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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* ZACHARY B. SUTTIN and STEPHEN S. PORTER

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Appeal 2019-006804  
Application 15/170,190  
Technology Center 3700

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Before BIBHU R. MOHANTY, PHILIP J. HOFFMANN, and  
CYNTHIAL. MURPHY, *Administrative Patent Judges*.

HOFFMANN, *Administrative Patent Judge*.

DECISION ON APPEAL  
STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's rejection of claims 1–16 and 21–23. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

According to Appellant, the “disclosure relates to using a robotic system to (i) automatically perform a variety of dental procedures and/or (ii) monitor a manually performed dental procedure, thereby generating

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<sup>1</sup> 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 “BIOMET 3I, LLC.” Appeal Br. 3.

positional data . . . usable in creating a modified three-dimensional model for use in developing a final and/or temporary dental prosthesis.” Spec. ¶ 2.

Claims 1, 8, and 21 are the independent claims on appeal. Below, we reproduce independent claim 1 as illustrative of the appealed claims.

1. A robotic system for use during a dental surgical procedure including installation of a dental implant in a mouth of a patient, the robotic system comprising:
  - a base;
  - a grounding arm having a first end and a second end, the first end of the grounding arm being coupled to the base, the second end of the grounding arm being configured to be coupled to a fixed structure within the mouth of the patient for establishing an origin for the robotic system relative to the mouth of the patient, the second end of the grounding arm having at least six degrees of freedom relative to the base;
  - a working arm having a first end and a second end, the first end of the working arm extending from the base, the second end of the working arm being configured to be coupled with one or more tools for use during the dental surgical procedure, a portion of the working arm having at least six degrees of freedom relative to the base and being moveable to
    - (i) form an opening in bone within the mouth of the patient and
    - (ii) install the dental implant in the formed opening; and
  - one or more sensors to monitor positions of the grounding arm and the working arm relative to the origin, the one or more sensors generating positional data that is used to create a post-operative virtual three-dimensional implant level model of at least a portion of the mouth of the patient, the post-operative virtual model including a virtual dental implant that corresponds to a location and orientation of the dental implant in the mouth of the patient, and the post-operative virtual model is created without scanning.

## REJECTIONS AND PRIOR ART

The Examiner rejects the claims as follows:

- I. Claims 1–16 and 21–23 under 35 U.S.C. § 103 as unpatentable over Mushabac’095<sup>2</sup>, Mushabac’391<sup>3</sup>, Akeel<sup>4</sup>, and Choi<sup>5</sup>; and
- II. Claims 1–16 and 21–23, provisionally, on the ground of non-statutory double patenting as unpatentable over claims 16–32 of copending Application no. 14/932,156.

## ANALYSIS

### Rejection I—Obviousness rejection of claims 1–16 and 21–23

Initially, we note that in the Final Office Action<sup>6</sup>, the Examiner rejects each of pending claims 1–16 and 21–23—that is, 19 claims total—together. More particularly, without reference to any specific claim numbers, first the Examiner lists all of the recitations of claims 1–16 and 21–23 which, according to the Examiner, Mushabac’095 discloses. Final Action 2–4. This single paragraph spans more than a page and a half. *Id.* Then, without reference to any specific claim numbers, the Examiner lists all of the recitations of claims 1–16 and 21–23 that Mushabac’095 does not disclose. *Id.* at 4–5. This single paragraph spans more than a page. Thereafter, without reference to any specific claim numbers, the Examiner lists recitations that Mushabac’391 discloses, and reasons that it would have been obvious to modify Mushabac’095 based on Mushabac’391. *Id.* at 5.

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<sup>2</sup> Mushabac, US 2002/0133095 A1, published Sept. 19, 2002 (“Mushabac’095”).

<sup>3</sup> Mushabac, US 5,343,391, issued Aug. 30, 1994 (“Mushabac’391”).

<sup>4</sup> Akeel et al., US 2015/0057675 A1, published Feb. 26, 2015 (“Akeel”).

<sup>5</sup> Choi et al., US 2014/0178832 A1, published June 26, 2014 (“Choi”).

<sup>6</sup> Our discussion is equally applicable to the Examiner’s statements in the Answer. *See Answer* 3–10.

