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Paper No. 12
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AURIS HEALTH, INC.,
Petitioner,

v.

INTUITIVE SURGICAL OPERATIONS, INC.,
Patent Owner.

IPR2019-01547
Patent 6,522,906 B1

Before ULRIKE W. JENKS, TINA E. HULSE, and JAMES A. WORTH, *Administrative Patent Judges*.

JENKS, *Administrative Patent Judge*.

DECISION

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

I. INTRODUCTION

Auris Health, Inc., ("Petitioner") filed a Petition requesting an *inter partes* review of claims 16, 22, 23, 25, 26, 51, and 53 of U.S. Patent No. 6,522,906 B1 (Ex. 1001, "the '906 patent"). Paper 1 ("Pet."). Intuitive Surgical Operations, Inc. ("Patent Owner") filed a Preliminary Response to the Petition. Paper 9 ("Prelim. Resp."). With Board authorization, Petitioner filed a supplemental brief addressing the Markman Transcript from the related district court proceeding, and Patent Owner filed a response. Paper 10 ("Pet. Supp. Br."); Paper 11 ("PO Supp. Br.").

We have authority, acting on the designation of the Director, to determine whether to institute an *inter partes* review under 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a). *Inter partes* review may not be instituted unless "the information presented in the petition filed under section 311 and any response filed under section 313 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." 35 U.S.C. § 314(a). The Supreme Court held that 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).

For the reasons set forth below, upon considering the Petition, Preliminary Response, supplemental briefing regarding claim construction, and evidence of record, we determine that the information presented in the Petition establishes a reasonable likelihood that Petitioner will prevail with respect to at least one of the challenged claims. Accordingly, we institute *inter partes* review on all of the challenged claims based on all of the grounds identified in the Petition.

Our findings of fact, conclusions of law, and reasoning discussed below are based on the evidentiary record developed thus far, and made for the sole purpose of determining whether the Petition meets the threshold for initiating review. This decision to institute trial is not a final decision as to the patentability of any challenged claim or the construction of any claim limitation. Any final decision will be based on the full record developed during trial.

A. Real Parties-in-Interest

Petitioner identifies itself, Ethicon, Inc. and Johnson & Johnson as real parties-in-interest to this proceeding. Pet. 1. Patent Owner identifies itself and Intuitive Surgical, Inc. as real parties-in-interest. Paper 4, 1.

B. Related Proceedings

Petitioner identifies several issued patents and pending applications that are related to the '906 patent. Pet. 1. The parties also state the '906 patent has been asserted in the copending district court proceeding, *Intuitive Surgical, Inc. v. Auris Health, Inc.*, No. 18-1359-MN (D. Del.). Pet. 1; Paper 4, 1.

C. The '906 Patent (Ex. 1001)

The '906 patent is titled "[d]evices and methods for presenting and regulating auxiliary information on an image display of a telesurgical system to assist an operator in performing a surgical procedure." Ex. 1001, [54]. The '906 patent issued from Application No. 09/464,455 ("the '455 application"), filed December 14, 1999, which ultimately claims the benefit of U.S. Provisional Application No. 60/111,711, filed December 8, 1998. *Id.* at [60].

The ’906 patent relates to performing robotically assisted surgical procedures on a patient while providing an operator with auxiliary information pertaining to the surgical procedure. Ex. 1001, [57]. Laparoscopic surgery generally uses tools to view the surgical field and uses end effectors to perform the procedure. Ex. 1001, 2:10–12. The tools are generally inserted through cannulas to access the internal surgical site. *See id.* at 2:22–40. “Typical surgical end effectors include clamps, graspers, scissors, staplers, and needle holders, for example.” *Id.* at 2:13–15, *see id.* at 8:14–23.

“Telesurgery is a general term for surgical systems where the surgeon uses some form of remote control, e.g., a servomechanism, or the like, to manipulate surgical instrument movements, rather than directly holding and moving the tools by hand.” *Id.* 2:63–67. This involves viewing the surgical site on a visual display while performing the surgery using master control devices, one for each of the surgeon’s hands, to manipulate the remotely controlled robotic instruments. *See id*. at 3:5–15.

The ’906 patent describes a method that allows the surgeon to access auxiliary information from the control station.

> The master control is typically operatively linked with the source of auxiliary information, enabling the operator selectively to access the source of auxiliary information then including permitting the operator selectively to disassociate the master control from the surgical instrument and to use the master control to access the source of []auxiliary information so as to enable the auxiliary information to be displayed on the display area of the image display.

Id. at 4: 16–23

Figure 1 of the ’906 patent, reproduced below, shows a robotic surgical system.

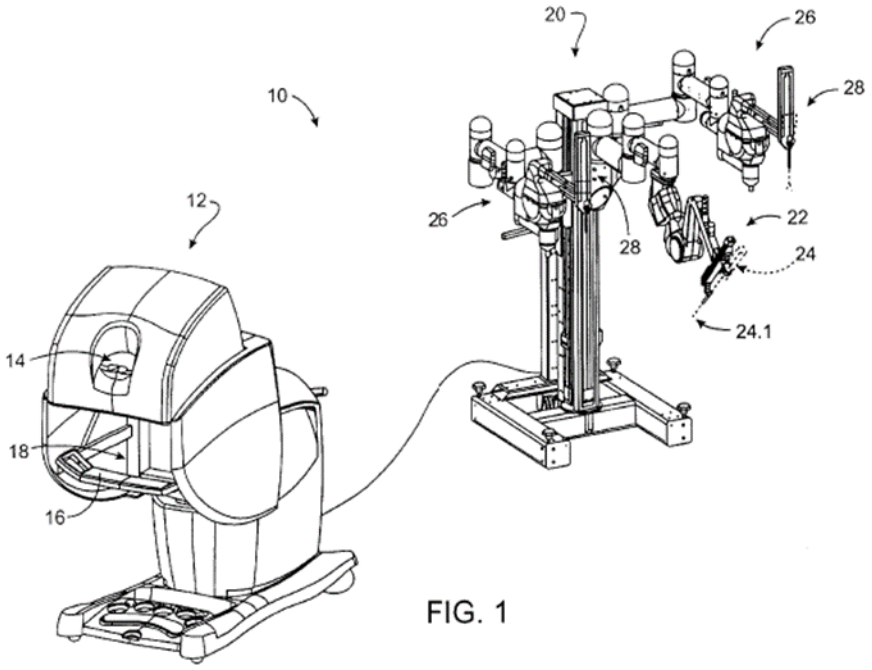

FIG. 1

Figure 1 shows a telesurgical system 10, containing a surgeon control station 12, and a cart containing three robotically controlled arms 20. *Id.* at 4:40–45. “The [surgeon control] station 12 includes an image display or viewer 14 where an image of a surgical site is displayed in use.” *Id.* at 6:1–3. “Each robotic arm assembly 26, 26 [that is part of the cart] is normally operatively connected to one of the master controls.” *Id.* at 6:37–38. “[T]he surgeon views the surgical site through the viewer 14. The end effector 60 carried on each arm 26 is caused to perform positional and orientational movements in response to movement and action inputs on its associated master control.” *Id.* at 9:43–46.

