

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INTUITIVE SURGICAL, INC.,
Petitioner,

v.

ETHICON LLC,
Patent Owner.

Case IPR2018-01254
Patent 8,479,969 B2

Before JOSIAH C. COCKS, BENJAMIN D. M. WOOD, and
MATTHEW S. MEYERS, *Administrative Patent Judges*.

MEYERS, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Intuitive Surgical, Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 1–11 and 24 of U.S. Patent No. 8,479,969 B2 (Ex. 1001, “the ’969 patent”). Ethicon LLC (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”) to the Petition. We have authority under 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted “unless . . . the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Moreover, a decision to institute under 35 U.S.C. § 314 may not institute on fewer than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

Upon consideration of the Petition and the Preliminary Response, we conclude that the information presented shows there is a reasonable likelihood that Petitioner would prevail in showing the unpatentability of at least one challenged claim. As explained in our discussion below, we do not find a sufficient basis to use our discretion to deny institution under 35 U.S.C. § 325(d), and as such, we authorize an *inter partes* review to be instituted as to claims 1–11 and 24 of the ’969 patent on the ground raised in the Petition. Our factual findings and conclusions at this stage of the proceeding are based on the evidentiary record developed thus far (prior to Patent Owner’s Response). This is not a final decision as to patentability of claims for which *inter partes* review is instituted. Any final decision will be based on the record, as fully developed during trial.

II. BACKGROUND

A. The '969 Patent

The '969 patent issued July 9, 2013 from an application filed February 9, 2012, and claims priority, as a continuation, to an application filed May 27, 2011, which claims priority, as a continuation-in-part, to an application filed January 10, 2007. Ex. 1001, [45], [22], [63]. The '969 patent is titled “Drive Interface for Operably Coupling a Manipulatable Surgical Tool to a Robot,” and generally relates to endoscopic surgical instruments. Ex. 1001, [54]; 1:54–57. The '969 patent summarizes its disclosure as encompassing a surgical instrument “for use with a robotic system that has a control unit and a shaft portion,” which together with an electrically conductive elongated member, “transmit[s] control motions from the robotic system to an end effector.” Ex. 1001, [57]. Figure 26 of the '969 patent is reproduced below:

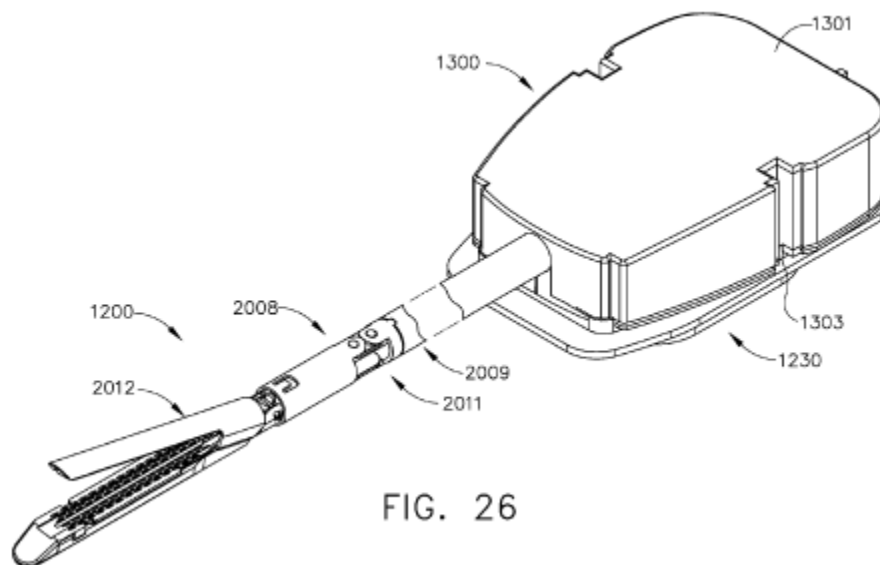


Figure 26 depicts “a perspective view of a surgical tool embodiment of the present invention.” Ex. 1001, 5:19–20. Figure 26 illustrates surgical tool 1200 with an end effector 2012, elongated shaft assembly 2008, and articulation joint 2011. Ex. 1001, 24:66–25:5. The '969 patent describes

that surgical tool 1200 is coupled to a robotic manipulator (not shown) by a tool mounting portion 1300. Ex. 1001, 25:5–7.

Figure 31 of the '969 patent is reproduced below:

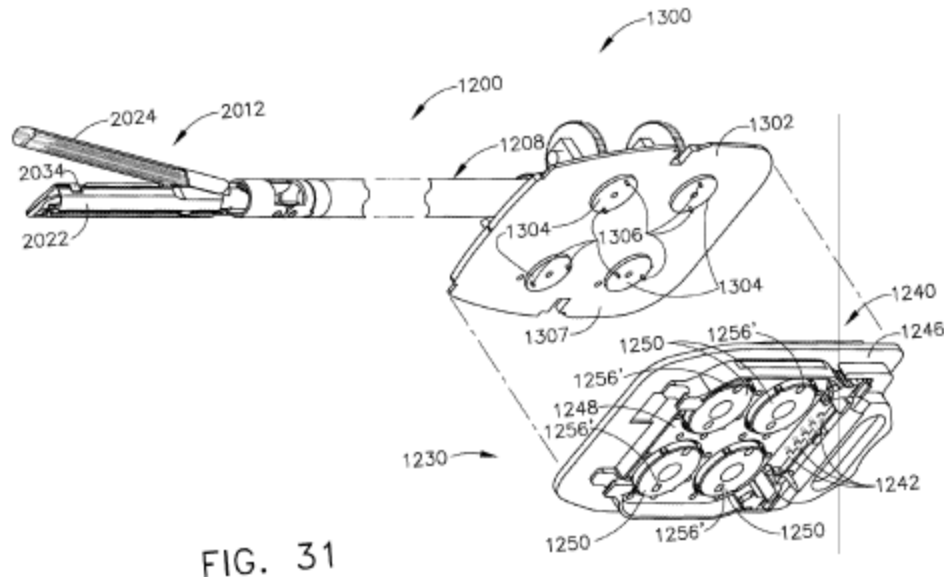


FIG. 31

Figure 31 depicts “a partial bottom perspective view of the surgical tool embodiment of FIG. 26.” Ex. 1001, 5:27–28. Figure 31 illustrates “tool mounting portion **1300** includes a tool mounting plate **1302** that operably supports a plurality of (four are shown in FIG. 31) rotatable body portions, driven discs or elements **1304**, that each include a pair of pins **1306** that extend from a surface of the driven element 1304.” Ex. 1001, 25:11–16. Figure 31 further depicts that “[i]nterface **1230** includes an adaptor portion **1240** that is configured to mountingly engage the mounting plate **1302**.” Ex. 25:19–22. The '969 patent describes that “adaptor portion **1240** generally includes a tool side **1244** and a holder side **1246**.” Ex. 1001, 25:30–31.

