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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DAMON J. SERVIDIO

Appeal 2019-001743
Application 14/820,151
Technology Center 3700

Before PHILLIP J. KAUFFMAN, JEREMY M. PLENZLER, and
ALYSSA A. FINAMORE, *Administrative Patent Judges*.

KAUFFMAN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the
Examiner's decision to reject claims 1, 2, 4–18, 20, and 21. Final Act. 7–16.

We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

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

CLAIMED SUBJECT MATTER

Appellant's claimed invention relates to improvements to total knee prostheses. Spec. ¶¶ 7–8. Claims 1 and 17 are independent. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A total knee prosthesis, comprising:
 - a tibial component having a baseplate portion and a protruding portion extending from the baseplate portion;
 - an axle connectable to the tibial component; and
 - a femoral component having an articular surface and an opening for receipt of the axle, the opening defining a pivot center about which the femoral prosthesis rotates with respect to the tibial component, the articular surface having anterior and posterior portions, the posterior and anterior portions each being curved so as to define respective first and second flexion centers, the first flexion center being offset from the posterior portion by a first flexion radius, the second flexion center being offset from the anterior portion by a second flexion radius,wherein the first flexion center is positioned relative to the pivot center and to the second flexion center so that when the total knee prosthesis is implanted, a patella articulating with the articular surface of the femoral component has a maximum patellar tilt angle of about 35 degrees when the total knee prosthesis is articulated between 90 and 135 degrees of flexion.

REJECTION

Claims 1, 2, 4–18, 20, and 21 are rejected under 35 U.S.C. § 102(a)(1) as anticipated by Crabtree or, in the alternative, under 35 U.S.C. § 103 as unpatentable over Crabtree, as evidenced by NexGen.² Final Act. 7–16.³

ANALYSIS

A. Claim Construction

We begin with claim interpretation.

1. “about 35 degrees”

Independent claim 1 calls for a maximum patellar tilt angle of “about 35 degrees.” Independent claim 17 similarly calls for a tilt angle of the patella of “about 35 degrees.”

The Examiner disagrees with Appellant’s assertion that the claims limit the patellar tilt angle to a maximum 35 degrees. Final Act. 2–3 (disagreeing with Appellant’s assertion that the patella tilt angle may be “up to 35 degrees”). We agree with the Examiner that the claim term “about” is a term of approximation that permits some variation.⁴ Ans. 13. In other words, the patellar tilt angle is not limited to a maximum of up to 35 degrees; rather, the maximum is about 35 degrees.

² Crabtree (US 8,545,570 B2; issued Oct. 1, 2013); Zimmer, Inc., *Zimmer® NexGen® Rotating Hinge Knee Primary/Revision Surgical Technique*, ZIMMER 110 (2009), <http://www.rpa.spot.pt/getdoc/24e8663b-e9c2-46f2-9419-baa0fd240d44/RHK.aspx> (“NexGen”). NexGen has been cited as additional evidence in support of the rejection of dependent claims 4–7, 9, 12, 18, 20, and 21. Final Act. 12–15.

³ The Examiner withdrew the rejection of claims 3, 19, and 22 in the Answer. Final Act. 7; Ans. 11. These claims are not at issue in this Appeal.

⁴ We also agree that the Specification does not provide a lexicographical definition of “about.”

2. *Patella Tilt Angle Limitation*

Independent claim 1 recites that when the prosthesis is implanted, “a patella articulating with the articular surface of the femoral component has a maximum patellar tilt angle of about 35 degrees when the total knee prosthesis is articulated between 90 and 135 degrees of flexion” (hereinafter “the patella tilt angle limitation”). Independent claim 17 contains a similar limitation.

The record reflects two interpretations of this limitation. First, it could mean that the patellar tilt angle must be about 35 degrees or less for any single flexion angle between 90 and 135 degrees. Second, it could mean that the patellar tilt angle must remain about 35 degrees or less for the entire range of flexion angles between 90 and 135 degrees.

The Examiner makes a patentability determination based on the first interpretation, and then makes an alternative determination based on the second interpretation. Ans. 12–13 (first interpretation); *id.* at 13–14 (second interpretation).