Displaying auxiliary information, such as EKG signals or preoperative reference information, at the viewer 14 allows the surgeon to access the information without having to look to another display. *See id.* at 12:49–

13:16. The auxiliary information may be displayed in a discrete window, in an overlaid window, or "being selectively displayable in the image at the viewer alternately with the image of the surgical site." *Id.* at 13:11–13, *see id.* at 16: 45–46 ("a 'picture in picture' arrangement."). "It will be appreciated that the auxiliary information can be displayed on a separate image display or viewer where appropriate." *Id.* at 13:14–16. Auxiliary information can include models, "the image of [a preoperative] model can be positionally and orientationally adjusted, and typically scaled, so as to enable the surgeon to bring the preoperative image into register with the actual image of the surgical site." *Id.* at 16:7–10.

"Selection of a desired source [of information] typically takes place at the operator console 12. Such selection can be made in any appropriate manner, such as by using buttons, foot pedals, a mouse, and/or the like. . . . [The master control] can serve as a two-dimensional or three-dimensional mouse." *Id.* at 19:16–24. "[W]hen one, or both, or either, of the masters are to be used selectively to place an image corresponding to auxiliary information from a selected source . . . the slaves [i.e. robotic arms] are typically held or locked in stationary positions at the surgical site." *Id.* at 23:2–9.

D. Illustrative Claims

Claims 16, 51, and 53 of the '906 patent are independent claims and reproduced below:

> 16. A method of performing a surgical procedure on a patient, the method comprising:
>
> manipulating a linkage of a master control in three dimensions whilst viewing a real time image of a surgical site on an image display;

moving an end effector in response to the manipulation of the linkage of the master control, said end effector visible on said image display, so as to perform at least part of a surgical procedure at the surgical site;

selectively accessing a source of auxiliary information in response to the manipulation of the linkage of the master control; and

displaying the auxiliary information on the image display,

wherein the master control is operatively associated with the end effector to cause the end effector to move in response to the manipulating of the master control, and wherein the selectively accessing the source of auxiliary information comprises disassociating the master control from the end effector.

Ex. 1001, 30:17–35.

51. A method for preparing for or performing a robotic surgical procedure at a surgical site on a patient, the method comprising:

displaying information relevant to the surgical procedure on an image display of the robotic surgical system;

manipulating a linkage of a master control of the robotic surgical system in three dimensions while viewing the image display;

moving an end effector of the robotic surgical system in response to the manipulation of the linkage of the master control so as to prepare for or perform at least part of a surgical procedure at the surgical site when the robotic surgical system is in a first operating mode; and

changing the displayed information on the image display of the robotic surgical system in response to the manipulation of the linkage of the master control when the robotic surgical system is in a second operating mode.

Id. at 32:65–33:15.

53. A system for performing a surgical procedure at a surgical site on a patient, the system comprising:

a master having an input device, a linkage of the input device configured for manipulation by a hand of a system operator so as to define a manipulation in three dimensions;

> a surgical end effector;
>
> an image display for displaying information relevant to the surgical procedure; and
>
> a processor coupling the input device to the end effector and the image display, the processor having first and second operating modes, the processor in the first operating mode effecting movement of the end effector in response to the manipulation of the input device, the processor in the second operating mode changing the displayed information in response to the manipulation of the input device.

Id. at 34:3–19

F. Prior art

Petitioner relies upon the following prior art references (Pet. 6):

References	**Patent / Publication**	**Exhibits**
Borst	WO 95/01757 published Jan. 19, 1995	Ex. 1004
Salvati	US 5,373,317 issued Dec. 13, 194	Ex. 1005
Wang ’099	US 6,496,099 B2 issued Dec. 17, 2002	Ex. 1006
Wang ’850	US 6,102,850 issued Aug. 15, 2000	Ex. 1007

G. Asserted Grounds of Unpatentability

Petitioner challenges the patentability of claims 16, 22, 23, 25, 26, 51, and 53 of the ’906 patent on the following grounds (Pet. 6):

Ground	**Claim(s) Challenged**	**Basis**[1]	**Reference(s)**
1	51, 53	§ 103(a)	Borst, Salvati
2	51, 53	§ 103(a)	Borst, Salvati, Wang ’850
3	16, 22, 23, 25, 26	§ 103(a)	Borst, Wang ’099

[1] The relevant sections of the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284 (Sept. 16, 2011), took effect on March 16, 2013. Because the application from which the ’906 patent issued was filed before that date, our citations to Title 35 are to its pre-AIA version. *See* MPEP § 2159 (Rev. 08.2017).

Ground	Claim(s) Challenged	Basis[1]	Reference(s)
4	16, 22, 23, 25, 26	§ 103(a)	Borst, Wang ’099, Wang ’850
5	51, 53	§ 103(a)	Borst, Wang ’099
6	51, 53	§ 103(a)	Borst, Wang ’099, Wang ’850

Petitioner also relies on the Declaration of Blake Hannaford (Ex. 1003) to support its challenge.

II. ANALYSIS

A. Person of Ordinary Skill in the Art

Petitioner asserts that a person of ordinary skill in the art would have had at least an undergraduate degree in electrical engineering, mechanical engineering, robotics, biomedical engineering, or a related field of study, along with about two years of experience in academia or industry. Pet. 16–17 (citing Ex. 1003 ¶ 38). Patent Owner does not address Petitioner’s definition of one of ordinary skill in the art or provide its own proposed definition. *See generally* Prelim. Resp.

Because Petitioner’s definition of one of ordinary skill in the art is reasonable and consistent with the ’906 patent and the prior art of record, we adopt Petitioner’s definition at this stage of the proceedings for purposes of this decision. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (explaining that specific findings regarding ordinary skill level are not required “where the prior art itself reflects an appropriate level and a need for testimony is not shown” (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985))).

B. Claim Construction

Where, as here, a Petition is filed on or after November 13, 2018, the Board applies the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 100(b) (2019); *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 (Oct. 11, 2018). Under that standard, claim terms "are generally given their ordinary and customary meaning" as understood by a person of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc).

On November 20, 2019, after filing the Petition and Preliminary Response, the district court in the copending district court case, *Intuitive Surgical, Inc. v. Auris Health, Inc.*, No. 18-1359 (MN) (D. Del.), held a claim construction hearing and ruled on certain claim terms of the '906 patent at the end of the hearing. *See* Ex. 1014. We authorized the parties to file supplemental papers to explain the relevance of the district court's construction in this proceeding. *See* Paper 10 ("Pet. Supp. Br."); Paper 11 ("PO Supp. Br.").

Petitioner proposes construction of three claim terms: "end effector," "master control / master," and "changing the displayed information." Pet. 18–22. Patent Owner addresses Petitioner's proposed claim construction only for the term "changing the displayed information" but finds that the other two terms do not need construction at the institution stage. Prelim Resp. 3–8; PO Supp. Br. 1–4.

1. "master control /master"

Petitioner proposes that "[t]he term "*master [control]*" should be construed as a user control device having links connecting joints that processes received three-dimensional input to command a slave device to perform corresponding three-dimensional movement." Pet. 19.

Patent Owner in the parallel district court litigation proposed that the term master control / master should be construed as "input device of a master-slave configuration," and the district court agreed. Prelim. Resp. 4; Ex. 1012, 6; Ex. 1014, 123:12–14.

The '906 specification discloses that "[e]ach robotic arm assembly 26, 26 is normally operatively connected to one of the master controls." Ex. 1001, 6:37–38. "The master control 70 will be referred to simply as 'master' and its associated robotic arm 26 and surgical instrument 28 will be referred to simply as 'slave.'" *Id.* at 9:64–67. Control between master and slave is achieved by comparing the master position and orientation with the corresponding slave position and orientation. *Id.* at 10:12–14. The '906 specification discloses that the master manipulates auxiliary information by other means such as "by repositioning/rotating a joystick, using multiple input buttons to indicate the desired manipulation, or using a voice control/recognition system to command the system to manipulate the auxiliary information as desired." *Id.* at 23:52–57. Based on these disclosures in the '906 specification the master slave relationship can take on many forms so long as the master gives commands and the slave executes the commands.

Upon considering the parties' respective arguments in light of the district court's claim construction order, we determine that the construction

of "master control / master" as laid out in the district court's claim construction order is consistent with the specification. Accordingly, for purposes of this Decision to Institute, we adopt the district court's construction of the claim term to mean "input device of a master-slave configuration." Ex. 1014, 123:12–13.

2. "changing the displayed information"

Petitioner proposes that "[t]he term '*changing the displayed information*' should be construed as adding, under operator control, information relevant to the surgical procedure to an existing live image of the surgical site." Pet. 21 (citing Ex. 1012; Ex. 1003 ¶ 67).

Patent Owner agrees that "changing the displayed information" requires construction at the institution stage. Prelim Resp. 5–6 (citing Ex. 1001, Abstract, 4:3-15; Ex. 1014, 122:24-123:1). Patent Owner "proposes that the information is added 'on or alongside' a live image of the surgical site." Prelim Resp. 6; PO Supp. Br. 1 ("adding information relevant to the surgical procedure ***on or alongside*** a live image of the surgical site").

According to the '906 specification, information under operator control can include rotating the endoscope to capture live and still images of the surgical site and surrounding area:

> It can happen that the surgeon wishes to change the image displayed on the viewer 14. This can be achieved, e.g., by rotation of the endoscope 24 relative to the site viewed. Where the "wide angle" image is a "still" image, this image can be caused to rotate together with rotation of the "live", magnified image. This can be achieved by causing the "still image to be modified, for example, by means of computer control, so that the "still" image rotates to the same degree as the "live" image, so as to maintain, for example, context for the surgeon should the surgeon desire to rotate the endoscope

> during surgery. In addition, or instead, if the surgeon desires to pan with the endoscope, the "still" image can be modified so that the "still" image preserves alignment, or registration, with a corresponding part of the "live" image.

Ex. 1001, 15:9–23. The '906 specification, additionally, describes multiple ways to present information together with surgical site images. *Id.* at 14:66–67. One way is by "displaying the [information] image in a discrete window overlaid on the image of the surgical site." *Id.* at 13:2–3. Alternatively, "information can be displayed on a separate image display or viewer where appropriate." *Id.* at 13:14–16. Based on these disclosures in the '906 specification the display of information includes multiple images of the same site as well as multiple displays.

Upon considering the parties respective arguments in light of the district court's claim construction order, we determine that the construction of "changing the displayed information" as laid out in the district court's claim construction order is consistent with the '906 specification. Accordingly, for purposes of this Decision to Institute, we adopt the district court's construction of the claim term to mean "adding information under operator control relevant to the surgical procedure on or alongside a live image of the surgical site." Ex. 1014, 122:24–123:1.

3. all remaining terms

We determine that, for purposes of this Decision, none of the other terms proposed by the parties require express construction at this time. *See Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) ("[C]laim terms need only be construed 'to the extent necessary to resolve the controversy.'" (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

C. Overview of the Asserted References

1. Borst (Ex. 1004)

Borst is directed to a medical system for performing minimally invasive robotic surgery. Ex. 1004, 3:9–17.[2] Figure 1 of Borst, reproduced below, shows the medical system.

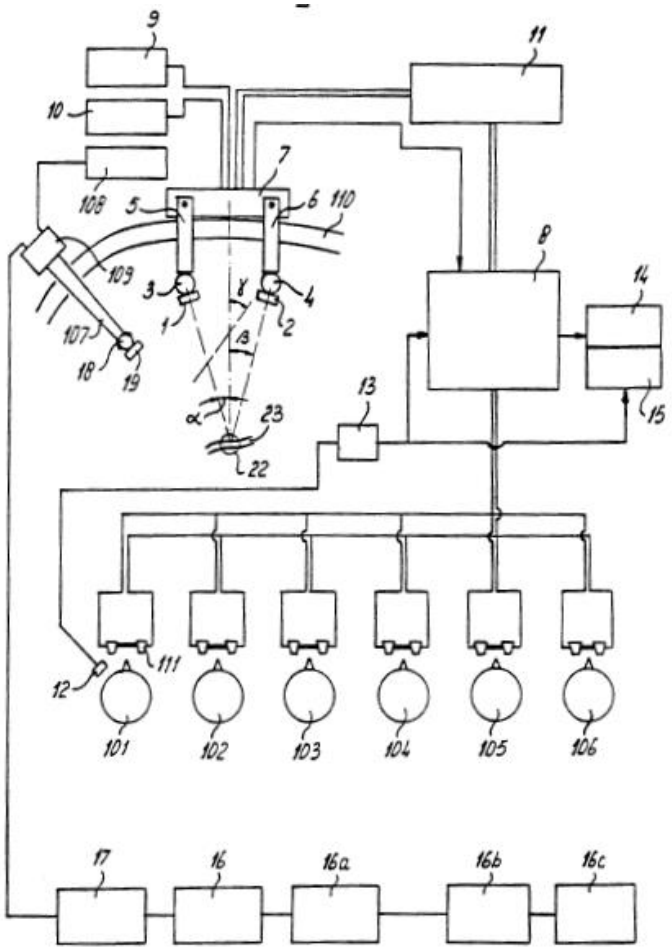

Figure 1 shows an endoscopic stereoscopic (3-D) video imaging of a surgical target, together with an arrangement of an entire operation field. *Id.* at 16:34–17:1. Borst's system includes at least two CCD cameras 1, 2 that

[2] In this decision, we cite to the exhibit page number rather than the reference page number.

view the same target 22 (*id.* at 19:18–20:13), and produce stereoscopic vision in the operating spectacles (*id.* at 20:7–8). "A primary surgeon 101 has a microphone 12 which allows voice activation of the digital zoom capability of the images from the CCD cameras 1, 2 by a voice control unit 13 through the image processor 8." *Id.* at 20:25–28. "[T]he zooming may be provided by other means than by voice activation, e.g. by a foot switch." *Id.* at 20:36–21:1. "In addition to the stereoscopic video image in the operating spectacles system, the entire surgical area of interest is monitored by a standard thoracoscope 107 which has a CCD camera 19 mounted on a ball bearing 18 to allow vision in all directions." *Id.* at 21:14–17. The output of the thoracoscope is displayed on a different video system. *Id.* at 21:20. "In this way all members [] of the surgical team have both an overview of the entire surgical field within the thorax and a magnified stereoscopic view of the grafting area." *Id.* at 21:25–28. The surgeon can concentrate on the target through the spectacles while keeping the other monitors within the peripheral vision. Peripheral vision allows visual contact with the monitor that displays "the general view of the heart and chest cavity, with the monitors displaying the EKG and haemodynamic parameters of the patient, with his hands and the instruments outside the body, and with the other people in the operating room." *Id.* at 22:1–4.

Borst's system allows for virtual cardiac image arrest of a beating heart. "In the vicinity of the target area 22, beacons 24 are identified. The beacons 24 may be clearly identifiable anatomic structures or clips placed on the surface of the heart 20 or e.g. tiny LED's which are temporarily attached to the surface of the heart 20." *Id.* at 22:19–23. "At end-diastole one video image (left and right) is frozen, preferably, by voice command. . . . Beacons

24 are defined interactively (mouse or joy stick controlled cursor in video image) on the surface of the heart near the edge of the target area." *Id.* at 22:32–23:2.

