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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
14/054,519 10/15/2013 John C. Knudson 0B-046508US/82410-0529 2804

55962 7590 03/07/2018
Wiley Rein LLP
Patent Administration
1776 K Street, NW
Washington, DC 20006

EXAMINER

MEDWAY, SCOTT J

ART UNIT PAPER NUMBER

3763

NOTIFICATION DATE DELIVERY MODE

03/07/2018

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JOHN C. KNUDSON
(APPLICANT: St. Jude Medical, Atrial Fibrillation Division, Inc.)

Appeal 2016-004384
Application 14/054,519¹
Technology Center 3700

Before DONALD E. ADAMS, ERIC B. GRIMES, and
FRANCISCO C. PRATS, *Administrative Patent Judges*.

ADAMS, *Administrative Patent Judge*.

¹ Appellant identifies the real party in interest as “St. Jude Medical, Atrial Fibrillation Division, Inc.” (App. Br. 2).

DECISION ON APPEAL

This Appeal² under 35 U.S.C. § 134(a) involves claims 2–4, 8, 9, and 11 (App. Br. 4).³ Examiner entered rejections under 35 U.S.C. § 102(b). We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

STATEMENT OF THE CASE

Appellant’s disclosure “relates to control handles for steerable catheters and sheaths and method of manufacturing and using such handles” (Spec. ¶ 2). Appellant’s independent claims 2 and 8 are representative and reproduced below:

2. An apparatus for manipulating a medical device including an actuation wire, the apparatus comprising:

a handle having a longitudinal axis;

an actuator having a major axis and a minor axis, wherein the actuator is coupled to the handle at a pivot with the major axis oriented transverse to the longitudinal axis;

and

² Appellant states that this Appeal is related to Appeal 2011-005633, Opinion mailed August 8, 2012, Application 11/024,181, now US Patent 8,583,260 B2, issued Nov. 12, 2013.

³ Pending claims 5–7 stand allowable (Final Action, mailed April 27, 2015 (Final Act.) 1–2). We recognize Examiner’s statement of the status of the claims (*see* Final Act. 2). We also recognize Examiner’s indication that “[f]or purposes of appeal, the proposed amendment(s) [set forth in Appellant’s June 29, 2015] . . . will be entered” (Examiner’s Advisory Action mailed July 8, 2015 (Advisory Action) 1). As Appellant explains, “[u]pon entry of [Appellant’s June 29, 2015] amendment . . . [c]laims 2-4, 8, 9, and 11 stand rejected. Appellant thanks the Examiner for allowing claims 5-7. Claim 10 is canceled without prejudice or disclaimer” (Appellant’s Amendment received June 29, 2015 (Appellant’s Amendment) 5).

a single pulley mechanically coupled to the actuator at a point offset from the pivot and configured to receive the actuation wire,

wherein, when the actuator is pivoted relative to the handle in a first actuation direction, the pulley is engaged to move relative to the handle and deflect the medical device in a first deflection direction, and

wherein, when the actuator is pivoted relative to the handle in a second actuation direction opposite the first actuation direction, the pulley is engaged to move relative to the handle and deflect the medical device in a second deflection direction opposite the first deflection direction.

8. An apparatus for manipulating a medical device including an actuation wire, the apparatus comprising:

a handle;

an elongate actuator coupled to the handle and configured to rotate relative to the handle about an axis of rotation; and

a single pulley mechanically coupled to the actuator at a point offset from the axis of rotation of the elongate actuator,

wherein, when the actuator is rotated relative to the handle, the pulley moves relative to the handle.

(App. Br. 12–13 (emphasis added).)

The claims stand rejected as follows:

Claims 2–4, 8, 9, and 11 stand rejected under 35 U.S.C. § 102(b) as anticipated by Takayama.⁴

⁴ Takayama, US 4,559,928, issued Dec. 24, 1985.

Claims 8 and 9⁵ stand rejected under 35 U.S.C. § 102(e) as anticipated by Selkee.⁶

The rejection over Takayama:

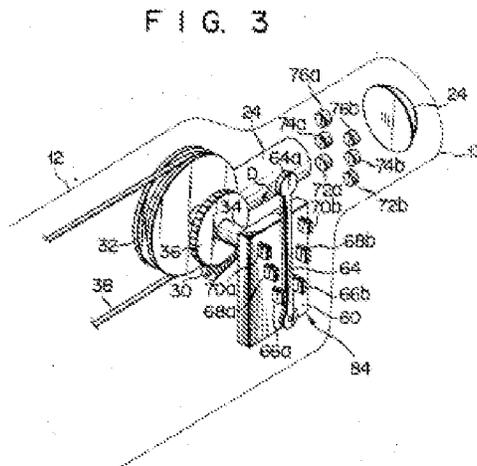
ISSUE

Does the preponderance of evidence on this record support Examiner’s finding that Takayama teaches, *inter alia*, a single pulley mechanically coupled to an actuator?

FACTUAL FINDINGS (FF)

FF 1. Takayama “relates to an endoscope apparatus and, more particularly, to an endoscope apparatus having a bending mechanism driven by a motor to bend an insertion section of the endoscope apparatus” (Takayama 1:9–12; *see generally* Ans. 2).

FF 2. Takayama’s figure 3 is reproduced below:



Takayama’s “FIG. 3 is a partial perspective view schematically showing the main part of an endoscope apparatus according to a[n] . . . embodiment of

⁵ We did not include canceled claim 10 in our deliberations (*see* Appellant’s Amendment 5; *cf.* Final Act 1–2; Advisory Action 1; Ans. 4).

⁶ Selkee, US 2008/0255540 A1, published Oct. 16, 2008.

[Takayama's] . . . invention" (Takayama 2:49–52 (emphasis omitted); *see generally* Ans. 2).

FF 3. Examiner finds, with reference to Takayama's figure 3, that Takayama "discloses an apparatus for manipulating a medical device including an actuation wire 38," wherein

the apparatus compris[es]:

a handle 12 . . . having a longitudinal axis;

an actuator 64 . . . having a major axis and a minor axis, wherein the actuator is coupled to the handle at a pivot with the major axis oriented transverse to the longitudinal axis . . . ; and

a single pulley 32 . . . mechanically coupled to the actuator at a point offset from the pivot and configured to receive the actuation wire 38,

wherein, when the actuator is pivoted relative to the handle in a first and oppositely-oriented second actuation directions . . . the pulley is engaged to move relative to the handle and deflect the medical device in a first deflection direction and a second actuation direction opposite the first direction, respectively.

(Ans. 2; *see* Takayama 3:20–61; Takayama 5:26–6:66.)

FF 4. Examiner finds that Takayama's "pulley 32 . . . [is] mechanically coupled to the actuator (via axle 34, worm gear 30 and motor 28, the latter of which is coupled to the actuator with wires) at a point offset from the axis of rotation of the elongate actuator" (Ans. 3; *see* Takayama 5:34–38 ("[a] deflection control lever 64 is disposed on the lever support plate 60 to be pivotal about the proximal end portion of the lever support plate 60," which "is mounted on the rotating shaft 34 of the wire drum 32" (emphasis omitted); *see* Ans. 2; Takayama 5:32–34 ("a spur gear 36 which meshes with a worm gear 30 is mounted on a rotating shaft 34 of [] wire drum 32" (emphasis omitted))).

FF 5. Examiner finds that “when the actuator is rotated relative to the handle, the pulley moves relative to the handle” (Ans. 3; *see also* Takayama 6:20–38 (Takayama discloses that the deflection control lever 64 regulates the speed of motor 28, wherein “[u]pon rotation of the motor 28, the spur gear 36 and the wire drum 32 are rotated” (emphasis omitted))).

ANALYSIS

Examiner finds that Takayama teaches Appellant’s claimed invention (Ans. 2–3). In this regard, Examiner finds that “Takayama discloses a wired mechanical coupling present between the actuator and the motor, and the motor is mechanically coupled to the pulley” (Ans. 5). Stated differently, Examiner finds that Takayama’s actuator, which is mechanically moveable, is *electrically coupled* to a motor and the motor is *mechanically coupled* to a pulley. In this regard, Examiner finds that Appellant’s claimed invention “does not require a direct mechanical coupling between the pulley and the actuator; therefore, an indirect mechanical coupling anticipates [Appellant’s] claimed [invention]” (*id.* at 6; *see id.* (Appellant’s “claim does not require a specific driving mechanism between the pulley and the actuator, but rather, that the pulley and the actuator are ‘mechanically coupled’”))

Appellant contends that Takayama does not expressly or inherently disclose a pulley that is mechanically coupled to an actuator (App. Br. 8–9). In this regard, Appellant contends that “[a] person of ordinary skill in the art would readily appreciate that the meaning of the phrase ‘mechanical coupling’ is that power applied to one component (*e.g.*, the actuator) is ***mechanically*** transferred to the other component (*e.g.*, the pulley)” (App. Br. 8; *see* Reply Br. 4–5). Thus, Appellant contends that a person of ordinary skill in this art would understand that Takayama’s support plate is

stationary and, therefore, “there can be no transfer of motion from support plate 60 to gears 30 and 36, and thus no transfer of motion from gears 30 and 36 to [Takayama’s] pulley” (App. Br. 9; *see* FF 1–5). To the contrary, Appellant contends, “Takayama makes clear that gears 30 and 36 are motor driven, not mechanically driven” and, thus, “the movement of Takayama’s actuator is not mechanically transferred to gears 30, 36; rather, moving Takayama’s actuator energizes motor 28, which in turn causes movement of gears 30, 36” (App. Br. 9; FF 1–5).

