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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte KEVIN W. SMITH, THOMAS O. BALES JR.,
MATTHEW A. PALMER, and DEREK DEE DEVILLE

Appeal 2014-006350¹
Application 13/539,694²
Technology Center 3700

Before KEVIN W. CHERRY, BRADLEY B. BAYAT, and
AMEE A. SHAH, *Administrative Patent Judges*.

SHAH, *Administrative Patent Judge*.

DECISION ON APPEAL³

The Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's final decision rejecting claims 1–9 and 18–23. We have jurisdiction under 35 U.S.C. § 6(b). We AFFIRM.

¹ We note related appeals 2014-006185 (application 12/266,252), and 2014-006284 (application 12/266,226). *See* Appeal Br. 2.

² According to the Appellants, the real party in interest is Covidien AG. Appeal Br. 2.

³ Throughout this opinion, we refer to the Appellants' Appeal Brief ("Appeal Br.," filed Jan. 6, 2014), Reply Brief ("Reply Br.," filed May 1, 2014), and Specification ("Spec.," filed July 2, 2012), and to the Examiner's Answer ("Ans.," mailed Mar. 13, 2014) and Final Office Action ("Final Act.," mailed Aug. 20, 2013).

STATEMENT OF THE CASE

The Appellants' invention "relates generally to an ultrasonic surgical assembly and, more particularly, relates to a cordless, hand-held, fully electrically powered and controlled, surgical ultrasonic cutting device." Spec. ¶ 2.

Claims 1 and 18 are the independent claims on appeal. Claim 1 (Appeal Br. 22, Claims App.) is illustrative of the subject matter on appeal and is reproduced below (bracketing added for reference):

1. An ultrasonic surgical assembly, comprising:

[(a)] a surgical instrument handle, the handle having within it:

[(b)] an ultrasonic transducer operable to convert a received motional current into a movement of a cutting blade of an ultrasonic waveguide;

[(c)] a measurement circuit connected in a parallel configuration with the ultrasonic transducer;

[(d)] a variable power source comprising a battery and operable to supply current through a set of connection points of the parallel configuration and thereby create the motional current in the ultrasonic transducer; and

[(e)] a current controller operable to regulate the motional current by varying an output of the variable power source, thereby maintaining a resonant condition along the cutting blade in which there is a substantially constant rate of movement of the cutting blade across a variety of cutting loads.

REJECTIONS⁴

Claims 1–9 and 18–23 stand rejected under 35 U.S.C. § 101 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1–4, 13, and 14 of U.S. Patent No. 8,236,020. Final Act. 3.

Claims 1–4, 6, 8, 18–20, and 22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kellogg (US 5,897,569, iss. Apr. 27, 1999), Sakurai (US 6,666,875 B1, iss. Dec. 23, 2003), and Shoh (US 3,526,792, iss. Sept. 1, 1970). *Id.* at 4.

Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kellogg, Sakurai, Shoh, and Houser (US 2006/0079878 A1, pub. Apr. 13, 2006). *Id.* at 8.⁵

ANALYSIS

Double Patenting

The Appellants present no arguments against the Examiner’s rejection of claims 1–9 and 18–23 under 35 U.S.C. § 101 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1–4, 13, and 14 of U.S. Patent No. 8,236,020. Thus, we summarily affirm the rejection.

⁴ The rejection of claim 8 under 35 U.S.C. § 112, second paragraph, has been withdrawn. Advisory Action, Nov. 26, 2013.

⁵ “Claims 5, 7, 21, and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims in addition to remedying the double patenting rejection as noted above.” Final Act. 10.

Obviousness

The Appellants argue independent claims 1–4, 6, 8, 18–20, and 22 as a group. *See* Appeal Br. 8. Independent claims 1 and 18 recite substantially similar limitations. We consider claim 1 as representative; claims 2–4, 8, 18–20, and 22 stand or fall with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

