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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HENDRIKUS JOHANNES VAN DER MEIJDEN,
PHILLIP JOHN NEWMAN, and MARK J. BAUCKMAN

Appeal 2018-003380
Application 14/247,572
Technology Center 3600

Before MICHAEL L. HOELTER, PAUL J. KORNICZKY, and
SEAN P. O'HANLON, *Administrative Patent Judges*.

O'HANLON, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–4, 6, and 8–12. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies Zodiac Pool Systems LLC as the real party-in-interest. Appeal Br. 3; Notification (filed Jan. 29, 2019).

In explaining our Decision, we refer to the Specification filed April 8, 2014 (“Spec.”), the Non-Final Office Action mailed January 4, 2017 (“Non-Final Act.”), the Appeal Brief filed July 25, 2017 (“Appeal Br.”), the Examiner’s Answer mailed December 14, 2017 (“Ans.”), and the Reply Brief filed February 7, 2018 (“Reply Br.”).

SUMMARY OF THE INVENTION

Appellant’s invention relates to “systems and methods for communicating with mobile cleaning equipment.” Spec. 1. Claims 1 and 12 are independent. Claim 1, reproduced below from page 14 (Claims Appendix) of the Appeal Brief, is illustrative of the claimed subject matter:

1. A method of communicating with an automatic cleaner (i) operating within a swimming pool and (ii) being of a hydraulic type in fluid communication, via at least a hose, with a pump of a water-recirculation system so as to effect movement of the automatic cleaner within the swimming pool, the method comprising:
 - a. loading control software into a device configured to transmit and receive signals wirelessly;
 - b. causing the device to transmit wireless signals to a receiver on-board the operating automatic cleaner so as to change a characteristic of movement of the automatic cleaner within the swimming pool; and
 - c. allowing the device to receive wireless signals from a transmitter on-board the operating automatic cleaner.

REFERENCES

The Examiner relies on the following prior art references in rejecting the claims on appeal:

Landsberger	US 5,203,646	Apr. 20, 1993
Kell	US 5,454,129	Oct. 3, 1995
Erlich	US 2012/0273004 A1	Nov. 1, 2012

Durvasula	US 2014/0015959 A1	Jan. 16, 2014
Porat	WO 2004/019295 A1	Mar. 4, 2004

REJECTIONS

- I. Claims 1–3, 6, and 8–12 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kell, Durvasula, Porat, and Erlich.
- II. Claim 4 stands rejected under 35 U.S.C. § 103 as being unpatentable over Kell, Durvasula, Porat, Erlich, and Landsberger.

ANALYSIS

Rejection I – Kell, Durvasula, Porat, and Erlich

The Examiner rejects claims 1–3, 6, and 8–12 as being unpatentable over Kell, Durvasula, Porat, and Erlich. Non-Final Act. 3–8. Regarding claim 1, the Examiner finds that Kell discloses a method of communicating with an automatic swimming pool cleaner including causing a device to transmit wireless signals to a receiver on board the cleaner. *Id.* at 3 (citing Kell 5:12, 5:40–48, 6:3–18, Figs. 1, 6, 7). The Examiner finds that Durvasula teaches loading control software into a device configured to transmit and receive wireless signals and Porat teaches allowing a device to receive wireless signals from a transmitter on board an operating automatic cleaner. *Id.* at 4. The Examiner finds that Erlich discloses a hydraulic-type automatic cleaner in fluid communication via a hose to a water-recirculation system, and reasons that it would have been obvious “to modify the invention of Kell to include the hydraulic type in fluid communication as taught by Erlich to provide an economical and reliable pool cleaner with a minimum number of moving parts.” *Id.* at 4–5 (citing Erlich ¶¶ 24, 106).

In challenging the Examiner’s rejection, Appellant presents arguments for the claims collectively. Appeal Br. 9–11. We select claim 1 as representative, treating claims 2, 3, 6, and 8–12 as standing or falling with representative claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv) (2016).

