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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JAMES J. BARNAT,
PHILIP BLANKENSHIP,
RICHARD STEGER,
TODD LYNN,
JASON BAUSANO,
JEHNA DENT,
and TIM MCKINNEY

Appeal 2013-000388
Application 12/395,318
Technology Center 1700

Before HUBERT C. LORIN, KAREN M. HASTINGS, and
DEBORAH KATZ, *Administrative Patent Judges*.

LORIN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

James J. Barnat, et al. (Appellants) seek our review under 35 U.S.C. § 134 of the final rejection of claims 1-4, 6, 8-12, 14-17, 19-22, 25-28, 30-51, and 53-58. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

SUMMARY OF DECISION

We AFFIRM.¹

THE INVENTION

“The present invention relates to a crack resistant layer with good beam fatigue properties and a method of selecting same. More particularly, the present invention relates to a bituminous binder with a critical amount of conjugated diene, which allows for enhanced fatigue resistant properties in a crack resistant layer.” Specification [0001].

Claim 1, reproduced below, is illustrative of the subject matter on appeal.

1. A method of producing a crack resistant layer to be applied to an existing surface, the method comprising the steps of:

(1) forming a bituminous mixture comprising a bituminous binder and an aggregate, where the bituminous binder comprises bitumen and one or more polymers, where the one or more polymers include a sufficient amount of conjugated diene such that at least 2.5% of the bituminous binder's weight comprises conjugated diene;

¹ Our decision will make reference to the Appellants' Appeal Brief (“Br.,” filed Mar. 30, 2012, the Examiner's Answer (“Answer,” mailed June 29, 2012), and the Final Rejection (“Final,” mailed Nov. 2, 2011).

- (2) forming a specimen sample from the bituminous mixture;
- (3) testing the specimen layer using a beam fatigue test;
- (4) if the beam fatigue test results in 5,000 to 100,000 cycles to failure, producing a crack resistant layer comprising the bituminous mixture; and

(5) if the beam fatigue test does not result in 5,000 to 100,000 cycles to failure:

(a) forming a new bituminous mixture comprising a new bituminous binder and an aggregate, where the new bituminous binder comprises bitumen and one or more polymers, where the one or more polymers of the new bituminous binder include a greater amount of conjugated diene than the amount of conjugated diene of the bituminous binder; and

(b) repeating steps (2) through (5) substituting the new bituminous mixture for the bituminous mixture.

THE REJECTIONS

The Examiner relies upon the following as evidence of unpatentability:

Blankenship '408	US 6,830,408 B1	Dec. 14, 2004
Blankenship '802	US 2007/0028802 A1	Feb. 8, 2007
Crews	US 2008/0060551 A1	Mar. 13, 2008

M.P. Wagoner et al., *Disk-shaped Compact Tension Test for Asphalt Concrete Fracture*, 45 SOC'Y FOR EXPERIMENTAL MECHANICS 270 (2005).

The following rejections are before us for review:

1. Claims 1-4, 6, 25-28, 30, 32-38, 48-51, and 53 are rejected under 35 U.S.C. § 102(b) as being anticipated by Blankenship '408.

2. Claims 1-4, 6, 8-10, 25-28, 30, 32-38, 48-51, and 53 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Blankenship '408.
3. Claims 10-12, 14-17, 19-21, 39-46, and 55-58 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Blankenship '408 and Wagoner.
4. Claims 1, 22, and 47 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Blankenship '408 and Blankenship '802.
5. Claims 31 and 54 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Blankenship '408 and Crews.

ISSUE

Did the Examiner err in rejecting the claims over the prior art?

ANALYSIS

The rejection of claims 1-4, 6, 25-28, 30, 32-38, 48-51, and 53 under 35 U.S.C. § 102(b) as being anticipated by Blankenship '408.

Method claims 1-4, 6, 25-28, and 30

Step 5.(b) (*see supra*) of sole independent method claim 1 recites “repeating steps (2) through (5) substituting the new bituminous mixture for the bituminous mixture.”

In rejecting the claim as being anticipated, the Examiner states that “BLANKENSHIP teaches the initial required properties, the position is taken that it is not necessary to employ the repeating testing steps.” Final 3. In effect, the Examiner has conceded that Blankenship '408 does not

disclose step 5.(b). However, an anticipating reference must disclose every element of the claims, and place a person of ordinary skill in possession of the claimed invention. *Elan Pharms., Inc. v. Mayo Found. for Med. Educ. & Research*, 346 F.3d 1051, 1057 (Fed. Cir. 2003). As to the Examiner’s determination that it is unnecessary that Blankenship ‘408 disclose the further repetition that step 5.(b) calls for, “[a] prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements ‘arranged as in the claim.’” *Net MoneyIN Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008).

