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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SHIGERU OMORI, SHUICHI UENOHARA, MAKOTO JINNO,
and TAKAMITSU SUNAOSHI

Appeal 2017-001997
Application 11/923,159¹
Technology Center 3700

Before STEFAN STAICOVICI, EDWARD A. BROWN, and
ARTHUR M. PESLAK, *Administrative Patent Judges*.

BROWN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Shigeru Omori et al. (“Appellants”) seek review under 35 U.S.C. § 134(a) of the Examiner’s decision rejecting claims 1, 3, 4, 9–15, and 17–21.² We heard oral argument on October 31, 2018. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

¹ Karl Storz GmbH & Co. KG, is identified as the real party in interest. Appeal Br. 2.

² Claims 2 and 16 have been cancelled. Appeal Br. (Claims App.). Claims 5–8, 21, and 22 are objected to and indicated to contain allowable subject matter. Final Act. 12–13.

CLAIMED SUBJECT MATTER

Claim 1 is the sole independent claim, and reads:

1. A manipulator for medical use, comprising:
 - a hollow shaft;
 - a power transmitting member having a first wire, the power transmitting member being disposed in said shaft;
 - a working unit control mechanism disposed at a first end of the shaft; and
 - a working unit disposed at a second end of said shaft and being driven by said first wire, said working unit having a tip tool including a rolling mechanism rotating about a rolling axis directed to a distal end thereof;
 - wherein the tip tool includes an end effector configured to grip a needle,
 - wherein the first wire is fastened to a first tubular member of the rolling mechanism,
 - wherein the first tubular member is rotated by the first wire to drive the rolling mechanism,
 - wherein a proximal end member and a distal end member of the tip tool are relatively rotated by said rolling mechanism, and a rotation identifier is provided on at least one member of the proximal end member and the distal end member, said rotation identifier indicating a degree of rotation of the other member of the proximal end member and the distal end member, thereby indicating a degree of rotation of the tip tool with respect to the shaft,
 - wherein said other member includes a first alignment indicator to indicate an initial position of said one member,
 - wherein the tip tool is arranged to rotate along with the end effector in a yawing direction about a yawing axis perpendicular to the rolling axis, the tip tool being rotatable about the rolling axis at a position closer to the distal end than the yawing axis,
 - wherein the first alignment indicator is provided on a side surface of the proximal end member, the side surface continuously connecting walls that oppose each other in a direction along which the yawing axis extends, and
 - wherein said rotation identifier is provided on the tip tool such that, during an operation on a patient with the manipulator,

the rotation identifier is positioned within a field of operation to be displayed on a monitor showing the tip tool within the patient.

Appeal Br. 17–18 (Claims App.).

REJECTIONS

1. Claim 21 is rejected under 35 U.S.C. § 112, fourth paragraph.³
2. Claims 1, 9–15, and 17–20 are rejected under 35 U.S.C. § 103(a) as unpatentable over Jinno (US 2006/0219065 A1, published Oct. 5, 2006), Meade (US 5,478,351, issued Dec. 26, 1995), and Smith (US 2008/0149685 A1, published June 26, 2008).
3. Claims 3 and 4 are rejected under 35 U.S.C. § 103(a) as unpatentable over Jinno, Meade, Smith, and Millman (US 2007/0016174 A1, published Jan. 18, 2007).

ANALYSIS

Rejection 1

Appellants do not request review of the rejection of claim 21 under 35 U.S.C. § 112, fourth paragraph. *See* Appeal Br. 4 (“Grounds Of Rejection To Be Reviewed On Appeal”). Accordingly, we summarily sustain this rejection.

Rejection 2

The Examiner finds that Jinno discloses a manipulator comprising all limitations recited in claim 1 except for (a) a rotation identifier on at least one member of the proximal end member (connecting portion 40) and the

³ We note the Examiner states that claim 21 is rejected under 35 U.S.C. § 112, second paragraph. Final Act. 12 (dated March 31, 2016). However, this statement appears to be a typographical error, as there is no rejection under this ground in the Final Office Action.

distal end member (member including cover 327) of the tip tool, where the rotation identifier indicates a degree of rotation of the other member of the proximal end member and distal end member, thereby indicating a degree of rotation of the tip tool with respect to the shaft (main body member 41); and (b) that the other member includes a first alignment indicator to indicate an initial position of the one member. Final Act. 4–5 (citing Jinno, Figs. 40, 41). The Examiner relies on Meade for teaching a mechanism comprising a proximal end member (handle 14) with a first alignment indicator on a side surface, a distal end member (rotator knob 42) with a rotation identifier arranged to indicate a degree of rotation of a member, and a first alignment indicator capable of indicating an initial position of rotation of the member and a degree of rotation between a tool and the shaft of the handle. *Id.* at 5 (citing Meade, col. 4, ll. 25–32); *see also id.* at 7 (Examiner’s annotated Fig. 1a of Meade). The Examiner relies on Smith for teaching the benefit of having a visual indicator at a distal end effector to provide a user with visual feedback for positioning the end effector during use. *Id.* at 5–6 (citing Smith ¶¶ 246–248).

The Examiner concludes that it would have been obvious to a person of ordinary skill in the art to modify Jinno, in view of Meade and Smith, to include a rotation identifier and a first alignment indicator meeting all of the claimed limitations, “to provide a user with visual feedback concerning the degree of rotation of the end effector to assist in determining when the end effector is in a desired position to ensure proper relative rotation of the tip tool during a surgical procedure as the device is viewed by a surgeon on a viewer/monitor.” *Id.* at 6–7.