First, Appellant contests the Examiner’s reliance on Erlich by arguing that Erlich does not disclose a hydraulic cleaner “in fluid communication, *via at least a hose*, with a pump of a water-recirculation system” because “cleaner 10 of [Erlich] has its own *on-board* pump 60.” Appeal Br. 9. The Examiner answers by stating “if we look at Fig. 12, we can see an embodiment where an external pump (not shown) is in fluid communication with the pool cleaner by a flexible hose.” Ans. 4 (citing Erlich ¶ 97). Appellant replies by acknowledging that “this portion of [Erlich] mentions ‘hose 152’ connecting a jet valve assembly ‘to an external pump,’” but “submits . . . that someone skilled in the art would not substitute the external pump and hose structure of this version of the cleaner of [Erlich] for the internal pumps of the electrical cleaners of the other cited references.” Reply Br. 5–6 (citing Erlich ¶ 97).

We are not persuaded by Appellant’s arguments. Erlich explains,

Another important object of the invention is to provide an *economical and reliable* pool cleaner with a *minimum number of moving parts* and *no internal pump* and electric motor that can be *powered by the discharge stream from the pool filter system or an external booster pump* and which can reverse its direction.

Erlich ¶ 24 (emphases added); *see also* Non-Final Act. 5 (citing same).

Erlich further explains,

[U]se of a source of pressurized water from [an] external source as specifically illustrated in FIGS. 12-14 (and which can be

applied to all of the other embodiments described) *eliminates the pump and motor assembly 60 resulting in further cost and material savings, as well as a reduction in operating and maintenance expenses.*

Erlich ¶ 94 (emphasis added). In embodiments employing such an external source of pressurized water, “jet valve assembly 40 . . . is connected to an external pump (not shown) by a flexible hose 152 attached to housing adapter 150 and therefore requires no internal pump motor.” *Id.* ¶ 97; *see also* Ans. 4 (citing same). Thus, as correctly noted by the Examiner, Erlich discloses embodiments in which the hydraulic cleaner is powered via the pump of a water recirculation system connected to the cleaner via a hose, as required by claim 1, and explains that use of an external pump provides cost and material savings and reduces operating and maintenance expenses. Appellant’s arguments that a skilled artisan would not use an external pump as described by Erlich (Reply Br. 5–6) are presented in conclusory fashion with no supporting evidence or persuasive technical reasoning and are in direct conflict with the explicit disclosure of Erlich. Appellant’s arguments, therefore, are unpersuasive.

Appellant also notes that the Examiner referenced Erlich paragraph 106, notes that this paragraph references Figure 19, and argues that it is “clear from Fig. 19 . . . that hose 342 does not extend externally of the cleaner, but rather remains wholly therein. Consequently, any unshown pump motor to which it is connected necessarily also is internal to (*i.e.* ‘on-board’) the cleaner” Reply Br. 5. We are not persuaded by this argument. Paragraph 106 describes one manner in which the movement direction of pool cleaners is adjusted about a vertical axis:

FIG. 19 illustrates a conventional fixed spring-loaded cylinder assembly 330 of the prior art which is activated by hydraulic force supplied by a pump motor (not shown) via hose 342, the timing of which is controlled electronically, e.g., by a pre-programmed integrated circuit device 344. When the hydraulic force is applied, the piston 346 moves to engage the surface causing the cleaner to pivot about the axis of piston 346. Use of this device produces random motion by the cleaner.

Thus, hose 342 connects the hydraulic supply provided by the external pump to cylinder assembly 330, which is used to change the movement direction of the cleaner. The external pump is connected to the cleaner via another hose, such as hose 152 discussed in the description of the Figure 12 embodiment. *See* Erlich ¶ 97.

Next, Appellant argues that “the Examiner has independently selected for combination four discrete features from four separate prior art documents, each feature applying to only one element of the claim.” Appeal Br. 10. According to Appellant, “[n]one of these isolated components is described in the cited references as being intended for use with the other components.” *Id.* at 11.

