answer 3-4).

21) The Examiner found that Lause teaches that impact modifiers, such as chlorinated polyethylene and acrylic copolymers, are known in the panel and siding art to improve impact resistance. (Answer 5).

22) The Examiner implicitly found that Heilmayr teaches all material limitations of claim 8, except for the use of inexpensive scrap material, such as regrind materials. (Answer 5).

23) The Examiner found that Heilmayr and Lause fail to teach a center layer comprised of high heat distortion polymers but that one of ordinary

skill in the art was well aware that CPVC polymers provide suitable heat distortion properties for multilayer articles. (Answer 5-6).

PRINCIPLES OF LAW

An invention is not patentable under 35 U.S.C. § 103 if it is obvious. *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1745-46, 82 USPQ2d 1385, 1400 (2007). The facts underlying an obviousness inquiry include:

> Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.

Graham v. John Deere Co., 383 U.S. 1, 17-18 (1966). In addressing the findings of fact, "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR* at 1739, 82 USQP2d at 1395. As explained in *KSR*:

> 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. *Sakraida* and *Anderson's-Black Rock* are illustrative — a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

KSR at 1740, 82 USPQ2d at 1396. As recognized in *KSR*, "[a] person of ordinary skill is also a person of ordinary creativity, not an automaton." *KSR* at 1742, 82 USPQ2d at 1397.

On appeal, Applicant bears the burden of showing that the Examiner has not established a legally sufficient basis for combining the teachings of the prior art. Applicant may sustain its burden by showing that where the Examiner relies on a combination of disclosures, the Examiner failed to provide sufficient evidence to show that one having ordinary skill in the art would have done what Applicant did. *United States v. Adams*, 383 U.S. 39 (1966); *In re Fridolph*, 134 F.2d 414, 416, 57 USPQ 122, 124 (CCPA 1943) (does the prior art suggest doing the thing which the appellant has done?)

Additionally, a product that is defined at least in part in terms of the method or process by which it is made represents a product-by-process claim. *Bonito Boats, Inc. v. Thunder Craft Boats, Inc*., 489 U.S. 141, 159 n., 9 USPQ2d 1847, 1855, n. (1989). In construing a product-by-process claim, the Federal Circuit has held that "[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.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985).

ANALYSIS

There are two grounds of rejection on appeal, each of which is based on obviousness under 35 U.S.C. § 103. The Examiner's rejections and Applicant's response thereto are discussed below.

i) The Rejection of Claims 1, 3, 5, 7, and 8 over Heilmayr in view of Lause

Applicant claims 1, 3, 5, 7, and 8 are directed to panels having an inner layer, a center layer and an outer layer. The inner and outer layers are formed from PVC polymer and contain 2 to 8 parts per hundred parts impact modifier. The center layer is coextruded with the inner and outer layers by extrusion through a multi-manifold die. The center layer may be formed from calcium carbonate filled PVC and/or foamed PVC (e.g., claim 1) or regrind material (claim 8). Additionally, claims 1, 3, and 5 require the PVC used in the inner and outer layers to have a specific gravity range from 1.35 to 1.5 and the center layer has a specific gravity ranging from 0.8 to 1.6. The center layer of claims 1, 3, and 5 has a thickness ranging from 0.15 to 0.4 inches and the panel has a thickness ranging from 0.35 to 0.06 inches.

The Examiner found that Heilmayr teaches all material limitations of Applicant's claims 1, 3, 5, and 7, except for the use of an impact modifier in the outer layers. Additionally, the Examiner implicitly found that Heilmayr teaches all material limitations of claim 8, except for the use of inexpensive scrap material, such as regrind materials. The Examiner relied upon Lause as teaching that impact modifiers, such as chlorinated polyethylene and acrylic copolymers, are known in the panel and siding art to improve impact

resistance. The Examiner stated that it would have been obvious to one of ordinary skill in the paneling art to include an impact modifier to impart impact resistance to Heilmayr's PVC panels. The Examiner also stated that one of ordinary skill in the art would have reason to use regrind materials in the center layer of Heilmayr's triwall PVC panels to reduce costs.

Applicant contends that its claimed invention includes specific parameters that distinguish the invention from the prior art. (Br 11). In particular, Applicant directs our attention to 1) the thickness of the individual layers; 2) the specific gravity of the layers; 3) the percent range of impact modifiers; 4) the presence or absence of impact modifier in the center layer; 5) the overall thickness of the panel; and 6) the ability to meet ASTMD standard 3679-96. (Br 12-13).

Applicant fails to provide a sufficient explanation and/or evidence as to why these particular parameters are unobvious to one of ordinary skill in the art. For example, Heilmayr describes a center layer having a thickness within Applicant's claimed range and an upper and lower layer thickness that overlaps that of Applicant. Furthermore, while Applicant's claims recite 2 to 8 parts per hundred parts of impact modifier in the inner and outer layers, Lause informs one of ordinary skill in the art that a suitable amount of impact modifier for PVC panels ranges from 0.4 to 10 parts per hundred. As recognized by the Examiner, where the general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Applicant contends that its claimed invention provides numerous benefits as compared to prior art panels. (Br 14). Applicant states that the claimed invention is unobvious over the prior art due to Applicant's use of a "multi-manifold coextrusion" process to form the claimed product. Applicant states that it is known in the art that a "multi-manifold coextrusion" process is distinct from the feedblock or flowblock technology described in Heilmayr. (Br 16). Applicant makes the following statement in response to the Examiner's request to provide factual support for its allegations regarding the differences between the prior art panels and the claimed panels:

> The Examiner has argued that Appellant has failed to provide examples or factual support for the fact that the earlier flowblock technology was unacceptable for purposes of the present invention. However, Appellant would respectfully submit that one is only required to provide an adequate written description and "enabling disclosure" of the invention in the Specification, and not to prove the efficacy of each detail of the disclosure with actual experiments or numerical examples. Appellant has explained in very clear language in the Specification why the multi-manifold coextruder is required to practice the claimed invention. The Examiner should not require the Appellant to go farther.

(Br. 17).

Applicant misunderstands the Examiner's position. The Examiner did not reject Applicant's claims as lacking enablement. Rather, the Examiner requested that Applicant provide sufficient evidence to demonstrate that its claimed product-by-process limitation effected the structure or chemistry of the resultant product as compared to the prior art product. (Answer 7). The Examiner's position is supported by case law. See, e.g., *Thorpe* at 697, 227

USPQ at 966. Having failed to identify sufficient evidence on this point, we find that Applicant has failed to demonstrate that its multi-manifold coextrusion process results in an unobvious product as compared to the prior art feedblock or flowblock coextrusion process.

Applicant contends that the teachings of Heilmayr cannot be combined in the manner suggested with Lause. (Br 18). Applicant states that Lause is directed to a laminated product that would not work for Applicant's purposes and that the Examiner should not be allowed to pick and chose ingredients from Lause while ignoring Lause's lamination process. (Br 18-19). Obviousness is based upon what the *combined* teachings of the prior art suggest to the person of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981)("The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.").

Heilmayr teaches that its triwall siding are uniform, strong, low-cost and low-weight. The Examiner cites Lause as informing one of ordinary skill in the art that impact modifiers are known in the panel art and also for its teaching of the amounts typically used to impart impact resistance to paneling. One of ordinary skill in the art desiring strong, impact resistant triwall siding would have reason to modify the teachings of Heilmayr and include an impact modifier to impart improved impact resistance to Heilmayr's siding.

Applicant argues that claims 3 and 7 are similar in scope and require that the triwall panel provides improved impact strength in cold climates with the center layer having 2 to 6 parts per hundred of an impact modifier. (Br 19-20). The Supreme Court in *KSR* recognized that market forces can prompt variations in prior art products and that obviousness likely bars patentability where one of ordinary skill in the art has implemented a predictable variation of the prior art. *KSR* at 1732, 82 USPQ2d at 1396. Lause teaches that suitable amounts of an impact modifier for a panel ranges from 0.4 to 10 parts per hundred, which encompasses Applicant's claimed amounts. One of ordinary skill in the art recognizes that panels and siding are sold in both warm and cold climates. One of ordinary skill in the art had reason to select the types and amounts of impact modifier needed to achieve a suitable impact strength for cold climates. Furthermore, Applicant has failed to establish that its claimed ranges of impact modifier are critical or reflect something other than the routine selection of a known amount of an impact modifier to achieve a predictable result.

