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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROBERT DAVID McCLAIN, BRIAN MICHAEL DAVIS, and SEETHA RAMAIAH MANNAVA

Appeal 2011-011468
Application 11/694,214
Technology Center 3700

Before STEFAN STAICOVICI, MICHAEL C. ASTORINO, and BENJAMIN D. M. WOOD, *Administrative Patent Judges*.

ASTORINO, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

The Appellants appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1-24. We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We AFFIRM.

Claimed Subject Matter

Claim 1 is the sole independent claim on appeal, is representative of the subject matter on appeal, and is reproduced below.

> 1. A method for laser shock peening an article, the method comprising:
>
> laser shock peening a laser shock peening surface of the article and forming at least one pre-stressed region having deep compressive residual stresses imparted by the laser shock peening,
>
> the pre-stressed region extending into the article from a laser shock peened surface formed by the laser shock peening, and
>
> machining a feature into the article in the pre-stressed region after the laser shock peening.

Rejections

Claims 1-16 are rejected under 35 U.S.C. § 103(a) as unpatentable over Dulaney (US 6,144,012, iss. Nov. 7, 2000) and Takayanagi (US 5,571,575, iss. Nov. 5, 1996).

Claims 17-24 are rejected under 35 U.S.C. § 103(a) as unpatentable over Dulaney in view of Takayanagi as stated above and further in view of Suh (US 6,570,125 B2, iss. May 27, 2003).

OPINION

Obviousness over Dulaney and Takayanagi

The Appellants argue claims 1-16 as a group. Br. 15-17. We select claim 1 as representative of claims 2-16. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2011).

The Examiner finds, *inter alia*, Dulaney teaches the method of claim 1 except for "machining a feature into the article in the pre-stressed region

after the laser shock peening." *See* Ans. 3-4. The Examiner relies on Takayanagi to remedy this deficiency with regard to claim 1. *See* Ans. 4-5. The Examiner finds Takayanagi discloses laser shock processing of the inner surface of a bore, then machining the inner surface of the bore by honing. *See id*. (citing Takayanagi col. 15, l. 65-col. 16, l. 5). The Examiner concludes "[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to combine the laser peening of Dulaney . . . with the machining of Takayanagi" because "the fatigue strength around the hole/bore can be eliminated, as well as a finished product with minimal deformation (col. 16, ll. 1-20)." Ans. 5.

The Appellants contend that the combination of Dulaney and Takayanagi would not result in "machining a feature into the article in the pre-stressed region after the laser shock peening," as recited in claim 1. *See* Br. 15-17. The Appellants assert that the only machined feature in Takayanagi's article is a bore, which is machined prior to laser shock peening. Br. 15. The Appellants contend that the Examiner's application of the Takayanagi disclosure (i.e., machining a smoother surface of a bore by honing) implies a construction of the phrase "machining a feature" which is "arbitrary and capricious and was made using explicit and implicit forbidden hindsight." *See* Br. 15-16. *Contra* Advisory Action, mailed October 10, 2010, p. 2.

At the outset, we note that the Appellants' Specification does not provide an explicit definition of the term "feature." In the absence of an express definition of a claim term in the Specification or a clear disclaimer of scope, the claim term is interpreted as broadly as the ordinary usage of the term by one of ordinary skill in the art would permit. *In re ICON Health &*

Fitness, Inc., 496 F.3d 1374, 1379 (Fed. Cir. 2007). The Specification does provide examples of a "feature", e.g., "a hole or a scallop" (Spec. 6, ll. 6-7, *passim*), but these examples are not definitions.

A dictionary definition of the term "feature" is: "[t]he general term given to any physical portion of a part such as holes, slots, surfaces, and pins." *Illustrated Dictionary of Metalworking and Manufacturing Technology*, 161, (Steven F. Krar et al. eds., 1999). This definition of the term "feature" is within the broadest reasonable interpretation consistent with the underlying Specification. *See In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). Notably, the dictionary definition of the term "feature" includes "surfaces." Accordingly, the Examiner's finding that honing the inner surface of a bore corresponds with "machining a feature," as recited in claim 1, is correct.

The Appellants offer as evidence three publications[1] "refer[ring] to holes and other cuttings as machined features." *See* Br. 16. The Appellants' evidence is unpersuasive because it merely provides examples of what a feature can be, e.g., "holes and other cuttings." Moreover, the Appellants' evidence is consistent with the dictionary definition of "feature" as discussed *supra*.

The Appellants assert "[t]he Examiner has offered no evidence that honing is considered machining a feature and has offered no evidence that ones skilled in the art would even consider that honing is considered machining a feature." *Id*. However, the Appellants do not cogently explain

[1] The three publications in the Appeal Brief are: "Feature Recognition Research at The University of Maryland," http://www.cs.umd.edu/projects/cimlfeature_rec.html; "Feature Based Machining in NX 6"; and "Feature Based Machining." Br., Evid. App'x.

why honing the inner surface of a bore does not correspond to "machining a feature." *See* Ans. 7.

The Appellants contend the Examiner's finding that Takayanagi's "honing occurs on the [inner surface of a] bore that extends through the pre-stressed region" because "the feature is machined entirely through the pre-stressed region and between inner and outer sides of the article" (Ans. 8 (citing Takayanagi, col. 16, ll. 1-2)) is incorrect. Br. 17. However, the contention stems from the faulty premise that honing the inner surface of a bore does not constitute "machining a feature." *See id*. For the reasons provided above, the Appellants' contention is unpersuasive.

Thus, the rejection of claims 1-16 as unpatentable over Dulaney and Takayanagi is sustained.

Obviousness over Dulaney, Takayanagi, and Suh

The Appellants have not provided further arguments for the rejection of claims 17-24 under 35 U.S.C. § 103(a) as unpatentable over Dulaney, Takayanagi, and Suh. *See* Br. 18-19. The Appellants merely reiterate arguments presented for the Examiner's rejection of claim 1 for this ground of rejection. *See id*. For the same reasons we have sustained the rejection of claim 1, we likewise sustain the rejection of claims 17-24 under 35 U.S.C. § 103(a) as unpatentable over Dulaney, Takayanagi, and Suh.

DECISION

We AFFIRM the rejections of claims 1-24.

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)(1)(iv).

AFFIRMED

Klh