"The surgeon 101 manually handles control robotic instruments 36a, 36b (with left hand and right hand, respectively) (e.g. tweezers) which control a robotic computer system 37." *Id.* at 25:30–32. The robot arms receive tracking signals from tracking control that allows the target to be tracked in real time. *Id.* at 25:2–8.

2. Salvati (Ex. 1005)

Salvati is directed to a dual function device that can be toggled between steering control and moving a cursor on a screen. "[A] borescope or endoscope, in which a joystick, trackball, or other manually actuable device can serve a dual function; in a first mode controlling the bending of the endoscope or borescope articulation neck; and in a second mode controlling the cursor position of the viewing screen." Salvati 2:29–34. Figure 3, reproduced below, shows the device.

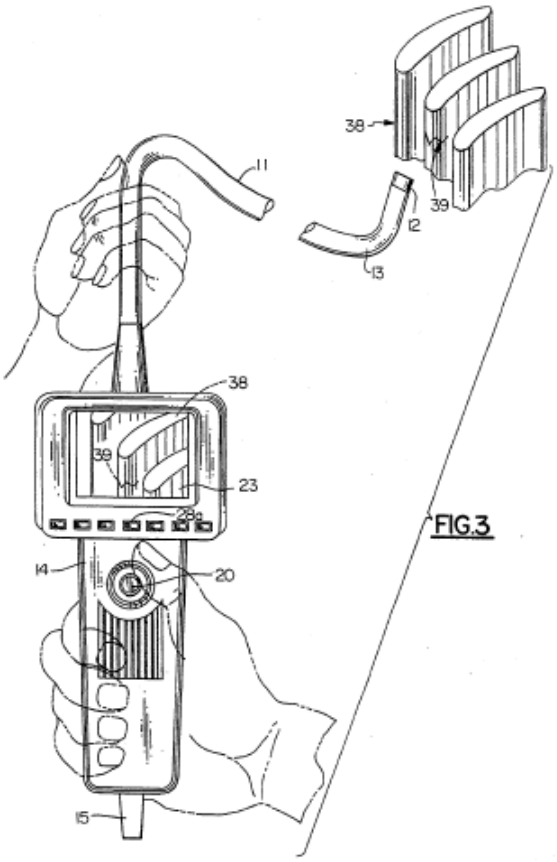

Figure 3 shows the handheld device with joystick that allows the operator to switch back and forth between steering the device and steering a cursor on a screen. *Id.* at 5:7–15.

> [T]he operator can manipulate the joystick device 20, here using the thumb of the same hand that is holding the assembly 14, to steer the viewing head 12 as need be for an optimal position to view the crack 39 on the viewing screen 23. When the operator . . . actuates the freeze-frame keyswitch 28a, which causes the microprocessor 33 to switch over to a freeze-frame mode.

Id. The dual function of the joystick device "avoids the need for a second similar device and eliminates the need for a separate keypad." *Id.* 5:43–44.

3. Wang '099 (Ex. 1006)

Wang '099 is directed to a medical system for performing surgical procedures that can also retrieve patient data stored at a remote location. Ex. 1006, [57]. Wang '099 describes that operating multiple devices requires multiple user interfaces and that may be distracting to a surgeon. The solution is to provide a general-purpose platform for controlling a plurality of devices. *See id.* at 1:33–61. Figure 1 of Wang '099 is reproduced below:

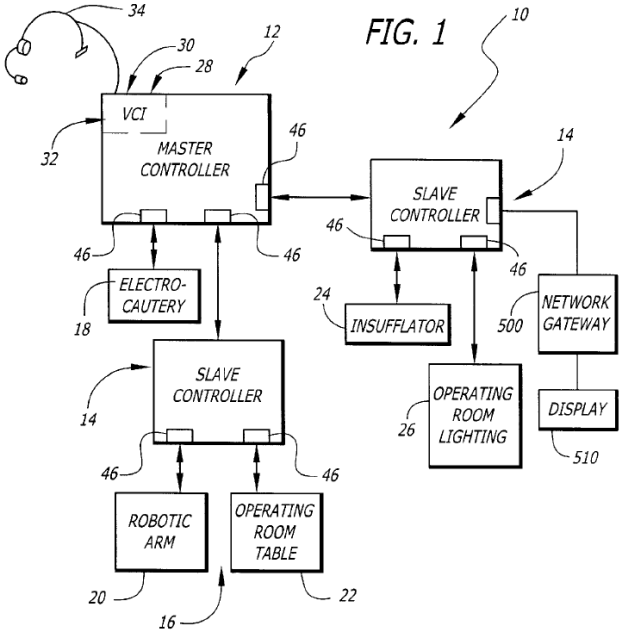

Figure 1 shows a block diagram of a general purpose master controller platform in electrical communication with slave controllers and operating room devices. *Id.* at 3:63–65. The general-purpose platform allows the doctor to manipulate the environment, and surroundings in order to keep movement in the operating room to a minimum. *Id.* at 4:49–5:4.

Wang '099 describes a master controller that can be activated by voice control interface, the system additionally may employ a foot pedal, a handheld device, or some other device, which receives selection of control commands or inputs from user. *Id.* at 2:31–39. Wang '099 describes that

when one of these alternative devices is used, the voice control interface (VCI) "is not utilized [to control the device] as the inputs are already in the form of electrical signals as opposed to voice input." *Id.*at 2:45–46. "The VCI provides signals indicative of a user's selection of a specific device and signals indicative of control commands the user wishes to supply to the device specified by a specific selection command. These are known, respectively, as selection signals and control signals." *Id.* at 2:39–43, 10:57–59 ("patient data may be accessed via voice commands and displayed on a monitor or a display coupled to the gateway 500").

Wang '099 describes that the master control has access to a network. *Id.* at Fig. 1. Wang '099 describes that any patient information available at a hospital computer terminal can also be available in the operating room, and such patient data can be directly displayed on a monitor. *Id.* at 10:31–44. "The data that may be provided includes, but is not limited to x-rays, patient history, MRIs, angiography and CAT scans." *Id.* at 10:38–40, *see id.* at 10:57–59 ("patient data may be accessed via voice commands and displayed on a monitor or a display coupled to the gateway 500").

4. Wang '850 (Ex. 1007)

Wang '850 is directed to a robotic surgical system that has robotic arms coupled to a pair of master controllers. Ex. 1007, [57]. Each handle of the robotic arm has multiple degrees of freedom provided by joints. The joints allow the surgeon to open or close the gripper. In addition, each joint has one or more position sensors to provide feedback with respect to the position of the handle. *Id.* at 8:32–50. The joint may also include tachometers, accelerometers, and force sensing load cells to provide additional feedback. *Id.* at 8:51–52.

D. Ground 1: Obviousness over Borst and Salvati (Claims 51, 53)

Petitioner asserts that claims 51 and 53 are unpatentable as obvious over Borst and Salvati. Pet. 38–54. Patent Owner opposes. Prelim Resp. 15–28. On this record, we determine that Petitioner has established a reasonable likelihood it would prevail in showing the challenged claims unpatentable.

Obviousness asserted over a combination of references must be supported by a reason to combine that is based on rational underpinnings. *See In re NuVasive, Inc.*, 842 F.3d 1376, 1382 (Fed. Cir. 2016); *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (cited with approval in *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007)). That requirement is a safeguard against hindsight bias, which is characterized by the "temptation to read into the prior art the teachings of the invention in issue." *KSR*, 550 U.S. at 421 (quoting *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 36 (1966)).