The Examiner finds that Kellogg discloses the ultrasonic surgical assembly of claim 1 comprising a surgical handle, as recited by limitation (a), the handle having within it an ultrasonic transducer as recited by limitation (b), “a circuitry system outside the handle for controlling movement of the cutting blade to maintain a resonant condition along the cutting blade,” as partially recited by limitations (c) and (e), and a variable power source comprising a battery that is outside the handle, as partially recited by limitation (d). Final Act. 4. The Examiner finds Kellogg does not, however, disclose the circuit and battery are within the handle of the device, as partially recited by limitations (b) and (c). *Id.* The Examiner cites to Sakurai to cure these deficiencies, finding that one of ordinary skill in the art would modify the device of Kellogg “to provide a portable, cord-free device to improve mobility and to provide a device which can be used in a sterilized surgical instrument without the risk of contamination.” *Id.* (citing Sakurai, col. 1, ll. 23–48, 52–24). The Examiner further finds that Kellogg and Sakurai do not disclose a measurement circuit connected in a parallel configuration with the ultrasonic transducer, as recited by limitation (c), supplying current through a set in connection points, as partially recited by limitation (d), and “regulating the motional current with a current controller by varying an output of the power source, thereby maintaining a substantially constant rate of movement of the cutting blade across a variety

of cutting loads,” as partially recited by limitation (e). *Id.* at 5. The Examiner cites to Shoh to cure these deficiencies, finding that one of ordinary skill in the art would modify the generation circuit of Kellogg and Sakurai with that of Shoh “to protect the transducer and prolong its life by preventing excessive power dissipation.” *Id.* at 5–6.

The Appellants contend the Examiner’s rejection of claim 1 is in error because “the Examiner has failed to establish a prima facie case of obviousness as there is no teaching, no suggestion, and no motivation found” in Kellogg, Sakurai, and Shoh “to arrive at each and every element.” Appeal Br. 8. Specifically, the Appellants argue that the Examiner’s rejection is in error because the Examiner relies on impermissible hindsight (*see id.* at 9, 13), and that one of ordinary skill in the art⁶ would not have been able to combine Kellogg, Sakurai, and Shoh with predictable results (*see id.* at 13–18; *see also* Reply Br. 4–6). The Appellants argue

the combined teachings of Kellogg, Sakurai, and Shoh do not render obvious the ultrasonic surgical assembly of claims 1 and 18, in which there is a measurement circuit, a variable power source, and a current controller all housed within a surgical instrument handle, whereby the current controller is operable to regulate the motional current by varying an output of the variable power source to thereby maintain a resonant condition along a cutting blade.

Id. at 8 (emphases omitted).

⁶ We note the Appellants do not discuss the level of ordinary skill in the art. Thus, we do not consider the level of one of ordinary skill in the art at issue. But, regardless, the level of skill in the art is evidenced by the prior art of record. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001)

After careful consideration and review of the arguments presented in the Appellants' Appeal and Reply Briefs, we disagree with the Appellants' contention for at least the reasons discussed below.

To the extent the Appellants argue that the references are not analogous art because the references are “directed at solving very different problems” (*id.* at 13) and are not in the “applicable field of prior art” (*id.* at 18), we are not persuaded. See *In re Klein*, 647 F.3d 1343, 1348 (Fed. Cir. 2011) (discussing the two separate tests for determining whether the art is analogous: (1) whether the art is in the same field of endeavor and (2) if not in the same field, if the reference is “reasonably pertinent to the particular problem with which the inventor is involved”). The Appellants do not state what problems the references solve that are different than those solved by the Appellants' invention. The Appellants also do not state what the “applicable” field of prior art should be, but simply state “the applicable field of art is defined by art that is far closer in similarity to the operational complexity – e.g., operating under resonance – and the power and voltage requirements of Appellants' invention and the device in *Kellogg*.” *Id.* at 18–19. The Appellants' Specification does not specifically provide an “applicable field of prior art,” but, rather, that the invention relates particularly to “an ultrasonic cutting device.” Spec. ¶ 2. The field of endeavor is determined “by reference to explanations of the invention's subject matter in the patent application, including the embodiments, function, and structure of the claimed invention.” *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004). *Kellogg* is directed to a generator of ultrasonic signals that are incorporated in surgical cutting instruments. *Kellogg*, col. 1, ll. 5–20. *Sakurai* is directed to a surgical instrument such as an ultrasonic

knife, i.e., an ultrasonic cutting instrument. Sakurai ¶¶ 82, 83, Abstract. Shoh is directed to an “apparatus for controlling the power supplied to an ultrasonic transducer,” such as one used for “dispersing and disrupting biological cells.” Shoh, Title, col. 1, ll. 69–71. Thus, we find that the references are within the “applicable field of prior art” and are analogous art. *See Tyco Healthcare Group LP v. Ethicon Endo Surgery, Inc.*, 774 F.3d 968, 978 (Fed. Cir. 2014) (“The parties do not dispute that both the Davison patent and the Ethicon Prototype disclose ultrasonic surgical devices, a fact which situates them clearly within a common field of endeavor.”).