Figure 27 of the '969 patent is reproduced below:

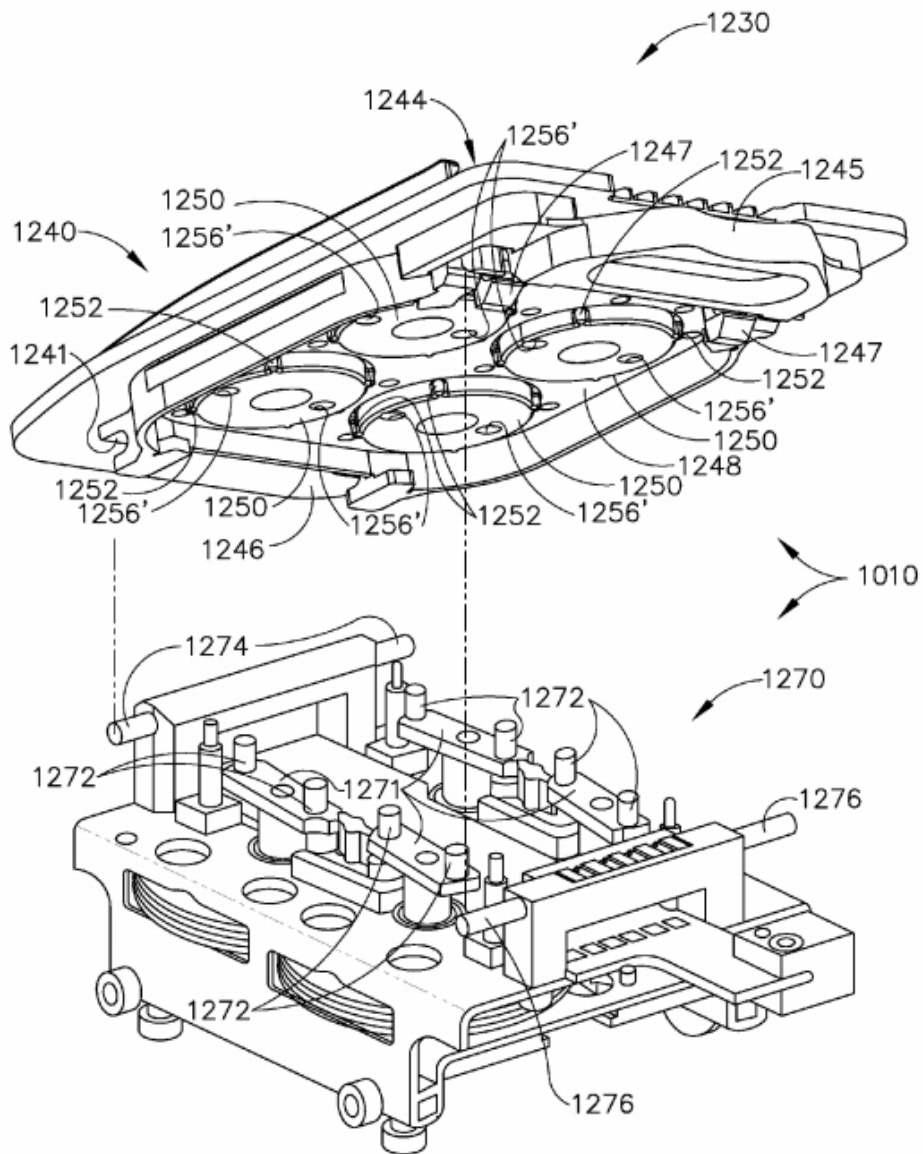


FIG. 27

Figure 27 depicts “an exploded assembly view of an adapter and tool holder arrangement for attaching various surgical tool embodiments to a robotic system.” Ex. 1001, 5:21–23. More particularly, Figure 27 illustrates that tool drive assembly 1010 “is operatively coupled to a master controller 1001.” Ex. 1001, 24:62–66.

B. Illustrative Claims

Challenged claims 1 and 24 are independent. Claims 2–10 ultimately depend from claim 1. Claim 1 is illustrative and is reproduced below.

1. A surgical tool for use with a robotic system that has a tool drive assembly that is operatively coupled to a control unit of the robotic system that is operable by inputs from an operator and is configured to provide at least one rotary output motion to at least one rotatable body portion supported on the tool drive assembly, said surgical tool comprising:

a surgical end effector comprising:

an elongated channel configured to operably support a surgical staple cartridge therein;

an anvil that is selectively movable between a first open position and second closed positions relative to the elongated channel and wherein the surgical tool further comprises:

an elongated shaft assembly operably coupled to said surgical end effector, said elongated shaft assembly comprising:

a spine assembly including a distal end portion that is coupled to said elongated channel;

a closure tube assembly movably supported on said spine assembly, said closure tube assembly comprising a distal end configured for operable interaction with said anvil; and

at least one gear-driven portion, wherein one said gear driven portion is in operable communication with said closure tube assembly and wherein said surgical tool further comprises:

a tool mounting portion operably coupled to said elongated shaft assembly, said tool mounting portion being configured to operably interface with the tool drive assembly when coupled thereto and operably supporting a proximal end of the spine assembly thereon, said tool mounting portion comprising:

a driven element rotatably supported on said tool mounting portion and configured for driving engagement with a corresponding one of the at least

one rotatable body portions of the tool drive assembly to receive corresponding rotary output motions therefrom; and
a transmission assembly in operable engagement with said driven element and in meshing engagement with a corresponding one of said at least one gear-driven portions to apply actuation motions thereto to cause said corresponding one of said at least one gear driven portions to apply at least one control motion to said closure tube assembly.

C. Related Proceedings

The parties indicate that the '969 patent is involved in: *Ethicon LLC et al. v. Intuitive Surgical, Inc. et al.*, No. 1:17-cv-00871 in the United States District Court for the District of Delaware (“the Delaware litigation”).¹ Pet. 6; Paper 4, 2.

Petitioner is also challenging the '969 patent as well as other related patents in the following proceedings before the Board: (1) Case No. IPR2018-00933 (the '601 patent); (2) Case No. IPR2018-00934 (the '058 patent); (3) Case No. IPR2018-00938 (the '874 patent); (4) Case Nos. IPR2018-01248 and IPR2018-01247 (the '969 patent); (5) Case No. IPR2018-00936 (the '658 patent); and (6) Case No. IPR2018-01703 (the '431 patent).