"[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR*, 550 U.S. at 418. "[I]t can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine elements in the way the claimed new invention does." *Id.*

1. Claim 53

Petitioner asserts that Borst teaches most of the elements recited in claim 53. Pet. 38–45. Petitioner acknowledges that Borst "does not explicitly disclose that [changing the image on the display] can be done by the manipulation of the linkage of the master control when the robotic surgical system is in a second operating mode." *Id.* at 48. Petitioner relies on Salvati for teaching the use of two operating modes with the same controller.

Specifically, "in a first mode [Salvati is] controlling the bending of the endoscope or borescope articulation neck; and in a second mode controlling the cursor position of the viewing screen." *Id.* (emphasis removed) (citing Ex. 1005, 2:29–34. Ex. 1003 ¶ 118). Petitioner asserts that Salvati teaches that the operator can hold Salvati's device in one hand and use the thumb to operate the joystick to maneuver the viewing head of the device into an optimal position. *Id.* at 49 (Ex. 1005, 4:62–5:4; Ex. 1003 ¶ 119). Petitioner asserts that Salvati teaches that the operator can actuate "the freeze-frame keyswitch 28a" with the thumb "which causes the microprocessor 33 to switch" the video screen display to a static image. *Id.* at 49–50 (Ex. 1005, 4:62–5:45). Regarding the reason to combine Borst and Salvati, Petitioner asserts:

> Salvati expressly recognizes that benefits of combining two sets of functionality into the same controller: "The dual function of the joystick device as described here avoids the need for a second similar device and eliminates the need for a separate keypad." Ex. 1005, 4:62-5:45. Incorporating this functionality into Borst to achieve the exact benefit described by Salvati would have been obvious to a POSA. Ex. 1003, ¶ 122.

Id. at 51.

Based on our review of the arguments and cited art, we find that Petitioner has established a reasonable likelihood of successfully demonstrating that independent claim 53 would have been obvious over the combination of Borst and Salvati.

Patent Owner does not dispute that Borst teaches many of the elements recited in the claims. Prelim Resp. 16. Patent Owner, however, contends (a) that Petitioner has not established that either Borst or Salvati

"discloses or suggests 'adding information relevant to a surgical procedure' 'on or alongside' a live image" in response to manipulation of the master control (Prelim. Resp. 15–16, 25–28); PO Suppl. Br. 2 ("Petitioner agreed to the 'on or alongside' language at the Markman hearing. *See* Ex. 1014 at 22:4–11, 122:5–7"); (b) that Petitioner has not established a motivation or reasonable expectation for combining Borst and Salvati (Prelim. Resp. 16–17, 22–25); and (c) that absent hindsight, Petitioner has not articulated a reason to make the modifications to arrive at the dual-mode features of the master control (*id.* at 18–22). We address Patent Owner's contentions below.

a) missing element: "adding information relevant to a surgical procedure" "on or alongside" a live image

Patent Owner asserts that Petitioner has not explained how Borst's voice activated freezing or zooming of a video image equates to making changes in response to manipulation of the master control or how it adds any information on or alongside an image. Prelim Resp. 15–16, 25–28. Patent Owner asserts that claim 53 recites '"***an*** image display' (i.e., a single screen/monitor), and not multiple displays. Thus, information displayed on one of the monitors or the surgeon's spectacles 111 is not 'on or alongside' the live image on the other operating room monitors." PO Suppl. Br. 4.

Petitioner relies on Borst for disclosing adding information on or alongside a live image of a surgical site. *See* Pet. 44 (citing Ex. 1004, 19:25−28. Ex. 1003 ¶ 109). The relevant portion of claim 53 recites

> [a] system for performing a surgical procedure at a surgical site on a patient, the system comprising: . . . an image display for displaying information relevant to the surgical procedure; and a processor . . . the processor in the second operating mode changing the displayed information in response to the manipulation of the input device.

Here, the claim recites the-open ended "comprising" language indicating that the claim is not limited to a single display as argued by Patent Owner, but can encompass multiple displays. "'Comprising' is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim." *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501 (Fed. Cir. 1997). Accordingly, we determine that Petitioner's reliance on additional monitors as displaying relevant information is not precluded from the claim.

Borst teaches using several cameras to monitor the entire surgical area. Ex. 1004, 16:34–17:1, 19:18–22, Figure 1; Pet. 46–48. Borst's system allows

> the surgeon [to] concentrate on the target, us[ing] zooming in if necessary, and at the same time, keep visual contact with a monitor 16 displaying, for instance, the general view of the heart and chest cavity, with the monitors displaying the EKG and haemodynamic parameters of the patient, with his hands and the instruments outside the body, and with the other people in the operating room.

Ex. 1004, 21:34–22:4. "The surgeon 101 . . . experiences the procedure in his operating spectacles 111 as operating on the arrested target, whereas one look over the rim of the operating spectacles 111 at the video monitor 16 will tell him that he is working on the moving target 22." *Id.* at 26:6–11; Pet. Suppl. Br. 4. Borst teaches that the surgeon can modify the display by freezing and zooming on an image. Ex. 1004, 24:32–33, 13:2–3; Ex. 1003 ¶¶ 117–118. Borst recognizes the advantage of using hands-free for zooming (Ex. 1004, 13:2–3), however, this zooming action may be provided by means other than voice activation such as a foot switch. Ex. 1004, 20:36–21:1. Petitioner acknowledges that Borst does not explicitly disclose

changing the information on the display by manipulating the master control. Pet. 48 (citing Ex. 1003 ¶ 117).

Petitioner, however, does not rely on Borst alone for meeting all the claim limitations. Petitioner relies on the teachings of Salvati to disclose a "device [that] can serve a dual function; in a first mode controlling the bending of the endoscope or borescope articulation neck; and in a second mode controlling the cursor position of the viewing screen." Ex. 1005, 2:31–34; Pet. 48–49. Salvati teaches that the operator actuates the freeze-frame keyswitch 28*a*, which causes the microprocessor to switch over to freeze-frame mode, a depression of the same switch for the second time returns the probe to inspection mode. Ex. 1005, 5:6–42. "The dual function of the joystick device as described here avoids the need for a second similar device and eliminates the need for a separate keypad." Ex. 1005, 4:62–5:45; Pet. 51. Petitioner asserts that incorporating this functionality into Borst would achieve the same benefit as recognized by Salvati. Pet. 51 (citing Ex. 1003 ¶ 122).

We determine based on the evidence provided, at this stage of the proceeding, that Petitioner has made a threshold showing that the combination of Borst and Salvati discloses all the elements recited in the claim.

b) motivation to combine and expectation of success

Patent Owner asserts that Petitioner has not established a reason to modify Borst in view of Salvati. Prelim. Resp. 16–17, 22–25. Patent Owner asserts that Borst teaches using a mouse or joystick for interactively defining the beacons but does not disclose using input device 36a, 36b for that purpose. *Id.* at 17.

Petitioner acknowledges that Borst does not disclose all the elements recited in claim 53 and relies on Salvati for teaching the "first and second operating modes." Pet. 48. Borst discloses changing the display using a voice command, and recognizes that using a voice command frees up the surgeon's hands for zooming in and out of a desired target area of interest associated with the surgical site. Ex. 1004, 13:1–3. Although Borst teaches that voice commands are preferred for freeing up the surgeon's hands for activating the zooming action, Borst also discloses that the zooming action may be provided by means other than voice activation, for example by a foot switch. Ex. 1004, 20:36–21:1. A teaching that something is preferred does not take away from the disclosure of the remainder of the reference. "A statement that a particular combination is not a preferred embodiment does not teach away absent clear discouragement of that combination." *Syntex (U.S.A.) LLC v. Apotex, Inc.*, 407 F.3d 1371, 1380 (Fed. Cir. 2005) (citations omitted). Here, Borst discloses other means for achieving the zooming actions, thus, Borst does not discourage such a combination. Ex. 1004, 20:36–21:1.