Appellants contend that Meade does not teach a “rotation identifier [] provided on at least one member of the proximal end member [of the tip tool] and the distal end member [of the tip tool],” as claimed. Appeal Br. 8 (alterations in original). In contrast, Appellants contend, Meade’s shaft rotation markings 42 are disposed at handle 14 of the tool. *Id.* (citing Meade, Fig. 1a). Appellants assert that Meade also does not disclose “a first alignment indicator,” as claimed, as the “alignment indicator” of Meade identified by the Examiner is also disposed on handle 14. *Id.* Appellants contend that Meade’s shaft rotation markings 42 are disposed on shaft 12, which is rotationally coupled to tool 40, and, consequently, “a rotation in shaft 12 would cause a corresponding and equal rotation in tool 40 and shaft rotation markings 42.” *Id.* at 9. Accordingly, Appellants contend, shaft rotation markings 42 do not “indicate a degree of rotation of the tip tool relative to the shaft,” but, instead, measure the rotation of shaft 12 *and* tip tool 40 relative to handle 14. *Id.* (citing Meade, col. 4, ll. 25–33, Figs. 1a, 1b). Appellants contend there is no teaching in Meade that would have motivated one of ordinary skill in the art to instead place shaft rotation markings 42 on the distal end to be visible on a monitor during endoscopic surgery. *Id.*

Appellants contend that Smith teaches use of a locking marker 214, 215 to show when jaws 226, 228 are in a position in which fastener 10 can be locked. Appeal Br. 10 (citing Smith ¶ 247, Fig. 53). Appellants contend that this teaching provides no motivation to place Meade’s shaft rotation markings on “a distal end member” of a “tip tool” or use those shaft rotation markings to “indicate a degree of rotation of the tip tool with respect to the

shaft,” or place an “alignment indicator” on a “side surface of a proximal end member” of the tip tool. *Id.* at 14.

The Examiner acknowledges that “the rotation identifier and alignment indicators taught by [Meade] are located at a handle of an instrument.” Ans. 4 (citing Meade, Figs. 1a, 1b). However, the Examiner submits that the combined teachings would have suggested to a skilled artisan to modify Jinno’s device to provide its relatively rotating proximal end member and distal end member with a first alignment indicator and a rotational identifier, respectively, similar to in Meade, “to beneficially provide a visual indicator for a user concerning the positioning and orientation of the end effector.” *Id.* at 4–5.

Appellants’ contentions are persuasive. As shown in Figure 40 of Jinno, the portion of manipulator 300 including treating members 325, 326 and cover 327 is rotatable about main axis 46 relative to the adjacent portion of manipulator 300 that defines rotor axis 29. *See also* Jinno ¶ 274. In Meade’s surgical tool 10, outer sleeve 22 is provided over inner extension 20, rotator knob 42 is attached to outer sleeve 22, and surgical scissors 40 are mounted to inner extension 20. *See* Meade, col. 3, ll. 62–63, col. 4, ll. 12–13, 25–26, Figs. 1a, 1b. Turning rotator knob 42 causes outer sleeve 22 to rotate, thereby causing scissors 40 also to rotate because of the mechanical coupling between outer sleeve 22 and scissors 40. *Id.* at col. 4, ll. 26–31. The graduations on rotator knob 42 indicate the rotational orientation of scissors 40 with respect to a marking provided on handle 14 adjacent rotator knob 42. *See* Meade, Fig. 1a. Meade does not disclose that the graduations on rotator knob 42 and/or the marking on handle 14 are, or alternatively could be, provided on a “tip tool.” Nor do the graduations

and/or marking indicate a degree of rotation of scissors 40 with respect to a member of a tip tool. Instead, Meade is concerned only with knowing the rotational orientation of scissors 40 with respect to a marking on handle 14.

Also, handle 14 and rotator knob 42 in Meade's surgical tool would not be positioned within a field of operation to be displayed on a monitor showing scissors 40 within a patient. Although Smith teaches the use of a visual indicator on an end effector to provide visual feedback when using the end effector within a patient, we are persuaded by Appellants' contention that Smith does not provide an adequate reason to place Meade's shaft rotation markings on "a distal end member" of a "tip tool," place an "alignment indicator" on a "side surface of a proximal end member" of the tip tool, or to use Meade's shaft rotation markings to "indicate a degree of rotation of the tip tool with respect to the shaft." Appeal Br. 14. We agree with Appellants that the Examiner has not articulated an adequate reason with a rational underpinning why one of ordinary skill in the art would have modified Jinno to include the rotation identifier and first alignment indicator, as called for by claim 1.

Thus, we do not sustain the rejection of claim 1, or of dependent claims 9–15 and 17–20, as unpatentable over Jinno, Meade, and Smith.

Rejection 3

The Examiner's use of Millman to reject dependent claims 3 and 4 fails to cure the deficiencies in the rejection of parent claim 1, as discussed above. *See* Final Act. 11–12. Thus, we do not sustain the rejection of claims 3 and 4 as unpatentable over Jinno, Meade, Smith, and Millman.

DECISION

We affirm the rejection of claim 21 under 35 U.S.C. § 112, fourth paragraph.

We reverse the rejection of claims 1, 9–15, and 17–20 under 35 U.S.C. § 103(a) as unpatentable over Jinno, Meade, and Smith.

We reverse the rejection of claims 3 and 4 under 35 U.S.C. § 103(a) as unpatentable over Jinno, Meade, Smith, and Millman.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART