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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ERIC P. LOEWEN, SCOTT L. PFEFFER, MARIA E. PFEFFER,
and SETH RYAN PAUL STREGE

Appeal 2019-003417
Application 15/452,696
Technology Center 2600

Before JAMES B. ARPIN, GREGG I. ANDERSON, and
ADAM J. PYONIN, *Administrative Patent Judges*.

ARPIN, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant¹ appeals under 35 U.S.C. § 134(a) the Examiner's decision rejecting claims 1–19 and 21, all of the pending claims. Final Act. 2.²

¹ “Appellant” refers to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party-in-interest as GE-Hitachi Nuclear Energy Americas LLC. Appeal Br. 1.

² In this Decision, we refer to Appellant's Appeal Brief (“Appeal Br.,” filed October 29, 2018) and Reply Brief (“Reply Br.,” filed March 18, 2019); the Final Office Action (“Final Act.,” mailed February 27, 2018), Advisory Action (“Adv. Act.,” mailed May 24, 2018), and the Examiner's Answer (“Ans.,” mailed January 18, 2019); and the Specification (“Spec.,” filed March 7, 2017). Rather than repeat the Examiner's findings and Appellant's contentions in their entirety, we refer to these documents.

Claim 20 is canceled. Appeal Br. 24 (Claims App.). We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

STATEMENT OF THE CASE

The claims recite lighting and radiation detection units related to “combined radiation detectors and lights as well[] as systems and methods of using the same.” Spec. ¶ 17. “The lighting element is adjustable in response to the detector detecting radiation, for example, by strobing, changing color, intensifying, etc., to make nearby radiation known to personnel.” *Id.* ¶ 4. In particular, the lighting element may be adjusted when detected ionizing radiation exceeds a threshold of a regulatory or safe ionizing radiation level. *See id.* ¶ 33.

As noted above, claims 1–19 and 21 are pending. Claims 1, 10, and 18 are independent. Appeal Br. 18 (claim 1), 20–21 (claim 10), 23 (claim 18) (Claims App.). Claims 2–9 and 21 depend directly or indirectly from claim 1; claims 10–17 depend directly or indirectly from claim 10; and claim 19 depends directly from claim 18. *Id.* at 18–24

Claims 1 and 21 are reproduced below with disputed limitations emphasized; claim 1 is illustrative.

1. A combined lighting and radiation detection unit comprising:
 - a ballast configured to removably join to and draw power from an electrical outlet;
 - a light secured with and configured to draw power from the ballast;
 - an ionizing radiation detector secured with and configured to draw power from the ballast; and
 - a controller configured to change output of the light from a constant visible light to a light visibly varying in time in*

response to ionizing radiation detected by the ionizing radiation detector exceeding a threshold of a regulatory or safe ionizing radiation level.

Id. at 18 (emphasis added).

21. The unit of claim 1, wherein the ionizing radiation detector includes an alpha/beta radiation detector *on an outward-most side of the light* and a gamma radiation detector *on an inward side of the light*.

Id. at 24 (emphases added). Claims 10 and 18 recite corresponding limitations to those recited in claim 1.

REFERENCES AND REJECTIONS

The Examiner relies upon the following references:

Name ³	Reference No.	Publ'd/Issued	Filed
Wasserman	US 4,924,098	May 8, 1990	Nov. 30, 1987
Lys	US 2007/0188427 A1	Aug. 16, 2007	Apr. 26, 2007
Longman	US 2009/0012745 A1	Jan. 8, 2009	July 7, 2008
Pederson	US 8,571,411 B2	Oct. 29, 2013	Mar. 22, 2012
Takeuchi	US 2015/0008328 A1	Jan. 8, 2015	June 17, 2014
Cagdaser	US 2016/0105750 A1	Apr. 14, 2016	Dec. 18, 2015
Ashoff	US 2017/0238388 A1	Aug. 17, 2017	July 18, 2012

The Examiner rejects claim 21 under 35 U.S.C. § 112(a) as lacking adequate written description in the Specification. Final Act. 2–3. Further, the Examiner rejects claims 1, 2, 7, 10, 17, and 18 under 35 U.S.C. § 103 as obvious over the combined teachings of Ashoff and Wasserman (*id.* at 4–8); claims 3 and 4 under 35 U.S.C. § 103 as obvious over the combined teachings of Ashoff, Wasserman, and Longman (*id.* at 8–9); claim 5 under

³ All reference citations are to the first named inventor only.

