

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TUFTCO CORP.,
Petitioner,

v.

CARD-MONROE CORP.,
Patent Owner.

Case IPR2015-00505
Patent 8,141,505 B2

Before KEN B. BARRETT, MEREDITH C. PETRAVICK,
and CARL M. DEFRANCO, *Administrative Patent Judges*.

BARRETT, *Administrative Patent Judge*.

DECISION

Denying Institution of *Inter Partes* Review
35 U.S.C. § 314(a) and 37 C.F.R. § 42.108

I. INTRODUCTION

Tuftco Corp. filed a Petition (Paper 2, “Pet.”) for an *inter partes* review of U.S. Patent No. 8,141,505 B2 (“the ’505 patent”). The Petition challenges the patentability of claims 1–19 of the ’505 patent on the ground of obviousness under 35 U.S.C. § 103(a). Card-Monroe Corp., the owner of the ’505 patent, filed a Preliminary Response to the Petition. Paper 5. We have jurisdiction under 35 U.S.C. § 314(a).

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314(b); 37 C.F.R. § 42.4(a). Pursuant to 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

For the reasons that follow, we deny the Petition.

II. BACKGROUND

A. *The ’505 Patent*

The ’505 patent pertains to a method of controlling the feeding and placement of yarns of different colors in tufted articles such as carpets. Ex. 1001, col. 1, ll. 11–19. The yarn color placement system described in the specification utilizes a shift mechanism to shift the needle bar(s) transversely and a yarn feed attachment for controlling the feeding of yarn to the needles. *Id.* at col. 2, ll. 9–10, 26–30. According to the specification, “[t]he yarn color placement system according to the principles of the present invention further generally will be operated at increased or denser effective

process stitch rates than conventional tufting processes.” *Id.* at col. 2, ll. 60–63. Yarns of colors not to be visible in the completed pattern may be pulled low so as to be hidden or buried, or may be pulled out of the backing. *Id.* at col. 9, ll. 3–10, 19–25. This is performed by the yarn feed attachment. *Id.* at col. 6, l. 67–col. 7, l. 5.

B. The Challenged Claims

The Petition challenges the patentability of claims 1–19. Of the challenged claims, claims 1 and 8 are independent. These two independent claims are reproduced below.

1. A method of tufting patterned articles including tufts of multiple different color yarns, comprising:
 - feeding a backing material through a tufting machine at a prescribed stitch rate for the patterned tufted article;
 - as the backing material is fed through the tufting machine, reciprocating a series of needles to deliver the yarns into the backing material;
 - engaging the yarns delivered into the backing material by the needles with a series of gauge parts to pull loops of yarns from the needles for forming tufts of yarns in the backing material;
 - shifting at least some of the needles transversely according to a shift profile of a pattern for the article;
 - selectively controlling feeding of the yarns to the needles in accordance with the shift profile of the pattern for the article to form high tufts of yarns and to pull back loops of yarns as desired;
 - wherein the tufts of yarns are formed in the backing material at an increased effective process stitch rate that is substantially equivalent to the prescribed stitch rate times the number of different colors formed in the pattern.

Ex. 1001, col. 9, l. 64–col. 10, l. 18.

8. A method of operating a tufting machine to form patterned tufted articles having multiple colors, comprising:
feeding a backing material through the tufting machine;
feeding a plurality of yarns to a series of needles carried by a shiftable needle bar;
shifting the needle bar transversely according to a programmed shift profile for the pattern of the tufted article;
controlling the feeding of the yarns to the needles in accordance with programmed pattern instructions so as to feed desired amounts of the yarns to the needles as needed to form rows of high and low tufts of yarns in the backing material;
forming the tufts of yarns at an increased effective stitch rate determined by multiplying the number of colors being formed in the patterned tufted article by a desired fabric stitch rate that comprises a number of stitches per inch desired for the patterned tufted articles; and
wherein the feeding of the yarns to form the high and low tufts tracks the shifting of the needles so as to substantially maintain density of the tufts of yarns being formed in the backing material in a direction of the rows of tufts and location of the high tufts of yarns at desired positions across the backing to form the patterned tufted articles.

Id. at col. 10, ll. 39–61.

C. Related Matters

The parties identify, as a related proceeding involving the '505 patent, *Card-Monroe Corp. v. Tuftco Corp.*, Civil Action No. 1:14-cv-00292 (E.D. Tenn.). Pet. 2; Paper 3 (“Patent Owner’s Mandatory Notice Information”).

D. The Asserted Grounds

Petitioner asserts the following grounds of unpatentability (Pet. 19, 34):

Reference[s]	Basis	Claims
Kaju ¹ and Admitted Prior Art ²	§ 103(a)	1–19
Smith, ³ Morgante '203, ⁴ Morgante '521, ⁵ and Admitted Prior Art	§ 103(a)	1–19

Petitioner also relies on the Declaration of Ian Slattery, dated December 23, 2014, (Ex. 1004) in support of Petitioner's arguments.

III. ANALYSIS

A. Claim Construction

In an *inter partes* review proceeding, we give claim terms in unexpired patents their broadest reasonable interpretation in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b). Under that standard, we assign claim terms their ordinary and customary meaning, as understood by a person of ordinary skill in the art, in the context of the entire patent disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

¹ U.S. Patent No. 5,392,723, iss. Feb. 28, 1995 (Ex. 1005).

² Petitioner also characterizes both grounds as being based on “conventional tufting prior art” rather than Admitted Prior Art. See Pet. 4.

³ U.S. Patent No. 7,426,895 B2, iss. Sept. 23, 2008 (Ex. 1017).

⁴ U.S. Patent No. 6,244,203 B1, iss. June 12, 2001 (Ex. 1006).

⁵ U.S. Patent No. 6,502,521 B2, iss. Jan. 7, 2003 (Ex. 1007).

On this record and for purposes of this Decision, we determine that only the claim terms addressed below require express construction.

1. *Prescribed Stitch Rate and Desired Fabric Stitch Rate*

Independent claim 1 recites the step of “feeding a backing material through a tufting machine at a prescribed stitch rate for the patterned tufted article.” Independent claim 8 recites “a desired fabric stitch rate that comprises a number of stitches per inch desired for the patterned tufted articles.” The parties agree that the phrases “prescribed stitch rate” and “desired fabric stitch rate” are synonymous. *See* Pet. 12; Prelim. Resp. 12.

The specification explains that, in some conventional machines, stitch rate generally has been matched to the gauge (the number of needles per inch in the widthwise direction). *See* Ex. 1001, col. 5, ll. 31–43, Fig. 3 (depicting needles 36 arranged in the widthwise direction of the tufted article). The parties appear to agree that a “stitch rate” refers to the number of stitches in the longitudinal direction. *See* Pet. 12–13 (proposing a construction of “effective process stitch rate” in terms of stitches in the longitudinal direction); Prelim. Resp. 12 (proposing a construction of “prescribed stitch rate” in terms of stitches in the longitudinal direction); *see also* Ex. 1004 ¶ 54 (Petitioner’s expert referring to “a usual prescribed longitudinal stitch rate.”). The specification offers the example where there are ten needles per inch and, thus, “the desired or prescribed fabric stitch rate typically will be approximately ten stitches per inch.” Ex. 1001, col. 5, ll. 39–41.

The parties’ proposed constructions differ in that Petitioner maintains that the prescribed or desired stitch rate is that resulting in a “square

construction.” Pet. 12; Prelim. Resp. 12. We do not see a need to incorporate what appears to be an area component into an otherwise linear measurement. For purposes of this Decision, we construe “prescribed stitch rate” and “desired fabric stitch rate” as meaning the number of stitches per inch in the longitudinal direction, where that number is approximately equal to the number of needles per inch in the transverse direction across the tufted article.

2. *Effective Process Stitch Rate and Effective Stitch Rate*

Independent claim 1, with emphasis added, recites: “the tufts of yarns are formed in the backing material at an increased *effective process stitch rate* that is substantially equivalent to the prescribed stitch rate times the number of different colors formed in the pattern.” Independent claim 8 recites an “effective stitch rate” similarly determined. The parties do not draw a distinction between the two effective-stitch-rate terms. *See* Pet. 12–13; Prelim. Resp. 14 (Patent Owner stating that the phrase including “process” appears in claims 1 and 8). For purposes of this Decision, we treat “effective process stitch rate” and “effective stitch rate” as synonymous and use the two terms interchangeably.

Petitioner argues that “[e]ffective process stitch rate” refers to the number of needle bar strokes over a longitudinal increment of backing material.” Pet. 13. Petitioner offers no basis for this construction other than a citation to the declaration of its expert. *Id.* (citing Ex. 1004 ¶ 54⁶). The

⁶ To the extent the declaration testimony contains claim construction arguments, Petitioner’s reliance thereon is an inappropriate incorporation by reference. 37 C.F.R. § 42.6(a)(3).

cited paragraph is the declarant's application of the Kaju reference to the limitation along with a conclusory assertion that the phrase "reflects not the number of yarn tufts, but instead the number of needle bar strokes."

Ex. 1004 ¶ 54. Thus, Petitioner offers no persuasive argument or evidence as to why its proposed claim construction is correct.

Patent Owner argues that effective process stitch rate "refers to the number of needles that actually insert yarn tufts into the backing per linear (not square) inch." Prelim. Resp. 14. As Patent Owner points out, the specification describes the desired increased tuft density as resulting from the increased number of stitches per inch. *Id.* at 14–15; *see, e.g.*, Ex. 1001, col. 5, ll. 43–47 ("In the present invention, the operative or effective process stitch rate run by the yarn color placement system will be substantially higher or faster than typical desired fabric stitch rates, thus providing enhanced or increased density of the tufts formed in the backing material."). Further, Patent Owner's proposed construction is consistent with the language of the claims which recite "tufts of yarns are formed . . . at an increased effective process stitch rate" (claim 1) and "forming the tufts of yarns at an increased effective stitch rate" (claim 8). Petitioner's proposed construction, where the term apparently would encompass needle bar strokes even if no tufts were created, is inconsistent with the claim language and the description in the specification.

Additionally, Patent Owner's proposed construction—referring to stitches per linear inch rather than per unit area—is consistent with our construction of prescribed/desired stitch rate, which is in terms of stitches per inch in the longitudinal direction.

Accordingly, for purposes of this Decision, we adopt Patent Owner's construction of "effective process stitch rate" and "effective stitch rate" as the number of needles that actually insert yarn tufts into the backing per linear (not square) inch. Prelim. Resp. 14.

B. Obviousness of Claims 1–19 over Kaju and Admitted Prior Art
Petitioner asserts that claims 1–19 would have been obvious to a person of ordinary skill in the art over Kaju (Ex. 1005) and Admitted Prior Art. Pet. 19–34. Patent Owner argues that Petitioner has failed to show how the references teach certain claim limitations. Prelim. Resp. 39–40.

Both parties characterize the machine disclosed in Kaju as an Individually Controlled Needle (ICN) machine. Pet. 20; Prelim. Resp. 4–5. Kaju's machine has a needle select means that selects the needles to be inserted into the backing. Ex. 1005, col. 3, ll. 12–14. The needle select means is composed of, *inter alia*, a needle push bar, a plurality of needle holders, and a plurality of air cylinders. *Id.* at col. 6, ll. 17–20. Selected needles are latched to the needle push bar and are pierced into the backing material upon a needle push bar stroke. *See id.* at col. 7, ll. 1–10. Patent Owner explains "[i]n such a[n ICN] machine, if each needle is not engaged within a needle holder by an air cylinder, that needle does not move and thus no yarn is pulled thereby and no tuft is formed." Prelim. Resp. 19; *accord* Pet. 20 ("With ICN, the yarn feed is only active to selected needles for any particular needle bar stroke, so the needle selection acts as the pattern yarn feed control.").

Petitioner, in its claim charts, provides citations to “[a]dmitted prior art.” *See, e.g.*, Pet. 30.

1. *Selectively controlling feeding of yarns to pull back loops*

As mentioned, the ’505 patent discloses a method utilizing a yarn feed attachment to pull yarn low or out of the backing in locations where the particular yarn color is not to be visible. *See* Ex. 1001, col. 6, l. 67–col. 7, l. 5. Independent claim 1, with emphasis added, recites the step of “*selectively controlling feeding of the yarns to the needles* in accordance with the shift profile of the pattern for the article to form high tufts of yarns and *to pull back loops of yarns* as desired.” Petitioner identifies as the only distinction between the subject matter of claim 1 and Kaju that “claim 1 states that yarn loops are pulled back, while Kaju[] never tufts those yarn loops that are to be pulled back to a low height or out of the backing entirely.” Pet. 22.

Petitioner argues:

Although the method described in detail in Kaju-723 does not include the selective controlling of yarns to create high tufts of yarn and to pull back loops of yarn, it does contemplate that possibility of providing this feature by “controlling the length of yarn fed to the needle in each stroke cycle.”

Id. at 21 (citing Kaju, 5:19–24). Petitioner points out that, in Kaju, yarn is not fed to non-selected needles. *Id.* at 21–22. Petitioner’s expert explains that “[i]n the ICN technique of Kaju-723, it is not necessary to pull back loops of yarn, because the loops that would be pulled back are never tufted through the backing fabric.” Ex. 1004 ¶ 53. Thus, Kaju avoids the visibility of non-desired colors by not feeding such yarn to the backing. We fail to

see, and Petitioner does not adequately explain, how Kaju's disclosure of controlling the length of the yarn fed "contemplate[s]" selective controlling of the yarn to pull it back. Petitioner does not rely on any admitted prior art for this feature. See Pet. 21–23, 30. We determine that Petitioner has not offered persuasive argument or evidence to support the conclusion that a person of ordinary skill in the art would have found it obvious to selectively control feeding of yarn to pull back loops of yarn as recited in claim 1.

2. *Effective process stitch rate*

Independent claim 1 recites: "wherein the tufts of yarns are formed in the backing material at an increased effective process stitch rate that is substantially equivalent to the prescribed stitch rate times the number of different colors formed in the pattern." Independent claim 8 similarly recites the step of "forming the tufts of yarns at an increased effective stitch rate determined by multiplying the number of colors being formed in the patterned tufted article by a desired fabric stitch rate."

Patent Owner argues that Petitioner has failed to show how Kaju or any admitted prior art teach forming tufts at an increased effective process stitch rate or effective stitch rate. Prelim. Resp. 39–40; see *id.* at 22–24. We agree. Petitioner relies on Kaju for this feature. Pet. 22; see also *id.* at 25–26 (referring, for claim 8, to its arguments regarding claim 1). Petitioner asserts that, in a hypothetical situation applied to Kaju, "[t]he number of tufts of yarn formed in the backing material by Kaju-723 is the same as with conventional needle bar tufting in a square construction," but argues Kaju utilizes more needle strokes to obtain this tuft density thereby satisfying the claimed effective rate limitation. *Id.* Petitioner's arguments—in terms of

area (square construction) and needle bar strokes—are premised on its incorrect claim constructions for prescribed/desired stitch rate and effective process stitch rate. Accordingly, Petitioner’s arguments are not commensurate in the scope with the properly construed claim, and therefore are not persuasive.

Petitioner has not met its burden with regard to either independent claim 1 or independent claim 8. In addressing the remaining challenged claims, all of which depend from one of these independent claims, Petitioner does not present any persuasive argument or evidence that cures the underlying defects concerning the independent claims. Accordingly, Petitioner has not demonstrated a reasonable likelihood of prevailing on its assertion that claims 1–19 are unpatentable over Kaju and admitted prior art.

C. Obviousness of Claims 1–19 over Smith, Morgante ’203, Morgante ’521, and Admitted Prior Art

Petitioner asserts that claims 1–19 would have been obvious to a person of ordinary skill in the art over Smith (Ex. 1017), Morgante ’203 (Ex. 1006), Morgante ’521 (Ex. 1007), and Admitted Prior Art. Pet. 34–56. Patent Owner argues Petitioner’s cited references, including the “Admitted Prior Art,” lack: “(1) selective controlling of yarn to pull back or ‘back-rob’ loops of yarn as desired; and (2) forming tufts of yarns at an increased effective stitch rate or process stitch rate.” Prelim. Resp. 44–45. For the reasons set forth below, we are not persuaded that Petitioner has established a reasonable likelihood of prevailing on its asserted ground based on Smith, Morgante ’203, Morgante ’521, and Admitted Prior Art.

Smith discloses a system with variable stitch rate control such that the rate of the feeding of the backing may be varied in order to control density of the face yarn. Ex. 1017, col. 5, ll. 24–59. Petitioner relies on the two Morgante references for, *inter alia*, the disclosure of independently controlled yarn feed attachments. Pet. 36–39. Petitioner, in its claim charts, provides citations to “[a]dmitted prior art.” *See, e.g., id.* at 53.