We also find unpersuasive the Appellants’ argument that

[d]ue to the fact that the motion induced in the devices and their control, or lack thereof, is vastly different between Sakurai and the Kellogg and Shoh references, there is not the necessary teaching, suggestion, or motivation to a person of ordinary skill in the art that a combination of the references, in accordance with their predictable uses, could achieve the self-contained device of the independent claims 1 and 18 of the present invention with any reasonable expectation of success.

Appeal Br. 17 (emphases omitted); *see also id.* at 13 (“because the motion induced in the devices and their control, or lack thereof, are very different, the teachings of the references are not properly combinable and the combination is achieved only through impermissible hindsight.”).

In support of this argument, the Appellants contend that prior to the invention, all known ultrasonic cutting devices like that of Kellogg and the assembly of Shoh used an electric cord plugged into an electric means due to the “relatively high voltage [] required to drive a typical piezoelectric transducer” (Appeal Br. 13–14 (emphasis omitted)), and that the claimed invention “render[s] superfluous” the dependency on high voltage input power devices by using “low-voltage switching throughout the wave-

forming process and amplification of the driving signal at a specific stage” (*id.* at 14). Additionally, the Appellants assert that Kellogg uses multiple control loops and separate circuitry and Shoh uses a “detailed circuit” (*id.* at 15), such that “generation and control of the energy applied to the ultrasonic transducer as contemplated by Kellogg and Shoh is highly complex” (*id.*). Thus, the Appellants argue, “[n]either Kellogg nor Shoh describe or suggest operating these systems at battery voltages nor do they describe or suggest reducing all of the complex circuitry contained in the desktop generator down to a size that is solely resident within a handpiece of the surgical device,” (*id.*) and, thus, one of ordinary skill in the art would not combine Sakurai’s “simple” device with the “complex” device of Kellogg and Shoh (*see id.* 16–18; *see also* Reply Br. 3–6).

To the extent the Appellants argue that Kellogg and Shoh teach away from the invention, we are not persuaded. The Appellants’ statement that the prior art systems “**critical** to the operation of Kellogg and Shoh is the ability to establish, maintain and, if necessary, re-establish operation of the ultrasonic instrument at the transducer system’s **resonant frequency**” (*id.* at 15) is not supported by sufficient evidence. Further, the Appellants do not provide sufficient evidence that either reference criticizes, discredits, or otherwise discourages the device being cordless. *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004).

We note that the Appellants do not rebut any the Examiner’s findings regarding the teachings of the prior art Kellogg and Shoh (Final Act. 4–6). The Appellants further do not rebut the Examiner’s reasoning for combining Kellogg and Shoh. Rather, as noted above, the Appellants argue that Kellogg and Shoh do not “describe or suggest operating these systems at

battery voltages nor do they describe or suggest reducing all of the complex circuitry contained in the desktop generator down to a size that is solely resident within a handpiece of the surgical device,” (Appeal Br. 15 (emphases omitted)), and thus, Sakurai’s “simple” device cannot be combined with the device of Houser and Kellogg. *See id.* at 16–18.

We find the Appellants’ argument unpersuasive at least because it is not commensurate with the scope of the claim. Claim 1 does not require a piezoelectric transducer, does not specify a particular voltage, does not exclude multiple loop in addition to a parallel circuit, nor does it recite limitations regarding low-voltage switching. Claims are to be given their broadest reasonable interpretation in light of the Specification, but limitations from the Specification are not read into the claims. *See In re Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1992); *see also In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998) (“The invention disclosed in [the] written description may be outstanding in its field, but the name of the game is the claim.”).

Furthermore, the Appellants’ characterization of Kellogg’s and Shoh’s devices that “generation and control of the energy applied to the ultrasonic transducer as contemplated by Kellogg and Shoh is highly complex” (Appeal Br. 15), “Kellogg teaches the use of multiple control loops and separate circuitry that is employed to try to re-establish resonance when the operating frequency falls outside a range controlled by a first control loop” (*id.* at 15), and “[i]n Shoh, a detailed circuit is used to derive the motional current” (*id.*) are statements not supported by factual evidence. Even *assuming arguendo* that Kellogg’s circuit is complex and Shoh’s circuit is “detailed,” the Appellants provide insufficient evidence regarding the

required size of Kellogg's or Shoh's circuit. We note that neither reference discusses the size or complexity of the circuit. Moreover, although the claim requires the measurement circuit to be connected in a parallel configuration with the transducer, the claim does not recite any limitations regarding how complex or simple the circuit must be.

