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 JEFFREY A. TILTON

Appeal 2007-1168
Application 10/211,407[1]
Technology Center 1700

Decided: May 31, 2007

Before TEDDY S. GRON, RICHARD TORCZON, and MARK NAGUMO, *Administrative Patent Judges*.

NAGUMO, *Administrative Patent Judge*.

DECISION ON APPEAL

A. Introduction

The appeal is under 35 U.S.C. § 134(a) from the Final Rejection of claims 1, 2, 4, 6–15, 19, and 20, which are all the claims remaining in the case. We have jurisdiction under 35 U.S.C. § 6(b). We AFFIRM-IN-PART.

The invention relates to blankets of fibrous material that are said to be especially useful as sound insulation. The blankets comprise at least two

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[1] Application (original) filed 2 August 2002. The real party in interest is identified as Owens-Corning Fiberglas Technology, Inc. (Br. at 3.)

layers that are bonded together by means of heat or spray adhesive. The first layer can be made from a variety of fibers and is usually thicker. The second layer is made from meltblown polypropylene fibers. In a second embodiment, the meltblown polypropylene fiber layer is sandwiched between two thicker layers.

The Examiner relied on the following prior art:

Lutzow	US 5,466,516	Nov. 14, 1995
Sorrick	US 5,714,067	Feb. 3, 1998
Nissan	JP 10-203,268-A	Aug. 4, 1998

The Examiner rejected claims 1 and 6–10 as being obvious under 35 U.S.C. § 103(a) over the combined teachings of Lutzow and Sorrick.

The Examiner also rejected claims 2, 4, 11–15, 19, and 20 as obvious over the combined teachings of Lutzow, Sorrick, and Nissan.

B. Issues

The dispositive issue in this case is whether the Applicant ("Tilton") proved that the examiner erred in concluding the claimed subject matter would have been obvious as a result of improperly combining the references.

C. Findings of Fact

The following findings of fact and any set out in the Discussion are supported by a preponderance of the evidence of record. Any conclusions of law should be treated as such.

1. Tilton describes his invention generally as a fibrous blanket **10** that is useful for sound attenuation in a variety of applications. (Specification at 6.)

2. Tilton describes two general embodiments of his invention.

3. The first embodiment comprises two layers, a first fibrous layer with an average fiber diameter between about 10.0 and about 30.0 microns and a second layer of meltblown polypropylene fiber having a thickness of between about 0.0127 and about 0.254 cm and fiber diameters between about 10.0 and 30.0 μm. (Claim 1; Specification at 3.)

4. In preferred embodiments, the first fibrous layer has a thickness of about 0.5 to about 8.0 cm. (Claim 2; Specification at 3.)

5. In a second embodiment, the fibrous blanket comprises three layers, the meltblown polypropylene fiber layer being sandwiched between two fibrous layers of the first kind. (Claims 10, 11; Specification at 3-4.)

6. Generally, according to the specification:

> [t]he first fibrous layer **12** may incorporate multicomponent fibers, powder resin or other chemicals to promote bonding. Alternatively, bonding may be achieved by mechanical means such as needling. The two layers **12**, **14** are then joined together by heating sufficiently to cause the two layers to bond together along their interface and/or by application of a spray adhesive such as a spray hot melt known to be useful in binding fibers of the type utilized in the layers **12**, **14** of the invention.

(Specification at 8; emphasis added to the labels to elements shown in the Figures.)

7. Appellant's Figure 2 is shown below;

Fig. 2

Appellant's Figure 2 illustrates the second embodiment of the invention.

8. Claims 1 and 11 are representative of the issues on appeal.

9. Claim 1 reads:

> A fibrous blanket material [**10**], comprising:
>
> a first fibrous layer [**12**] selected from a group of fibers consisting of polyester, polypropylene, polyethylene, fiberglass, natural fibers, nylon, rayon and blends thereof wherein said fibers have an average diameter of between about 10.0 and about 30.0 microns; and
>
> a layer [**14**] of meltblown polypropylene fibers having a thickness of between about 0.0127 to about 0.254 cm
>
> wherein said first fibrous layer and said layer of meltblown polypropylene fibers are bonded together by means of heat, spray adhesive or both.

