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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte FREDERICK E. SHELTON IV, JEROME R. MORGAN,
STEPHEN J. BALEK, and DOUGLAS K. SIEBENALER

Appeal 2011-000333
Application 11/652,164
Technology Center 3700

Before GAY ANN SPAHN, MICHAEL C. ASTORINO, and
WILLIAM A. CAPP, *Administrative Patent Judges*.

SPAHN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Frederick E. Shelton IV et al. (Appellants) seek our review under 35 U.S.C. § 134 of the Examiner's rejection of claims 1-21. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

Claimed Subject Matter

The claimed subject matter relates to “surgical staplers, and, more particularly, to surgical staplers having a curved end-effector and to surgical techniques for using same.” Spec. 2, para. [0001]. Claim 11, 17, and 21 are independent and claim 1, reproduced below, is illustrative of the subject matter on appeal.

1. A surgical stapler, comprising:
 - a staple cartridge configured to removably store at least a first staple and a second staple;
 - an anvil configured to deform said first staple and said second staple, wherein said first staple is movable between a first position and a second position, wherein said first position and said second position define a first axis, wherein said second staple is movable between a first position and a second position, wherein said first position and said second position of said second staple define a second axis, and wherein said first axis and said second axis define an angle therebetween;
 - a cutting member having a cutting edge;
 - a staple driver configured to move said first staple along said first axis and said second staple along said second axis; and
 - a flexible drive bar configured to move said staple driver and said cutting member along a curved path between said first axis and said second axis.

Rejections

The following Examiner’s rejections are before us for review:

- I. claims 1-10, 15, 16, 19, and 21 are rejected under 35 U.S.C. § 112, second paragraph, as indefinite for failing to particularly point out

and distinctly claim the subject matter which Appellants regard as the invention;¹ and

II. claims 1, 2, and 4-21 are rejected under 35 U.S.C. § 103(a) as unpatentable over Yoon (US 5,655,698, issued Aug. 12, 1997) and Noiles (US 4,576,167, issued Mar. 18, 1986).

OPINION

Rejection I – Indefiniteness

Claims 1-10, 15, 16, 19, and 21

All of claims 1-10, 15, 16, 19, and 21 have similar language as to first and second staples each being moveable between first and second positions to define first and second axes, respectively.

The Examiner determines that the above-mentioned language in each of claims 1-10, 15, 16, 19, and 21 is “indefinite in that said first position, second position, first axis, and second axis have no point of reference,” as “[t]hese limitations do[] not clearly describe any structure capable of defin[ing] the relation[ship] between the movement of the staples with the other component[s] of the surgical stapler, and thereby, the point of reference for the claimed axes is indefinite.” Ans. 3-4.

Appellants argue, and we agree, that “the claims are clear on their face” in reciting first and second staples removably stored within the staple

¹ Although the Examiner’s ground of rejection lists all of claims 1-21 as being rejected under 35 U.S.C. § 112, second paragraph, the Examiner has withdrawn the rejection as to claims 11 and 17. Ans. 3. Furthermore, since claims 12-14, 18, and 20, which depend either directly or indirectly from claim 11 or claim 17, lack a basis for rejection under 35 U.S.C. § 112, second paragraph, as a matter of course, the rejection of these claims is withdrawn as well.

cartridge and being movable along different axes between two positions to define a frame of reference. App. Br. 15-16. As stated by Appellants, “the [S]pecification describes the deployment of staples from a staple cartridge by a staple driver, such as the exemplary embodiment depicted in Figs. 6 and 7” which show “the progression of staples 132 between first and second positions along axes by driver 130” so that the disputed claim language “is abundantly clear and certainly definite.” App. Br. 16-17.

Accordingly, with respect to the disputed first and second positions and first and second axes limitation, we do not sustain the Examiner’s rejection of claims 1-10, 15, 16, 19, and 21 under 35 U.S.C. § 112, second paragraph, as indefinite.

Additional indefiniteness issues with respect to claim 21

Claim 21 additionally recites “the pulmonary artery” and that the first and second axes “converge on a side of the pulmonary artery opposite the thoracic cavity sidewall.” App. Br., Clms. App’x. The Examiner determines both of the above-quoted recitations of claim 21 to be indefinite. Ans. 4.