D. Earliest Effective Filing Date

Petitioner asserts that May 27, 2011, the day the '969 patent

¹ Patent Owner contends that U.S. Patent Nos. 9,585,658 B2 (“the '658 Patent”), 8,616,431 B2 (“the '431 Patent”), 9,113,874 B2 (“the '874 Patent”), 9,113,874 B2 (“the '874 Patent”), 9,084,601 B2 (“the '601 Patent”), and 8,998,058 B2 (“the '058 Patent”) are also asserted in the Delaware litigation. Paper 4, 2–3.

application was filed, as a continuation-in-part is the earliest effective filing date. Pet. 11.

Patent Owner asserts that the '969 patent "claims priority to application No. 11/651,807, which was filed on Jan. 10, 2007." Prelim. Resp. 11 (citing Ex. 1001, (63)). Patent Owner further asserts

[b]ecause the Petition should be denied, for the reasons set forth herein, regardless of the effective filing date of the challenged claims, Patent Owner does not address Petitioner's priority date arguments in this paper, but reserves all rights to subsequently contend in any instituted IPR or in any other proceeding that the challenged claims are entitled to their earliest claimed effective filing date.

Prelim. Resp. 11. In view of the above, and at this stage, we do not resolve this issue at this time.

E. Real Parties in Interest

Petitioner identifies itself as the only real party-in-interest. Pet. 1.

F. Evidence Relied Upon

Petitioner relies on the following references in asserting that claims 1–11 and 24 of the '969 patent are unpatentable:

Reference	Exhibit No.
U.S. Patent No. 6,699,235 issued Mar. 2, 2004 ("Wallace")	1008
U.S. Patent No. 6,331,181 issued Dec. 18, 2001 ("Tierney")	1009
U.S. Patent App. Pub. No. US 2008/0167672 A1 published July 10, 2008 ("Giordano")	1014
U.S. Patent No. 6,978,921 issued Dec. 27, 2005 ("Shelton")	1015

U.S. Patent App. Pub. No. US 2007 /0158385 A1 published July 12, 2007 (“Hueil”)	1016
---	------

Petitioner also relies upon a Declaration of Dr. Bryan Knodel.
Ex. 1005.

G. The Asserted Grounds of Unpatentability

Petitioner contends that claims 1–11 and 24 are unpatentable based on the following grounds:

References	Basis	Claim(s) Challenged
Giordano and Wallace	§ 103	1–11 and 24
Giordano, Wallace, and Tierney	§ 103	1–11 and 24
Shelton, Wallace, and Tierney	§ 103	1–6 and 9–10
Shelton, Giordano, Wallace, and Tierney	§ 103	7, 8, 11, and 24
Shelton, Wallace, Tierney, and Hueil	§ 103	5 and 6

III. ANALYSIS

A. Claim Construction

The claim construction standard to be employed in an *inter partes* review recently has changed. *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340 (Nov. 13, 2018) (to be codified at 37 C.F.R. pt. 42). That new standard, however, applies only to proceedings in which the petition is filed on or after November 13, 2018. This Petition was filed on June 14, 2018. Under the standard in effect at that time, “[a] claim in an unexpired patent . . . shall be given its broadest reasonable construction in light of the specification of the patent in which it appears.” 37 C.F.R. § 42.100(b); *see also* *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131,

2142 (2016) (upholding the use of the broadest reasonable interpretation standard). Accordingly, we determine whether to institute trial in this proceeding using the broadest reasonable construction standard. In determining the broadest reasonable construction, we presume that claim terms carry their ordinary and customary meaning. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). A patentee may define a claim term in a manner that differs from its ordinary meaning; however, any special definitions must be set forth in the specification with reasonable clarity, deliberateness, and precision. *See In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

Here, neither Petitioner nor Patent Owner identifies terms for construction or provides any proposed constructions. *See* Pet. 12; Prelim. Resp. 11. Instead, the parties agree that claims of '969 patent should be construed according to their broadest reasonable interpretation. Pet. 12; Prelim. Resp. 11. For the purposes of this Decision, we determine that no claim term needs express interpretation. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

B. Level of Ordinary Skill in the Art

Petitioner’s Declarant, Dr. Knodel, testifies the following in connection with the level of ordinary skill in the art:

A person of ordinary skill in the art [POSITA] at the time of the alleged invention would have had the equivalent of a Bachelor’s degree or higher in mechanical engineering with at least 3 years working experience in the design of comparable surgical devices. Additional education in a relevant field, such as mechanical engineering or robotics (to the extent pertinent), or

industry experience may compensate for a deficit in one of the other aspects of the requirements stated above.

Ex. 1005 ¶ 26.

Patent Owner does not challenge the above-noted testimony or offer any assessment of its own as to the level of ordinary skill in the art. For purposes of this Decision, we adopt Dr. Knodel's assessment of the level of ordinary skill in the art. We further find that the cited prior art references reflect the appropriate level of skill at the time of the claimed invention and that the level of appropriate skill reflected in these references is consistent with the definition of a person of ordinary skill in the art proposed by Petitioner. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

C. Ground 1: Claims 1–11 and 24 – Obvious over Giordano and Wallace

Petitioner contends that claims 1–11 and 24 would have been obvious over Giordano and Wallace. Pet. 20–90. Patent Owner opposes. Prelim. Resp. 18–25.

1. Overview of Giordano (Ex. 1014)²

Giordano is directed to an endoscopic or laparoscopic surgical instrument which includes “a shaft having a distal end connected to [an] effector and a handle connected to a proximate end of the shaft.” Ex. 1014 ¶ 15. Figure 2 of Giordano is reproduced below.

² Giordano is the published grandparent application to which the '969 patent claims priority.

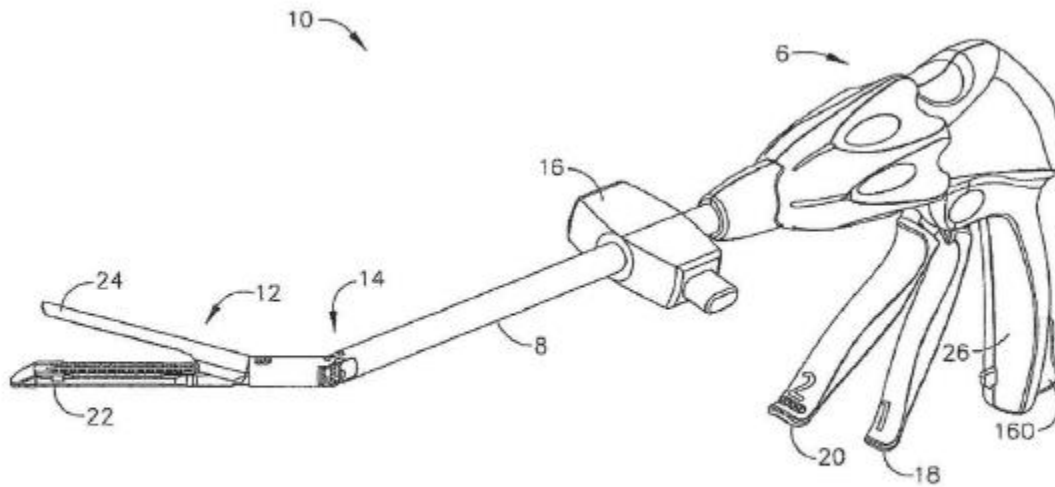


FIG. 2

Figure 2 depicts a perspective view of a surgical instrument of the present invention. More particularly, Figure 2 illustrates

a handle **6**, a shaft **8**, and an articulating end effector **12** pivotally connected to the shaft **8** at an articulation pivot **14**. Correct placement and orientation of the end effector **12** may be facilitated by controls on the hand [sic] **6**, including (1) a rotation knob **28** for rotating the closure tube (described in more detail below in connection with FIGS. **4-5**) at a free rotating joint **29** of the shaft **8** to thereby rotate the end effector **12** and (2) an articulation control **16** to effect rotational articulation of the end effector **12** about the articulation pivot **14**.

Ex. 1014 ¶ 34. Figure 2 also illustrates that handle **6** includes “a closure trigger **18** and a firing trigger **20** for actuating the end effector **12**.” Ex. 1014 ¶ 35. With respect to closure trigger **18**, Giordano discloses that its “anvil **24** may be pivotably opened and closed at a pivot point **25**,” shown in Figure 3, when closure trigger **18** is actuated. Ex. 1014 ¶ 39. With respect to firing trigger **20**, Giordano discloses when

main drive shaft **48** is caused to rotate by actuation of the firing

trigger **20** (as explained in more detail below), the bevel gear assembly **52a-c** causes the secondary drive shaft **50** to rotate, which in turn, because of the engagement of the drive gears **54**, **56**, causes the helical screw shaft **36** to rotate, which causes the knife **32** to travel longitudinally along the channel **22** to cut any tissue clamped within the end effector.

Ex. 1014 ¶ 42.

Giordano incorporates Shelton by reference to provide “more details about such two-stroke cutting and fastening instruments.” Ex. 1014 ¶ 39. Accordingly, we discuss Shelton next.

2. Overview of Shelton (Ex. 1015)

Shelton is titled “Surgical Stapling Instrument Incorporating an E-Beam Firing Mechanism.” Ex. 1015, [54]. Shelton is directed to a surgical severing and stapling instrument that is suitable for laparoscopic and endoscopic clinical procedures. Ex. 1015, [57]. Figure 6 of Shelton is reproduced below:

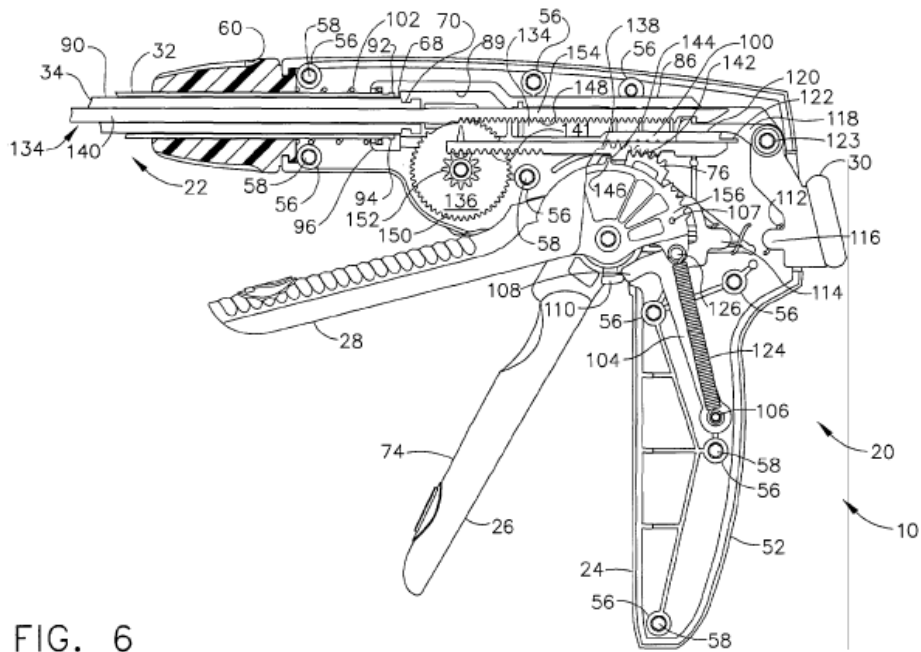


FIG. 6

Figure 6 illustrates handle portion 20 including separate closure trigger 26 and firing trigger 28. Ex. 1015, 7:6–8:38. Shelton discloses “closure yoke **86** is housed within the handle portion **20** for reciprocating movement therein and serves to transfer motion from the closure trigger **26** to the closure sleeve **32**.” Ex. 1015, 7:51–53. To position end effector 12, Shelton discloses

proximal end **90** of the closure sleeve **32** is provided with a flange **92** that is snap-fitted into a receiving recess **94** formed in a distal end **96** of the yoke **86**. A proximal end **98** of the yoke **86** has a gear rack **100** that is engaged by the gear segment section **76** of the closure trigger **26**. When the closure trigger **26** is moved toward the pistol grip **24** of the handle portion **20**, the yoke **86** and, hence, the closure sleeve **32** move distally, compressing a spring **102** that biases the yoke **86** proximally.

Ex. 1015, 7:58–67. Shelton discloses “handle portion 20 is illustrative and that other actuation mechanisms may be employed. For instance, the closing and firing motions may be generated by automated means.” Ex. 1015, 9:47–50.

3. *Overview of Wallace (Ex. 1008)*

Wallace is titled “Platform Link Wrist Mechanism.” Ex. 1008, [54].

Wallace’s Abstract reads as follows:

The present invention provides a robotic surgical tool for use in a robotic surgical system to perform a surgical operation. The robotic surgical tool includes a wrist mechanism disposed near the distal end of a shaft which connects with an end effector. The wrist mechanism includes a distal member configured to support the end effector, and a plurality of rods extending generally along an axial direction within the shaft and movable generally along this axial direction to adjust the orientation of the distal member with respect to the shaft. The distal member has a base to which the rods are rotatably connected by orthogonal linkage assemblies.

