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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ERIC P. LOEWEN, BRETT J. DOOIES,
and NICHOLAS F. O'NEILL

Appeal 2019-002339
Application 14/266,302
Technology Center 1700

Before ROMULO H. DELMENDO, CHRISTOPHER C. KENNEDY, and
JANE E. INGLESE, *Administrative Patent Judges*.

INGLESE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant¹ requests our review under 35 U.S.C. § 134(a) of the
Examiner's decision to finally reject claims 1–20.² We have jurisdiction
over this appeal under 35 U.S.C. § 6(b).

We AFFIRM IN PART.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37
C.F.R. § 1.42. Appellant, GE-Hitachi Nuclear Energy Americas LLC, is
also identified as the real party in interest. Appeal Brief filed July 20, 2018
 (“Appeal Br.”) at 1.

² Final Office Action entered September 6, 2017 (“Final Act.”).

CLAIMED SUBJECT MATTER

Appellant claims a system for reducing contaminant deposition on a surface immersed in a fluid (independent claim 1), a mobile apparatus to reduce contaminant depositions by inducing flows in a space flooded with a liquid (independent claim 10), and a method of removing contaminant depositions on open-system surfaces immersed in a water bearing contaminants (independent claim 18).

Claims 1 and 10 illustrate the subject matter on appeal, and are reproduced below:

1. A system for reducing contaminant deposition on a surface immersed in a fluid, the system comprising:
 - a fluid source; and
 - an apparatus configured to discharge a fluid from the fluid source against a surface while immersed in the fluid.

10. A mobile apparatus to reduce contaminant depositions by inducing flows in a space flooded with a liquid, the mobile apparatus comprising:
 - a flow intake receiving the liquid from the space; and
 - a multi-stage filter configured to filter particulate and dissolved contaminants from the liquid; and
 - an outlet directing the liquid toward a surface so as to create a flow of the liquid having speed of at least 2 meters per second of the liquid contacting the surface.

Appeal Br. 23, 25 (Claims Appendix).

REJECTIONS

The Examiner maintains the following rejections in the Examiner's Answer entered November 27, 2018 ("Ans."):

- I. Claims 1, 2, and 4 under 35 U.S.C. § 102(a)(1) as anticipated by Enomoto;³
- II. Claim 3 under 35 U.S.C. § 103 as unpatentable over Enomoto in view of Kanehara;⁴
- III. Claims 5 and 10–18 under 35 U.S.C. § 103 as unpatentable over Enomoto in view of Rademan⁵ and Brings⁶;
- IV. Claims 6 and 19 under 35 U.S.C. § 103 as unpatentable over Enomoto in view of Rademan, Brings, and Rootham⁷;
- V. Claims 7–9 under 35 U.S.C. § 103 as unpatentable over Enomoto in view of Kanehara and Ecker;⁸ and
- VI. Claim 20 under 35 U.S.C. § 103 as unpatentable over Enomoto in view of Rademan, Brings, Rootham, Kanehara, and Ecker.

FACTUAL FINDINGS AND ANALYSIS

Upon consideration of the evidence relied upon in this appeal and each of Appellant's contentions, we reverse the Examiner's rejections of claims 3, 8, 9, 11–13, 17, and 20 under 35 U.S.C. § 103 for the reasons set forth in the Appeal and Reply Briefs and below. We summarily sustain the Examiner's rejection of claims 1, 2, and 4 under 35 U.S.C. § 102(a)(1), and rejections of claims 5, 6, 7, 10, 14–16, 18, and 19 under 35 U.S.C. § 103, because Appellant does not contest these rejections. Appeal Br. 9–22; 37

³ Enomoto et al., US 5,553,106, issued September 3, 1996.

⁴ Kanehara et al., JPH0814534 (A), published June 4, 1996.

⁵ Rademan et al., US 2013/0022686 A1, published January 24, 2013.

⁶ Brings et al., US 2009/0101586 A1, published April 23, 2009 and US 2009/0218289 A1, published September 3, 2009.

⁷ Rootham, US 5,764,717, issued June 9, 1998.

⁸ Ecker et al., US 2009/0151750 A1, published June 18, 2009.

C.F.R. § 41.37(c)(1)(iv); *see also* Manual of Patent Examining Procedure (MPEP) § 1205.02 (9th ed. Jan. 2018) (“If a ground of rejection stated by the examiner is not addressed in the appellant’s brief, appellant has waived any challenge to that ground of rejection and the Board may summarily sustain it, unless the examiner subsequently withdrew the rejection in the examiner’s answer.”).