Applicant argues that claims 5 and 8 are distinguished over the prior art as claim 5 describes "cost efficient" properties and claim 8 describes the use of regrind materials to reduce production costs. Both Heilmayr and Lause demonstrate that one of ordinary skill in the art had a desire to manufacture economical, low cost panels. Lause explicitly teaches that one of ordinary skill in the art understood that regrind/reclaim materials may be used to form panels, especially where the appearance of the part being formed was not important. (Lause, e.g., col. 3, ll. 6-10). One of ordinary skill in the art having the desire to form cost effective, economical panels

would have selected the appropriate materials to control costs, e.g., using regrind materials to form a center layer as the appearance of a center layer bounded by inner and outer layers is unimportant.

Throughout its Brief on Appeal, Applicant contends that its claimed features result in a product that provides distinct advantages. (Br 13). Applicant's statements of distinct advantages are attorney argument and are not supported by sufficient evidence of record. Accordingly, we do not credit the allegations of distinct advantages over the prior art. *Rohm & Haas Co. v. Brotech Corp.*, 127 F.3d 1089, 1092, 44 USPQ2d 1459, 1462 (Fed. Cir. 1997)(Nothing in the rules or in jurisprudence requires trier of fact to credit unsupported or conclusory assertions). Based upon the record presented, we find that Applicant has modified known parameters in a predictable manner to achieve a predictable result.

Generally, Applicant has taken the known prior art panel impact modifiers of Lause, in amounts known to be suitable to provide impact resistance, and employed them in the uniform, low cost, low weight triwall panels of Heilmayr and achieved a predictable result.

We AFFIRM the Examiner's rejection of claims 1, 3, 5, 7, and 8 over the cited prior art. *Anderson's-Black Rock v. Pavement Co.*, 396 U.S. 57, 61, 163 USPQ 673, 674 (1960) (combination of old elements that added nothing to the nature and quality of the product was obvious).

ii) The Rejection of Claim 6 over Heilmayr in view of Lause or further in view of Parker or Greenlee

Applicant's claim 6 is directed to a triwall panel having improved heat distortion characteristics. Applicant does not dispute the Examiner's finding that one of ordinary skill in the art knew that chlorinated PVC (CPVC) provides excellent heat distortion characteristics and that the use of CPVC in a panel to provide such heat distortion characteristics was obvious.

Claim 6 also requires that the inner and outer layers contain a coloring additive to give the panel a darker color than listed in ASTM D-3679. Applicant's specification teaches that suitable coloring additives are those traditionally used in the plastic and PVC arts, such as organic pigments. (Specification p. 13, ll. 1-8).

Lause confirms that one of ordinary skill in the art knows that various additives may be added to PVC, including "various pigments." (Lause, col. 3, ll. 11-19). One of ordinary skill in the art could readily determine what colors are commercially acceptable. *KSR* at 1742, 82 USPQ2d at 1397 ("A person of ordinary skill is also a person of ordinary creativity, not an automaton."). We find that one of ordinary skill in the art would add pigments to Heilmayr's panels to achieve a desired, commercially acceptable color.

We AFFIRM the Examiner's rejection of claim 6 over the cited prior art.

CONCLUSION

Upon consideration of the record and for the reasons given, it is:

Ordered that the Examiner's rejection of claims 1, 3, 5, 7, and 8 under 35 U.S.C. § 103(a) as being unpatentable over Heilmayr in view of Lause is AFFIRMED.

Ordered that the Examiner's rejection of claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Heilmayr in view of Lause or further in view of Parker or Greenlee is AFFIRMED.

Further Ordered that no time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv)(2006).

AFFIRMED

WHITAKER, CHALK, SWINDLE
& SAWYER, LLP
3500 CITY CENTER TOWER II
301 COMMERCE STREET
FORT WORTH, TX 76102-4186