As for the first quoted language *supra*, the Examiner determines that “the pulmonary artery” lacks antecedent basis. *Id.* Appellants argue, and we agree, that

the pulmonary artery referred to in Claim 21 is in the context of “a sidewall of the thoracic cavity of a patient” which a person of ordinary skill in the art would fully and completely understand that “the” pulmonary artery referred to in the claim was that of the recited patient and, thus, such a recitation is definite.

App. Br. 19.

Accordingly, with respect to the first quoted claim language *supra*, we do not sustain the Examiner's rejection of claim 21 under 35 U.S.C. § 112, second paragraph, as being indefinite.

As for the second quoted language *supra*, the Examiner determines that "it is unclear what 'converge on a side of the pulmonary artery opposite the thoracic cavity sidewall' encompasses" since "[t]he claim is relying on body parts which are not part of the structural inventive concept of the instant application." Ans. 4. From the Examiner's statements, there does not appear to be any basis for the rejection of the second quoted language *supra* as being indefinite. *See also* App. Br. 19. First, the Examiner understands that the "body parts," i.e., "the pulmonary artery" and "the thoracic cavity," are not part of the structure of the apparatus. We agree. Indeed, one having ordinary skill in the art would understand the inclusion of the "body parts" into the claim as merely reference points to help identify the structure of the surgical stapler's staple channel and anvil. Therefore, the recited claim language concerning the convergence of the first and second axes "on a side of the pulmonary artery opposite the thoracic cavity sidewall" is merely an expression of the structure of the surgical stapler's staple channel and anvil, and is not indefinite.

Accordingly, with respect to the second quoted language *supra*, we do not sustain the Examiner's rejection of claim 21 under 35 U.S.C. § 112, second paragraph, as indefinite.

Rejection II – Obviousness based on Yoon and Noiles

Claims 1, 2, 4-10, 15, 19, and 21

In addition to the above-discussed claim language of first and second staples movable between first and second positions along first and second

axes, respectively, independent claims 1 and 21, and dependent claims 2, 4-10, 15, and 19 include the limitation that “said first axis and said second axis define an angle therebetween.” App. Br., Clms. App’x.

The Examiner finds that Yoon discloses a surgical stapler including, *inter alia*, an anvil 322 configured to deform staples 42, wherein:

the first staple is movable between a first position (within staple slot 320, 322 before being deployed and deformed against the anvil) and a second position (after being deployed and deformed against the anvil), wherein said first position and said second position of the first staple define a first axis (i.e.,) a longitudinal axis along the proximal end of 318 wherein said first staple is deployed and deformed; fig. 28) and said second staple is movable between a first position (within the staple slots) and a second position (after being driven and deformed against the anvil), wherein said first position and second position of said second staple define a second axis (i.e.,) a longitudinal axis along the distal end of 318 wherein said second staple is deployed and deformed; fig. 28), wherein said first axis and said second axis define an angle therebetween (fig. 28).

Ans. 4-5.

Appellants argue, and we agree, that Yoon’s “staple slots 320 of jaw 314 are parallel to one another and do **not** define axes which define an angle therebetween,” because “[t]he staple slots 320, although positioned along a curved path, are not oriented so as to deploy staples along axes which are at [an] angle with one another.” App. Br. 23; *see also* App. Br. 24-25. Yoon’s Figure 28, pointed to the by the Examiner for the interpretation that Yoon discloses first and second axes at an angle with respect to one another, depicts a jaw 314 of a surgical stapler having staple slots 320 which movably house staples 42. Yoon, col. 10, l. 52 to col. 11, l. 4 and Fig. 28. Each of the staples 42 are capable of moving along an axis that is parallel

with the axis of the staple slot and perpendicular to the plane of the upper surface of the staple cartridge 318. Thus, Appellant correctly states that Yoon's staple slots 320 do not define axes which have an angle therebetween. The Examiner's interpretation that a longitudinal axis along the proximal end of staple cartridge 318 wherein the first staple is deployed and deformed in Figure 28 constitutes a first axis, a longitudinal axis along the distal end of staple cartridge 318 wherein the second staple is deployed and deformed in Figure 28 constitutes a second axis, and the first and second axis define an angle therebetween does not satisfy the claim language as the longitudinal axes pointed to by the Examiner are not the axes along which the staples move from a first position to a second position.