On this record, we find that Appellant has the better position. Although, as Examiner explains, Takayama’s actuator may be, at best, indirectly mechanically coupled to a pulley (i.e., through the use of an intermediary electrical coupling), Appellant’s claimed invention specifically requires “a single pulley mechanically coupled to the actuator” (*see* App. Br. 12; *cf.* FF 1–5). Examiner failed to establish that Takayama teaches a device, wherein a single pulley is mechanically coupled to an actuator.

CONCLUSION OF LAW

The preponderance of evidence on this record fails to support Examiner’s finding that Takayama teaches, *inter alia*, a single pulley mechanically coupled to an actuator. The rejection of claim 2–4, 8, 9, and 11 under 35 U.S.C. § 102(b) as being anticipated by Takayama is reversed.

The rejection over Selkee:

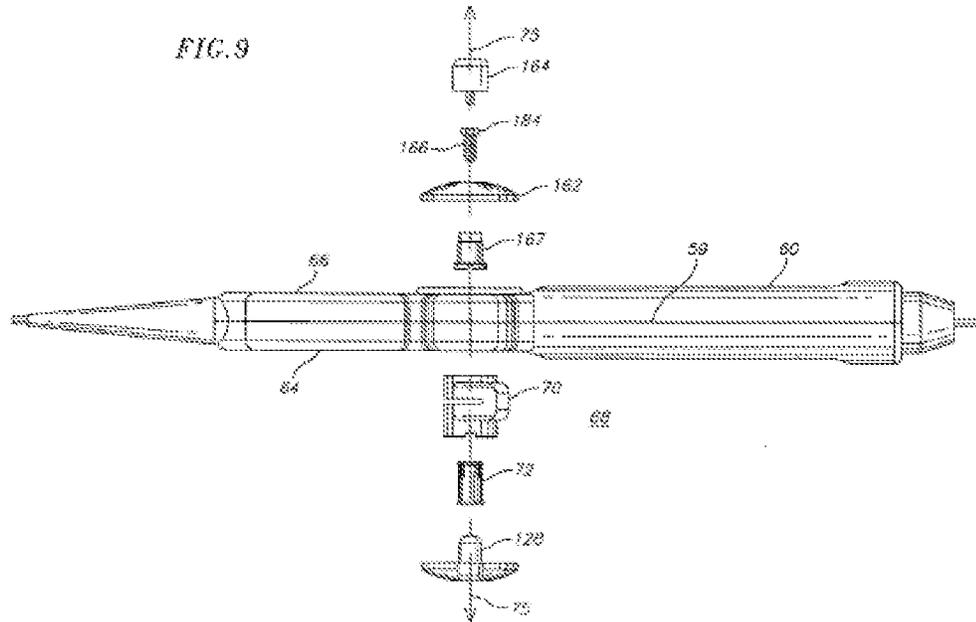
ISSUE

Does the preponderance of evidence on this record support Examiner’s finding that Selkee teaches a device comprising a single pulley?

FACTUAL FINDINGS (FF)

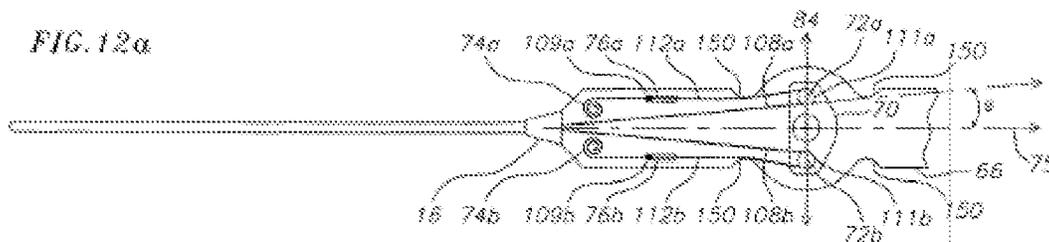
FF 6. Selkee “relates to improved bidirectional steerable catheters, and more particularly to a catheter having a bidirectional control handle” (Selkee ¶ 2; *see* Ans. 4).

FF 7. Selkee’s figure 9 is reproduced below:



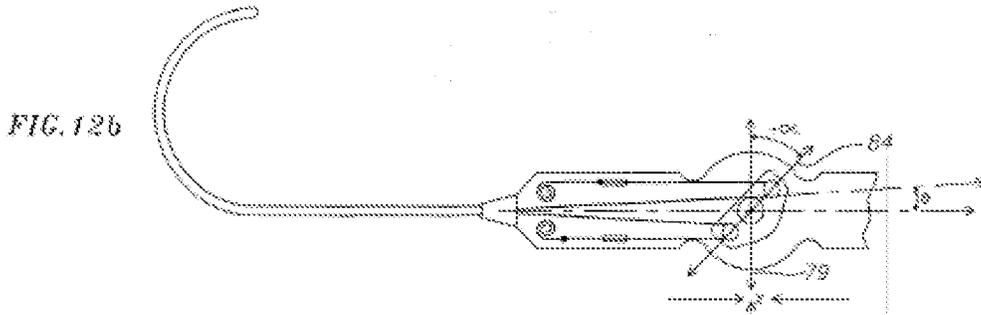
Selkee’s “FIG. 9 is a top exploded view of a control handle of [Selkee’s] catheter” (Selkee ¶ 25 (emphasis omitted); *see* Ans. 4).

FF 8. Selkee’s figure 12a is reproduced below:



Selkee’s figure 12a illustrates “components of [Selkee’s] steering assembly . . . without deflection in the tip section of the catheter” (Selkee ¶ 28; *see* Ans. 4).

FF 9. Selkee's figure 12b is reproduced below:



Selkee's figure 12b illustrates "components of [Selkee's] steering assembly . . . with deflection of the tip section to the right" (Selkee ¶ 28; *see* Ans. 4).

FF 10. Selkee discloses:

It can be seen from FIGS. 12a-12c that rotation of the lever structure 70 causes deflection in the catheter tip section 14. That is, when the lever structure is rotated in the clockwise rotation (namely, in the $+\alpha$ direction) (FIG. 12b), the pulley 72a is translated proximally. Because the puller wire 32a trained on the pulley 72a is stopped against proximal movement at its proximal end by the stop 76a, the proximal translation of the pulley 72a causes it to rotate counterclockwise thereby drawing proximally the wire segment 108a, which results in deflection of the tip section 14 to the right. Facilitating this deflection is the release of the segment 112b as the pulley 72b is coincidentally translated distally by the lever structure 70. The resulting slack in the segment 112b is taken up by the spring 74b as the pulley 72b rotates clockwise.

Correspondingly, when the lever structure is rotated in the counterclockwise rotation (namely, in the $-\alpha$ direction) (FIG. 12c), the pulley 72b is translated proximally. Because the puller wire 32b trained on the pulley 72b is stopped against proximal movement at its proximal end by the stop 76b, the proximal translation of the pulley 72b causes it to rotate clockwise thereby drawing proximally the wire segment 112b, which results in deflection of the tip section 14 to the left. Facilitating this deflection is the release of the segment 112a as the pulley 72a is coincidentally translated distally by the lever

structure 70. The resulting slack in the segment 112a is taken up by the spring 74a as the pulley 72a rotates counterclockwise. (Selkee ¶¶ 79–80 (emphasis omitted).)

FF 11. Examiner finds that Selkee discloses an apparatus comprising:

a handle (defined by housing 60. . .);

an elongate actuator 70 . . . coupled to the handle and configured to rotate relative to the handle about an axis of rotation; and

a [] pulley 72a or 72b . . . mechanically coupled to the actuator at a point offset from the axis of rotation of the elongate actuator,

wherein, when the actuator is rotated relative to the handle, the pulley moves relative to the handle.

(Ans. 4, citing Selkee, FIGS. 9, 10, 12a–12c, and ¶¶ 79–80.)

ANALYSIS

Examiner finds that Selkee teaches Appellant’s claimed invention (Ans. 4). In this regard, Examiner finds that although Appellant’s claims “recite[] a ‘single pulley’,” Appellant’s use of the transitional term “comprising” opens Appellant’s claimed invention to read on a device that comprises more than one pulley (Ans. 6). We are not persuaded.

Although Examiner is correct in finding that the transitional term “comprising” permits Appellant’s claimed device to include any number of structural features, Appellant’s claims expressly limit the number of pulleys in the claimed device to a single pulley. As Appellant explains, Appellant’s “[c]laim 8[, from which Appellant’s claim 9 depends,] does not read ‘a pulley,’ but rather ‘a single pulley’” and, thus, Appellant’s claim 8 “does not mean ‘one or more,’ regardless of the use of the term ‘comprising’ to

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transition from the preamble to the body of claim 8” (App. Br. 10; *see* Reply Br. 5). We agree.

CONCLUSION OF LAW

The preponderance of evidence on this record fails to support Examiner’s finding that Selkee teaches a device comprising a single pulley.

The rejection of claims 8 and 9 under 35 U.S.C. § 102(e) as being anticipated by Selkee is reversed.

REVERSED