The Appellants also contend, in support of the argument, in stark contrast to Kellogg and Shoh, Sakurai actually teaches a relatively simple device that does not teach any methods or systems for controlling movement of a blade or any other propagation device and does not even seek to establish resonance or to control any aspect of the movement of the ultrasonic blade or shaft at or near a resonant frequency. Sakurai is only concerned with the relatively simple ability to propagate energy to a distal treatment section of its instrument. In actuality, the operation the Sakurai device is no different from an ultrasonic toothbrush.

Id. at 16 (emphasis omitted). The Appellants assert that Sakurai does not mention a control system in the device's handpiece, and that Sakurai has an open loop system with no means for altering the energy applied to the transducer as opposed to a "complex closed-loop feedback system operating internally by the battery and circuitry of the device." *Id.* at 17.

We are not persuaded at least because, as noted above, the Examiner relies on Sakurai for having an ultrasonic cutter with the circuit and battery contained within the handle assembly that, in combination with Kellogg, teaches a variable power source within the handle (*see* Final Act. 6; *see also* Ans. 9); Shoh is relied on for modifying the circuit and power source of Kellogg and Sakurai to be a measurement circuit connected in a parallel configuration, to supply current to create a motional current, and have a controller to regulate the motional current, i.e., to modify the device of

Kellogg and Sakurai to be “complex enough” to establish and maintain a resonant condition. *See id.* The test for obviousness is not whether the features of Sakurai may be bodily incorporated into the structure of Kellogg, but what the combined teachings of Kellogg, Sakurai, and Shoh suggest to one of ordinary skill in the art. *See Keller*, 642 F.2d at 425; *see also In re Nievelt*, 482 F.2d 965, 968 (CCPA 1973) (“Combining the *teachings* of references does not involve an ability to combine their specific structures.”).

Furthermore, the argument is not commensurate with the claim. Claim 1 does not recite limitations regarding “a complex closed-loop system.” As discussed above, claim 1 also does not require a “control system” nor that the device must be “complex” and cannot be “simple.” *Cf.* Appeal Br. 16 (arguing that Sakurai’s device is simple and does not teach a control system in the handpiece). To the extent the Appellants assert that one of ordinary skill in the art would understand the limitation regarding regulating the motional current to incorporate a piezoelectric transducer, maintain a particular voltage, low-voltage switching, or monitoring the motional current and being able to change input in response thereto (*see* Appeal Br. 13–18), we disagree. The Specification discusses regulating the motional current by varying an output of the power source, maintaining a constant rate of movement (Spec. ¶¶ 18–21, 113), and that variations of the motional current can be identified and regulated based on the total current and the measured current through the bridge capacitor (*id.* ¶ 113). However, the Specification does not provide a specific definition of “regulating” or a description of the term such that one of ordinary skill in the art would understand the limitation of regulating the motional current to incorporate a specific voltage, complexity, or switching.

We further find unpersuasive the Appellants' assertion that "Sakurai simply does not contemplate the realm of complexity that is required for the establishment and maintenance of a resonant condition" (Appeal Br. 17), because it is a statement without factual support. The Appellants do not point to, nor is it clear, where Sakurai contemplates or even discusses the complexity or simplicity of its device.

Thus, we are not persuaded the Examiner's rejection of claim 1 is in error, and, therefore, we sustain the Examiner's rejection of independent claim 1, and claims 2–4, 6, 8, 18–20, and 22, which fall with claim 1. The Appellants provide no separate arguments against the rejection of claim 9, but rely on its dependency from claim 1. *See* Appeal Br. 20. Therefore, for the same reasons we sustain the rejection of independent claim 1, we also sustain the rejection of dependent claim 9.

DECISION

The Examiner's rejection of claims 1–9 and 18–23 under 35 U.S.C. § 101 on the ground of nonstatutory obviousness-type double patenting is **AFFIRMED**.

The Examiner's rejections of claims 1–4, 6, 8, 9 and 18–20 under 35 U.S.C. § 103(a) as obvious are **AFFIRMED**.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED