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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SURENDRA KHAMBETE and
ANDREW CONRAD BAMBECK

Appeal 2020-002052
Application 14/962,768
Technology Center 3600

Before EDWARD A. BROWN, BRETT C. MARTIN, and
CARL M. DeFRANCO, *Administrative Patent Judges*.

BROWN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant¹ seeks review under 35 U.S.C. § 134(a) of the Examiner's decision rejecting claims 1–4 and 6–16, which are the pending claims. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART and enter a NEW GROUND OF REJECTION.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies Indratech LLC as the real party in interest. Appeal Br. 1.

CLAIMED SUBJECT MATTER

Claims 1, 3, and 13 are independent claims. Claim 1, reproduced below, illustrates the claimed subject matter.

1. A multilayered cushion, comprising:
 - a first layer of a first material;
 - a second layer of the first material;
 - a third layer of a second material between the first and second layers, wherein the second material is stiffer than the first material, wherein the first material is provided by a three-dimensional netted layer consisting of a plurality of helically arranged thermoplastic resin filaments, each of the thermoplastic resin filaments being partially thermally bonded directly to at least one of the other thermoplastic resin filaments such that the thermoplastic resin filaments are randomly entangled with one another.

Appeal Br. 9 (Claims App.).

REJECTIONS ON APPEAL

Claims 1, 2, and 13 are rejected under 35 U.S.C. § 103 as unpatentable over Fenner (US 5,022,111, issued June 11, 1991), Kaylor (US 7,238,633 B1, issued July 3, 2007), and Gage (US 3,417,413, issued Dec. 24, 1968). Non-final Act. 4.

Claims 1 and 13 are rejected under 35 U.S.C. § 103 as unpatentable over Kaylor and Gage. Non-Final Act. 7.

Claims 3, 4, and 6–16 are rejected under 35 U.S.C. § 103 as unpatentable over Fenner, Kaylor, and Gage. Non-Final Act. 10.

Claims 3, 4, and 6–16 are rejected under 35 U.S.C. § 103 as unpatentable over Kaylor and Gage. Non-Final Act. 10.

ANALYSIS

Claims 1, 2, and 13 over Fenner, Kaylor, and Gage

Claims 1 and 2

As to claim 1, the Examiner finds that Fenner discloses a multilayered cushion comprising a first layer (upper layer 12) and a second layer (lower layer 15) of a first material, and a third layer (middle layer 14) of a second material stiffer than the first material between the first and second layers.

Non-Final Act. 4 (citing Fenner Fig. 2). The Examiner concedes that Fenner does not disclose the limitation,

wherein the first material is provided by a three-dimensional netted layer *consisting of a plurality of helically arranged thermoplastic resin filaments, each of the thermoplastic resin filaments being partially thermally bonded directly to at least one of the other thermoplastic resin filaments* such that the thermoplastic resin filaments are randomly entangled with one another.

Id. (emphasis added) (“first material limitations”).

The Examiner relies on Kaylor as teaching the first material limitations. Non-Final Act. 4–5. More particularly, the Examiner finds that Kaylor describes the carrier fibers as made of thermoplastic polymer fibers, such as polyester fibers, describes polyester binder fibers, thus also thermoplastic fibers, and the Examiner determines that when both the binder and carrier fibers are formed of polyester, all fibers are thermoplastic and each bat is formed entirely of thermoplastic fibers bonded together. *Id.* at 5 (citing Kaylor col. 5, ll. 45–47, col. 6, l. 57). The Examiner explains, “[t]he claim simply requires the [sic] each fiber bat consist of thermoplastic resin filaments. If both the binder fibers and the carrier fibers are thermoplastic, then the bats would consist entirely of thermoplastic resin filaments, even

though there are both ‘binder’ and ‘carrier’ filaments.’” *Id.* at 2. The Examiner concludes that it would have been obvious to one of ordinary skill in the art to modify Fenner’s padding material, in view of Kaylor, to be fiber batting padding material as a simple change of one known material for another, and because “the selection of a known material based upon its suitability for the intended use is a design consideration within the level of skill of one skilled in the art.” *Id.* at 5 (citing *In re Leshin*, 227 F.2d 197 (CCPA 1960)).

The Examiner also determines that polyester fibers can be thermoplastic or non-thermoplastic. Non-Final Act. 5. The Examiner concludes that it would have been obvious to modify Kaylor’s polyester binder fibers to be thermoplastic because of the advantages of thermoplastic material, including high strength and light weight. *Id.* (citing *Leshin*, 227 F.2d at 197).