Claims 3, 8, 9, and 20

We first address the Examiner’s rejection of claim 3 under 35 U.S.C. § 103 as unpatentable over Enomoto in view of Kanehara, rejection of claims 8 and 9 under 35 U.S.C. § 103 as unpatentable over Enomoto in view of Kanehara and Ecker, and rejection of claim 20 under 35 U.S.C. § 103 as unpatentable over Enomoto in view of Rademan, Brings, Rootham, Kanehara, and Ecker.

Claim 3 depends from claim 2, which depends from claim 1. When read together with claims 1 and 2, claim 3 recites a system for reducing contaminant deposition on a surface immersed in a fluid comprising an apparatus configured to discharge a fluid from a fluid source against a surface while immersed in the fluid, and claim 3 recites that the apparatus includes a pump immersed in the fluid.

Claim 8 depends from claim 7, which depends from claim 1. When read together with claims 1 and 7, claim 8 recites that the apparatus of claim 1 is mobile assembly including an induction pump connected to a fluid source, and claim 8 recites that the mobile assembly is immersed in the fluid. Claim 9 depends from claim 8, and, therefore, includes all the elements of claim 8.

Claim 20 depends from claim 19, which depends from independent

claim 18. When read together with claims 18 and 19, claim 20 recites a method of removing contaminant depositions on surfaces immersed in water comprising flowing water to meet the surface, and claim 20 recites that the flowing is produced by a mobile assembly including an induction pump completely submerged in the water.

Claims 3, 8, 9, and 20, therefore, each recite a system or method for reducing or removing contaminant deposition on a surface immersed in a fluid (or water), and require the system to comprise, or require the method to involve use of, an apparatus (or mobile assembly) that includes a pump configured to operate while immersed in a fluid (or water).

The Examiner finds that “Enomoto et al teaches an apparatus as claimed except for the device where pump is submerged.”⁹ Final Act. 4, 7. The Examiner finds, however, that Kanehara “teaches that such devices were known for cleaning of the submerged surfaces and teaches the benefits of such.” *Id.*

As Appellant points out (Appeal Br. 11–12), however, the Examiner does not identify any disclosure in Kanehara indicating that the apparatus described in the reference includes a pump that is immersed in a fluid or configured to operate when immersed in a fluid. Rather, Kanehara discloses a robot used to remove marine organisms and sludge adhered to the inner surface of pipes that supply seawater to thermal/nuclear power plants. Kanehara ¶¶ 1, 2. Kanehara discloses that before Kanehara’s invention, removal of marine organisms and sludge from the inner surface of such

⁹ Although the Examiner addresses this limitation in the rejection of claims 3 and 20 (Final Act. 4, 7), the Examiner does not address this limitation in the rejection of claim 8 (Final Act. 6).

pipes was “done manually by human beings entering the supply and drain pipeline,” but, Kanehara explains, during such cleaning operations, the pipes would fill with “offensive odors emitted from marine organisms” detached from the pipes, creating a poor working environment for humans. Kanehara ¶ 3. Kanehara discloses that its invention replaces manual pipe cleaning with a robot that uses the impact force of a high pressure water jet ejected from a cleaning nozzle to remove marine organisms and sludge from the inner surface of pipe walls. Kanehara ¶¶ 9, 11, 12; Fig. 1.

Although the Examiner asserts that the robot disclosed in Kanehara “is for cleaning for water pipes, such a[s] seawater flow pipe, which . . . obviously contains water,” and further asserts that the “robot is immersed in the water and obviously comprises a pump to create the high pressure jet for cleaning” (Ans. 9), the Examiner does not identify any actual disclosure in Kanehara that indicates or would have suggested that the robot described in the reference is immersed in water or is configured to operate while immersed in water. Nor does the Examiner identify any disclosure in Kanehara that indicates or would have suggested that the robot includes a pump that is also configured to be immersed in water. *In re Giannelli*, 739 F.3d 1375, 1379–80 (Fed. Cir. 2014). The Examiner’s assertions to the contrary, therefore, amount to mere speculation due to the absence of any supporting evidence or reasoning based on, for example, well-established common knowledge. *In re Warner*, 379 F.2d 1011, 1017 (CCPA 1967) (“The Patent Office . . . may not . . . resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in its factual basis.”); *see also In re Sporck*, 301 F.2d 686, 690 (CCPA 1962).

Consequently, on the record before us, the Examiner does not provide

a sufficient factual basis to establish that Kanehara discloses, or would have suggested, an apparatus (or mobile assembly) that includes a pump that is configured to operate while immersed in a fluid (or water), as required by claims 3, 8, 9, and 20.

We, accordingly, do not sustain the Examiner's rejection of these claims under 35 U.S.C. § 103.

Claims 11 to 13

We next turn to the Examiner's rejection of claims 11–13 under 35 U.S.C. § 103 as unpatentable over Enomoto in view of Rademan and Brings.

Claim 11 depends from independent claim 10 (reproduced above) and recites that the mobile apparatus of claim 10 further comprises “a pump connected to the flow intake, wherein the pump is configured to create the flow while the mobile apparatus is completely immersed in the liquid in the space.” Because claim 12 depends from claim 11, and claim 13 depends from claim 12, claims 12 and 13 include all the elements of claim 11.

As Appellant points out (Appeal Br. 17–18), the Examiner's rejection of claims 5 and 10–18 set forth in the Final Action does not address claim 11 specifically. Final Act. 4–5. As Appellant also points out, the Examiner indicates on the second page of an Advisory Action entered January 16, 2018 that claim 11 “does not require the pump be immersed in the liquid. It merely recites a pump connected to the flow intake. However, if the claim will be amended to require such, it will be rejected using the teaching of JP 8-141534 [Kanehara].”

Appellant argues that claim 11 requires the mobile apparatus including the pump to be configured to be completely immersed in fluid, and

none of the prior art references applied in the rejection of claim 11 disclose this feature. Appeal Br. 18–19. In response to Appellant’s arguments, the Examiner indicates in the Answer that claim 11 “merely require[s] a pump connected to a flow intake,” which Enomoto discloses. Ans. 10.

Claim 11, however, requires the mobile apparatus of claim 10 to comprise a pump, and recites that “the pump is configured to create the flow while the mobile apparatus is completely immersed in the liquid in the space.” Appellant’s Specification explains that mobile assembly 300 of Appellant’s invention is immersed in coolant contained within refueling cavity 20, and indicates that mobile assembly 300 includes pump 344 that pressurizes and accelerates coolant from coolant supply 354 and from cavity 20 into an induced flow 352 against cavity wall 21. Spec ¶¶ 25, 31, 32, 36; Fig. 3. In view of this disclosure in the Specification, claim 11 requires the recited pump to be designed or constructed to create a flow while immersed in liquid. *Giannelli*, 739 F.3d at 1379 (Recitation in a claim that an apparatus or structure is “configured to” perform a particular function requires more than “mere capability” of performing the recited function, and is synonymous with “made to” or “designed to” perform the function, when the description makes clear that the claimed apparatus or structure is “designed to” or “constructed to” perform the recited function.).

Enomoto discloses an apparatus including reactor pressure vessel 9 containing reactor water 11, suction pump 31, and high pressure pump 15. Enomoto col. 7, ll. 25–31; col. 10, ll. 35–45; Fig. 8. Enomoto discloses that suction pump 31 and high pressure pump 15 are both not submerged in reactor water 11. Enomoto Fig. 8. The Examiner does not identify and disclosure in Enomoto that indicates or would have suggested that either

suction pump 31 or high pressure pump 15 is designed or constructed to create a flow while immersed in liquid, as required by claim 11.

Furthermore, to the extent that the Examiner may rely on Kanehara for disclosure of such as pump, as discussed above, the Examiner does not identify any disclosure in Kanehara that indicates or would have suggested that the robot described in the reference includes a pump that is immersed in water, and, thus, is designed or constructed to create a flow while immersed in liquid, as required by claim 11.

On the record before us, the Examiner, therefore, does not provide a sufficient factual basis to establish that either Enomoto or Kanehara discloses, or would have suggested, a pump designed or constructed to create a flow while immersed in liquid, as required by claim 11. We, accordingly, do not sustain the Examiner's rejection of claims 11–13 under 35 U.S.C. § 103.

Claim 17

We next address the Examiner's rejection of claim 17 under 35 U.S.C. § 103 as unpatentable over Enomoto in view of Rademan and Brings

Claim 17 depends from independent claim 10. As set forth above, claim 10 recites a mobile apparatus to reduce contaminant depositions by inducing flows in a space flooded with a liquid comprising, in part, a flow intake receiving the liquid from the space, and an outlet directing the liquid toward a surface so as to create a flow of the liquid. Claim 17 recites that the flow moves the mobile apparatus within the space.

The Examiner determines that the recitation in claim 17 that “the flow moves the mobile apparatus” “is a mere recitation of the intended use of the

apparatus.” Ans. 10.¹⁰ The Examiner finds that Enomoto teaches a “movable mobile assembly, which moves in vertical and radial direction and use[s] a high pressure water flow, thus it is capable of the recited intended use.” Final Act. 11 (citing Enomoto col. 7, ll. 34–57; col. 7, l. 65–col. 8, l. 24).

Contrary to the Examiner’s assertion, however, the recitation in claim 17 that “the flow moves the mobile apparatus” is not an intended use of the claimed apparatus. Although claim 10 does not explicitly recite that the outlet is “configured to” direct liquid toward a surface so as to create a flow of the liquid that “moves the mobile apparatus” as recited in claim 17, such a configuration is implied by the plain language of claims 10 and 17. As discussed above, Appellant’s Specification explains that mobile assembly 300 of Appellant’s invention includes pump 344 that pressurizes and accelerates coolant from coolant supply 354 and from cavity 20 into an induced flow 352 against cavity wall 21. Spec ¶¶ 25, 31, 32, 36; Fig. 3. The Specification indicates that sufficient force may be generated by coolant flow 352 to move mobile assembly 300. Spec. ¶¶ 36, 37.

In view of this disclosure in the Specification, claim 17, when read together with claim 10, requires the claimed mobile apparatus to include an outlet designed or constructed to direct liquid toward a surface so as to create a flow of the liquid that moves the mobile apparatus. *Giannelli*, 739 F.3d at 1379. As Appellant argues (Reply Br. 5–6), Enomoto does not disclose such a mobile apparatus.

More specifically, as discussed above, Enomoto discloses an

¹⁰ The Examiner does not specifically address claim 17 in the rejection of claims 5 and 10–18 in the Final Action. Final Act. 4–5.

apparatus comprising reactor 21 including reactor pressure vessel 9 containing reactor water 11. Enomoto col. 7, ll. 25–31; Fig. 8. Enomoto discloses that nozzle 14 is immersed in reactor water 11 and is connected through conductor 17 to water tank 12 and high pressure pump 15, which are outside reactor 21, and Enomoto explains that nozzle 14 ejects cold water jet 8 against the surface of core shroud 13. Enomoto col. 7, ll. 28–31; col. 8, ll. 20–21, 31–33; Fig. 8. Enomoto discloses that the apparatus includes a driving mechanism comprising a circumferentially movable carriage provided at the top of pressure vessel 9, a radially movable carriage provided on an upper surface of the circumferentially movable carriage, and a mast suspended from the radially movable carriage that telescopically extends and contracts in the vertical direction. Enomoto col. 7, ll. 37–45. Enomoto discloses that nozzle 14 is attached to a lowest end of the mast. Enomoto col. 7, ll. 46–47. Enomoto discloses that conductor 17 has a structure similar to the mast that telescopically extends and contracts in the vertical direction or in the radial direction. Enomoto col. 7, ll. 48–51. Enomoto discloses that “[w]ith such arrangements of the driving mechanism and the conductor 17, the nozzle 14 can be radially and vertically moved in the pressure vessel 9.” Enomoto col. 7, ll. 52–54.

As Appellant points out (Reply Br. 5–6), although Enomoto discloses that *driving mechanism and conductor 17* move nozzle 14 radially and vertically, the Examiner does not identify any disclosure in Enomoto that indicates or would have suggested that nozzle 14 directs liquid toward a surface to create *a flow of the liquid* that moves nozzle 14. Consequently, on the record before us, the Examiner does not provide a sufficient factual basis to establish that Enomoto discloses, or would have suggested, a mobile

apparatus including an outlet designed or constructed to direct liquid toward a surface so as to create a flow of the liquid that moves the mobile apparatus, as required by claim 17. We, accordingly, do not sustain the Examiner's rejection of this claim under 35 U.S.C. § 103.

CONCLUSION

Claims	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 2, 4	102(a)(1)	Enomoto	1, 2, 4	
3	103	Enomoto, Kanehara		3
5, 10–18	103	Enomoto, Rademan, Brings	5, 10, 14–16, 18	11–13, 17
6, 19	103	Enomoto, Rademan, Brings, Rootham	6, 19	
7–9	103	Enomoto, Kanehara, Ecker	7	8, 9
20	103	Enomoto, Rademan, Brings, Rootham, Kanehara, Ecker		20
Overall Outcome			1, 2, 4–7, 10, 14– 16, 18, 19	3, 8, 9, 11–13, 17, 20

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 IN PART