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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HIROSHI YUKI, CHIKARA OHKI, and KAZUHIRO YAGITA

Appeal 2018-001293
Application 13/386,314
Technology Center 3700

Before STEVEN D.A. McCARTHY, JEREMY M. PLENZLER, and
ERIC C. JESCHKE, *Administrative Patent Judges*.

PLENZLER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134 of the Examiner's
Decision rejecting claims 1–5.¹ We have jurisdiction under 35 U.S.C.
§ 6(b).

We REVERSE.

¹ Claims 6–15 are withdrawn. Non-Final Act. 1.

CLAIMED SUBJECT MATTER

Claim 1 is the sole independent claim on appeal, with claims 2–5 depending therefrom. Claim 1 is reproduced below:

1. A method for heat-treating a ring-shaped member, comprising the steps of:

forming, by relatively rotating one or more induction heating members arranged to face part of a ring-shaped formed body made of steel for induction-heating said formed body along a circumferential direction of said formed body, an annular heated region heated to a temperature of at least an A_1 point on said formed body;

cooling simultaneously the whole of said heated region to a temperature of not more than an M_s point; and

after forming the annular heated region and before cooling simultaneously, suppressing dispersion in temperature in the circumferential direction on the surface of the annular heated region to not more than 20°C by retaining the formed body in a state where the heating is stopped.

REJECTIONS

1. Claims 1 and 3–5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Bracht (US 2004/0000053 A1, published January 1, 2004) and Fujita (US 2008/0073003 A1, published Mar. 27, 2008).

2. Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Bracht, Fujita, and Cogley (US 4,808,779, issued Feb. 28, 1989).

OPINION

Claims 1–4

The Examiner finds that Bracht teaches the majority of limitations recited in claim 1 (Non-Final Act. 3), but acknowledges, for example, that

Bracht “does not teach the step of suppressing.” *Id.* at 4. The Examiner finds that “Fujita teaches that after heating and before cooling, there is a suppressing step to check for via temperature measuring means (5) (para. 0032),” without further explanation. *Id.* The Examiner acknowledges that “Fujita does not explicitly teach the suppression to not more than 20 deg. C,” but determines that additional limitation would have been obvious. *Id.* Appellants respond that the Examiner erred because Fujita does not teach even the general suppression asserted by the Examiner. Appeal Br. 5. Appellants’ contentions are persuasive.

Claim 1 requires “after forming the annular heated region and before cooling simultaneously, suppressing dispersion in temperature in the circumferential direction on the surface of the annular heated region.” The Specification describes “suppressing,” explaining that “[i]n order to suppress dispersion in temperature in the circumferential direction, a step of retaining the formed body in a state where the heating is stopped is preferably provided after completion of the induction heating and before the cooling” and, more specifically, “retaining . . . in the state where the heating is stopped for three seconds after completion of the heating.” Spec. 40:26–41:4. That is, “suppressing” is an active process step of removing from heat for a time before cooling.

Appellants contend that, contrary to the claim, “Fujita . . . discloses a method where the heating continues until a temperature measurement triggers cooling to begin ‘immediately.’” Appeal Br. 5 (citing Fujita ¶¶ 39, 43, 49, 59, 75, 84). Consistent with Appellants’ contentions, paragraph 43 of Fujita, for example, explains that “[w]hen D_{ep} [(a temperature dependent variable)] at any time exceeds D_{ep}^* , cooling the object immediately starts.”

The Examiner acknowledges that “[a]lthough[] Fujita[’s] temperature measurement triggers cooling to begin ‘immediately’, . . . there is still a little time (millisecond or micro-second) gap between the heating means stop and cooling start.” Ans. 3.

When giving the “suppressing” step its proper meaning (i.e., an active step in a process of removing from heat for a time before cooling, rather than a slight unintended delay during a desired immediate switching from heating to cooling), the Examiner’s rejection fails because there is no finding that the prior art meets this limitation.

Accordingly, we determine that the Examiner erred in rejecting claim 1. The stated bases for the rejections of claims 2–4, which each depend from claim 1, do not cure the deficiency in the rejection of claim 1.

Claim 5

Claim 5 recites “[a] steel ring-shaped member produced according to the method for producing a ring-shaped member according to claim 4.” Claim 4 is “[a] method of producing a ring-shaped member” dependent from claim 1. For purposes of this appeal, we treat claim 5 as an independent claim reciting product-by-process limitations resulting from the method steps recited in claims 1 and 4. Indeed, there is no dispute that the limitations recited in claim 5 are product-by-process limitations. *See* Final Act. 4; Appeal Br. 5–6.

Appellants contend that the Examiner has failed to consider the structure resulting from the process steps recited in claims 1 and 4. Appeal Br. 5–6. Appellants note, for example, “the residual stress values” resulting from the recited process steps. *Id.* at 6 (citing Spec. 88:5–10, Fig. 40).

Appellants correctly note that these are structural characteristics. Reply Br. 4.

We agree with Appellants that the Examiner erred in rejecting claim 5. The Examiner makes clear that the claim is being read such that “the claims do not claim any structural characteristics that are developed by the claimed method” and only require “a steel ring shaped member,” independent of any structure imparted by the process steps. Ans. 3. The Examiner clearly states that “the steps of the method for producing the ring shaped member are not given patentable weight.” *Id.*

“[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself” and “[i]f the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 697 (Fed. Cir. 1985) (internal citations omitted). Because the Examiner fails to consider the structure resulting from the process steps in claim 5, the Examiner fails to properly establish that structure would have been obvious, and we do not sustain the Examiner’s decision to reject claim 5.

DECISION

We REVERSE the Examiner’s decision to reject claims 1–5.

REVERSED