The Examiner relies on Gage as teaching helically arranged fibers. Non-Final Act. 5 (citing Gage col. 4, ll. 45–50). The Examiner concludes that it would have been obvious to modify Kaylor’s fibers to be helically arranged fibers, as taught by Gage, “because a change in the shape of a prior art device is a design consideration within the level of skill of one skilled in the art.” *Id.* (citing *In re Dailey*, 357 F.2d 669 (CCPA 1966)).

Appellant contends that the claim term “consisting of” is exclusionary. Appeal Br. 4. We agree. There is an “exceptionally strong presumption that a claim term set off with ‘consisting of’ is closed to unrecited elements.” *Multilayer Stretch Cling Film Holdings, Inc. v. Berry Plastics Corp.*, 831 F.3d 1350, 1359 (Fed. Cir. 2016). Appellant also

contends that the exclusionary nature of “consisting of,” coupled with the term “directly,” distinguishes over Kaylor and Gage, which both require binder fibers to hold the carrier fibers together. *Id.* at 4–5. According to Appellant, if one were to modify Fenner in view of Kaylor and/or Gage, they would modify Fenner to include “a combination of binder and carrier fibers, which does not comport with the claim language.” *Id.* at 5. Appellant further contends that even if one were to modify the material type of some of Kaylor’s fibers, “such that [Kaylor’s] polyester fibers were thermoplastic,” “[this] would still teach a homogenous blend, and not a layer ‘consisting of’ one type of fibers, as claimed.” *Id.*

These contentions are unpersuasive. Claim 1 requires the first material to consist of “thermoplastic resin filaments.” The claim does not, however, recite that the “thermoplastic resin filaments” are of only “one type of fibers,” or exclude a “blend” consisting of (thermoplastic resin) carrier fibers and (thermoplastic resin) binder fibers.

Appellant also contends that the Examiner has improperly relied on case law because “Appellant has established criticality of the claimed combination in at least [paragraph 19].” Appeal Br. 5.

Appellant does not, however, identify a particular “criticality of the claimed combination” that is purportedly established by paragraph 19. We note paragraph 19 describes an exemplary cushion 28 including an upper layer 32, a lower layer 34, and a middle layer 36. *See Spec.* ¶ 19. Paragraph 19 describes that the “resulting cushion 28” has “the arrangement and combination of materials *described above*.” *Id.* (emphasis added). We understand that “described above” refers to “the arrangement and combination of materials” of upper layer 32, lower layer 34, and middle

layer 36, as described in preceding paragraphs 16–18 and shown in Figure 2. Claim 1 does not, however, recite various details of layers 32, 34, 36 described in paragraphs 16–18, such as, for example, numerical values of the densities of first and second materials, or numerical values of the heights of the respective upper, lower, and middle layers. *See id.* ¶¶ 16–18. To the extent Appellant is contending that “the resulting cushion 28” described in paragraph 19 establishes the criticality of the claimed multilayered cushion, we are unpersuaded.

In the Reply Brief, Appellant contests the Examiner’s findings and reasoning as to why it would have been obvious to make Kaylor’s binder fibers of thermoplastic. Reply Br. 1–2 (citing Ans. 4). However, the Examiner found that polyester fibers can be thermoplastic, and concluded that it would have been obvious to modify Kaylor’s polyester binder fibers to be thermoplastic fibers, in the Non-Final Action. *See* Non-Final Act. 5. Apart from specific exceptions, arguments not raised in the Appeal Brief, but raised for the first time in the Reply Brief, “will not be considered by the Board for purposes of the present appeal, unless good cause is shown.” 37 C.F.R. § 41.41(b)(2). Appellant does not show good cause why this new argument concerning Kaylor’s binder fibers could not have been made earlier.²

² Additionally, we note Kaylor describes, “[i]t is an inherent characteristic of thermoplastic fibers such as polyester that they become sticky and tacky when melted, as that term is used herein.” *See* Kaylor col. 6, ll. 65–67. Kaylor also describes polyester binder fibers and appears to disclose, or suggest, use of thermoplastic binder fibers, which supports the Examiner’s position. *Id.* at col. 6, ll. 53–67.

Accordingly, we sustain the rejection of claim 1, and claim 2 which is not separately argued, as unpatentable over Fenner, Kaylor, and Gage.

Claim 13

Independent claim 13 recites a multilayered cushion comprising, *inter alia*, a first layer and a second layer of a first material including the first material limitations recited in claim 1, and, additionally, recites “the first material has a density within a range of 1.5–3.5 lb/ft³” and “a third layer of a second material . . . [that] has a density within a range of 1.2–6.0 lb/ft³.”

Appeal Br. 11 (Claims App.).

The Examiner determines that it would have been obvious to modify Fenner’s first and second materials to have the claimed densities “in order to cater to the user’s specific desired comfort level and the optimization of proportions in a prior art device is a design consideration within the skill of the art.” Non-Final Act. 7 (citing *In re Reese*, 290 F.2d 839 (CCPA 1961)).

Appellant contends that Kaylor and Gage both teach homogenous blends of carrier and binder fibers, and thus, cannot render obvious the claimed “a layer ‘consisting of’ one type of filament.” Appeal Br. 7. This contention is unpersuasive for the reasons discussed above for the rejection of claim 1 over Fenner, Kaylor, and Gage.

Appellant also contends that the Examiner has improperly relied on case law because Appellant has established criticality of the claimed density ranges. Appeal Br. 5, 7. Appellant appears to rely on paragraphs 18 and 19 of the Specification. *Id.* at 6 (“Appellant has established criticality for the claimed range.”) (citing Spec. ¶¶18–19).

In situations “where the difference between the claimed invention and the prior art is some range or other variable within [a claim],” “[Appellant]

must show that the particular range is *critical*, generally by showing that the claimed range achieves unexpected results relative to the prior art range.” *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990). “[W]hen the difference between the claimed invention and the prior art is the range or value of a particular variable,’ then a patent should not issue if ‘the difference in range or value is minor.’” *Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1321 (Fed. Cir. 2004) (citing *Haynes Int’l v. Jessop Steel Co.*, 8 F.3d 1573, 1577 n. 3 (Fed. Cir. 1993)).

First, we note Fenner discloses that the upper and lower layers can have a density range of about 2.0–2.7 lbs/ft³, which falls within the recited first material density range of the first and second layers, and the middle layer can have a density of about 1.8 to 2.0 lbs/ft³, which falls within the recited second material density range. *See* Fenner col. 4, ll. 20–24, 56–59.

Second, Appellant does not explain what particular criticality of the density ranges is purportedly established by paragraphs 18 and 19 of the Specification. We note, for example, that paragraph 18 appears to refer to the example cushion 28 described in paragraphs 16 and 17. As described in paragraphs 16 and 17, example cushion 28 can have various height values (H₁, H₂, H₃, H₄), none being recited in claim 13. Further, paragraph 18 describes that the second material can have a density corresponding to the density range recited in claim 13, but neither paragraph 18 nor 19 describes that the same example has the density range of the first material recited in claim 13. Accordingly, claim 13 does not recite various details of layers 32, 34, 36 of cushion 28 as described in paragraphs 16–18. Additionally, Appellant does not show with persuasive evidence that the recited density ranges achieve an unexpected result as compared to the prior art. *See*

Woodruff, 919 F.2d at 1578. Accordingly, we are not persuaded that paragraphs 18 and 19 establish the criticality of the density ranges recited in claim 13.

Appellant contends that Kaylor does not teach density values comparable to the claimed values, as “Kaylor refers to densities in units of ounces per *square foot*, which is a two-dimensional density,” whereas “[t]he claimed densities are in terms of pounds per *cubic foot*, which is a three-dimensional density.” Appeal Br. 7. Thus, Appellant contends, it is unclear how one could optimize Kaylor to exhibit the claimed three-dimensional density. *Id.*

The applicable legal principles for the optimization of a claimed variable are:

“[W]here the general conditions of a claim 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 [(CCPA 1955)]. This rule is limited to cases in which the optimized variable is a “result-effective variable.” *In re Antonie*, 559 F.2d 618, 620 (CCPA 1977); *see* [*In re*] *Boesch*, 617 F.2d [272,] 276 [(CCPA 1980)] (“[D]iscovery of an optimum value of a result effective variable . . . is ordinarily within the skill of the art.”).

In re Applied Materials, Inc., 692 F.3d 1289, 1295 (Fed. Cir. 2012). “A recognition in the prior art that a property is affected by the variable is sufficient to find the variable result-effective.” *Id.* at 1297.

Fenner discloses that the density of the layers contributes to the comfort of the foam mattress. *See id.* col. 4, ll. 59–68. Hence, Fenner teaches that the density of the layers affects a property, and thus, is recognized as a result-effective variable. The Examiner reasons that it would have been obvious to optimize the density of the first, second, and

third layers of the combination to meet the user's desired comfort level.

Non-Final Act. 7. Fenner also teaches or suggests the recited density ranges of the first and second materials.

Furthermore, Kaylor discloses that relatively low density outer fiber batts 200, 300 can each have a lower density than that of high density core fiber batt 100. *See* Kaylor col. 3, ll. 52–58. Kaylor describes that “[t]he foregoing examples are illustrations of suitable densities and not limitations to the scope of the invention.” *Id.* col. 4, ll. 1–3. Kaylor further describes that the densities of the fiber batts affect their firmness and softness, and thus, teaches that density is a result-effective variable. *Id.* col. 4, ll. 3–15. Although Kaylor describes “two-dimensional density” values of the fiber batts, a skilled artisan would understand that the fibers of Kaylor's fiber batts form a three-dimensional structure, as depicted in Figure 2. Appellant does not explain persuasively why one of ordinary skill in the art would have lacked the requisite skill to optimize the density of fiber batts in Kaylor to exhibit the claimed three-dimensional density values. Appeal Br. 7.

As Appellant does not apprise us of error in the Examiner's determination that the recited density ranges of the first and second materials would have been obvious over Fenner, Kaylor, and Gage, we also sustain the rejection of claim 13.

Claims 1 and 13 over Kaylor and Gage

As to claim 1, the Examiner finds that Kaylor discloses a multilayered cushion comprising a first layer (first outer fiber batt 200) and a second layer (second outer fiber batt 300) both of a first material, and a third layer (core fiber batt 100) of a second material stiffer than the first material between the

first and second layers. Non-Final Act. 7. The Examiner finds that Kaylor discloses each recited first material limitation except for the fibers being helically arranged. *Id.* at 7–8. The Examiner relies on Gage as teaching this feature. *Id.* at 8.

For claim 13, the Examiner finds that Kaylor and Gage teach each recited limitation except for the density ranges of the first and second materials. Final Act. 9. The Examiner determines, however, that it would have been obvious to modify Kaylor’s first and second materials to have the claimed densities “in order to cater to the user’s specific desired comfort level and the optimization of proportions in a prior art device is a design consideration within the skill of the art.” Non-Final Act. 9 (citing *Reese*, 290 F.2d 839).

Appellant contests the rejection of claims 1 and 13 over Kaylor and Gage “for essentially the same reasons” as for the rejection of these claims over Fenner, Kaylor, and Gage. Appeal Br. 6.

Appellant’s contentions are unpersuasive for reasons similar to those discussed for the rejection of claims 1 and 13 over Fenner, Kaylor, and Gage. Accordingly, we sustain the rejection of claims 1 and 13 as unpatentable over Kaylor and Gage.

Claims 3, 4, and 6–16 over Fenner, Kaylor, and Gage

Claims 3 and 4

Independent claim 3 recites a multilayered cushion comprising, *inter alia*, a first layer and a second layer of a first material, “wherein the first material has a density within a range of 1.5–3.5 lb/ft³”; and “a third layer of a

second material . . . [that] has a density within a range of 1.2–6.0 lb/ft³.”

Appeal Br. 9 (Claims App.).

Appellant points out correctly that the Examiner does not reference Fenner or Gage, but only Kaylor, in the body of the rejection. Appeal Br. 6 (citing Non-Final Act. 10). Appellant contends that this makes the rejection unclear, and thus, there is no *prima facie* case of obviousness. *Id.* The Examiner responds that the rejection of claims 3 and 4 should have been over Kaylor only, and not over Fenner, Kaylor, and Gage. Ans. 6. The Examiner states, “[d]espite this clerical issue, the rejection’s basic thrust is not impacted or changed in any way as a result of being included in the section with claims 6–16, and is therefore not unclear.” Ans. 6. Appellant replies that the rejection of claims 3 and 4 should be reversed because of the unclear grounds of rejection in the Non-Final Action. Reply Br. 3. Appellant asserts, “[t]he Examiner could have clarified the grounds of rejection by withdrawing the incorrect ground of rejection and entering a new, correct ground of rejection via the Answer. Since the Examiner has not done so, the incorrect ground of rejection is still the rejection of record.” *Id.*

As set forth in 37 C.F.R. § 41.39(a)(1),

An examiner’s answer is deemed to incorporate all of the grounds of rejection *set forth in the Office action from which the appeal is taken* (as modified by any advisory action and pre-appeal brief conference decision), *unless the examiner’s answer expressly indicates that a ground of rejection has been withdrawn.* (Emphasis added).

Here, the Examiner’s Answer does not expressly indicate that the rejection of claims 3 and 4 over Fenner, Kaylor, and Gage set forth in the Non-Final Action has been withdrawn. Accordingly, we treat the Examiner’s Answer as incorporating this rejection. As the Examiner does

not explain in the Non-Final Action how claims 3 and 4 are rejected over Fenner, Kaylor, and Gage, we do not sustain this rejection of claims 3 and 4.

However, we enter a new ground of rejection of claims 3 and 4 over Fenner and Kaylor. Appellant contests the Examiner's determination that it would have been obvious to modify Kaylor to have the recited density ranges in light of *Reece*. Appeal Br. 6. Appellant asserts that it has "established criticality for the claimed range." *Id.* (citing Spec. ¶¶18–19).

This contention is unpersuasive. Claim 3 recites the same density ranges of the first and second material as claim 13. For the same reasons discussed above for the rejection of claim 13 over Fenner, Kaylor, and Gage, Appellant's contention as to criticality is also unpersuasive as to claim 3.

Appellant also contends that Kaylor does not teach density values comparable to the claimed values. Appeal Br. 7. Thus, Appellant contends, it is unclear how one could optimize Kaylor to exhibit the claimed three-dimensional density. *Id.*

For the same reasons discussed above for the rejection of claim 13 over Fenner, Kaylor, and Gage, Appellant's contentions as to optimization of the density ranges of the first and second materials as taught by the combination are unpersuasive for claim 3. Thus, we enter a new ground of rejection of claims 3 and 4 as unpatentable over Fenner and Kaylor pursuant to 37 C.F.R. § 41.50(b).

Claims 6–16

Appellant contends that the Examiner provides no analysis for the rejection of claim 13 in the Non-Final Action, and thus, has not established a *prima facie* case of obviousness. Appeal Br. 7 (citing Non-Final Act. 10).

We disagree. It is sufficiently clear that claim 13 is not addressed in the body of the rejection because it was rejected earlier in the Non-Final Action over Fenner, Kaylor, and Gage, as discussed above. *See* Ans. 7–8 (explaining claim 13 is addressed in two alternative rejections at pages 6–7 and 8–9 of the Non-Final Action).

We further understand that, for claims 6–12 and 14–16, which depend ultimately from claim 1 or 13, the Examiner is relying on additional teachings of Kaylor, that is, teachings in addition to those relied on in rejecting claims 1 and 13 over Fenner, Kaylor, and Gage. *See* Non-Final Act. 10–14. Appellant relies solely on the dependency of claims 6–12 and 14–16 from claim 1 or 13 for patentability. Thus, we sustain the rejection of claims 6–12 and 14–16 over Fenner, Kaylor, and Gage for the same reasons as for claims 1 and 13.

Claims 3, 4, and 6–16 over Kaylor and Gage

Claims 3 and 4

We do not sustain the rejection of claims 3 and 4 over Kaylor and Gage for the same reasons discussed above for the rejection of claims 3 and 4 over Fenner, Kaylor, and Gage.

Claims 6–16

Appellant contends that the Examiner provides no analysis for the rejection of claim 13 in the Non-Final Action, which is again unpersuasive. Appeal Br. 7 (citing Non-Final Act. 10). Claim 13 was rejected earlier in the Non-Final Action over Kaylor and Gage, as discussed above. *See* Ans. 7–8.

Further, for claims 6–12 and 14–16, the Examiner is relying on additional teachings of Kaylor. *See* Non-Final Act. 9–14. Appellant merely

relies on the dependency of these claims from claim 1 or 13 for patentability. Thus, we sustain the rejection of claims 6–12 and 14–16 over Kaylor and Gage for the same reasons as for claims 1 and 13.

CONCLUSION

In summary:

Claim(s) Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed	New Ground
1–4, 6–16	103	Fenner, Kaylor, Gage	1, 2, 6–16	3, 4	
1–4, 6–16	103	Kaylor, Gage	1, 2, 6–16	3, 4	
3, 4		Fenner, Kaylor			3, 4
Overall Outcome			1, 2, 6–16		3, 4

FINALITY OF DECISION AND RESPONSE

This Decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). 37 C.F.R. § 41.50(b) provides “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.” 37 C.F.R. § 41.50(b) also provides:

When the Board enters such a non-final decision, [Appellant], within two months from the date of the decision, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

- (1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the prosecution will be remanded to the examiner. The new ground of rejection is binding

upon the Examiner unless an amendment or new Evidence not previously of Record is made which, in the opinion of the examiner, overcomes the new ground of rejection designated in the decision. Should the examiner reject the claims, [Appellant] may again appeal to the Board pursuant to this subpart.

- (2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same Record. The request for rehearing must address any new ground of rejection and state with particularity the points believed to have been misapprehended or overlooked in entering the new ground of rejection and also state all other grounds upon which rehearing is sought.

Further guidance on responding to a new ground of rejection can be found in MPEP § 1214.01.

AFFIRMED-IN-PART; 37 C.F.R. § 41.50(b)