(Br. at 24 (Claims Appendix); paragraphing added.)

10. Claim 11 reads:

> A fibrous blanket material [**10**], comprising:
>
> a first fibrous layer [**12**] selected from a group of fibers consisting of polyester, polypropylene, polyethylene, fiberglass, natural fibers, nylon, rayon and blends thereof wherein said fibers have an average diameter of between about 10.0 and about 30.0 microns; and

> a layer [**14**] of meltblown polypropylene fibers;
>
> and a second fibrous layer [**16**] selected from a group of fibers consisting of polyester, polypropylene, polyethylene, fiberglass, natural fibers, nylon, rayon and blends thereof,
>
> wherein said layer of meltblown polypropylene fibers [**14**] is sandwiched between said first [**12**] and second [**16**] fibrous layers
>
> wherein said first fibrous layer [**12**], said layer of meltblown polypropylene fibers [**14**] and said second fibrous layer [**16**] are bonded together by means of heat, spray adhesive or both;
>
> said first fibrous layer [**12**] having a thickness of between about 0.5 and about 5.0 cm, said layer of meltblown polypropylene fibers [**14**] having a thickness of between about 0.0127 and about 0.254 cm and said second fibrous layer [**16**] having a thickness of between about 0.5 and about 5.0 cm.

(Br. at 25, (Claims Appendix); paragraphing and bracketed bold labels to Figure 2 added.)

11. Of the remaining claims, claims 2, 4, and 6–10 depend from claim 1, while claims 12–18 depend from claim 11, and claims 19 and 20 are independent claims.

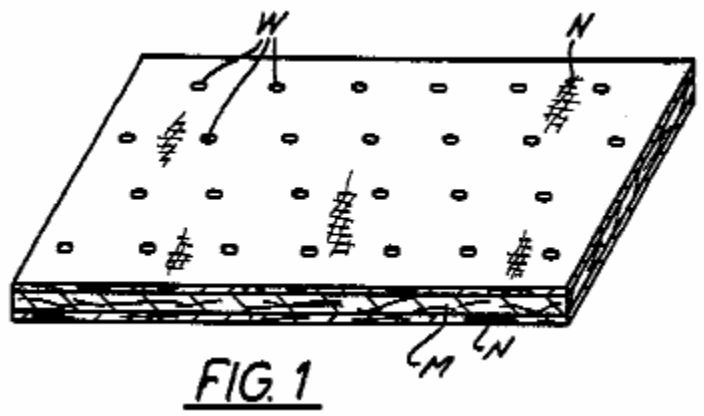
12. The remaining claims recite further limitations, including the thickness and weight per unit area of the first (and second) fibrous layers, the weight per unit area of the meltblown polypropylene layer, and further limitations on the diameter of fibers in the meltblown polypropylene layer.

Prior Art

Lutzow

13. Lutzow describes a three-layer laminated sheet designed to absorb liquids, especially hydrocarbon liquids (Lutzow at 3:39–42), which Lutzow refers to as an "NMN laminate" (*id.* at 5:37).

14. Lutzow's NMN laminate is depicted in Figure 1, shown below:



15. According to Lutzow, the NMN laminate comprises a layer **M** of meltblown fibers sandwiched between two layers **N** of "needle punched fibers" (sometimes called "needle felt"; *id.* at 4:20–21). (*Id.* at 3:39-42.)

16. Lutzow describes the needle felt as generally comprising a thermoplastic resin (Lutzow at 4:7), preferably a composite of about 30% nylon and 70% polyester (*id.* at 18–20).

17. According to Lutzow, the diameter of the needle punched fibers is ordinarily larger than the diameter of the meltblown fibers, and preferably ranges from about 1 to 25 microns. (Lutzow at 4:13–17.)