Ex. 1008, [57]. Figure 1 of Wallace is reproduced below:

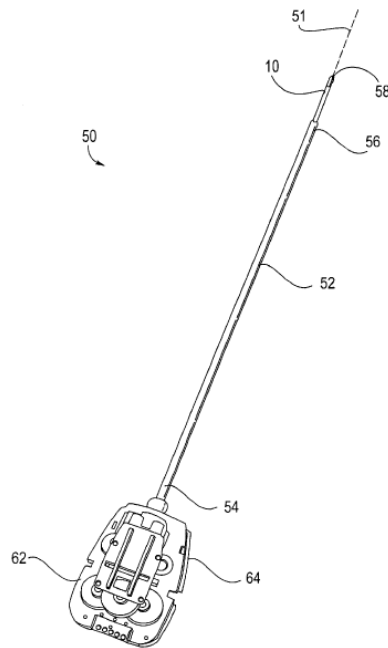


Fig. 1

Figure 1 “is a perspective overall view of an embodiment of the surgical tool of the present invention.” Ex. 1008, 6:26–27. Figure 1 illustrates surgical tool 50 including

rigid shaft **52** having a proximal end **54**, a distal end **56** and a longitudinal axis there between. The proximal end **54** is coupled to a tool base **62**. The tool base **62** includes an interface **64** which mechanically and electrically couples the tool **50** to a manipulator on the robotic arm cart. A distal member, in this embodiment a distal clevis **58**, is coupled to shaft **52** by a wrist joint or wrist mechanism **10**, the wrist mechanism **10** providing the distal clevis **58** with at least 1 degree of freedom and ideally providing at least 3 degrees of freedom. The distal clevis **58** supports a surgical end effector **66**, the actual working part that is manipulable for effecting a predetermined treatment of a target tissue.

Ex. 1008, 7:33–47. Wallace discloses that “end effector **66** is manipulated by the wrist mechanism **10** to provide the ability of continuous movement in

a wide range of angles (in roll, pitch and yaw) relative to an axial direction or the longitudinal axis **51** of the shaft **52**.” Ex. 1008, 7:57–60. Wallace further discloses that its “wrist mechanism includes a distal member, configured to support the end effector, and a plurality of rods extending generally along an axial direction within the shaft and movable generally along this axial direction to adjust the orientation of the distal member with respect to the axial direction or shaft.” Ex. 1008, 3:54–59. Wallace additionally discloses that “[t]he plurality of rods may comprise two, three, four or more rods.” Ex. 1008, 4:28–29.

Wallace incorporates Tierney by reference to provide details regarding “Surgical Robotic Tools, Data Architecture, and Use.” Ex. 1008, 1:16–18. Accordingly, we discuss Tierney next.

4. *Overview of Tierney (Ex. 1009)*

Tierney is titled “Surgical Robotic Tools, Data Architecture, and Use.” Ex. 1009, [54]. More particularly, Tierney is directed to “surgical tools having improved mechanical and/or data interface capabilities to enhance the safety, accuracy, and speed of minimally invasive and other robotically enhanced surgical procedures.” Ex. 1009, 1:11–15. Tierney describes that robotic surgery generally involves the use of robotic arms which “often support a surgical tool which may be articulated (such as jaws, scissors, graspers, needle holders, microdissectors, staple applicators, tackers, suction/irrigation tools, clip applicators, or the like) or non-articulated (such as cutting blades, cautery probes, irrigators, catheters, suction orifices, or the like).” Ex. 1009, 6:20–28.

5. *Petitioner’s Contentions*

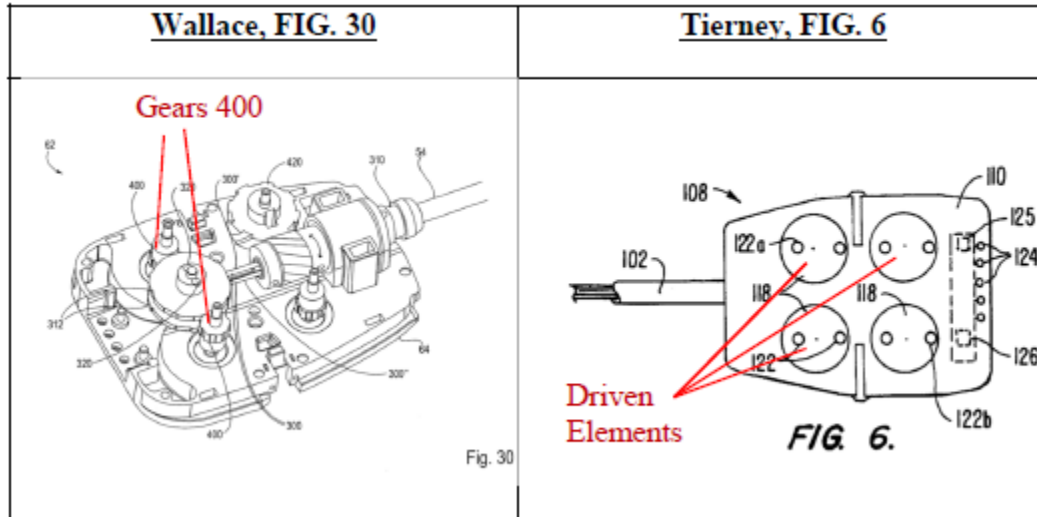
Petitioner contends that claims 1–11 and 24 of the ’969 patent would

have been obvious in view of the combined teachings of Giordano (which incorporates by reference the prior art surgical stapler of Shelton) and Wallace (which incorporates by reference the details of the surgical tool disclosed in Tierney). Petitioner provides detailed assessment of the content of the prior art in advocating that all the features of claims 1–11 and 24 are shown therein. *See* Pet. 20–90. Petitioner also supports that assessment with citation to the Declaration testimony of Dr. Knodel (Ex. 1005).

For example, the preamble of independent claim 1 sets forth “[a] surgical tool for use with a robotic system.” Petitioner asserts that “Giordano’s incorporation of Shelton discloses ‘surgical stapling and severing instrument 10’ (‘the Shelton stapler’), which is a manually operated surgical tool.” Pet. 21 (citing Ex. 1005 ¶¶ 49–55; Ex. 1015, 5:22–45, Figs. 1–2). Although the surgical tool disclosed by Giordano/Shelton is manually operated, Petitioner asserts that it would be obvious to modify the Shelton stapler for use with a robotic system based on the disclosure of Wallace/Tierney. Pet. 21 (citing Ex. 1005 ¶ 50).