Similarly, the Examiner lists all of the recitations of claims 1–16 and 21–23 that Mushabac’095 modified by Mushabac’391 does not disclose. *Id.* at 5–6. This single paragraph is more than a page in total length. Then, the Examiner lists all of the claim recitations that Akeel discloses (in a single paragraph), and provides reasons it would have been obvious to modify Mushabac’095 and on Mushabac’391 based on Akeel (in a single paragraph). *Id.* at 6–8. Again, the Examiner does not identify any claim by number.

Likewise, the Examiner lists all of the recitations of claims 1–16 and 21–23 that Mushabac’095 modified by Mushabac’391 and Akeel does not disclose, in a single paragraph that does not reference any claim by number. *Id.* at 8. Next, the Examiner lists all of the claim recitations that Choi discloses, and provides reasons it would have been obvious to modify Mushabac’095, Mushabac’391, and Akeel based on Choi. *Id.* 8–9. Again, the Examiner does not identify any claim by number. As such, we are unable to evaluate the viability of the Examiner’s rejection.

Also, the Examiner seems to erroneously relies on Mushabac’095 (*see, e.g.*, Answer 3–5) to disclose at least the below-discussed recitation of independent claim 1. As set forth above, independent claim 1 recites, in relevant part, a robotic system for use during a dental surgical procedure including installation of a dental implant in a mouth of a patient, the robotic system comprising

a base:

a grounding arm having a first end and a second end, the first end of the grounding arm being coupled to the base, *the second end of the grounding arm being configured to be coupled to a fixed structure within the mouth of the patient for establishing an origin for the robotic system relative to the mouth of the patient . . . ;*

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a working arm having a first end and a second end, the first end of the working arm extending from the base, the second end of the working arm being configured to be coupled with one or more tools for use during the dental surgical procedure . . . ; and

*one or more sensors to monitor positions of the grounding arm and the working arm relative to the origin.*

Appeal Br., Claims App. (emphases added).

According to the Examiner, Mushabac'095's multipods 46 and 48 disclose the claimed grounding arm and working arm, respectively.

Answer 3–4. Mushabac'095 discloses that each multipod 46 and 48 includes U-shaped bracket 24. Mushabac'095, Figs. 1, 2; ¶¶ 22, 28. The Examiner relies on multipod 46's U-shaped bracket 24 to disclose the claimed fixed structure with which the grounding arm establishes an origin.

Answer 3–4. According to Appellant, the Examiner errs because Mushabac'095 does not disclose that one or more sensors monitor positions of multipods 46 and 48 relative to an origin that multipod 46 establishes—i.e., multipod 46's U-shaped bracket 24. Appeal Br. 11–12. Based on our review of the record, we agree with Appellant.

The Examiner relies on Mushabac'095's paragraph 13 to disclose this claim recitation. Answer 4. This portion of Mushabac'095 discloses, in full:

A dental instrument assembly comprises, in accordance with the present invention, a first frame, a second frame, a plurality of telescoping members each connected at one end to the first frame and at an opposite end to the second frame, a plurality of linear transducers each operatively coupled to a respective one of the telescoping members for generating a signal indicative of a degree of extension of the respective one of the telescoping members, a generally U-shaped bracket connected to the first frame for mounting the first frame to a row of teeth in a patient's mouth, and a dental instrument or probe mounted to the second frame.

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Mushabac'095. It is not clear to us that, here, Mushabac'095 discloses monitoring a position of either multipod 46 or 48 relative to its own U-shaped bracket, let alone monitoring positions of both multipods 46 and 48 relative to one of the U-shaped brackets—i.e., claim 1's recitation of "one or more sensors to monitor positions of the grounding arm and the working arm relative to the origin [established by the grounding arm]."

Each of independent claims 8 and 21 includes a similar recitation, and each of claims 2–7, 9–16, 22, and 23 depend from one of independent claims 1, 8, and 21. Appeal Br., Claims App. Thus, the Examiner errs in relying on Mushabac'095 to disclose the discussed claim recitations present in each of the pending claims.

*Rejection II—Provisional double-patenting rejection*

We do not reach the Examiner's provisional double-patenting rejection. *See Ex parte Moncla*, 95 USPQ2d 1884 (BPAI 2010) (precedential).

CONCLUSION

We REVERSE the Examiner's obviousness rejection of claims 1–16 and 21–23.

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In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Basis/Reference(s)</b>	<b>Affirmed</b>	<b>Reversed</b>
1-16, 21-23	103	Mushabac'095, Mushabac'391, Akeel, Choi		1-16, 21-23

REVERSED