Accordingly, we do not sustain the Examiner's rejection of claims 1, 2, 4-10, 15, 19, and 21 under 35 U.S.C. § 103(a) as unpatentable over Yoon and Noiles.

Independent claims 11 and 17 and dependent claims 12-16 and 18-20

Each of independent claims 11 and 17 are directed to a surgical stapler and recite that either a flexible driver or a flexible drive bar, respectively, is "operably engaged with said cutting member to move said cutting member relative to said anvil and the staple cartridge." App. Br., Clms. App'x.

The Examiner finds that Yoon discloses either "a driver (fig. 25)" or "a drive bar (242) configured to move said staple driver [(234)] and said cutting member [(244 or 326)] along a curved path of the stapler (as shown in the embodiment of fig. 28)." Ans. 5-6; *see also* Ans. 7. The Examiner also finds Yoon fails to disclose that "said drive bar is flexible and has an elongate cross-section defined by a width and a height, wherein said width is greater than said height" and "wherein said width defines an axis that is not

parallel to said cutting edge axis.” Ans. 5-6. To cure the deficiencies of Yoon, the Examiner turns to Noiles to teach

the concept of a surgical stapler comprising a flexible drive bar (80) having an elongate cross-section defined by a width and a height (fig. 9) for the purposes of enhancing flexibility of the drive bar during a tissue fastening procedure without significantly affecting its tensile strength necessary to drive the staples and cut the tissue.”

Ans. 5-7 (citing Noiles, col. 7, l. 56 to col. 8, l. 11). The Examiner concludes that it would have been obvious to one of ordinary skill in the art to modify Yoon’s drive bar to be flexible and have “a width greater than a height as taught by Noiles” in order to yield the predictable results of “a flexible driver having a width greater than its height, wherein the width defines an axis which is not parallel to the cutting edge of the cutting member, enhancing flexibility of the driver along the cutting edge axis” and “without significantly affecting its tensile strength during a fastening procedure.” Ans. 6-8.

Appellants argue that Noiles drive bar 80 “is not, in fact, a drive bar which moves a cutting member as recited in Claim 11; rather, Noiles . . . refers to component 80 as a ‘flexible band’ which is pulled in order to position anvil 20 relative to staple holding assembly 40.” App. Br. 26 and 28 (citing Noiles col. 7, l. 56 to col. 8, l. 68). More particularly, Appellants argue that “[c]ontrary to the Examiner’s position, the knife 52 of Noiles . . . is moved by the actuation of handles 120a and 120b which advance tube 70 and knife pusher assembly 44.” *Id.* (citing Noiles, col. 10, ll. 28-42).

We are persuaded by Appellants’ arguments. Noiles flexible band 80 is mounted in tube 70 for longitudinal reciprocal motion relative to the surrounding elements and is made up of several thin strips of metal 80a, 80b,

and 80c. Noiles, col. 7, ll. 56-62. The proximal end of flexible band 80 is connected to the distal end of rod 160 by pins 168 and the distal end of band 80 is connected to the proximal end of rod 30 by pins 82. Noiles, col. 7, ll. 62-66. The principal function of flexible band 80 is to act as a tension member for transmitting longitudinal tension force (and accompanying motion) from actuator assembly 14 to stapling assembly 12 for drawing anvil assembly 20 toward staple holding assembly 40 and then holding these two assemblies together to clamp tissue during stapling and cutting. Noiles, col. 8, ll. 24-30. However, it is pusher assembly 44, mounted for longitudinal motion relative to housing 42, that is for driving staples 50 and knife 52 toward anvil assembly 20, and staples 50 and knife 52 are driven by squeezing handles 120a and 120b together. Noiles, col. 4, ll. 25-27, and col. 5, ll. 28-29. Thus, one of ordinary skill in the art would not consider Noiles's flexible band 80 to constitute the claimed flexible driver or drive bar operatively engaged with the cutting member to move the cutting member relative to the anvil and the staple cartridge.

Accordingly, we do not sustain the Examiner's rejection of independent claims 11 and 17, and claims 12-16 and 18-20 depending therefrom, under 35 U.S.C. § 103(a) as unpatentable over Yoon and Noiles.

DECISION

We reverse the Examiner's decision to reject claims 1-21.

REVERSED