NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

HAYWARD INDUSTRIES, INC.,
Appellant

v.

PENTAIR WATER POOL AND SPA, INC., DANFOSS POWER ELECTRONICS A/S,
Appellees

2017-1021

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. 95/002,006.

Decided: February 7, 2018

STEVEN HALPERN, McCarter & English, LLP, Newark, NJ, argued for appellant. Also represented by SCOTT S. CHRISTIE, TIMOTHY PATRICK HOMLISH, MARK NIKOLSKY, MATTHEW ADAM SKLAR; LEE CARL BROMBERG, KEITH E. TOMS, Boston, MA.

CHRISTOPHER JAMES FAHY, Quarles & Brady, LLP, Chicago, IL, argued for appellees. Also represented by JOEL AUSTIN, RAYE LYNN DAUGHERTY, MICHAEL PIERY, Milwaukee, WI.

Before DYK, LINN, and HUGHES, *Circuit Judges.*

LINN, *Circuit Judge.*

Hayward Industries, Inc. ("Hayward") raises several issues in this appeal from a decision of the Patent Trial and Appeal Board ("Board") in an inter partes reexamination ("IPX") of U.S. Pat. No. 7,854,597 ("'597 patent"), owned by Pentair Water Pool and Spa, Inc. ("Pentair"). *Hayward Indus., Inc. v. Pentair Water Pool & Spa, Inc.*, Appeal No. 2016-002780 (P.T.A.B. Aug. 30, 2016) ("Board Decision"). The court addresses each of the issues raised, in turn. For the reasons stated, we affirm-in-part, vacate-in-part and remand.

I. DISCENZO

The Board reversed the Examiners rejections of claims 1–16, 18–32, 34–37, 40–43 and 45–57 of the '597 patent based on U.S. Pat. Pub. No. 2003/0061004 ("Discenzo"), concluding that the reference did not disclose or teach a "control system operating as a master controller" and a "pump controller operating as a slave controller when connected to the control system." '597 patent, col. 13, ll. 37–45. Specifically, the Board agreed with Pentair's expert, Dr. Collins, and concluded that in Discenzo, "the pump control system contains an active optimization component 970 that independently provides a motor speed output signal 964 that commands the motor's speed. . . .[such that] the peer in Discenzo maintains a significant amount of control so as not properly to be considered a slave." Board Decision at 6–7. The Board's conclusion is not supported by substantial evidence and cannot be sustained.

Paragraph 160 of Discenzo discloses two discrete relationships between the host computer and the individual controllers. In one "possible configuration [] illustrated in

FIG. 17," "[t]he host [computer] 1704 may provide centralized operation," "whereby an efficiency optimization component 1706 in the host computer 1704 may determine desired operating points for one or more of the controllers MC1, MCN, and VC1." Discenzo at ¶ 160. Discenzo then states, "*Alternatively* or in combination, one or more of the individual controllers MC1, MCN, and VC1 may determine desired operating points for the associated sub-systems according to performance characteristic information obtained from the host computer 1704, from other controllers via the network 1702, and/or from the sensors associated with the individual sub-systems." *Id.* Paragraph 160 unambiguously teaches one embodiment wherein the host computer "determine[s]" the desired operating point for a controller, as well as an "alternative[]" embodiment wherein the controllers themselves maintain some or all of the control over of the operating point. Neither the Board nor Pentair's expert, Dr. Collins, discussed the "alternatively" language in paragraph 160 in any meaningful way, despite the fact that it was central to the Examiner's rejection and was argued by Hayward on appeal to the Board. *See* J. App'x 15989–90 (Right of Appeal Notice); J. App'x 18278 (Hayward's brief to the Board) ("The RAN, pp. 163-165, correctly finds Discenzo ¶ 160 teaches master-slave."). The contrast of these two embodiments undermines the Board's conclusion that the controller described in paragraph 160 and shown in Figure 17 necessarily retains a measure of independent control.