Salvati recognizes the benefit of combining two sets of functionalities into the same controller reduces the need for a second similar device or a second separate keypad. Pet. 51 (citing Ex. 1005, 4:62–5:45). Petitioner's expert explains that incorporating the same functionality into Borst's device would achieve the same benefit, i.e.,"[t]he dual function of the joystick device as described here avoids the need for a second similar device and eliminates the need for a separate keypad." Ex. 1003 ¶ 122 (citing Ex. 1005, 4:62–5:45).

We determine that based on the evidence provided, at this stage of the proceeding, that Petitioner has identified a sufficient reason for modifying Borst with the multifunction controller of Salvati.

c) hindsight

Patent Owner contends that without the claims as a roadmap one of skill in the art would not have a reason to modify Borst. Prelim. Resp. 22. Patent Owner contends that Borst teaches that voice commands are desirable because it means that the surgeon does not need to use his hands for zooming in and out of the desired target area. *Id.* at 19 ("Borst specifically teaches using voice activated commands . . . (presumably to free the surgeon's hands to continue with the surgery while zooming in on a desired target area)"). Although the burden rests with the Petitioner, we are not persuaded by Patent Owner's argument in this regard.

Borst discloses that using voice commands has certain advantages. Specifically, when using the voice commands "the primary surgeon does not need his hands for zooming-in on a desired target area." Ex. 1004, 13:2–3. Although voice commands are preferred, Borst simultaneously discloses that other means for zooming an image are encompassed as well. Ex. 1004, 20:36–21:1 ("the zooming may be provided by other means than by voice activation, e.g. by a foot switch"). Thus, Borst is not limited to voice commands for the zooming application. Salvati teaches a joystick control device that can have multiple functions and thereby avoids the need to have additional devices. Ex. 1005, 5:43–45. Petitioner reasons that it would have been obvious to incorporate Salvati's functionality into Borst's system to achieve the same benefit disclosed in Salvati namely eliminating need for separate keypad or separate interface. Pet. 51–52.

We determine that based on the evidence provided, at this stage of the proceeding, that Petitioner has sufficiently articulated a reason for making the modification based on information gleaned from the references.

2. Claim 51

Petitioner asserts that Borst teaches most of the elements recited in claim 51. Pet. 53–54. Petitioner relies on Salvati for teaching the use of a single controller having two operating modes. Pet. 54 (citing Ex. 1003 ¶ 128). Patent Owner opposes but does not provide separate arguments with respect to claim 51. Prelim Resp. 16–28.

For the same reasons discussed above with respect to claim 53 (see II.D.1), we determine that based on the evidence provided, at this stage of the proceeding, that Petitioner has made a threshold showing that the combination of Borst and Salvati discloses all the elements recited in claim 51 and provides a reason to combine the functionality of Salvati with Borst to arrive at the claimed invention.

3. Conclusion

For the foregoing reasons, we determine that Petitioner has shown a reasonable likelihood of prevailing on its assertion that claims 51 and 53 are obvious in view of Borst and Salvati.

F. Ground 2: Obviousness over Borst, Salvati, and Wang '850 (Claims 51, 53)

Petitioner asserts that a person of ordinary skill in the art would have found it obvious "to modify Borst to include a master control in view of Wang '850." Pet. 54 (citing Ex. 1003 ¶ 129). Specifically, that Wang '850 teaches a robotic surgical system that has master handles 50 and 52 that are

manipulated by the surgeon to control the surgical instrument. *Id.* at 55 (citing Ex. 1007, 7:21–40, Figure 1), 57 (citing Ex. 1003 ¶ 133).

Patent Owner asserts that Wang '850 does not overcome the fundamental deficiencies in the combination of Borst and Salvati. Prelim. Resp. 39.

We have reviewed Petitioner's contentions with respect to claims 51 and 53, and determine that the Petition provides the requisite showing, at this stage of the proceeding, that the combination of Borst, Salvati, and Wang '850 discloses the subject matter of these claims. *See* Pet. 54–57. Patent Owner does not offer, at this stage, any arguments addressing Petitioner's substantive showing. *See* Prelim. Resp. 39. We determine, based on the current record, that the Petition shows a reasonable likelihood that Petitioner would prevail with respect to the contention that claims 51 and 53 would have been obvious based on Borst, Salvati, and Wang '850.

G. Ground 3: Obviousness over Borst and Wang '099 (Claims 16, 22, 23, 25, 26)

Petitioner asserts that claims 16, 22, 23, 25, and 26 are unpatentable as obvious over Borst and Wang '099. Pet. 57–68. Patent Owner opposes. Prelim Resp. 28–35. On this record, we determine that Petitioner has not established a reasonable likelihood it would prevail in showing the challenged claims unpatentable.

1. Claim 16

Petitioner asserts that Borst discloses most of the elements of claim 16. Pet. 57. Petitioner asserts that Borst discloses moving the end effector to perform surgery. *Id.* at 58 (citing Ex. 1004, 13:20–24:11. Ex. 1003 ¶ 136).

Petitioner asserts that Borst discloses displaying different types of information relevant to the surgical procedure. *Id.* at 59 (citing Ex. 1004, 10:25–32, 19:14–21, 20:2–3). Petitioner contends that Borst discloses displaying relevant patient information such as "EKG and haemodynamic parameters of the patient" and based on that disclosure one of skill in the art would have recognized that other relevant information could be displayed as well. *Id.* Petitioner relies on Wang '099 to teach a medical system that includes a master controller that can interface electrical devices. *Id.* Petitioner asserts that Wang '099 teaches using one master control to operate multiple devices and "simplifies the procedure by allowing the surgeon to more easily manipulate and observe the operating room environment." *Id.* at 61. Petitioner asserts that one of ordinary skill in the art would have been motivated to display any auxiliary information "on the image display so that the surgeon can easily and efficiently review the information during the surgery so that he or she can use the information in making surgical decisions." *Id.* at 62 (citing Ex. 1003 ¶ 144). Petitioner asserts that Wang '099 discloses that a user using the selection commands determines which devices the user wants to control at any one time. *Id.* at 63. Petitioner asserts that "[t]his user selection 'rout[es] control signals" to a specified device, and thus, it dissociates the master control from other devices." *Id.* at 64 (citing Ex. 1003 ¶ 146).

Patent Owner asserts that selecting a particular device as shown in Wang '099 does "not demonstrate that master controller 12 is operatively disassociated from the other devices." Prelim Resp. 33. The reason it is desirable to disassociate your master controller from a slave controller that is associated with surgical instruments is so that the slave "do[es] not

inadvertently translate the movements of master controls 70 (when accessing auxiliary information) and thereby harm the patient." *Id.* at 34 (citing Ex. 1001, 23:1–23).

Based on our review of the arguments and the cited art, we agree with Patent Owner that Petitioner has not demonstrated a reasonable likelihood of successfully demonstrating that independent claim 16 would have been obvious over the combination of Borst and Wang '099.