18. Lutzow does not disclose the thickness or density of the needle felt layer.

19. In preferred embodiments, the melt blown material is 100% polypropylene (Lutzow at 3:61-62).

20. The diameter of the meltblown polypropylene fibers is said to range from about 0.1 to 100 microns, preferably from about 1 to 15 microns. (Lutzow at 3:54–58.)

21. Lutzow does not disclose the thickness or density of the meltblown polypropylene layer.

22. According to Lutzow, "[i]n a preferred embodiment, the layers are bonded together at a number of discrete points across the length and width of the laminated sheet." (Lutzow at 2:57–60.)

23. Lutzow teaches that ultrasonic welding is preferred. (Lutzow at 2:59-60.)

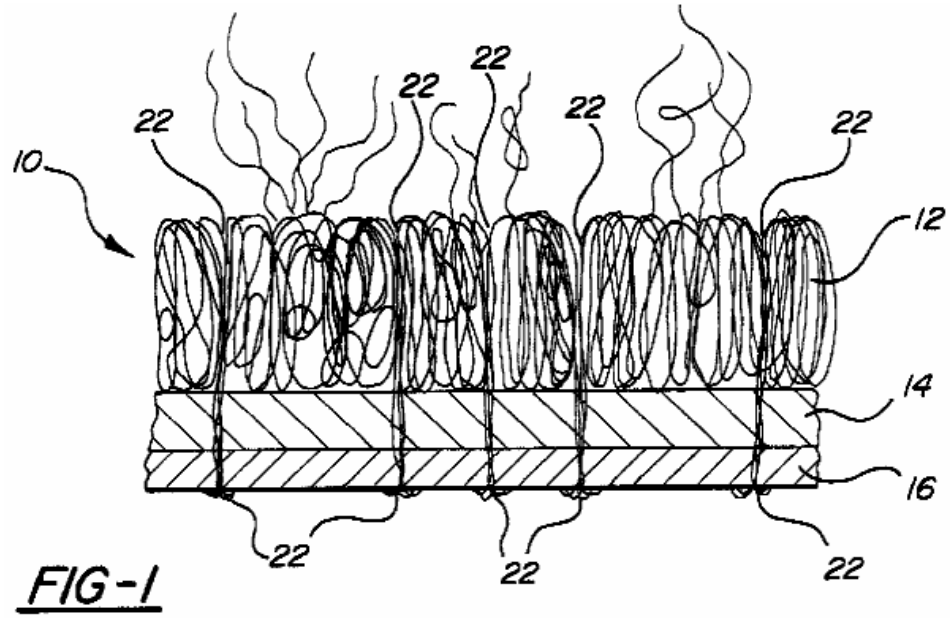
24. According to Lutzow, the needle punched fibers in the outer layers of the laminated sheet draw in and sorb liquids toward the middle layer of meltblown fibers, which wicks the liquid away from the outer layers, substantially isolating the liquid from the outer layers. (Lutzow at 2:33–39.)

25. Lutzow states that the NMN laminate may "have additional, unexpected performance characteristics when used in other applications such as for an insulator, filter or garment material." (Lutzow at 8:5–8.)

<u>Sorrick</u>

26. Sorrick discloses a filter medium said to be useful for collecting particulates out of fluids. (Sorrick at 2:39-41.)

27. With reference to Sorrick Figure 1, shown below,



Sorrick teaches a three-layer filter **10** having a top layer **12** of needle felt, an intermediate layer **14** of meltblown material, and a substrate layer **16** of "SMS material." (Sorrick at 3:46–52.)

28. Sorrick instructs that in a preferred embodiment, the top layer of needle felt [**12**] "includes a thickness of between 0.030 and 0.050 inches." (Sorrick at 3:61–62.)

29. The metric conversions of 0.030 and 0.050 inches are 0.076 cm and 0.127 cm, respectively.

30. According to Sorrick, the intermediate meltblown material [**14**] is preferably polypropylene having a density of approximately 1.0 ounces per square yard. (Sorrick at 4:8-10.)

31. Sorrick instructs further that in the preferred embodiment the intermediate meltblown layer has a thickness of between 0.016

and 0.028 inches, and a fiber diameter of between 1 and 5 microns. (Sorrick at 4:17-20.)

32. The metric conversions of 0.016 and 0.028 inches are 0.04 and 0.07 cm, respectively.

33. According to Sorrick, the meltblown material must have a minimum thickness to prevent destruction or damage to the layer during handling prior to lamination and during the lamination process. (Sorrick at 2:3–8.)

34. Sorrick teaches further that "a standard layer of melt-blown material requires at least 0.6 ounces per square yard for any significant stability of the layer." (Sorrick at 4:51-54.)

35. According to Sorrick, the SMS substrate layer is a composite material formed from groups of meltblown fibers interspersed between two groups of spun bonded fibers. (Sorrick at 4:21–24.)

36. According to Sorrick, the three layers of the filter are "joined together by needling to form an integrated layer of filter material." (Sorrick at 2:47-49.)

37. Sorrick teaches that the needling creates holes [**22**] through the filter. (Sorrick at 5:5–10.)

38. According to Sorrick, the holes increase the life of the filter because small particles take longer to clog them; but the filter is less efficient. (Sorrick at 5:10-13.)

39. Sorrick teaches that, due to differences in tension between the layers, the holes will not remain precisely aligned, so meltblown fibers in the SMS

layers will partially compensate for the holes in the meltblown layers. (Sorrick at 5:13–24.)

Nissan

40. Nissan teaches a fibrous blanket designed for sound insulation having a surface layer of nonwoven polypropylene fabric with an average apparent density of 0.03 to 0.06 g/cm^3, 5-15 mm thick, the fibers having a diameter of 0.l to 10 µm, and an inner layer that is 2 to 5 times as thick as the surface layer, i.e., 1 to 3 cm thick. (Nissan at 3, abstract.)

The Examiner's Rejections

Claims 1 and 6–10

41. The Examiner finds that Lutzow teaches all structures and limitations required by claims 1 and 6-10 but for the required thickness of the meltblown polypropylene fiber layer being between about 0.0127 and about 0.254 cm and having a weight between about 0.5 to about 10 ounces per square yard. (Answer at 3–4.)

42. In particular, the Examiner finds that Lutzow teaches meltblown, 100% polypropylene fibers having diameters of ranging from about 0.1 to 100 µm, preferably from about 1 to 15 µm. (Answer at 3.)

43. The Examiner finds further that Lutzow teaches needle punched fibers having a diameter of about 1 to 25 microns made from a composite material of nylon and polyester. (Answer at 3.)

44. The Examiner finds that Sorrick teaches that a layer of meltblown polypropylene fibers having less than a minimum thickness will be

destroyed or damaged during handling prior to and during the lamination process. (Answer at 4.)

45. The Examiner finds that Sorrick describes melt-blown polypropylene layers 0.016 to 0.028 inches thick (i.e., 0.04 to 0.07 cm thick). (Answer at 4, citing Sorrick at 4:8–20.)

46. The Examiner finds further that Sorrick describes meltblown polypropylene layers having a weight of approximately 1.0 ounces per square yard. (Answer at 4.)

47. The Examiner reasons that the ordinary worker would have been motivated to use such a thickness in order to "prevent destruction or damage to the layer during handling of the layer prior to the lamination process." (Answer at 4.)

48. The Examiner also argues that the thickness of the meltblown polypropylene layer would have been recognized as a result-effective variable, and that therefore optimization of the thickness would have involved only routine experimentation. (Answer at 4–5.)

49. According to the Examiner, "[s]ince both references are directed to fibrous laminate structures, the purpose disclosed by Sorrick would have been recognized in the pertinent art of Lutzow." (Answer at 4, emphasis omitted.)

