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EXAMINER

PAIK, SANG YEOP

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte GERALD J. BRUCK and AHMED KAMEL

Appeal 2017-005391
Application 14/045,818
Technology Center 3700

Before ANTON W. FETTING, PHILIP J. HOFFMANN, and
BRADLEY B. BAYAT, *Administrative Patent Judges*.

HOFFMANN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellants¹ appeal from the Examiner's rejection of claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

According to Appellants, their invention is directed “to an improved laser cladding/repair process.” Spec. 1, l. 5. Claims 1, 11, and 17 are the

¹ According to Appellants, the real party in interest is Siemens Energy, Inc. Appeal Br. 3.

only independent claims on appeal. Below, we reproduce claim 1 as illustrative of the appealed claims.

1. A method comprising:

traversing a laser beam across a target surface to progressively melt local regions of the surface;

controlling an area of the laser beam at focus during the step of traversing in response to a local shape of the target surface at the respective local melt regions, wherein at least one local shape is different from another local shape; and

controlling a power level of the laser beam in response to the area of the laser beam at focus in order to provide a desired power density of the laser beam across the target surface.

REJECTIONS AND PRIOR ART

The Examiner rejects claims 1–4, 8, 9, 11–15, and 17 under 35 U.S.C. § 103(a) as unpatentable over Qi (US 8,691,329 B2, iss. Apr. 8, 2014), Kawasaki (US 4,725,708, iss. Feb. 16, 1988), and Mombo-Caristan (US 5,595,670, iss. Jan. 21, 1997).

The Examiner rejects claims 5–7, 18, and 19 under 35 U.S.C. § 103(a) as unpatentable over Qi, Kawasaki, Mombo-Caristan, and Haake (US 2013/0105447 A1, pub. May 2, 2013).

The Examiner rejects claims 10, 16, and 20 under 35 U.S.C. § 103(a) as unpatentable over Qi, Kawasaki, Mombo-Caristan, and Shishkovskij (RU 2 217 266 C2, pub. Nov. 27, 2003).

ANALYSIS

Obviousness rejection of claims 1–4, 8, 9, 11–15, and 17

Initially, we note that Appellants argue each of claims 1–4, 8, 9, 11–15, and 17 together as a group. *See* Appeal Br. 6–11. Thus, we may choose a single claim from the group, and, generally, each of the remaining claims would stand or fall with that claim. *See* 37 C.F.R. § 41.37 (c)(1)(iv) (“When multiple claims subject to the same ground of rejection are argued as a group or subgroup by [A]ppellant, the Board may select a single claim from the group or subgroup[,] and may decide the appeal as to the ground of rejection with respect to the group or subgroup on the basis of the selected claim alone.”). In this case, we choose independent claim 1.

However, we note that independent claims 11 and 17 do not recite specific recitations that claim 1 recites and upon which Appellants rely to show error in the Examiner’s rejection. Specifically, independent claim 1 recites “controlling an area of the laser beam at focus during the step of traversing in response to a local shape of the target surface at the respective local melt regions, wherein at least one local shape is different from another local shape.” Appeal Br., Claims App. Appellants argue that the Examiner errs in relying on a combination of references to show this recitation, and, for the reasons detailed below, we agree with Appellants. *See, e.g., id.* at 8 (“[in Kawasaki] the beam diameter did not change in response to a local area.”) (emphasis omitted), *id.* at 9 (“[Although] *Kawasaki* does disclose that a beam diameter can be adjusted, there is **no disclosure that it is adjusted in response to a local shape as the claims require.**”).

Thus, although we do not sustain the rejection of independent claim 1 and its dependent claims 2–4, 8, and 9 for the below reasons, inasmuch as

Appellants' arguments are inapplicable to independent claims 11 and 17, Appellants do not persuade us that the Examiner errs in rejecting claims 11 and 17. Therefore, we sustain the rejection of claims 11 and 17. However, because claims 12–15, that depend from claim 11, each recite a recitation similar to that argued with respect to claim 1, we also do not sustain the rejection of claims 12–15 for the same reasons that we do not sustain claim 1's rejection.

Returning to independent claim 1, as set forth above, the claim recites “controlling an area of the laser beam at focus during the step of traversing in response to a local shape of the target surface at the respective local melt regions, wherein at least one local shape is different from another local shape.” Appeal Br., Claims App. Based on our review, the Examiner does not establish that any reference or combination of references discloses or renders obvious controlling an area of a laser beam *in response to* a local shape of a target surface. *See* Appeal Br. 6–11; *see also* Reply Br. 4–7.

In the rejection, the Examiner finds that although “Qi does not explicitly show controlling an area of the laser beam,” “Kawasaki shows it is known to control an area of laser beam,” and “Mombo-Caristan shows it is known to . . . control an area of the laser beam as the laser beam takes a form of a rectangular, linear, or an oblong shape.” Answer 2. However, none of these findings addresses adequately the recitation of controlling a laser-beam area *in response to* a target-surface local shape.

The Examiner then determines “[i]n view of Kawasaki or Mombo-Caristan, it would have been obvious . . . to adapt Qi with the laser parameters including varying degrees of laser beam focus area, power density, and time exposure to also effectively melt the targeted regions

including varying shapes, widths and heights shown in Qi.” *Id.* To the extent that this is a determination by the Examiner that it would have been obvious to modify Qi to control an area of a laser beam *in response to* a local shape of a target surface, the Examiner does not explain adequately why it would have been obvious.

The Examiner further determines that

[a] target surface having different shape from . . . another is shown by . . . Qi . . . [, which] shows a target surface . . . having melt regions . . . [,] wherein the local shapes are different from one another as the melted regions of the target surface have different shapes, widths, and heights It is also noted that Kawasaki and Mombo-Caristan are applied to teach that it is known to control an area of laser beam including different shapes and forms with a laser power density as stated in the ground of rejection. Thus, [Appellants’] arguments are not deemed persuasive.

Answer 4. This determination, however, also is insufficient to establish that it would have been obvious to control an area of a laser beam *in response to* a local shape of a target surface. At most, the Examiner finds that different target shapes are known, and varying laser beam shapes are known, but not that an area of a laser beam is controlled in response to a target shape area.

Thus, based on the foregoing, we do not sustain the rejection of claims 1–4, 8, 9, and 12–15, each of which recites controlling an area of a laser beam *in response to* a local shape of a target surface. However, because claims 11 and 17 do not include such a recitation, we sustain the rejection of these claims.

Obviousness rejections of claims 5–7, 10, 16, and 18–20

Appellants’ arguments for each of these dependent claims is that neither Haake nor Shishkovskij “teaches or suggests . . . controlling an area

of a laser beam at focus . . . in response to a local shape of a target surface.” Appeal Br. 11 (emphasis omitted). Claims 5–7, 10, and 16 depend from claim 1, the rejection of which we do not sustain. Thus, we also do not sustain the rejection of claims 5–7, 10, and 16. *Cf. In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992) (“dependent claims are nonobvious if the independent claims from which they depend are nonobvious”).

Claims 18–20 depend from claim 17. *Id.* at Claims App. As discussed above, independent claim 17 does not recite “controlling an area of a laser beam at focus . . . in response to a local shape of [a] target surface” (*id.* at 11), and, therefore, Appellants’ arguments are inapplicable to claims 18–20. Further, it is not clear whether claims 18–20 include recitations similar in scope to the argued recitation. Thus, Appellants do not persuade us of Examiner error, and, therefore, we sustain the rejections of claims 18–20.

DECISION

We AFFIRM the Examiner’s obviousness rejection of claims 11 and 17–20.

We REVERSE the Examiner’s obviousness rejections of claims 1–10, and 12–16.

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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-IN-PART