Petitioner explains that “the closing motion of Shelton is driven by rotation of ‘gear segment section 76’ and the firing motion is driven by rotation of the “gear segment section 156.” Pet. 23. Petitioner asserts that Wallace discloses a surgical tool that has “tool base 62 which includes an interface 64 which mechanically and electrically couples the tool 50 to a manipulator on the robotic arm cart.” Pet. 24 (citing Ex. 1008, 7:37–40). Petitioner explains that the tool in Wallace includes “gears 400” which are powered by a robotic system to provide “rotational actuation motions for Wallace’s instrument.” Pet. 24 (citing Ex. 1008, 13:48–54). Petitioner provides the following side-by-side reproduction of Figure 30 of Wallace

and Figure 6 of Tierney, annotated to identify, among several items, gears 400 and driven elements 118. Pet. 24.

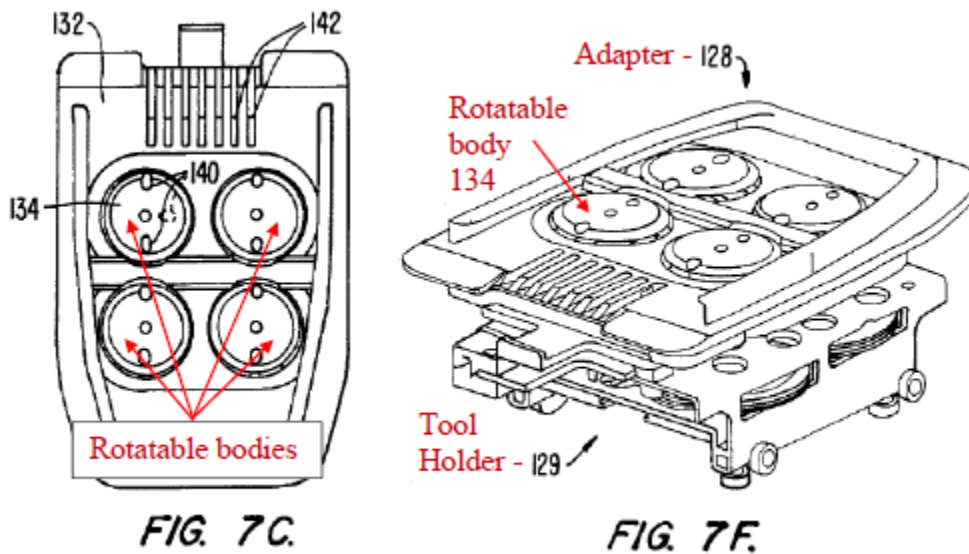


Petitioner explains that “Tierney, incorporated by reference, teaches that the gears would be driven by ‘driven elements 118’ on the interface side of the tool base (which are turned by rotatable bodies on the adapter on the robot arm).” Pet. 24 (citing Ex. 1009, 16:41–52). Based on the above, Petitioner takes the position

[a] POSITA would have readily understood that the Shelton device could be modified for robotic use by removing the handle and triggers and connecting the “second gear rack 142” of Shelton to one of the actuation gears 400 on the Wallace tool base and connecting the “gear rack 100” of Shelton to another one of the actuation gears 400. In the combination, the gear 400 that replaced “gear segment section 76” of Shelton would drive “gear rack 100” to open and close the anvil of the modified stapler. The gear 400 that replaced “gear segment section 156” of Shelton would drive “second gear rack 142” to fire the modified stapler.

Pet. 24–25 (citing Ex. 1005 ¶ 50). Petitioner contends that a POSITA would have been motivated to modify Shelton’s stapler with Wallace’s robotic system for several reasons. See Pet. 25–28.

The preamble of independent claim 1 also includes “[a] tool drive assembly that is operatively coupled to a control unit . . . and is configured to provide at least one rotary output motion to at least one rotatable body portion supported on the tool drive assembly.” Petitioner asserts that “Wallace’s incorporation of Tierney discloses a tool drive assembly (the combination of the tool holder 129 and drive elements 119) that is operatively coupled to a control unit (master control station 150 alone or in combination with robotic arm slave cart 50).” Pet. 28–30 (citing Ex. 1005 ¶¶ 56–57; Ex. 1009, 4:33–35, 7:65–8:7, 10:14–15, 11:5–6, 11:33–35, Figs. 3A, 7J, 8A, 8B, 9; Ex. 1014, 3:12–15). Petitioner provides the following side-by-side reproduction of Figures 7C and 7F of Tierney, annotated to identify, among several items, rotatable bodies, 134, adapter 128, and tool holder 129. Pet. 24.



Petitioner explains that Tierney’s tool drive assembly is “also configured to provide at least one rotary output motion to at least one rotatable body portion (‘rotatable bodies 134’ of adapter 128) supported on the tool drive assembly (‘tool holder portion 129’).” Pet. 30 (citing Ex. 1005 ¶ 57; Ex.

1009, 10:46–51).

The preamble of independent claim 1 also includes “[a] control unit of the robotic system that is operable by inputs from an operator.” Petitioner asserts that Wallace’s incorporation of Tierney discloses a control unit that is operable by inputs from an operator. Pet. 30 (citing Ex. 1005 ¶ 58; Ex. 1014, 3:17–25).

Petitioner also explains how Giordano/Shelton and Wallace/Tierney account for each of: (1) “end effector” (Pet. 31); (2) “an elongated channel configured to operably support a surgical staple cartridge” (*id.* at 31–32); (3) “an anvil that is selectively movable between a first open position and second closed positions” (*id.* at 32–33); (4) “a spine assembly” (*id.* at 33); (5) “a closure tube assembly movably supported on said spine assembly” (*id.* at 34–35); (6) “at least one gear-driven portion, wherein one said gear driven portion is in operable communication with said closure tube assembly” (*id.* at 35–36); (7) “a tool mounting portion” (*id.* at 36–41); (8) “a driven element rotatably supported on said tool mounting portion and configured for driving engagement with a corresponding one of the at least one rotatable body portions of the tool drive assembly to receive corresponding rotary output motions therefrom” (*id.* at 41–43); and, finally, (9) “a transmission assembly in operable engagement with said driven element and in meshing engagement with a corresponding one of said at least one gear-driven portions to apply actuation motions thereto to cause said corresponding one of said at least one gear driven portions to apply at least one control motion to said closure tube assembly” (*id.* at 43–47);

Petitioner provides similar detailed analysis, supported by the testimony of Dr. Knodel, for each of claims 2–11 and 24. *See* Pet. 47–90.