B. Patentability Based on the First Claim Interpretation

Under the first interpretation, the Examiner determines the limitation at issue is met where the patellar tilt angle is about 35 degrees or less when the flexion angle is at any single angle in the range of 90 to 135 degrees (e.g., 90 to 90.1 degrees). *See* Final Act 10; Ans. 12. For the reasons that follow, this interpretation is unreasonably broad. *See In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997) (explaining claims undergoing prosecution are given their broadest reasonable interpretation consistent with the Specification).

As Appellant points out, interpreting the patellar tilt angle limitation to require that the patellar tilt angle must be about 35 degrees or less for the entire range of flexion angles between 90 and 135 degrees “is the only reasonable interpretation particularly when considering the phrase ‘between 90 and 135 degrees’ in context with the phrase ‘a maximum patellar tilt angle of about 35 degrees when the total knee prosthesis is articulated,’ which precedes it” in claim 1. Appeal Br. 7. Further, the Examiner’s broader interpretation is not consistent with the Specification, which describes a prosthesis capable of both a large range of flexion and maintenance of a maximum patellar tilt angle of 35 degrees. *See, e.g.*, Spec. ¶¶ 22, 67. The Examiner’s interpretation is also inconsistent with the Specification in that the Specification describes accurately reproducing the natural patellofemoral kinematics of a natural knee joint over an extended range of flexion as opposed to a single angle of flexion within a specified range. *See* Spec. ¶¶ 6, 7.

Because this claim interpretation is unreasonably broad, both the Examiner’s anticipation and obviousness determinations are in error.

C. Patentability Based on the Second Interpretation

Under the second interpretation, the patellar tilt angle must be about 35 degrees or less for the entire range of flexion angles between 90 and 135 degrees.

For anticipation, the Examiner finds that Crabtree discloses a knee prosthesis capable of flexion angles from 90 to 135 degrees. Ans. 13 (noting Crabtree Fig. 6E depicts 140 degrees of flexion). The Examiner finds that Crabtree’s prosthesis is fully capable of fulfilling the broad functional claim

language of “about 35 degrees,” and the Examiner again notes that “about” is not defined in the Specification. *Id.*

The Examiner focuses on whether the claim term “about” permits some variation of the patellar tilt angle. As explained in our claim construction above, we agree that it does. That focus, however, is somewhat misplaced because the Examiner does not address how Crabtree’s knee prosthesis is capable of a maximum patellar tilt angle of about 35 degrees throughout the range of flexion from 90 to 135 degrees. *See* Appeal Brief 8–9 (“The Examiner provides no analysis of *Crabtree*’s prosthesis in deeper degrees of flexion beyond 90 degrees.”). We are not persuaded that the Examiner has adequately demonstrated that claims 1 and 17 would have been anticipated by Crabtree.

Regarding obviousness, the Examiner observes that Appellant’s patellar tilt angle limitation merely claims the function of a natural knee. Ans. 13–14 (citing Spec. ¶ 35, Fig. 1). The Examiner concludes that it would have been obvious to a person of ordinary skill to modify Crabtree’s knee prosthesis to mimic the articulation of a natural human knee. Final Act. 10–11; Ans. 14.

The Examiner has not sufficiently explained how the broad goal of mimicking natural articulation would have led a person of ordinary skill to the claimed subject matter. For example, the Examiner has not explained why a person of ordinary skill in the art would have understood that locating Crabtree’s flexion centers at certain positions as recited in the claims would have provided the articulation of a natural knee. The Examiner’s reason is particularly troublesome given that, as Appellant points out, Crabtree is silent as to a patella, patellofemoral articulation, and limiting patellar tilt.

Appeal Br. 6–12. Further, as Appellant’s Specification points out, many prior art devices limited the patellar tilt angle to about 40 degrees (as opposed to the claimed angle of about 35 degrees), and such devices risked tendon damage and painful flexion of the patient. *See* Reply Br. 4; Spec. ¶ 60. Absent a persuasive reason for modifying Crabtree to result in the claimed subject matter, the Examiner has not demonstrated that the subject matter of claim 1 or of claim 17 would have been obvious over Crabtree.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C.	Affirmed	Reversed
1, 2, 4–18, 20, and 21	§ 102(a)(1)/§ 103		1, 2, 4–18, 20, and 21
Overall Outcome			1, 2, 4–18, 20, and 21

REVERSED