Tilton's Argument

50. Tilton argues that the Examiner relies on hindsight for the combination of Lutzow and Sorrick. (Answer at 12.)

51. More particularly, Tilton argues that Sorrick is concerned with a minimum thickness of a meltblown polypropylene layer in the context of lamination by needling (Br. at 12–13), not an application in which the layers are bonded together by heat or spray adhesive, as required by the present claims. (Br. at 13.)

52. Tilton argues further that "the 'minimum thickness' [of the meltblown layer] mentioned at col. 2 line 4 is never specifically identified in Sorrick and remains an unknown." (Br. at 12-13.)

53. In his Reply, Tilton clarifies his argument, stating, "[a]bsolutely no evidence is cited to establish that, if the 'minimum thickness' prior to lamination recited in Sorrick corresponds to the thickness of the claimed layer, this same range would translate over to Lutzow et al. and result in the claimed article after the required processing is complete." (Reply at 2–3.)

54. Tilton also argues that Sorrick relates to a high efficiency, high capacity filter media in which the needling lamination is essential to provide the strength, high capacity, lifetime, and efficiency of the filter. (Br. at 16.)

55. In contrast, according to Tilton, Lutzow is concerned with providing a barrier against liquids passing from one outer layer to another, and teaches ultrasonic welding to laminate the layers. (Br. at 16.)

56. Therefore, Tilton argues, Sorrick's needling "would perforate the meltblown fiber layer and destroy the barrier function desired in Lutzow." (Br. at 16, emphasis not reproduced.)

57. Tilton concludes that the intent, purpose, and function of either invention are destroyed by the Examiner's proposed combination, and that the rejection must be reversed. (Br. at 17.)

58. Tilton argues further that it is improper to extract a teaching from Sorrick that the thickness of the meltblown layer is necessary to prevent damage to the layer during handling prior to lamination, because the prior art reference must be considered as a whole. (Br. at 17–18.)

59. Similarly, Tilton criticizes the Examiner's reliance on the teaching that the Lutzow NMN structure may be used as a filter, because the Sorrick filter is an "obviously different type of filter." (Br. at 18.)

60. Tilton also argues that there is no optimization of a result effective variable in a known process involved in selecting the thickness range recited in its claims because the references are not properly combined. (Br. at 19.)

Claims 2, 4, 11–15, 19, and 20

61. The Examiner finds that Lutzow and Sorrick teach all thickness and weight per unit area limitations but for those of the first and second fibrous layers. (Answer at 5.)

62. The Examiner concedes that neither Lutzow nor Sorrick teaches the thickness or density of the first fibrous layer (Answer at 5).

63. The Examiner finds that Nissan describes an insulating structure with nonwoven cloth made from fibers having diameters of 0.1 to 10 microns, densities of 0.03 to 0.06 g/cm^3 [1.87 to 3.74 lbs/ft^3], and thickness of 5 to 15 mm for the surface and back layers. (Answer at 5.)

64. The Examiner reasons that the use of the fibrous layers taught by Nissan in the laminates disclosed by Lutzow would have been obvious because a person having ordinary skill in the art would have used the laminate "in an insulation application with a thickness appropriate for sound

absorption applications as the laminate disclosed by Lutzow et al." (Answer at 5.)

Tilton's Argument

65. Regarding the rejection of claims 2, 4, 11–15, 19, and 20, Tilton objects that Nissan further conflicts with the teachings of Lutzow and Sorrick. (Br. at 20.)

66. Specifically, Tilton points out that the Examiner relies on Sorrick for a (inner) meltblown fiber layer 0.04 to 0.07 cm thick and on Nissan for a teaching that the surface layers may be between 5 and 15 mm thick.

67. However, according to Tilton, in so doing, the Examiner ignores the express teaching in Nissan that the internal layer should be 2 to 5 times as thick as the surface layer. (Br. at 20.)

68. In contrast, Tilton argues, the outer layers specified by its claims are thicker (e.g., 0.5 to 5 cm) than the inner layer (0.0127 to 0.254 cm). (Br. at 21.)

69. Tilton concludes that Nissan teaches away from the claimed invention, that the combination of references is improper, and that rejection should be reversed. (Br. at 21.)

C. Discussion

An invention that would have been obvious is not patentable under 35 U.S.C. § 103. The analysis underlying an obviousness inquiry has been outlined by the Supreme Court:

> 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, 148 USPQ 459, 467 (1966). As the Supreme Court explained recently, a court assessing the obviousness or nonobviousness of a claimed invention, "must ask whether the improvement is more than the predictable use of prior art elements according to their established functions." *KSR Int'l, Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 82 USPQ2d 1385 (2007). The Court explained further 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." *KSR Int'l*, 127 S. Ct. at 1739, 82 USQP2d at 1395.

Claims in an application for patent are to be given their broadest reasonable construction in light of the specification as it would be interpreted by one of ordinary skill in the art. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316, 75 USPQ2d 1321, 1328 (Fed. Cir. 2005).

On appeal, the applicant bears the burden of showing that the Examiner has not established a legally sufficient basis for combining the teachings of the prior art. The applicant may sustain his 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, 415, 57 USPQ

122, 124 (CCPA 1943) (would the prior art have suggested doing the thing which the appellant has done?)

Claims 1 and 6–10

Claim 1 covers a fibrous blanket material comprising a first layer having fibers with an average diameter between about 10.0 and about 30.0 microns that is bonded by means of heat, spray adhesive, or both, to a layer, about 0.0127 cm to about 0.254 cm thick, of meltblown polypropylene fibers. Claim 1, and claims 6–10, do not limit the thickness of weight per unit area of the "first layer." The composition of the first layer is limited to natural fibers, a set of specified artificial fibers, and blends thereof. None of the claims on appeal limit the distribution of the bonding between the layers.

Tilton does not contest the Examiner's rejection except with respect to the limitations of claim 1. Claims 6-10 will thus stand or fall with claim 1. Tilton does not dispute that Lutzow describes a fibrous blanket material comprising a first fibrous layer of nylon and polyester fibers having a diameter ranging from about 1 to 25 microns, which substantially overlaps the range of about 10.0 to about 30.0 microns recited in claim 1. Nor does Tilton dispute that Lutzow describes a layer of meltblown polypropylene in that blanket, as well as a second fibrous layer sandwiching the meltblown polypropylene layer. Similarly, Tilton does not dispute that Sorrick describes a meltblown polypropylene layer weighing about 1.0 ounces per square yard, thus meeting the further limitations of claims 6 and 7.

Rather, Tilton argues that Sorrick does not describe a layer of meltblown material 0.04 to 0.07 cm thick in the final processed filter medium. We reject this argument for the following reasons. Sorrick

describes the intermediate layer **14** of the structure shown in Figure 1, which is reproduced supra. Sorrick teaches that the preferred embodiment uses a melt-blown polypropylene layer having a weight of approximately 1.0 ounces per square yard. In this preferred embodiment, according to Sorrick, "the intermediate layer of melt-blown material includes a thickness of between 0.016 and 0.028 inches, and a fiber diameter of between 1 and 5 microns." (Sorrick at 4:17-20.) In this context, the thickness is clearly that of the layer in the finished product. Moreover, we observe that Sorrick teaches that "a standard layer of melt-blown material requires at least 0.6 ounces per square yard for any significant stability of the layer." (Sorrick at 4:51-53.) Thus, the mechanical stability is reported to be a function of the weight per unit area of the layer.

Tilton argues that the thickness of the melt-blown material layer relates solely to the requirements of bonding layers by needling. Tilton, however, does not direct our attention to any credible evidence supporting this argument. We therefore reject his arguments that its teachings are irrelevant to inventions involving webs of meltblown polypropylene fibers.