Petitioner relies on Wang '099's "user selection" to conclude that the device "dissociates the master control from other devices." Pet. 64 (citing Ex. 1003 ¶ 146.). Petitioner relies on Borst as disclosing the master having an input device with a linkage. *Id.* at 63 (citing Ex. 1003 ¶ 135 ("the 'master having an input device [with] a linkage. . . configured for manipulation by a hand. . . in three dimensions' and 'image display for displaying information relevant to the surgical procedure'"). Here, Petitioner relies on Borst for teaching the hand control device for controlling the robotic instruments.

Wang '099 describes a master controller that can be activated by a voice control interface (VCI) that allows for the selection of components attached to the master and slave controllers. Ex. 1006, 2:31–60. Wang '099 discloses that the VCI distinguishes between "selection signals and control signals." *Id.* at 2:42–43. Wang '099 describes that once a selection is made with the master controller any other voice commands are routed to the other slave controllers so that devices attached to the slave controllers can be selected. *Id.* at 6:38–53. Wang '099, thereby, discloses that this set up allows for multiple devices to be active at the same time.

Wang '099 teaches that the VCI activates a port on the master controller to a particular instrument but once the port is active it remains

active until another selection is made. *See id.* at 6:40–45 ("once the master controller or master 12 receives a selection command, all speech received at the VCI 32 of the master 12 that is not a new selection command is fed to the feature extractor of the appropriately attached slave 14"). Wang '099 also explains that "[i]f the user is using a foot pedal, hand controller or some other input device [that is attached to a port], the VCI is not utilized as the inputs are already in the form of electrical signals as opposed to voice input." *Id.* at 2:43–46. Access of auxiliary info via network gateway 500 does not require operative disassociation of master controller 12 from all other slave controllers. Prelim. Resp. 34; Ex. 1006, Fig. 1. Based on these disclosures in Wang '099, we find that Patent Owner has the better position, and that Petitioner has not sufficiently demonstrated on this record that the combination of references discloses disassociating a device when activating another device attached to a different port in the system.

In view of the foregoing, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing with respect to independent claim 16 over Borst and Wang '099.

2. Claims 22, 23, 25, 26

Because Petitioner's assertions with respect to dependent claims 22, 23, 25, and 26 do not cure the deficiency identified above for claim 16, Petitioner has also not demonstrated a reasonable likelihood of prevailing with respect to these claims.

3. Conclusion

For the foregoing reasons, we determine that Petitioner has not shown a reasonable likelihood of prevailing on its assertion that claims 16, 22, 23, 25, and 26 are obvious in view of Borst and Wang '099.

H. Ground 4: Obviousness over Borst, Wang '099, and Wang '850 (Claims 16, 22, 23, 25, 26)

Petitioner asserts that Wang '850 discloses a master control, and that based on the reasons set out for the combination of Borst and Wang '099 the claims are rendered obvious. Pet. 68. Patent Owner opposes. Prelim. Resp. 39.

We have reviewed Petitioner's contentions with respect to claims 16, 22, 23, 25, and 26, and determine that the Petition does not provide the requisite showing, at this stage of the proceeding, that the combination of Borst, Wang '099, and Wang '850 discloses the subject matter of these claims. Wang '850 is not relied upon by Petitioner for teaching dissociation from a master controller, the inclusion of Wang '850, therefore, does not make up for the missing element "disassociating" required by independent claim 16, and by virtue of dependency claims 22, 23, 25, and 26 as well. We determine, based on the current record, that the Petition does not show a reasonable likelihood that Petitioner would prevail with respect to the contention that claims 16, 22, 23, 25, and 26 would have been obvious based on Borst, Wang '099, and Wang '850.

I. Ground 5: Obviousness over Borst and Wang '099 (Claims 51, 53)

Petitioner asserts that "Borst discloses all of the elements of claims 51 and 53 except for the limitation requiring a first and second mode of operation." Pet. 68. Petitioner asserts that Wang '099 teaches changing the image display in response to "manipulation of the linkage of the master control." *Id.* Petitioner asserts that it would have been obvious to modify Borst in view of Wang '099. *Id.* at 69 (citing Ex. 1003 ¶ 162). Specifically,

Petitioner asserts that given the similarities between Borst and Wang '099 a person of ordinary skill in the art at the time the invention was made "would have understood that Borst's system could have been modified to incorporate the dual mode functionality controlled by a master controller with a high degree of predictability and that the modified system would have worked as expected." *Id.* at 72 (citing Ex. 1003 ¶ 167).

Based on our review of the arguments and cited art, we find that Petitioner has established a reasonable likelihood of successfully demonstrating that independent claims 51 and 53 would have been obvious over the combination of Borst and Wang '099.

Patent Owner asserts (a) that "neither Borst nor Wang '099 discloses or suggests adding information 'on or alongside' a live image" (Prelim Resp. 37–39); (b) that the Petition has not established a motivation to combine with a reasonable expectation of success (*id.* at 35–37); (c) that the combination relies on hindsight bias (*id.* at 36), and (d) that Petitioner presented new arguments in the supplemental brief (PO Suppl. Br. 2). We address Patent Owner's contentions below.

1. Claims 51 and 53

a) missing element: "adding information relevant to a surgical procedure" "on or alongside" a live image

Patent Owner asserts that the combination does not disclose adding information relevant to the surgical procedure "on or alongside" a live image of the surgical site. Prelim Resp. 35. For the reasons discussed above (see II.D.1.a), we are not persuaded by Patent Owner's contention that Borst does not disclose displaying auxiliary information on or alongside a live image. Borst discloses that the system allows the surgeon to concentrate on the

target through the spectacles while keeping other monitors within the surgeon's peripheral vision. Peripheral vision allows visual contact with the monitor that displays "the general view of the heart and chest cavity, with the [other] monitors displaying the EKG and haemodynamic parameters of the patient, with his hands and the instruments outside the body, and with the other people in the operating room." Ex. 1004, 22:1–4. We determine that Borst's spectacles in conjunction with the monitors that show additional patient information meets the "on or alongside" requirement of the "changing the displayed information" limitation as recited in claims 51 and 53. *See above* Claim Construction (II.B.2).

b) motivation to combine and expectation of success

Patent Owner asserts that Petitioner has "not explained why one skilled in the art would have been motivated to modify Borst's control instruments 36a, 36b in view of Wang '099's master controller 12 when the respective master controls of these references are fundamentally different in structure and function." Prelim. Resp. 36. We are not persuaded.

Petitioner acknowledges that Borst does not disclose changing information on the image display of the system by "manipulate[ion] of the linkage of the master control" when the system is in an operating mode. Pet. 68. Petitioner is relying on Wang '099 for disclosing a "master controller[3][that] is operating in a different mode when it is controlling a different device." *Id.* at 69 (citing Ex. 1003 ¶ 163). A master controller is

[3] Wang '099's master controller has electrical communication ports that attach to various devices. *See* Ex. 1006, 4:21–23. At this stage of the proceeding for purposes of this decision, we understand these ports to be linkages of the master controller.

understood to mean an "input device of a master-slave configuration." *See above* II.B.1 (Claim Construction).

Wang '099 discloses "that any electrically controlled device utilized in an operating room environment may be attached to the master controller 12 either directly or via one of the at least one slave controller[] 14." Ex. 1006, 4:44–48. Wang '099 explains

> [t]he system and controller . . . may additionally include a foot controller, a hand controller, or other well-known controllers. Each of these controllers may be used to control any of the devices connected to the master or slave . . . . As such, the VCI may only be used to select certain devices, and once selected the device may be controlled via one of the well-known controllers.

Id. at 10:10–18. Thus, Wang '099's master controller can manipulate a tool such as electrocautery or robotic arm either directly by voice command or by coupling the device to a conventional controller such as a hand or foot controller. *Id.* at 4:44–48, 10:10–18. For example, once the robot arm or electrocautery device is selected, the conventional controller then drives the control of the device, the next selection by the VCI can then be to another device such as the computer network system. "The VCI provides signals indicative of a user's selection of a specific device and signals indicative of control commands the user wishes to supply to the device specified by a specific selection command." Ex, 1006, 2:39–42. Thus, Petitioner's reliance on user selection as disclosed in Wang '099 as meeting the master control limitation having the first and second operating modes is reasonable. Pet. 72 (citing Ex. 1003 ¶167).

Petitioner asserts that Wang '099's master control can be used to operate a surgical instrument and also interface with a web browser. Pet. 71–

72. Petitioner explains that in Wang '099 user selection "rout[es] control signals" to a specified device." *Id.* at 71 (citing Ex. 1003 ¶ 166). Petitioner identifies that one such routing includes a connection to the hospital computer network from which to access hospital electronic storage of patient records. This network can retrieve and display data on a monitor. *Id.* at 70 (citing Ex. 1006, 10:21–59). Petitioner identifies that one of the advantages of incorporating multiple controllers into a single interface rather than relying on multiple interfaces "reduces movement in the operating room, and increases sterility." *Id.* at 51 (citing Ex. 1006, 4:49–5:4); Ex. 1006, 4:62–67 ("keep[s] movement in the operating room to a minimum to increase sterility, and because direct control by the doctor of the operating room environment and the devices he or she is using ensures the highest degree of safety with the smallest amount of error due to miscommunication between people in the operating room").

We determine that based on the evidence provided, at this stage of the proceeding, that Petitioner has made a threshold showing identifying a motivation of for making the combination based on Borst and Wang '099.

c) hindsight

Patent Owner asserts that Petitioner's motivation is a product of hindsight bias. Prelim Resp. 36. Although the burden rests with the Petitioner, we are not persuaded by Patent Owner's argument in this regard.

Petitioner relies on Borst for disclosing all the elements of the claims, but for the "manipulation of the linkage of the master control." Pet. 68–67 (citing Ex. 1003 ¶ 162). Petitioner contends that "[t]he master controller [of Wang '099] is operating in a different mode when it is controlling a different device." *Id.* at 69 (citing Ex. 1003 ¶ 163). Petitioner relies on Wang '099's

use of the "selection commands" to change between the devices the physician wants to operate. *Id.* at 71 (citing Ex. 1006, 2:50–60).

Wang '099 describes a master controller that can be activated by VCI that allows for the selection of components attached to the master and slave controllers. Ex. 1006, 2:31–60. Wang '099 discloses that "a plurality of devices may be attached to several different controllers." *Id.* at 6:40–45. Wang '099 discloses that the VCI distinguishes between "selection signals and control signals." *Id.* at 2:42–43. Wang '099 teaches that the VCI activates a port to a particular instrument but once the port is active then the control signals are received based on the electrical signals from the device attached to the port, unless the device is steered by voice command. *Id.* at 2: 43–46. Wang '099, thereby, discloses that the master controller is able to control devices by voice, or it can utilize a combination of voice commands and electrical input from conventional control devices. Petitioner asserts that one of the advantages of incorporating multiple controllers into a single interface rather than relying on multiple interfaces "reduces movement in the operating room, and increases sterility." Pet. 51 (citing Ex. 1006, 4:49–5:4).

We determine that based on the evidence provided, at this stage of the proceeding, that Petitioner has sufficiently articulated a reason for making the modification based on information gleaned from the references.

d) new argument

Patent Owner asserts that in the supplemental brief "Petitioner alleges for the first time that the displayed 'EKG and haemodynamic parameters' is information that is added 'on or alongside' the live image." PO Suppl. Br. 3 (citing Paper 10 at 2–3). We are not persuaded by Patent Owner's contention.

In the Petition, Petitioner asserts that Borst monitors the entire surgical area using a standard thoracoscope with a CCD camera and outputs the view to monitors in the operating room. Pet. 44 (citing Ex. 1004, 19:14–21), *see id.* at 68 (incorporating Ground 1 discussion of Borst). In the Petition, Petitioner asserts that "Borst explains that the monitors can display additional information relevant to the surgical procedure, including EKG and haemodynamic parameters of the patient." *Id.* at 44 (citing Ex. 1004, 19:34–20:4). Petitioner asserts that "[t]he spectacles display a zoomed in image of the surgical site while the monitors provide an overview of the entire surgical field." *Id.* at 44 (citing Ex. 1004, 19:25–28. Ex. 1003 ¶ 109), *id.* at 46–47. Here, the Petition already identified the various monitors that display certain information that are relevant to the surgical site and, thereby, already relies on the monitors for displaying the relevant information. In the supplemental brief Petitioner is merely directing our attention to portions in Borst's disclosure that explain how the surgeon takes in all the information from the various monitors. Pet. Suppl. Br. 2 ("Borst discloses displaying the EKG and other data 'on or alongside' the live image of the surgical site"), *id.* at 4 (surgeon "look[s] over the rim of the operating spectacles" to see additional video monitors).

Based on the disclosures provided in the Petition, we determine that Petitioner was already relying on the operating room monitors for displaying relevant information and, therefore, we determine that these disclosures in the supplemental brief do not amount to a new argument as asserted by Patent Owner.

2. Conclusion

For the foregoing reasons, we determine that Petitioner has shown a reasonable likelihood of prevailing on its assertion that claims 51 and 53 are obvious in view of Borst and Wang ’099.

J. Ground 6: Obviousness over Borst, Wang ’099, and Wang ’850 (Claims 51, 53)

Petitioner asserts that a person of ordinary skill in the art would have found it obvious to “modify the system to include such ‘master’ control in view of Wang ’850 for the same reasons as provided above for Ground II.” Pet. 72 (citing Ex. 1003 ¶ 168). Specifically, Petitioner asserts that Wang ’850 teaches a robotic surgical system that has master handles 50 and 52 that are manipulated by the surgeon to control the surgical instrument. *Id.* at 55 (citing Ex. 1007, 7:21–40, Figure 1), 57(citing Ex. 1003 ¶ 133).

Patent Owner asserts that Wang ’850 does not overcome the fundamental deficiencies in the combination of Borst and Wang ’099. Prelim. Resp. 39.

We have reviewed Petitioner’s contentions with respect to claims 51 and 53, and determine that the Petition provides the requisite showing, at this stage of the proceeding, that the combination of Borst, Wang ’099, and Wang ’850 discloses the subject matter of these claims. *See* Pet. 68–72. Patent Owner does not offer, at this stage, any arguments addressing Petitioner’s substantive showing. *See* Prelim. Resp. 39. We determine, based on the current record, that the Petition shows a reasonable likelihood that Petitioner would prevail with respect to the contention that claims 51 and 53 would have been obvious based on Borst, Wang ’099, and Wang ’850.

III. CONCLUSION

We conclude that Petitioner has established a reasonable likelihood of prevailing in its assertions that at least one of claims 16, 22, 23, 25, 26, 51, and 53 of the '906 patent is unpatentable under 35 U.S.C. § 103(a).

At this stage of the proceeding, the Board has not made a final determination as to the patentability of any challenged claim or the construction of any claim term.

IV. ORDER

It is hereby:

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 16, 22, 23, 25, 26, 51, and 53 of the '906 patent is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the '906 patent shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

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