Appellant’s arguments fail to persuade us of error. To the extent Appellant argues that relying on four references is improper, we note that reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention. *See In re Gorman*, 933 F.2d 982, 986–87 (Fed. Cir. 1991) (affirming a rejection of a detailed claim to a candy sucker shaped like a thumb on a stick based on thirteen prior art references). Nor do we agree with Appellant’s suggestion that the cited references themselves must state that they are “intended for use with the other components.” Appeal Br. 11. To the contrary, the reason to

modify or combine references need *not* be found in the references themselves. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 415–21 (2007) (setting forth that the motivation to modify or combine reference teachings may arise in the interrelated teachings of multiple prior art references, the effects of demands known to the design community or present in the marketplace, the background knowledge possessed by a person having ordinary skill in the art, the existence at the time of invention of a known problem for which there was an obvious solution encompassed by the claims, and common sense). Appellant does not address the Examiner’s reasoning as to why one would have combined the references’ teachings, and, thus, fails to persuade us of error.

Accordingly, for the foregoing reasons, we sustain the Examiner’s rejection of independent claim 1, and of claims 2, 3, 6, and 8–12 falling with claim 1, as being unpatentable over Kell, Durvasula, Porat, and Erlich.

Rejection II – Kell, Durvasula, Porat, Erlich, and Landsberger

Claim 4 depends from claim 1 through claims 2 and 3 and recites “the automatic cleaner comprises an on-board electricity generation mechanism.” Appeal Br. 15 (Claims App.). The Examiner rejects claim 4 as being unpatentable over Kell, Durvasula, Porat, Erlich, and Landsberger. Non-Final Act. 8–9. The Examiner finds that Landsberger discloses an electricity generation mechanism (turbine-generator pair 34) on-board an automatic cleaner, and reasons that it would have been obvious “to modify the invention of Kell to include the onboard electricity generation mechanism as taught by Landsberger to eliminate the need to run a bulky power supply

tether to the robot.” *Id.* (citing Landsberger 2:66–3:3, 4:28, Fig. 1); *see also* Ans. 5–6.

Appellant presents several arguments contesting the Examiner’s rejections. First, Appellant argues “[t]he crawling pipe-inspection robot of the Landsberger patent clearly is *not* a pool cleaner, . . . *nor* is it a hydraulic-type device as claimed.” Appeal Br. 11. This argument fails to persuade us of error because the Examiner does not rely on Landsberger to disclose a pool cleaner or a hydraulically-powered device. Rather, the Examiner relies on Landsberger to teach the use of an electricity generation mechanism on-board an automatic cleaner, and reasons that it would have been obvious to include this teaching with the swimming pool cleaner disclosed by Kell. Non-Final Act. 8–9.

Next, Appellant notes that the Examiner’s rejection relies on the teachings of five references and argues that “[n]one of these isolated components is described as being intended for use with the other components.” Appeal Br. 12. This argument is unpersuasive for the reasons set forth above with respect to Rejection I. The Examiner’s reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention (*see Gorman*, 933 F.2d at 986–87), and the reason to modify or combine references need not be found in the references themselves (*see KSR*, 550 U.S. at 415–21).

Next, Appellant argues that “turbine-generator pair 34 of [Landsberger] operates to assist the pipe-inspection robot in blasting zebra mussels from within pipes.” Appeal Br. 12 (citing Landsberger 4:28–42, 5:18–25). This argument fails to persuade us of error because, as stated above, the Examiner relies on Landsberger to teach the use of an electricity

generation mechanism on-board an automatic cleaner. Non-Final Act. 8–9. We note Landsberger discloses that the “turbine-generator pair 34 can be positioned in or on the robot housing 11 to extract energy from the water flowing through and past the robot 10, and convert it to electricity for powering the various motors, servos and actuators through a cable 35.” Landsberger 4:28–32. Thus, Landsberger supports the Examiner’s findings.

Finally, Appellant argues that Landsberger cannot be cited in rejecting claim 4 because it is non-analogous art. Appeal Br. 12–13; Reply Br. 3–4. A reference qualifies as prior art for a determination under § 103 when it is analogous to the claimed invention. *See In re Clay*, 966 F.2d 656, 658 (Fed. Cir. 1992).

Two separate tests define the scope of analogous prior art: (1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventor’s endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved.

In re Bigio, 381 F.3d 1320, 1325 (Fed. Cir. 2004) (citing *In re Deminski*, 796 F.2d 436, 442 (Fed. Cir. 1986)). 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.” *Id.*; *see also Deminski*, 796 F.2d at 442 (finding that if a prior art reference discloses essentially the same structure and function as the invention, it is likely in the same field of endeavor). “A reference is reasonably pertinent [to a problem an appellant attempts to solve] if . . . it is one which, because of the matter with which it deals, logically would have commended itself to an inventor’s attention in considering his problem.” *Clay*, 966 F.2d at 659. “If a reference disclosure has the same purpose as the

claimed invention, the reference relates to the same problem, and that fact supports use of that reference in an obviousness rejection.” *Id.* Regarding the scope of analogous art,

The Supreme Court’s decision in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), directs us to construe the scope of analogous art broadly, stating that “*familiar items may have obvious uses beyond their primary purposes*, and a person of ordinary skill often will be able to fit the teachings of multiple patents together like pieces of a puzzle.” *Id.* at 402 (emphasis added).

Wyers v. Master Lock Co., 616 F.3d 1231, 1238 (Fed. Cir. 2010).

Appellant argues that its field of endeavor is “communicat[ing] electronically with hydraulic-type automatic pool cleaners,” and Landsberger’s field of endeavor is “inspecting pipes of water treatment and power plants and removing zebra mussels therefrom.” Appeal Br. 12 (citing Spec. 4:8–13, 7:3–18; Landsberger Abstract lines 1–4, 1:10–23, 5:18–25). We disagree with Appellant’s proffered fields of endeavor. Appellant defines the field of its invention as “communicating with mobile cleaning equipment,” and provides “automatic cleaners of swimming pools and spas” as an *example* of such mobile cleaning equipment. Spec. 1. Appellant describes embodiments of its invention as being hydraulic-type automatic swimming pool cleaners “for purposes of illustrating, explaining, and describing embodiments of the present invention,” but emphasizes that this description is merely exemplary:

Modifications and adaptations to these embodiments will be apparent to those skilled in the art and may be made without departing from the scope or spirit of the invention. For example, although much of the foregoing description relates to hydraulic APCs, in some cases *aspects of the invention may be*

utilized in connection with other equipment including, but not limited to, electric APCs.

Id. at 7–8 (emphasis added). Thus, we find Appellant’s field of endeavor to be mobile cleaning equipment. *See* Spec. 1. Landsberger discloses “an underwater robot for inspecting and cleaning the interior surfaces of water pipes” (Landsberger 1:6–9), and, thus, is in the same field of endeavor as Appellant.

Additionally, we note that one problem Appellant seeks to solve is a lack of on-board electricity generating equipment on underwater cleaners. *See, e.g.*, Spec. 3–4 (“hydraulic APCs conventionally have no on-board source of electrical power,” “assemblies of the invention may include hydraulic APCs with on-board electricity-generating capabilities so as to power processors, sensors, and transceivers”). Landsberger solves the problem of on-board electricity generation by providing a turbine-generator. *See, e.g.*, Landsberger 2:62–66 (“the robot . . . preferably includes a water flow driven turbine which extracts energy from the water that is converted to electricity by an on-board generator”), 4:28–42 (“a turbine-generator pair 34 can be positioned in or on the robot housing 11 to extract energy from the water flowing through and past the robot 10, and convert it to electricity for powering the various motors, servos and actuators”); *see also* Reply Br. 4 (acknowledging that Landsberger uses its turbine-generator in lieu of supplying power from an external source). Accordingly, we find that Landsberger is reasonably pertinent to a particular problem with which Appellant is involved.

Accordingly, for the foregoing reasons, we sustain the Examiner's rejection of claim 4 as being unpatentable over Kell, Durvasula, Porat, Erlich, and Landsberger.

CONCLUSION

In summary,

Claim(s) Rejected	35 U.S.C. §	References	Affirmed	Reversed
1-3, 6, 8-12	103	Kell, Durvasula, Porat, Erlich	1-3, 6, 8-12	
4	103	Kell, Durvasula, Porat, Erlich, Landsberger	4	
Overall Outcome			1-4, 6, 8-12	

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