The Board incorrectly assumed that the controllers in the embodiment shown in Figure 17 and described in paragraph 160 necessarily include components from the controllers embodied in Figure 9 and described in paragraphs 132–157. *Board Decision* at 7–8. The Figure 9 embodiment discloses an individual controller, 966, that includes its own optimization component, 970, which "may select the desired operating point according to

performance characteristics associated with one or more components in the system 902 or associated therewith." Discenzo at ¶ 141. The Board understood the presence of this optimization component within the controller of Figure 9 to fatally undermine the teaching in paragraph 160 of host computer control of the system. The Board relied on the declaration of Pentair's expert, Dr. Collins, who similarly assumed that the controllers of Figure 9 were a necessary part of the embodiment in 17. J. App'x 15158 (Collins Supp. Dec'l, ¶ 30) ("Thus, when the embodiments of FIG. 9 and FIGS. 17 are combined, the control system acts as the local agent . . . . Discenzo never discloses that this local component 970 is disabled, and in fact, clearly teaches that it is active even when coupled with a large collection of agents as shown in FIG. 17."); J. App'x 17642–43 (Collins Dec'l, ¶¶ 87–89) (discussing the embodiment in Figure 17 with reference to components from Figure 9). Dr. Collins opined that "Discenzo does not disclose that if setpoints or desired operating points are received from the host computer 1704, even if optimized by optimization component 1706, the controller 966 and its optimization component 970 would lose independent control." J. App'x 15160 (Collins Supp. Dec'l, ¶ 36).

The controllers in the embodiment in Figure 9 do not limit the disclosure of the embodiment in Figure 17 described in paragraph 160. Elements within one embodiment in a prior art reference do not necessarily limit another embodiment unless there is some disclosure that justifies such a conclusion. The written description of Figure 9 in paragraph 132 of the '597 patent characterizes the pump system of Figure 9 as "exemplary" and is not described as limiting the invention. Moreover, nothing in paragraph 160 of the '597 patent specifies that the only controllers that can be used in the embodiment of Figure 17 are those shown in Figure 9. Pentair's expert, Dr. Collins, recognized that Figure 17 shows "a separate embodiment," in which "Discenzo only discloses optimiza-

tion within the host computer 1704, not within the controllers MC1, MCN, and VC1." J. App'x 17642 (Collins Dec'l, ¶ 87). But he then went on, without explanation, to describe the controllers in Figure 17 as being limited to Figure 9's controller 966 and failed to cite anything in the specification that would lead one to that conclusion. Such a shortcoming undermines the persuasiveness of Dr. Collins's declaration. *Vitronics Corp. v. Conceptronic, Inc.*, 60 F.3d 1576, 1584 (Fed. Cir. 1996) ("[T]he expert testimony, which was inconsistent with the specification and file history, should have been accorded no weight."). The Board's reliance on Dr. Collins's declaration in concluding that the controllers in Figure 17 do not operate as slaves is unsupported.

Pentair looks to the characterization in paragraph 160 of the relationship between the host and the controllers as "host-to-peer" as distinguishing that relationship from the "master/slave" relationship recited in the claims. Pentair reads too much into the "host-to-peer" phraseology. Nothing in that phraseology explicitly or implicitly discloses or teaches that the controllers in the embodiment of Figure 17 necessarily maintain independent control.

Because substantial evidence does not support the Board's determination that Discenzo lacks disclosure of the claimed master/slave relationship between the host and the controllers, the Board's reversal of the Examiner's rejections of claims 1–16, 18–32, 34–37, 40–43, 45–57 based on Discenzo cannot be sustained.

In view of our holding with respect to Discenzo, we need not and do not consider whether the Carrow reference, Robert S. Carrow, *Electrician's Technical Reference*, Variable Frequency Drives, 2001, also discloses or teaches the master/slave relationship.

Pentair also argued to the Board that Discenzo did not meet the "optimize energy consumption" limitation of these claims. Because the Board found Discenzo lacking

in a disclosure or teaching of the master/slave limitation, the Board did not consider this issue. Accordingly, we remand the question of whether Discenzo also discloses or teaches the "optimize energy consumption" limitation of claims 1–16, 18–32, 34–37, 40–43, 45–57 to the Board for its consideration in the first instance.