6. *Patent Owner's Contentions*

Patent Owner contends that Petitioner's grounds of unpatentability based on Giordano/Shelton and Wallace/Tierney are deficient. Patent Owner first contends that "Petitioner provides no explanation for how the handheld endocutter instruments of Giordano and Shelton would be combined with Wallace's robotic instrument base for a non-endocutter tool in any of the proposed combinations." Prelim. Resp. 18. More particularly, Patent Owner argues

Petitioner does not explain how Wallace's instrument base would be modified to provide the necessary control motions for the combined instrument. As discussed above, Wallace's instrument base has four spools for receiving four rotary outputs. Three of these spools are already used in Wallace to provide shaft roll and articulate the end gripper. That leaves only a single spool on the instrument base to accommodate both closure and firing of the end effector, which Giordano and Shelton both expressly disclose as being separately controlled by two distinct triggers.

Prelim. Resp. 21–22. Consequently, Patent Owner asserts that the surgical instrument disclosed by Giordano/Shelton is incompatible because "[n]either Giordano nor Shelton discloses any embodiments in which closure and firing are controlled by a single motion." Prelim. Resp. 21. And, because the proposed combination of Giordano/Shelton and Wallace/Tierney is "incompatible and inoperable," Patent Owner contends that "a POSITA would not have had a reasonable expectation of success from attempting the proposed combinations." Prelim. Resp. 23–25.

7. *Discussion*

Having considered the conflicting positions of the parties, we conclude that, at this stage of the proceeding, Petitioner has shown a reasonable likelihood of success in challenging the patentability of claims 1–

11 and 24. In our view, Petitioner’s obviousness approach, on this record, adequately identifies where all the elements of claims 1–11 and 24 are found in the prior art, and Petitioner demonstrates adequate reasoning to combine the teachings of Giordano/Shelton and Wallace/Tierney.

We are not persuaded, at this time, that Patent Owner’s arguments are availing and demonstrate that institution of a trial is unwarranted. At the outset, Patent Owner’s argument that Petitioner fails to explain how a POSITA would combine “the handheld endocutter instruments of Giordano and Shelton” with “Wallace’s robotic instrument base for a non-endocutter tool” is unpersuasive, at least because Wallace’s disclosure is not solely directed to “non-endocutter tools.” Instead, Wallace describes utilizing endoscopic surgical tools with an “end effector” that can include, e.g., “clamps, graspers, scissors, staplers, and needle holders,” during robotic surgery procedures. Ex. 1008, 2:6–30. More particularly, Wallace discloses that its

telesurgical system can provide mechanical actuation and control of a variety of surgical instruments or tools having end effectors such as, e.g., tissue graspers, needle drivers, or the like, that perform various functions for the surgeon, e.g., holding or driving a needle, grasping a blood vessel, or dissecting tissue, or the like, in response to manipulation of the master control devices.

Ex. 1008, 2:51–59.

Patent Owner’s contention that there is inadequate reason to combine and no reasonable expectation of success in combining the teachings of Giordano/Shelton and Wallace/Tierney is, at this stage, unpersuasive.

Prelim. Resp. 19–25. Patent Owner’s position relies largely on its argument that Petitioner does not explain how Wallace’s instrument base would be

modified to provide the necessary control motions for the combined instrument. Prelim. Resp. 21–22. Patent Owner’s argument, however, misapprehends Petitioner’s proposed combination. Petitioner proposes modifying Shelton’s Stapler to “include a tool mounting portion that can be mounted to, and driven by, [Wallace/Tierney’s] robotic surgical system instead of a physician’s hand.” Pet. 18. Petitioner notes that Shelton recognizes that its “handle portion 20 is illustrative and that other actuation mechanisms may be employed. For instance, the closing and firing motions may be generated by automated means.” Ex. 1015, 9:47–50; Pet. 27.

Petitioner explains

[w]hen combined with Wallace, the handle portion of the Shelton stapler would be replaced with Wallace’s tool mounting portion so that the surgical instrument may be attached to Wallace’s surgical robot. In the combination, the spine assembly of the Shelton stapler would be operably supported by the housing of Wallace’s tool mounting portion (“tool base 62”) instead of the Shelton stapler’s handle portion 20.

Pet. 41 (citing Ex. 1005 ¶ 71). Petitioner asserts that

[a] POSITA would have readily understood that the Shelton device could be modified for robotic use by removing the handle and triggers and connecting the “second gear rack 142” of Shelton to one of the actuation gears 400 on the Wallace tool base and connecting the “gear rack 100” of Shelton to another one of the actuation gears 400. In the combination, the gear 400 that replaced “gear segment section 76” of Shelton would drive “gear rack 100” to open and close the anvil of the modified stapler. The gear 400 that replaced “gear segment section 156” of Shelton would drive “second gear rack 142” to fire the modified stapler.

Pet. 24–25 (citing Ex. 1005 ¶ 50). Thus, the record at hand supports Petitioner’s contention that

a POSITA would have been prompted to modify the Shelton stapler for use with Wallace's robotic system because doing so would be merely the application of a known technique (use of a surgical stapler end effector) to a known system (a surgical robot) ready for improvement to yield predictable results without significantly altering or hindering the functions performed by the Shelton stapler and the Wallace/Tierney robotic system.

Pet. 28 (citing Ex. 1005 ¶ 55).

On this record, we determine that the Petition shows a reasonable likelihood that Petitioner would prevail with respect to claims 1–11 and 24 being unpatentable over Giordano/Shelton and Wallace/Tierney.

D. Grounds 2–4

With respect to Ground 2, Petitioner contends that “[i]f Wallace is deemed not to disclose the Tierney subject matter incorporated by reference, it would have been obvious to combine Wallace and Tierney to arrive at the same subject matter.” Pet 90. With respect to Ground 3, Petitioner contends that

[i]f Wallace is deemed not to disclose the Tierney subject matter by reference, and Giordano is deemed not to disclose the Shelton subject matter by reference, then claims 1–6 and 9–10 would have been obvious over Shelton in view of Wallace and Tierney for the reasons explained above.

Pet. 91. With respect to Ground 4, Petitioner contends that

[i]f Wallace is deemed not to disclose the Tierney subject matter by reference, and Giordano is deemed not to disclose the Shelton subject matter by reference, then claims 7, 8, 11, and 24 would have been obvious over Shelton in view of Giordano and then further in view of Wallace and Tierney for the reasons explained above.

Pet. 92.

At this stage of the proceeding, Patent Owner does not dispute that Giordano incorporates Shelton’s teachings by reference or that Wallace incorporates Tierney’s teachings by reference. Further, we agree with Petitioner that Giordano unambiguously incorporates Shelton by reference (*see* Ex. 1014 ¶ 39 (“U.S. Pat. No. 6,978,921, entitled ‘Surgical stapling instrument incorporating an E-beam firing mechanism,’ which is incorporated herein by reference, provides more details about such two-stroke cutting and fastening instruments”) and Wallace unambiguously incorporates Tierney by reference. *See* Ex. 1008, 1:10–18 (“This application is related to [U.S. patent application Ser. No. 09/418,726, entitled ‘Surgical Robotic Tools, Data Architecture, and Use’, filed on Oct. 15, 1999], the full disclosure[] of which [is] incorporated herein by reference”).