1. *Selectively controlling feeding of yarns to pull back loops*

For independent claim 1, Petitioner argues that “Smith describes the selective controlling of yarns to create high tufts of yarn and to pull back loops of yarn.” *Id.* at 42. However, Petitioner does not explain, and it is not clear to us, how any of the cited portions (*see id.* at 42, 52) of Smith, Morgante ’521, and admitted prior indicate that it was known in the prior art to selectively control feeding of yarns to pull back loops. As such, we are not persuaded that Petitioner has established a reasonable likelihood of prevailing on its assertion that the subject matter of claim 1—including the selective controlling of yarn to pull back loops—would have been obvious.

2. *Effective process stitch rate*

Petitioner asserts that Smith discloses an apparatus that could be capable of forming tufts at the claimed effective process stitch rate but notes that Smith does not disclose that the specific claimed rate should be used. Pet. 42. Petitioner argues one would be motivated to increase the needle stroke rate and that “[t]he precise ratio of the claim is shown in the high/low multicolor patterning described in Morgante ’521.” *Id.* at 43 (citing Ex. 1007, col. 8, ll. 53–63); *see id.* at 47 (citing the same and Ex. 1004 ¶ 95). Petitioner’s arguments—in terms of the number of needle bar strokes rather

than the number of tufts formed—are not commensurate with the properly construed claim.

Further, the cited portion of Morgante '521 does not disclose any “precise ratio.” Rather, the cited paragraph merely discloses the use of two needle bars utilizing four colors of yarn. *See* Ex. 1007, col. 8, ll. 53–63. The purported disclosure of the claimed ratio is developed by Petitioner’s expert through the creation of a hypothetical situation using four colors and two needle bars. Pet. 43; Ex. 1004 ¶ 78. We find the expert’s calculations to be flawed. The hypothetical situation has two needle bars inserting four colors of yarn at “the usual prescribed stitch rate . . . [of] 10 yarn tufts per inch.” Ex. 1004 ¶ 78. Thus, the claimed rate should be 40 tufts per inch (the prescribed rate of ten times four colors). However, Petitioner’s expert concludes that the hypothetical situation results in 20 needle bar strokes per inch for the combined two needle bars. *Id.* Petitioner’s reliance (Pet. 43) on the expert’s alternative calculation (Ex. 1004 ¶ 78), where two colors are tufted by one needle bar, is likewise misplaced as the pertinent claim limitations refer to number of colors in the pattern (thus, four in the hypothetical) not the number of colors for one needle bar.

To the extent that Petitioner asserts the claimed rate would be obvious, we are not persuaded. Petitioner argues one would be motivated to increase the stitch rate based upon the desired density but does not adequately explain why one would select the claimed effective process stitch rate. Pet. 43, 47. Petitioner’s expert testifies:

[w]hile the amount of increase [from the prescribed rate to the effective process stitch rate] could vary significantly depending

upon the types of yarns and pile heights used in a particular pattern, it would in most circumstances be in the range of from one to two times the “prescribed stitch rate” corresponding to the gauge of the needles.

Ex. 1004 ¶ 87. Petitioner does not explain why, where the typical increase purportedly is one to two times, the ordinary artisan would utilize an effective rate of four times the prescribed stitch rate for a four-color pattern such as mentioned in Morgante ’521.

Petitioner has failed to demonstrate a likelihood of prevailing with respect to the effective process stitch rate limitation of claim 1 or the effective stitch rate limitation of claim 8.

We determine that Petitioner has not met its burden with regard to either independent claim 1 or independent claim 8. In addressing the remaining challenged claims, all of which depend from one of these independent claims, Petitioner does not present any persuasive argument or evidence that cures the underlying defects concerning the independent claims. Accordingly, Petitioner has not demonstrated a reasonable likelihood of prevailing on its assertion that claims 1–19 are unpatentable over Smith, Morgante ’203, Morgante ’521, and admitted prior art.

IV. CONCLUSION

For the reasons discussed above, we determine Petitioner has failed to demonstrate there is a reasonable likelihood that Petitioner would prevail with respect to at least one of the claims challenged in the Petition.

V. ORDER

Accordingly, it is
ORDERED that pursuant to 35 U.S.C. § 314(a), *inter partes* review is
denied.

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