II. CONSTRUCTION OF "OPTIMIZE ENERGY CONSUMPTION"

The Board agreed with the Examiner's construction of "optimize energy consumption" as "a reduction of energy consumed over time relative to the ultimate pumping application/function." *Board Op.* at 7-9; J. App'x 15985. Hayward contests the Board's construction of "optimize energy consumption" and various rejections based on that limitation. Hayward contends that the Board improperly read into its construction limitations from the specification that rendered the construction both wrong and indefinite. Hayward instead argues that the proper construction of "optimize energy consumption" is "use the minimal amount of energy possible by continuously adjusting speed in real-time response to the sensed parameters of the water." Hayward stresses the need to adjust the pump "continuously" to provide optimal operation in response to changing conditions. Appellant's Br. at 49. Hayward further contends that its construction is properly directed to the optimization of the pump itself and not to other parameters of the ultimate pumping system. More specifically, it argues that its construction is supported by the specification's description of closed-loop systems responsive to "the sensed parameters of the water" as contrasted to open loop systems limited to "blindly guessing the right speed and hoping for the best." *Id.*

In construing the claims, we look to the description of the invention in the specification. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (the specification "is the single best guide to the meaning of a disputed term")

(quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 Fed. Cir. 1995)). The Board properly considered the written description and we find no basis to overturn its construction.

The '597 patent requires consideration of multiple components of the system.

> Energy conservation in the present invention is based upon an appreciation that such other water movement ["[a]ssociated with operation of various functions and auxiliary devices"] may be considered as part of the overall desired water movement, cycles, turnovers, filtering, etc. . . . This permits increased energy efficiency by avoiding unnecessary pump operation."

Id. at col. 12, ll. 10–23. The remainder of the '597 patent confirms that energy optimization requires consideration of holistic factors that are not necessarily responsive to a simple feedback mechanism. *Id.* at col. 12, ll. 18–23 ("Thus, control of a first operation (e.g. filtering) in response to performance of a second operation (e.g. running a pool cleaner) can allow for minimization of a purely filtering aspect."); *id.* at col. 12, ll. 24–50 (providing examples of functions taken into consideration beyond flow feedback to optimize energy consumption); *id.* at col. 1, ll. 33–49 (discussing auxiliary devices); *id.* at col. 1, ll. 50–59 (discussing consideration of auxiliary devices as an aspect of energy optimization); *id.* at col. 1, ll. 60–67 (noting the benefits of a pump that communicates with auxiliary devices and responds to changing conditions thereof); *id.* at col. 11, ll.:58–62 (optimizing power consumption of the motor "based upon the parameter(s) received from the auxiliary device(s)."); *id.* at col. 12, ll. 45–50 ("For example, where a filter arrangement has become clogged over time and requires an ever-increasing water flow or pressure, the means for controlling could choose to delay operation of an automatic pool cleaner until after the

filter arrangement has been cleaned."); J. App'x at 15211 (Dec'l of Dr. Toliyat, "[I]n practice there are challenges to actually achieving energy optimization even with a variable speed pump because the desired results—*i.e.*, a certain flow rate and/or pressure—are dependent upon factors other than the speed of the pump.").

Recognizing that the '597 patent requires consideration of more than the bare flow rate in comparison with a target rate is not reading limitations from the specifications into the claims. As noted above, the specification explicitly requires consideration of the interrelation of water movement associated with various functions and/or auxiliary devices in conserving energy. Hayward's argument that a closed-loop feedback controller provides optimized energy consumption does not take this into account.

Hayward argues that claim 1 does not require auxiliary devices, and that optimizing energy consumption in claim 1 cannot require consideration of such unclaimed components. However, as described above, the claimed "control system" must be capable of taking into account more than the mere flow rate compared to a desired setpoint to adjust the motor speed—a capability that a closed loop feedback controller by definition lacks.

Moreover, even though "continuous" adjustment is important, the pump need not do that by always increasing the speed when the flow is too low or decreasing it if it is too high. As noted above, other considerations may override that type of adjustment. Properly construing the claims in light of the specification requires more than a simple closed-loop system--it must take into account the effect of the speed adjustment on the other components. These considerations are properly taken into account under the Board's construction. See, *Cuozzo Speed Techs., LLC. v. Lee*, 136 S.Ct. 2131 (2016) (approving the broadest reasonable construction in inter partes review).

Hayward argues that the Examiner and the Board repeatedly changed the construction of "optimize energy consumption." The Board and the Examiner maintained the same construction throughout all relevant parts of the IPX. *Compare* J. App'x 7–9 (Board Opinion) ("a reduction of energy consumed over time relative to the ultimate pumping application/function") *with* J. App'x 15985 (Right of Appeal Notice) ("a reduction of energy consumed over time relative to the ultimate pumping application/function") *with* J. App'x 15432–33 (Second Action Closing Prosecution) ("a reduction of energy consumed over time relative to the ultimate pumping application/function") *with* J. App'x 14471 (First Action Closing Prosecution) (requiring consideration of "the overall desired water movement" and holding that Carrow does not teach "overlapping the required flows from various functions to avoid unnecessary flow"). The first three above-noted constructions are identical, and the one noted from the First Action Closing Prosecution is essentially the same, and similarly requires more than a mere closed-loop feedback arrangement.

Hayward is incorrect that "relative to the ultimate pumping application/function" is "uselessly vague." The baseline of comparison remains the amount of energy that would have been consumed to execute those pumping applications/functions absent optimization. '597 patent, col. 1, ll. 21–66 (contrasting conventional pumping systems with optimized systems). Such construction is not indefinite simply because different applications/functions have different baseline energy usages. *See Young v. Lumenis, Inc.*, 492 F.3d 1336, 1346 (Fed. Cir. 2007) (holding the claim language "incision . . . near the edge of the ungual crest of the claw" of an animal is not indefinite even though "near" depends on the animal being considered).

Hayward is also incorrect that *Geneva Pharms., Inc. v. GlaxoSmithKline PLC*, 349 F.3d 1373 (Fed. Cir. 2003)

compels a contrary conclusion. The court in that case, in the context of a double patenting rejection, considered the limitation "synergistically effective amount" and made the observation that "one of skill would not know from one bacterium to the next whether a particular composition standing alone is within the claim scope or not." *Id*. at 1384. Here, whether there is energy optimization within a particular system is easily determined by comparing the energy use of a pump that takes into account the various functions and requirements of the system and one that does not take those functions into account. Nothing in the record suggests that such a comparison would not be well within the grasp of one of ordinary skill in the art.

For these reasons, we affirm the Board's construction of the "optimize energy consumption" limitation.

III. JONES, DANFOSS AND CARROW

Hayward next argues that even under the Board's construction of "optimize energy consumption," U.S. Patent Publication No. 2003/0196942 ("Jones"), *Danfoss VLT 8000 AQUA Instruction Manual*, April 16, 20014 ("Danfoss"), and Carrow meet that limitation. Each of those references discloses a closed-loop feedback system, which recognizes the flow rate and increases or decreases the motor speed to use the least energy possible to reach that flow rate.[1] As noted above, however, the "optimize energy consumption" claim limitation requires consideration of factors outside the universe of a closed-loop system. Because Jones, Danforth and Carrow do not disclose or teach systems with this additional capability, substantial evidence supports the Board's decision.

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[1] Hayward does not argue on appeal that U.S. Pat. Pub. No. 2004/0117330 ("Ehlers") discloses or teaches optimizing energy consumption under the Board's construction.

IV. DEPENDENT CLAIMS ARGUED SEPARATELY

The Board held that claims 17, 33, 58 and 59 were allowable over the prior art, that claims 38 and 39 were not indefinite, and that claim 44 was enabled and was supported by the written description. Hayward challenges each of those determinations.

Claim 17 and its substantively identical independent counterpart, claim 58, contain the so-called "ignoring" limitation: "the pump controller ignores a request for increased flow rate from the control system during at least one of a backwash cycle and a lock out state." Hayward argues that these claims are obvious over an unidentified combination, presumably involving Discenzo in combination with U.S. Patent Publication No. 2005/0123408 ("Koehl"), U.S. Patent Publication No. 2005/0226731 ("Mehlhorn"), or Jones. Hayward's arguments fail. On appeal, Hayward does not put forth any discernible reason an ordinary artisan would combine Discenzo with any of these references. Moreover, substantial evidence supports the Board's holding that the cited references, alone or in combination, do not disclose or teach the "ignoring" limitation. Jones and Koehl respectively teach an emergency shutdown of the motor in case of a life-threatening suction entrapment or a fault condition. The Board correctly recognized that teaching shutting off a motor entirely is not "ignoring" a signal—it is failing to receive a signal in the first place. Regarding Mehlhorn, while Hayward maps the "pump controller" in the '597 patent to the "controller 150" in Mehlhorn, it does not identify anything in Mehlhorn that can be mapped to "the control system," as the claims require. Hayward has thus failed to show any teaching in the cited references of the "ignoring" limitation.

Claim 33 and its substantively identical independent counterpart, claim 59, do not contain the "ignoring" limitation but instead recite "wherein the pump controller

alters the performance of the pumping system to provide an increased flow rate necessary for proper operation of the heater." The Board did not explicitly address this limitation, instead grouping claims 33 and 59 with claims 17 and 58 without comment, despite the fact that these two sets of claims contained different limitations. We thus vacate the Board's holding that claims 33 and 59 are not invalid, and remand to the Board for consideration in the first instance.

Hayward next argues that newly added claims 38 and 39 are indefinite. Those claims recite the limitations "the pumping system considers the amount of water movement in determining whether the number of turnovers over the specified time period is achieved" and "wherein an amount of water movement is associated with operation of at least one auxiliary device." We agree with the Board that the component doing the "considering" can be any part of the pumping system, and that this is not indefinite.

Hayward argues that newly added claim 44 lacks enablement and written description support. That claim adds the limitation: "wherein the information received from the control system includes an operational state including at least one of a filtration mode, a vacuum mode, and a heating mode." The Board correctly held that claim 44 is fully supported under 35 U.S.C. § 112 ¶ 1. Although Hayward is correct that the '597 patent does not use the word "mode" in the specification, it does disclose receiving information from a control system, including receiving operational states. '597 patent, col. 10, ll. 37–43 (generally teaching the use of various operational states; *id.* at col. 10, ll. 60–62 (teaching altering motor operations based on the received parameter with respect to the needs of a water heater); *id.* at col. 7, ll. 38–46. Moreover, we agree with Pentair that the '597 patent supports the modes limitation through the incorporation by reference of U.S. Pat. No. 8,019,479 ("'479 patent"), from which the

'597 patent claims priority. '597 patent, col. 1, ll. 6–10; 37 C.F.R. § 1.57(d) (allowing disclosures in a U.S. Patent incorporated by reference to provide § 112 support). Hayward provides no support for its argument that the publication of the'479 patent after the filing date of the '597 patent disqualifies the '479 patent from providing § 112 support.

Finally, we reject Hayward's cursory and unsupported arguments that claim 44 is invalidated (presumably as obvious) by nine rejection sets that disclose a swimming pool pump with filter.

CONCLUSION

For the reasons discussed above, we vacate the Board's conclusion that claims 1–16, 18–32, 34–37, 40–43 and 45-57 are allowable based on the master/slave limitation and remand to the Board for reconsideration of the rejections based on Discenzo, consistent with this opinion. We affirm the Board's construction of "optimize energy consumption" as the broadest reasonable construction. We also affirm the Board's conclusion that Carrow, Jones, and Danfoss do not disclose or teach the "optimize energy consumption" limitation.

We affirm the Board's conclusion that claims 17 and 58 are not obvious, that claims 38 and 39 are not invalid as indefinite, and that claim 44 is not invalid for lack of enablement or written description. We vacate the Board's conclusion that claims 33 and 59 are not obvious, and remand that question to the Board for consideration in the first instance.

AFFIRMED-IN-PART, VACATED-IN-PART, AND REMANDED.