The Federal Circuit has deemed similar language as constituting an incorporation by reference. *See Paice LLC v. Ford Motor Co.*, 881 F.3d 894, 907 (Fed. Cir. 2018) (holding the statement “[patent] . . . is incorporated herein by reference” is “broad and unambiguous,” and “identifies with detailed particularity the specific material subject to incorporation,” i.e., the entire patent); *Harari v. Lee*, 656 F.3d 1331, 1335 (Fed. Cir. 2011) (holding the statement “[t]he disclosures of the two [patent] applications are hereby incorporate[d] by reference” is sufficient to incorporate by reference the disclosures of the two patent applications in their entirety).

Patent Owner does not address with separate heading Grounds 2–4. Instead, Patent Owner addresses the Giordano/Shelton and Wallace/Tierney references together with respect to Ground 1.

E. Ground 5: Claims 5 and 6 – Obvious over Shelton, Wallace, Tierney, and Hueil

Petitioner contends that claims 5 and 6 would have been obvious over Shelton, Wallace, Tierney, and Hueil. Pet. 93–94.

1. Overview of Hueil

Hueil is titled “Surgical Instrument Having an Articulating End Effector.” Ex. 1016, [54]. Shelton’s Abstract reads as follows:

An articulating surgical instrument is shown, which comprises a shaft and an end effector. The shaft has a longitudinal axis, and the end effector is operationally coupled, preferably mechanically coupled, to the shaft at an articulation pivot. The instrument also comprises a first band, and in some embodiments, a second band, each operationally connected to the end effector and extending through at least a portion of the shaft. An articulation control applies a force in a direction substantially transverse to the longitudinal axis, wherein the force, when applied in one direction, is translated through the first band to the end effector to effect rotation of the end effector relative to the shaft about the articulation pivot in a first rotational direction, and when the force is applied in the opposite direction, is translated through the second band to the end effector to effect rotation of the end effector relative to the shaft about the articulation pivot in a second rotational direction.

Ex. 1016, [57].

2. Petitioner’s Contentions

Claim 5 recites “a knife bar that is movably supported within said elongated shaft assembly for selective axial travel therein, said knife bar interfacing with said cutting instrument and said transmission assembly interfacing with said cutting instrument.” Petitioner asserts that “Shelton discloses a knife bar with an integrated cutting instrument.” Pet. 93 (citing Ex. 1015, Fig. 3; *see also* Pet. 55–60. However, Petitioner asserts that in the

event the knife bar and cutting instrument are viewed to be separate components, it would have been obvious to use separate components based on the teachings of Hueil. Pet. 93–94 (citing Ex. 1016 ¶¶ 10–11, 68–69); *see also* Ex. 1005 ¶¶ 142–143.

Patent Owner does not address Ground 5 or dependent claims 5 and 6 expressly. At this stage of the proceeding, we credit the testimony of Dr. Knodel (*see* Ex. 1005 ¶¶ 141–143) and conclude that the Petition shows a reasonable likelihood that Petitioner would prevail with respect to claims 5 and 6 being unpatentable over the combination of Shelton, Wallace, Tierney, and Hueil.

F. Patent Owner’s Arguments under § 325(d)

Patent Owner argues that the Board should deny the Petition under 35 U.S.C. §325(d) as allegedly relying on the same prior art that the Office already considered during examination of the ’969 patent. Prelim. Resp. 25–29. Patent Owner first contends that “[i]t is undisputed that Patent Owner disclosed Giordano, Shelton, and Wallace to the Examiner during prosecution through an IDS.” Prelim. Resp. 25 (citing Ex. 1002, 568, 612). Patent Owner further contends that

it is also undisputed that Tierney was disclosed to and thoroughly considered by the Examiner. Indeed, as Petitioner concedes, the Examiner issued an office action rejecting several of the originally filed claims of the 969 Patent based on Tierney, resulting in Patent Owner amending its claims to include subject matter that was allowable over Tierney. Petition at 10–11; Ex. 1002 at 280–284, 295–311. Further, the Examiner expressly included Tierney on his Notice of References Cited that accompanied the rejection.

Prelim. Resp. 26–27 (citing Ex. 1002, 285). Patent Owner additionally contends “the 969 Patent’s specification cites and discusses at col. 23, lines

6–29, how the invention improves over several additional prior art patents that disclose robotic surgery systems and non-endocutter robotic tools substantially identical to those disclosed in Wallace and Tierney.” Prelim. Resp. 27.

We have considered Patent Owner’s argument, but decline to exercise our discretion to deny institution of the grounds presented in this Petition. At the outset, we acknowledge that Tierney was relied on by the Examiner in a rejection during prosecution. *See* Ex. 1002, 280–285. However, as Petitioner points out, “the combinations presented here were not considered by the examiner.” Pet. 8. We also note that “Wallace, Tierney, Shelton, and the patent that issued from Hueil were each made of record during prosecution as part of an 82-page IDS that listed over 2,000 references.” Pet. 8 (citing Ex. 1002, 357–438). Accordingly, in the present case, there is no indication that the Examiner has ever considered the combinations presented in the Petition supported by the Declaration of Dr. Knodel. Consequently, on these facts we decline to deny the Petition on the basis of 35 U.S.C. § 325(d).

IV. CONCLUSION

For the foregoing reasons, we determine that Petitioner has shown that there is a reasonable likelihood that it would prevail with regard to at least one of the claims challenged in the Petition. Accordingly, we institute *inter partes* review. 35 U.S.C. § 314(a). At this stage of the proceeding, we have not made a final determination as to the patentability of any challenged claim or any underlying factual or legal issue.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–11 and 24 of the '969 patent is instituted with respect to all grounds of unpatentability presented in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), notice is hereby given of the institution of a trial, which commences on the entry date of this Decision.

IPR2018-01254
Patent 8,479,969 B2

PETITIONER:

Steven R. Katz
John C. Phillips
Ryan P. O'Connor
FISH & RICHARDSON P.C.
katz@fr.com
phillips@fr.com
oconnor@fr.com

PATENT OWNER:

Anish R. Desai
Elizabeth Stotland Weiswasser
Adrian Percer
Christopher T. Marando
Christopher M. Pepe
WEIL, GOTSHAL & MANGES LLP
anish.desai@weil.com
elizabeth.weiswasser@weil.com
adrian.percer@weil.com
christopher.marando@weil.com
christopher.pepe@weil.com