Tilton next argues that Sorrick's teachings of thickness of the melt-blown fiber layer cannot be combined with the teachings of Lutzow because Sorrick is concerned with high efficiency filtration, whereas Lutzow is concerned with providing a "'barrier' against liquid passing from one outer layer to the other." (Br. at 16.) Tilton asserts that "needling, such as taught in Sorrick, would perforate the meltblown fiber layer and destroy the barrier function desired in Lutzow." (*Id.*, emphasis not reproduced.)

This argument is not persuasive. First, although the barrier function of Lutzow's laminates might, as Tilton suggests, be decreased by "through needling" (to coin a phrase), Tilton has not directed our attention to any evidence that it would be destroyed. Indeed, Sorrick teaches that due to differences in tension between the needle felt layers and the meltblown layer, the needle holes will not be precisely aligned. This teaching appears to apply to the Lutzow structure, as it is similar. Coupled with Lutzow's teaching that the meltblown fibers wick liquid throughout the middle layer (Lutzow at 2:33–38), the preponderance of the evidence indicates that needle holes would not destroy the liquid-holding function of Lutzow's middle layer.

Tilton also argues that the ultrasonic welding taught by Lutzow would prevent the Sorrick filters from performing their function, in view of the problems Sorrick associates with heat-fusing, and Sorrick's observation that needling creates holes that increase the life of the filter. (Br. at 16.) This argument is something of a red herring, in that we do not understand the Examiner to have suggested that it would have been obvious to modify Sorrick's laminates according to teachings of Lutzow. Moreover, Tilton has not directed our attention to any credible evidence in support of his argument. As long as the spot welding occurs "at a number of discrete points across the length and width of the laminated sheet" as taught by Lutzow (Lutzow at 2:57–59; and Lutzow, claim 1 at 8:10–20, which does not specify the type of bonding), we are not persuaded that such bonding would destroy the filtering efficiency or function of Sorrick's laminates.

Finally, Tilton takes issue with the Examiner's argument that the variation of the meltblown polypropylene layer thickness would have been

an obvious optimization of a result effective variable. (Br. at 18–19.) However, one of ordinary skill in the art, reading Lutzow, would have recognized that the amount of meltblown polypropylene fiber relates to the amount of liquid that can be wicked and retained. (*See* Lutzow at 5:49–52, recognizing that the layer will not function as a barrier once it is saturated with oil.) Similarly, reading Sorrick, such a person would have recognized that thicker melt-blown polypropylene fiber layers are mechanically sturdier (Sorrick at 2:3–7 and at 4:51-53), and yet offer more resistance to fluid (*id.* at 53–54) and decrease the effective life of the filter (*id.* at 5:32–64, discussing the tradeoffs that must be considered regarding the amount of SMS and melt-blown fibers in the filters). Thus, the Examiner's finding that the thickness of the layer of meltblown fibers would have been recognized as a result-effective variable is supported by the preponderance of the evidence of record. This situation is an example of a need or problem known in the field and addressed by prior art providing "a reason for combining the elements in the manner claimed." *See KSR* 127 S.Ct. at 1742, 82 USPQ2d at 1389-90 (2007). As the Court stressed, the problem solved need not be the same as the problem addressed by the patentee (here, the applicant). *Id.*

Accordingly, we AFFIRM the rejection of claims 1 and 6–10 as obvious under § 103 over the combined teachings of Lutzow and Sorrick.

<u>Claims 2, 4, 11–15, 19, and 20</u>

Claims 2, 4, 11–15, 19, and 20 differ from claims 1 and 6–10 in that they also specify the thickness of the first layer (and second layer, if present); some claims also recite the weight per unit area of the first (and

second) layer. The Examiner finds that neither Lutzow nor Sorrick teaches these parameters, and relies on Nissan for its teachings of a thickness for the front and back layer of from 5 to 15 cm and a density of 0.03 to 0.06 g/cm^3 [1.87 to 3.74 lbs/ft^3], which are within the required ranges. (Answer at 5.) The Examiner argues that it would have been obvious to modify the fibrous layer of the laminate and provide the thickness and density taught by Nissan "in an insulation application with a thickness appropriate for sound absorption applications as the laminate disclosed by Lutzow et al." (Answer at 5.)

Tilton does not dispute the Examiner's findings as to Nissan. Instead, Tilton argues that the teachings of Nissan "conflict" with the teachings of Lutzow and Sorrick. (Br. at 20.) Specifically, Tilton points out that Nissan teaches that the inner layer is 2 to 5 times thicker than the surface layers (*id.*), whereas, according to Tilton, "if the surface layer is 5 to 15 mm as taught by [Nissan] reference and the intermediate meltblown fiber layer is 0.04 to 0.07 cm as taught by Sorrick, it is very clear that the intermediate layer is not two to five times as thick as the surface layer." (*Id.*) Tilton applies the same argument to claim 11, which recites first and second fibrous layers having a thickness of between about 0.5 and about 5.0 cm, and a thickness of the layer of meltblown polypropylene fibers of between about 0.0127 and 0.254 cm. (Br. at 21.)

The Examiner responds to this argument by arguing that Nissan further shows that thickness of the intermediate layer is a "cause-[sic: result-] effective" variable, and that its optimization would be recognized by one of ordinary skill in the art of laminates because "the

thickness of the middle layer is only dependent on the particular application of the laminate." (Answer at 7.)

In the present case, Tilton has made it clear that the Examiner has failed to show that the invention claimed involves the use of the prior art elements according to their established functions. Each layer, in the invention and in the references, is present for a purpose. In Lutzow, the outer needled layers perform a wicking function, while the inner meltblown layer performs a sorptive function. In Sorrick, the outer needled layers provide strength and increased capacity for filter material, while the inner meltblown layer provides filtering capacity. In Nissan, the surface layers 5 to 15 mm thick are made from nonwoven webs of microfibers (diameter 0.1 to 10 microns) of polypropylene, apparently selected for high sound absorption near 500 Hz. (Nissan at 12, ¶ 11.)[2] Nissan teaches that the inner surface layer should be two to five times thicker in order to optimize what is translated as "air spring" and "movement spring" of the nonwoven fabric. (Nissan at 16, ¶ 20.) It appears that these properties relate somehow to the acoustic response of the insulation. (*Id.*)

The Examiner has not explained in terms of the teachings of Lutzow or Sorrick why one of ordinary skill in the art would have used the thickness of the outer layers of Nissan in the structures of Lutzow or Sorrick. It is not enough to note that Lutzow indicates that its disclosed structure may have unexpected performance characteristics in other applications: this is true of

[2] We rely on the Thomson/Derwent machine assisted translation in the record. As is frequently the case, the machine-assisted translation is not in idiomatic English, and is of limited value in assessing the state of the prior art.

anything. Put another way, the Examiner has not come forward with a factual basis on which the legal conclusion of obviousness can properly stand. Accordingly, the rejection of claims 2, 4, 11–15, 19, and 20 as obvious under 35 U.S.C. § 103 over the combined teachings of Lutzow, Sorrick, and Nissan is REVERSED.

D. Decision

On consideration of the appeal, for the reasons given, it is:

ORDERED that the decision of the Examiner rejecting claims 1 and 6–10 as obvious under 35 U.S.C. § 103 over the combined teachings of Lutzow and Sorrick is *affirmed*.

FURTHER ORDERED that the decision of the Examiner rejecting claims 2, 4, 11–15, 19, and 20 as obvious under 35 U.S.C. § 103 over the combined teachings of Lutzow, Sorrick, and Nissan is *reversed*.

FURTHER ORDERED that the time for taking further action is not extendable under the provisions of 37 C.F.R. § 1.136(as)(2006).

AFFIRMED-IN-PART

ljb:

cc: U.S. Mail

Maria C. Gasaway
Owens Corning
2790 Columbus Road
Granville, OH 43023