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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MICHAEL BARRUS, SCOTT JONES,
BRANDON MOORE, and LARRY McCLINTOCK¹

Appeal 2017-008734
Application 14/211,573
Technology Center 3700

Before DONALD E. ADAMS, MICHAEL J. FITZPATRICK, and
JOHN G. NEW, *Administrative Patent Judges*.

NEW, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ Appellants state that the real party-in-interest is K2M, Inc. App. Br. 1.

SUMMARY

Appellants file this appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1–6, 8, 18, and 19. Specifically, claims 1, 6, 8, and 18 stand rejected as unpatentable under 35 U.S.C. § 103(a) as being obvious over the combination of Matthis et al. (US 2008/0132957 A1, June 5, 2008) (“Matthis”) and Richelsoph et al. (US 6,010,503, January 4, 2000) (“Richelsoph”), Malek (US 2005/0113927 A1, May 26, 2005) (“Malek”), and Rock et al. (US 2009/0105769 A1, April 23, 2009) (“Rock”).²

We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

NATURE OF THE CLAIMED INVENTION

Appellants' invention is directed to a spinal hook, including a hook member, an inner collet, and an outer portion. Abstr.

² The Examiner also rejected claim 19 as unpatentable under 35 U.S.C. § 112, second paragraph as indefinite, and rejected claims 8 and 19 as unpatentable under 35 U.S.C. § 103(a) as being obvious over the combination of Rock and Malek. *See* Final Act. 2, 7. Appellants make no argument with respect to these rejections. We consequently summarily affirm the Examiner's rejection of claims 8 and 19. *See* 37 C.F.R. § 41.37(c)(iv) (“[A]ny arguments or authorities not included in the appeal brief will be refused consideration by the Board for purposes of the present appeal”).

REPRESENTATIVE CLAIM

Appellants argue claims 1–6, 8, and 18 together. App. Br. 3. Claim 1 is representative of the claims on appeal and recites:

1. A spinal hook comprising:

a hook member including a head portion and a blade portion;

an inner collet including a base portion configured to rotatably engage the head portion, and a pair of engaging portions defining a first slot configured to receive a connecting rod therein, the inner collet defining a second slot; and

an outer portion movable relative to the inner collet between a locked position in which the outer portion causes the pair of engaging portions to move toward each other and an unlocked position in which the outer portion causes the pair of engaging portions to be spread apart to facilitate insertion or removal of the connecting rod, wherein the outer portion includes a pin configured to be slidably received in the second slot of the inner collet.

App. Br. 10.

ISSUES AND ANALYSES

We are persuaded by, and expressly adopt, the Examiner’s findings, reasoning and conclusions establishing that Appellants’ claims are *prima facie* obvious over the combined cited prior art. We address the arguments raised by Appellants below.

Issue 1

Appellants contend that the Examiner erred because the proposed combination of Matthis and Richelsoph would render the bone anchoring device of Matthis unsatisfactory for its intended purpose. App. Br. 5.

Analysis

The Examiner finds, *inter alia*, that Matthis teaches a spinal implant, comprising: a member including a head portion and a bone engaging portion; (2) an inner collet including a base portion configured to rotatably engage the head portion and a pair of engaging portions defining a first slot configured to receive a connecting rod therein; and (3) an outer portion movable relative to the inner collet. Final Act. 3.

The Examiner also finds that Matthis neither teaches nor suggests that the outer portion is movable relative to the inner collet between a locked position in which the outer portion causes the pair of engaging portions to move toward each other and an unlocked position in which the outer portion causes the pair of engaging portions to be spread apart to facilitate insertion or removal of the connecting rod. Final Act. 4. The Examiner also finds that Matthis fails to teach or suggest that each engaging portion of the pair of engaging portions includes a surface configured to engage an inner surface of the outer portion during the transition of the outer portion between the locked and unlocked positions. *Id.*

The Examiner finds that Richelsoph teaches a device comprising: (1) an inner collet, including a base portion and a pair of engaging portions, defining a slot configured to receive a connecting rod; and an outer portion movable relative to the inner collet between a locked position in which the

outer portion causes the pair of engaging portions to move toward each other and an unlocked position in which the outer portion causes the pair of engaging portions to be spread apart to facilitate insertion or removal of the connecting rod. Final Act. 5 (citing Richelsoph Figs 1–2). The Examiner finds that Richelsoph teaches that each engaging portion includes a surface configured to engage an inner surface of the outer portion during the transition of the outer portion between the locked and unlocked position. *Id.* The Examiner also finds that Richelsoph teaches that the surface is tapered such that in the unlocked position, the surface is spaced apart from the inner surface of the outer portion. *Id.*

The Examiner finds that Malek teaches that a hook member is an alternative type of member to a screw member. Final Act. 5 (citing Malek Figs. 15, 16). The Examiner finds that Malek teaches that the hook member includes a head portion and a bone engaging portion in the form of a blade portion. *Id.*

Finally, the Examiner finds that Rock teaches a device comprising: (1) an inner collet including a base portion defined along a length of the inner collet; and (2) an outer portion movable relative to the inner collet between a locked position and an unlocked position, the outer portion including a pin configured to be slidably engaged within the second slot of the inner collet. Final Act. 6 (citing Rock Figs. 1–6; ¶¶ 32–33). The Examiner finds that Rock further teaches that the pin guides movement of the outer portion relative to the inner housing when moving between the locked position and the unlocked position. *Id.* (citing Rock ¶ 33)

The Examiner concludes that it would have been obvious to a person of ordinary skill in the art to substitute the hook member with its blade

portion, as taught by Malek, for the bone engaging portion of Matthis, because that would be simply to substitute one type of member for another, as was commonly known in the art. Final Act. 6. The Examiner further concludes that it would have been obvious to one of ordinary skill in the art to modify the inner collet and outer portion of Matthis, such that the outer portion is movable relative to the inner collet between a locked position in which the outer portion causes the pair of engaging portions to move toward each other and an unlocked position in which the outer portion causes the pair of engaging portions to be spread apart to facilitate insertion or removal of the connecting rod, so that each engaging portion of the pair of arms includes a surface configured to engage an inner surface of the outer portion during the transition of the outer portion between the locked and unlocked positions, as taught by Richelsoph. *Id.* at 6–7. The Examiner concludes that a person of ordinary skill in the art would be motivated to combine the teachings of the references, because doing so would simplify the assembly of the device by eliminating the need for a securing element (such as securing element 61 in Matthis), which would also reduce the risk of undesirable *in situ* disassembly of the device due to backout of the securing element from the outer portion. *Id.* at 7.

Appellants argue that Matthis expressly teaches that “there is a need for a bone anchoring device with a shank and a head formed as separate parts which ... provides secure locking of the shank in the head after assembly.” App. Br. 5 (quoting Matthis ¶ 6). According to Appellants, the intended purpose of Matthis is to securely lock the shank of the bone anchoring device to the head after assembly. *Id.* Specifically, Appellants points to paragraphs [0046]–[0047] of Matthis, which teach, *inter alia*:

During tightening of the securing element **61** pressure acts on the second end **203b** of the head **203**. The head **203** is pressed toward the first end **40** of the receiving part **4**. Due to the tapering shape of the longitudinal bore **42** and to the slits **235** provided in the head **203**, the head **203** is compressed and the shank **202** becomes securely locked in the head **203**.

Mathis ¶ 47.

Appellants contend that the modification of Matthis, proposed by the Examiner, to include “an outer portion movable relative to the inner collet,” as recited in claim 1, would render Matthis unsuitable for its intended purpose. App. Br. 7. Appellants assert that such a modification would inhibit secure locking of the shank in the head after assembly and also preclude a modular system having variability. Therefore, argue Appellants, there is no suggestion or motivation that would have led a person of ordinary skill to make the proposed modification. *Id.*

Appellants contend that eliminating the securing element 61 of Matthis and replacing it with the rod receiving mechanism 12 of Richelsoph, would preclude secure locking of the shank 202 with the head 203, as intended by Matthis by means of the securing element 61, and therefore, would render Matthis’ bone anchoring device unsatisfactory for its intended purpose.

We disagree. Matthis teaches:

The ring **7** is provided as a snap ring which has a substantially annular shape with a clearance **70**, as can be seen in FIG. **4c**. The ring **7** has a substantially rectangular cross section and is shaped such that it fits in the groove **24** on the second portion **23** of the shank **2** and in the groove **34** in the cylindrical bore **31** of the head **3**. Due to the clearance **70** the ring **7** has certain flexibility,

i.e.,] its diameter can be enlarged and decreased by a certain amount.

Matthis ¶ 26. Matthis further teaches that:

The assembly of receiving part 4, head 3, ring 7 and pressure element 5 can then be connected to the shank 2 by guiding the second portion 23 of the shank 2 into the cylindrical bore 31 of the head 3. The beveled shape of the upper free end 27 of the shank 2 facilitates insertion. During insertion the head 3 and the ring 7 are slightly expanded by the second portion 23 of the shank until the ring 7 snaps into the groove 24 of the second portion 23 of the shank. In this condition the ring 7 rests in the groove 24 of the end portion of the shank 2 and in the groove 34 of the head 3. As a result, the shank 2 is prevented from retracting again from the head 3 by form-locking engagement of the ring 7 in the groove 34 in the head 3.

Id. at ¶ 30. Figure 11 of Matthis is reproduced below.

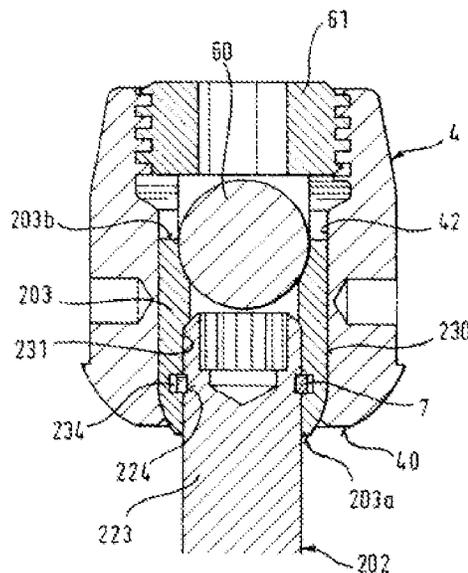


Figure 11 of Matthis depicts a sectional view of the upper part of the third embodiment in an assembled state

Matthis thus expressly teaches that it is the ring 7, engaging the annular grooves of both the shank (i.e., the stud) and the inner bore of the head (i.e., the inner housing) of the device that holds the shank and head together, and not the securing element 61.

Moreover, we do not agree with Appellants' contentions that replacing the securing element 61 of Matthis with the rod receiving mechanism 12 of Richelsoph would render Matthis' bone anchoring device unsatisfactory for its intended purpose. Both elements in the respective references serve to secure a spinal rod in place to the anchor. As the Examiner points out, the mechanism of Richelsoph is advantageous because doing so would: "eliminate[e] the need for the securing element 61 of Matthis, which would also reduce the risk of unwanted in situ disassembly of the device due to backout of the securing element from the outer housing." *See* Final Act. 7. We therefore do not find Appellants' argument persuasive.

Finally, we are not persuaded by Appellants' argument that the combination of the teachings of Matthis and Richelsoph somehow prevents the system from being modular. The Examiner's combination of the references simply substitutes one mechanism for securing the rod to the anchor in a multi-component system with another, more advantageous mechanism. *See* Final Act. 7.

Issue 2

Appellants argue the Examiner erred because the combination of Matthis and Richelsoph would change the principle of operation of Matthis' bone anchoring device. App. Br. 7.

Analysis

Appellants argue modifying Matthis' bone anchoring device to replace the securing element 61 with an outer portion movable relative to an inner collet to secure a rod, as taught by Richelsoph, would change the principle of operation of Matthis' bone anchoring device. App. Br. 7.

We disagree. Matthis is directed to: “[a] bone anchoring device includes a shank to be anchored in a bone or vertebra, a head, and a receiving part receiving the head for connecting the shank to a rod.” Matthis Abstr. Similarly, Richelsoph is directed to a: “a rod receiving ring for receiving a portion of a rod therein and including a compressible insert for receiving a portion of the rod therein in a noncompressed condition and conforming allowing the portion of the rod to fixedly lock the portion of the rod therein in a compressed condition.” Richelsoph Abstr. The purpose of the devices taught in both references is to secure a rod to an anchoring device.

We acknowledge Appellants' point that the references teach two different means of securing the rod to the device, *viz.*, a securing element versus compressible arms. However, we agree with the Examiner that a person of ordinary skill in the art would have been motivated to combine the references because of the advantages conferred by the compressible arms of Richelsoph over the securing cap of Matthis, *i.e.*, to reduce the number of elements and to prevent the securing element from coming loose *in situ*. See Final Act. 7. We are therefore not persuaded by Appellants' argument.

Issue 3

Appellants next argue that person of ordinary skill in the art would not have looked to Richelsoph to solve a problem already solved by Matthis. App. Br. 8.

Analysis

According to Appellants, Matthis has already solved the problem of retaining a rod within a bone anchoring device. App. Br. 8. Appellants asserts that, because Matthis has solved the problem of retaining a rod within a bone anchoring device, one of ordinary skill in the art would have no motivation to look to Richelsoph, without using the claims of the instant application as a guide or roadmap in formulating the rejection under 35 U.S.C. § 103. *Id.*

Appellants also allege, without adducing any supporting evidence, that the Examiner relied impermissibly on hindsight in establishing a *prima facie* case of obviousness, by using claim 1 as a guide or road map. App. Br. 8.

We are not persuaded by Appellants' argument. The Examiner has, as we have explained *supra*, articulated a rational motivation for a person of ordinary skill to combine the references. *See* Final Act. 7. Appellants do not present any evidence or argument to rebut the Examiner's conclusion in this respect.

With respect to Appellants' allegation that the Examiner employed impermissible hindsight:

Any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and

does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper.

In re McLaughlin, 443 F.2d 1392, 1395 (C.C.P.A. 1971). Appellants point to no evidence, and make no argument, to show that the knowledge used by the Examiner in arriving at the conclusion that the claims were *prima facie* obvious came, or could only have come, from Appellants' Specification and not from the teachings and suggestions of the prior art. We consequently affirm the Examiner's rejection of claims 1–6, 8, and 18.

DECISION

The Examiner's rejection of claims 1–6, 8, 18, and 19 under 35 U.S.C. § 103(a) is affirmed.

The Examiner's rejection of claim 19 under 35 U.S.C. § 112, second paragraph, is affirmed

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