For the foregoing reasons, the rejection of the method claims is not sustained.

Crack resistant layer claims 32-38, 48-51, and 53

The Appellants do not provide a persuasive argument as to error in the anticipation rejection of these claims. The arguments (Br. 16-17) challenging the anticipation rejection address distinctions between the claimed subject matter and Blankenship ‘408 that center on limitations (namely the repeating steps of forming a new mixture and testing it as set forth in method claim 1) that the crack resistant layer claims 32-38, 48-51, and 53 do not include.

For the foregoing reasons, the rejection of the crack resistant layer claims is sustained.

The rejection of claims 1-4, 6, 8-10, 25-28, 30, 32-38, 48-51, and 53 under 35 U.S.C. § 103(a) as being unpatentable over Blankenship '408.

The rejection of claims 10-12, 14-17, 19-21, 39-46, and 55-58 under 35 U.S.C. § 103(a) as being unpatentable over Blankenship '408 and Wagoner.

The rejection of claims 1, 22, and 47 under 35 U.S.C. § 103(a) as being unpatentable over Blankenship '408 and Blankenship '802.

The rejection of claims 31 and 54 under 35 U.S.C. § 103(a) as being unpatentable over Blankenship '408 and Crews.

The Appellants argued the rejections together as a group. Claims 1-4, 6, 8-12, 14-17, 19-22, 25-28, 30-51, and 53-58 are also argued as a group (App. Br. 17). We select claim 1 as the representative claim for this group, and the remaining claims 2-4, 6, 8-12, 14-17, 19-22, 25-28, 30-51, and 53-58 stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(vii) (2007).

Claim 1 describes a process whereby (1) a bituminous mixture is formed from bituminous binder and aggregate, with the binder further comprising bitumen and one or more polymers that include “a sufficient amount of conjugated diene such that at least 2.5% of the bituminous binder’s weight comprises conjugated diene,” (2) forming a specimen layer from the bituminous mixture; (3) testing the specimen layer using a beam fatigue; and, alternatively, (4) producing a crack resistant layer if the beam fatigue results in 5,000 to 100,000 cycles to failure, or (5) repeating steps (1)-(5) with a new bituminous mixture including a greater amount of conjugate diene if the beam fatigue does not result in 5,000 to 100,000 cycles to failure.

There is no dispute that Blankenship discloses a bituminous binder

comprising bitumen and one or more polymers where one of the polymers can be a conjugated diene in an amount within a range broadly covering “at least 2.5% of the bituminous binder’s weight” (claim 1). *See* Appellants’ discussion in the Brief. “Blankenship further suggests using 1-20% by weight polymer in the binder. Therefore, the total amount of conjugated diene in the binder as a whole can range anywhere from .375% by weight to 20% by weight.” Br. 20 (emphasis omitted).

There is also no dispute that Blankenship discloses a specimen of a bituminous mixture achieving 100,000 cycles to failure (*see* col. 8, l. 42).

But the Appellants argue that the claim limitation “at least 2.5%” weight of conjugated diene distinguishes the claimed method from that of Blankenship, especially in connection to achieving beam fatigue results of 5,000 to 100,000 cycles to failure.

First, the Appellants argue that the “at least 2.5%” value claimed is critical *per se* and not a value one of ordinary skill would have been led to use given Blankenship’s more broadly disclosed range. Br. 21. This is an unpersuasive argument because Blankenship teaches one of ordinary skill in the art that an asphalt’s interlayer binder performance can be modified by including a conjugated diene. Col. 4, ll. 47-55. Given this, one of ordinary skill would have been led to use an amount of conjugated diene so as to provide a desired interlayer binder performance. The amount will depend on the interlayer binder performance desired, and that amount can range from about 1-20 % by weight of the binder (*see* Blankenship, claim 6), a range that covers “at least 2.5%” weight of conjugated diene as provided for by claim 1. *Cf.* Br. 21: “Blankenship’s suggested range of conjugated diene for

the aforementioned interlayer admittedly include 2.5%.”

Second, the Appellants argue that one of ordinary skill in the art would have to engage in substantial trial and error to determine that “at least 2.5%” weight of conjugated diene was the amount needed for “an acceptable bituminous mixture” (*id.*). This is part of a larger argument over the step of *selecting, in particular*, the amount of conjugated diene as the means of achieving an acceptable mixture. The Appellants challenge the obviousness of the claimed method over Blankenship on the ground that Blankenship discloses a number of different steps that one could take to get an acceptable interlayer. But “[t]he user would not know to manipulate *only* the conjugated diene, but would likely manipulate other of the multitudinous variables.” *Id.* at 21-22 (emphasis added). The difficulty with this argument lies in the wording of claim 1. Claim 1 does not set forth a method for obtaining an acceptable mixture solely through a manipulation of the amount of conjugated diene. The method as claimed seeks to produce a crack resistant layer when a bituminous mixture, comprising “at least 2.5%” weight of conjugated diene, achieves a beam fatigue test result of 5,000 to 100,000 cycles to failure. If the mixture does not at first achieve that result, the claimed method calls for forming a new bituminous mixture with a greater amount of conjugated diene. But the method as claimed is not limited to manipulating only the amount of conjugated diene. The claim broadly encompasses including any other manipulation so long as the final result is a mixture that achieves a beam fatigue test result of 5,000 to 100,000 cycles to failure.

Third, the Appellants argue that the “at least 2.5%” weight of

conjugated diene in the mixture *alone* is critical to achieving a beam fatigue test result of 5,000 to 100,000 cycles to failure. “The present invention pinpoints the particular variable, out of all the variables that go into making a layer, that has a direct impact on fatigue properties” Br. 23. As with the argument just discussed, this argument suffers from the same difficulty: claim 1 does not set forth a method for obtaining an acceptable mixture solely through a manipulation of the amount of conjugated diene. Claim 1 does not describe a process for achieving a beam fatigue test result of 5,000 to 100,000 cycles to failure that is solely attributable to the mixture having “at least 2.5%” weight of conjugated diene. Rather, the claimed method broadly covers making a mixture with “at least 2.5%” weight of conjugated diene such that it exhibits a beam fatigue test result of 5,000 to 100,000 cycles to failure. To underscore that point, steps (1)-(4) are not limited so as to exclude steps, other than manipulating the amount of conjugated diene, for ensuring the mixture exhibits a beam fatigue test result of 5,000 to 100,000 cycles to failure. We note the Appellants’ argument against Blankenship’s suggested use of 5.6% conjugated diene which falls within the claimed range but which the Appellants consider may be “more conjugated diene than is necessary to achieve layer capable of withstanding 5,000 to 100,000 cycles to failure, which is costly”*Id.* Again, the method of claim 1 is not limited to using *only* conjugated diene and in an amount necessary for the mixture to exhibit a beam fatigue test result of 5,000 to 100,000 cycles to failure.

Finally, the Appellants argue that:

Blankenship neither teaches nor suggests what to do if the beam

fatigue test does not result in 5,000 to 100,000 cycles to failure, namely, forming a new bituminous mixture with greater conjugated diene and testing the new bituminous mixture, and repeating this pattern until the beam fatigue test does result in 5,000 to 100,000 cycles to failure.

Id. at 27. This argument goes to step (5) of claim 1. But the Appellants do not address the Examiner's position; i.e.,

[w]ith regard to step (5), given the teachings of BLANKENSHIP to vary the amount of polymer depending on the hot or warm climates, it would have been obvious to vary the amount of polymer, for instance using 100 grams of the components, 92 g of asphalt, 8 g of polymer, and 70% diene (.70 (diene) x 8 (polymer)) which would equal 5.6% of diene (which would satisfy at least 2.5% of diene).

Final 6 (emphasis omitted). In our view, the Examiner has provided "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417-418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). The Examiner's position not having been sufficiently rebutted, we find the Appellants' argument unpersuasive as to error in the rejection.

The Appellants' arguments having been fully considered and found unpersuasive as to error in the obviousness rejection of claim 1, the obviousness rejections of claim 1, and claims 2-4, 6, 8-12, 14-17, 19-22, 25-28, 30-51, and 53-58 that stand or fall with claim 1, are sustained.

DECISION

The rejection of claims 1-4, 6, 25-28, and 30 under 35 U.S.C. § 102(b)

as being anticipated by Blankenship '408 is reversed.

The rejection of claims 32-38, 48-51, and 53 under 35 U.S.C. § 102(b) as being anticipated by Blankenship '408 is affirmed.

The rejections of claims 1-4, 6, 8-10, 25-28, 30, 32-38, 48-51, and 53 under 35 U.S.C. § 103(a) as being unpatentable over Blankenship '408; of claims 10-12, 14-17, 19-21, 39-46, and 55-58 under 35 U.S.C. § 103(a) as being unpatentable over Blankenship '408 and Wagoner; of claims 1, 22, and 47 under 35 U.S.C. § 103(a) as being unpatentable over Blankenship '408 and Blankenship '802; and, of claims 31 and 54 under 35 U.S.C. § 103(a) as being unpatentable over Blankenship '408 and Crews, are affirmed.

The decision of the Examiner to reject claims 1-4, 6, 8-12, 14-17, 19-22, 25-28, 30-51, and 53-58 is affirmed.

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

AFFIRMED

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