35 U.S.C. § 103 as obvious over the combined teachings of Ashoff, Wasserman, and Lys (*id.* at 10–11); claims 6 and 8 under 35 U.S.C. § 103 as obvious over the combined teachings of Ashoff, Wasserman, and Pederson (*id.* at 11–12); claim 9 under 35 U.S.C. § 103 as obvious over the combined teachings of Ashoff, Wasserman, Pederson, and Cagdaser (*id.* at 13); claims 11, 12, 16, and 19 under 35 U.S.C. § 103 as obvious over the combined teachings of Ashoff, Wasserman, and Cagdaser (*id.* at 13–15); claims 13–15 under 35 U.S.C. § 103 as obvious over the combined teachings of Ashoff, Wasserman, Cagdaser, and Longman (*id.* at 15–17); and claim 21 under 35 U.S.C. § 103, as obvious over the combined teachings of Ashoff, Wasserman, and Takeuchi (*id.* at 17–18).

We review the appealed rejections for error based upon the issues identified by Appellant, and in light of the contentions and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential). The Examiner and Appellant focus their findings and contentions on claims 1 and 21; so do we. *See, e.g.*, Final Act. 4–7 (discussing rejection of claims 1 and 18 together), 7–8 (discussing rejection of claim 10 based on rationale stated with respect to the rejection of claim 1); Appeal Br. 2 (“Claims 1, 10, and 18 are the independent claim[s] on appeal, and dependent claim 21 is the only dependent claim argued separately on appeal.”). Arguments not made are waived. *See* 37 C.F.R. § 41.37(c)(1)(iv). Unless otherwise indicated, we adopt the Examiner’s findings in the Final Office Action and the Answer as our own and add any additional findings of fact for emphasis. We address the findings and contentions below.

ANALYSIS

A. Lack of Adequate Written Description for Claim 21

As noted above, claim 21 recites, “[t]he unit of claim 1, wherein the ionizing radiation detector includes an alpha/beta radiation detector *on an outward-most side of the light* and a gamma radiation detector *on an inward side of the light.*” Appeal Br. 24 (Claims App.) (emphases added). The Examiner finds,

this subject matter that alpha/beta radiation detector on an outward-most side of the light and a gamma radiation detector on an inward side of the light is not described in the specification . . . in such a way as to reasonably convey to one skilled in the relevant art that the inventor at the time the application was filed had possession of the claimed invention.

Final Act. 3. In particular, the Examiner finds,

[Figures 2 and 3] do not show any details as pointed in last office action, and paragraph 22 in question describes subject matter that is different than claimed in claim 21; para 22 recites ‘alpha/beta radiation detector 126 could be used on a front or outward-most position of example embodiment R&L unit 120 while a gamma radiation detector 126 could separately be used behind or at a back of lighting element 125’ the alpha/beta [detector] could be *on outward most position of R&L unit 120*; and the gamma detector could be *behind or at back of lighting element 125*.

As clearly seen the detectors are in place with reference to different units as R&L unit 120, and lighting element 125. [S]econdly there is no mention of gamma detector on an inward side of the light.

Adv. Act. 2 (emphases added); see Ans. 19 (“The penultimate sentence of paragraph [0022] teaches - as a single idea - an alpha/beta detector at a ‘front’ or ‘outermost position’ of R&L unit 120 containing light 125 and a

gamma detector ‘behind’ or at a ‘back of’ the lighting element 125 in the unit 120.”).

Appellant disagrees and contends, “the recited different radiation detectors opposed on inward and outward sides of the light is supported by the disclosure of paragraph [0022] of the specification.” Appeal Br. 8. The Specification discloses:

Desired or relevant radiation types and levels, such as alpha, beta, and/or gamma radiation, may be detected using an appropriate detector 126. *While a single detector 126 is shown in FIG. 2 in front of lighting element 125, it is understood that multiple detectors 126 may be used, potentially behind or around lighting element 125.* For example, an alpha/beta radiation detector 126 could be used *on a front or outward-most position of example embodiment R&L unit 120* while a gamma radiation detector 126 could separately be used *behind or at a back of lighting element 125*, to better discriminate between the types of radiation detected. Similarly, multiple, redundant radiation detectors 126 could be used for verification or backup.

Spec. ¶ 22 (emphases added). Appellant concludes, “among the few meanings one could reasonabl[y] ascribe to paragraph [0022], at least one of them (and the easiest of them) is an R&L unit including a light, alpha/beta detector, and gamma detector, with the light intervening between the detectors, as required by claim 21.” Appeal Br. 10–11.

The Examiner finds, “[t]he claimed ‘alpha/beta radiation detector on an outward-most side *of the light* and a gamma radiation detector on an inward side *of the light*’ is not consistent with what is taught by the present application disclosure.” Ans. 20–21 (emphases added). As the Examiner finds, the portion of the Specification, upon which Appellant relies to provide written description supporting claim 21, does not explicitly disclose the limitations recited in claim 21. *Id.* at 20. As the Examiner correctly

notes, the Specification describes the location of the alpha/beta radiation detector with respect to the combined R&L unit 120, not with respect to the specific lighting element 125; the location of the gamma radiation detector is described as “behind or at a back of lighting element 125,” not “on an inward side of the light.” *See Adv. Act. 2*. Thus, the Examiner concludes, “[the] Specification does provide multiple detectors that may be used on front, behind or around the light; but does not provide support for [a] detector on an inward side of light.” *Id.* at 21. We agree with the Examiner.

Appellant also contends:

The opposite-sides-of-the-light positioning is consistent with the final clause of the sentence, teaching this positioning allows discrimination between different types of radiation. Gamma radiation is much more penetrating than alpha and beta radiation, which would be stopped by an intervening lighting element. So a detector must go frontmost of the light to pick up alpha and beta radiation, *while another detector inward from the light in the unit can discriminatorily detect only gamma radiation.*

Appeal Br. 10 (emphasis added). Nevertheless, the Examiner finds Appellant fails to show where the Specification discloses that the lighting element shields or is capable of shielding the gamma radiation detector from alpha and beta radiation. *See Ans. 22; cf. Takeuchi ¶ 43* (describing casing 190 shielding tubes 710c and 710d from alpha and beta radiation). Again, we agree with the Examiner.

We are not persuaded the Examiner errs in rejecting claim 21 for lack of adequate written description. Consequently, we sustain this rejection.

B. Obviousness of Claims 1, 2, 7, 10, 17, and 18 Over Ashoff and Wasserman

As noted above, the Examiner rejects claims 1, 2, 7, 10, 17, and 18 under 35 U.S.C. § 103 as obvious over the combined teachings of Ashoff

and Wasserman. Final Act. 4–7. In particular, the Examiner finds that Ashoff teaches or suggests the majority of the limitations of independent claim 1. *Id.* at 4–6. Although Ashoff discloses an embodiment combining a light and a motion sensor (*id.* at 5 (citing Ashoff, Fig. 4 (fluorescent lamp 112 and motion sensor 408))), the Examiner finds Ashoff discloses other sensors, such as an ionizing radiation and subatomic particles detector, could be included alternatively in Ashoff’s device (*id.* at 6 (citing Ashoff ¶ 91)). Although Ashoff discloses that the lights may be off and turned on when motion is sensed (Ashoff ¶ 47), Ashoff also teaches that lights may be “activated, deactivated, dimmed, or brightened” in response to a sensor signal (*id.* ¶ 69; *see id.* ¶70).

The Examiner finds that Ashoff does not “specifically teach[] chang[ing] output of the light from a constant visible light to a light visibly varying in time in response to ionizing radiation detected by the ionizing radiation detector exceeding a threshold of a regulatory or safe ionizing radiation level.” Final Act. 7. However, the Examiner finds Wasserman teaches this limitation (*id.* at 6–7) and that a person of ordinary skill in the relevant art would have had reason to combine the teachings of Ashoff and Wasserman to achieve the unit, as recited in claim 1 (*id.* at 7 (“Simple Substitution of One Known Element for Another To Obtain Predictable Results”)).

In particular, Wasserman explains,

the nuclear radiation level detector of the present invention comprises an ionization chamber. Included in the ionization chamber are spaced electrodes. The space between the electrodes communicates with the atmosphere so as to expose the electrodes to the atmosphere. A voltage source applies a potential across the electrodes. When the atmosphere is not

contaminated with nuclear radiation above a reference level, the current flow between the electrodes is nil or substantially so. *In the event the atmosphere is contaminated with nuclear radiation above a reference level, a measurable current flows between the electrodes.*

Wasserman, 1:55–66 (emphasis added). Wasserman explains, “[w]hen the nuclear radiation level in the ionization chamber 25 exceeds the reference level of nuclear radiation, the light emitting diode 87 (FIG. 6) *pulses on and off, in the exemplary embodiment, at a rate of once per second.*” *Id.* at 6:33–37 (emphasis added). Thus, the Examiner finds Wasserman teaches or suggests that light may be changed from a constant light to a light visibly varying in time in response to the detection of an unsafe radiation level. Final Act. 6–7.

Appellant contends the Examiner errs for three reasons. Specifically, “Applicant respectfully submits . . . that Ashoff and Wasserman (1) cannot combine to teach the recited switch from constant to variable light in response to a detection and (2) even together do not teach the recited regulatory or safe thresholds.” Appeal Br. 11–12. Third, Appellant contends the Examiner fails to show an adequate reason for a person of ordinary skill in the relevant art to have combined the teachings of Ashoff and Wasserman to achieve the claimed unit. *Id.* at 13. We are not persuaded by Appellant’s reasons.

First, Appellant contends that, unlike the claimed units, Ashoff teaches lights that change from one constant light, a fluorescent lamp on, to a second constant, a light emitting diode (“LED”) on, in response to non-detection of movement. Appeal Br. 12 (citing Ashoff ¶ 34 (“When the detector has ceased to detect motion, after a period of time, the fluorescent

lighting source 112 can be deactivated and the LED lighting source 102 can be [reactivated].”). Appellant contends:

Wasserman teaches a light that changes from one variable state (flashing slower) to another variable state (flashing faster) in response to radiation detection. *See* Wasserman, Col. 5, 11. 49-55 (“When there is no radiation, this diode [87] flashes once every 40 seconds”); Col 6, 11. 26-37 (“When the nuclear radiation level . . . exceeds the threshold . . . diode 87 pulses . . . once per second”).

Id.; *see* Reply Br. 5–6. Thus, Appellant contends neither reference alone nor the combined teachings of the references teach(es) or suggest(s) changing a constant visible light to a varying visible light in response to a signal from a radiation detector. Appeal Br. 12. We disagree.

Initially, Appellant focuses on particular embodiments of Ashoff and Wasserman to limit the teachings of these references. As noted above, Ashoff discloses lights may be “activated, deactivated, dimmed, or brightened.” Ashoff ¶ 69; *see id.* ¶ 48 (“The sensor 408 can detect[] a motion or an occupant. The sensor 408 can send a signal to the microprocessor 410, whereby the relay 404 can switch to position A. Switching the relay to position A can power the components of the fluorescent lighting segment 104, thereby activating (that is, turning on) the fluorescent lamp 112.”). Thus, we do not understand Ashoff to be limited to the narrow embodiment identified by Appellant. *See* Appeal Br. 12 (quoting Ashoff ¶ 34). Therefore, we find Ashoff teaches or suggests that a light may emit a constant visible light and then be dimmed or brightened. Further, we understand dimming and brightening to encompass varying the intensity of visible light *in time*. *See* Ans. 25–26 (“Similarly claim language not having any details about ‘light visibly varying in time’: whether ‘light visibly

varying in time’ means the light is changing/varying its brightness to/from low/high or the light is turning on/off or blinking/flashing at any specified varying/changing rate . . .”).

Although Wasserman discloses an embodiment in which the light flashes, e.g., varies, *faster* when radiation contamination is detected, we do not understand Wasserman to be limited to this embodiment. *See* Ans. 26 (citing Wasserman, 5:49–53). Wasserman also teaches that the light may pulse when a nuclear radiation threshold level is exceeded. *See id.* (citing Wasserman, 6:32–37, 7:15–18). Nevertheless, the Examiner relies on the *combination* of Ashoff and Wasserman to teach this change from constant to varying visible light; here we are persuaded that Ashoff teaches or suggests changing from constant visible light to a varying visible light, and Wasserman teaches or suggests that the varying visible light may be flashing or pulsing. *See* Final Act. 6–7; Ans. 26–27; *see* Spec. ¶ 4 (“The lighting element is adjustable in response to the detector detecting radiation, for example, by strobing, changing color, intensifying, etc., to make nearby radiation known to personnel.”).

Second, Appellant contends

[t]he independent claims further require a light variability change upon detecting radiation “exceeding a threshold of a regulatory or safe ionizing radiation level.” By the plain language of this phrase, the change cannot occur at any threshold, such as background radiation level or a zero-radiation level, but rather one that is a regulatory level or a safe level. . . . This reference level could be entirely safe and not forbidden by any regulation; Wasserman does not specify anything further.

Appeal Br. 14; *see* Reply Br. 6–7. Nevertheless, the Examiner finds, “the Wasserman system providing alarm or varying light in response to radiation level exceeding a threshold or reference, *which is exceeding atmosphere*

contamination with nuclear radiation above reference level.” Ans. 27; *see* Wasserman, 1:55–66 (quoted above). We understand that an atmosphere “contaminated” with nuclear radiation would encompass an atmosphere exceeding a safe ionizing radiation level. *See In re Preda*, 401 F.2d 825, 826 (CCPA 1968) (“in considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom”); *see also, e.g.*, Longman ¶ 22, claim 10 (“alert the user through the interface in response to the intensity and confidence levels meeting a certain combination of intensity and confidence levels that indicate to the user a potentially dangerous concentration of radioactive material”).⁴ Thus, we are persuaded Wasserman teaches or suggests changing a constant to a varying visible light “in response to ionizing radiation detected by the ionizing radiation detector exceeding a threshold of a . . . safe ionizing radiation level.”

Third, Appellant contends,

[w]here the Examiner cites Wasserman’s teaching of “economical and reliable” applications in its “column 1” (Final OA, p. 7), this does not support the recited change from constant to variable lighting at a radiation trigger, nor does it account for what the reference “fairly suggests to one of ordinary skill in the art.”

⁴ The cited prior art is representative of the level of ordinary skill in the art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (“[T]he absence of specific findings on the level of skill in the art does not give rise to reversible error ‘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)).

Appeal Br. 13. Nevertheless, the Specification makes clear that reliable detection of ionizing radiation exceeding regulatory or safe levels and reliable warning of persons at risk of exposure to such ionizing radiation are problems addressed by the claimed units. *See* Spec. ¶ 16. As the U.S. Supreme Court has instructed, “[u]nder the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007). Thus, we are persuaded the Examiner has shown an adequate reason for a person of ordinary skill in the art to have combined the teachings of Ashoff and Wasserman to achieve the units, as recited in claim 1.

Moreover, as noted above, the Examiner further states that a person of ordinary skill in the art would have had reason to substitute Wasserman’s pulsing light for Ashoff’s dimming or brightening light because such a substitution is merely of one known element for another to obtain predictable results. Final Act. 7; *see KSR*, 550 U.S. at 416 (“The Court recognized that when a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.”). Here, the Examiner finds that Wasserman’s pulsing light is a “reliable” alternative to Ashoff’s dimming or brightening. Final Act. 7; Ans. 27. Thus, we are persuaded the Examiner has shown an adequate reason for one of ordinary skill in the relevant art to combine the teachings of Ashoff and Wasserman to achieve the units, as recited in claim 1.

We are not persuaded the Examiner errs in finding that claim 1, as well as claims 10 and 18, is obvious over the combined teachings of Ashoff

and Wasserman. Further, Appellant does not challenge the rejection of the dependent claims 2, 7, and 17 separately, and, on this record, we also are not persuaded the Examiner errs in finding that claims 2, 7, and 17 are obvious over the combined teachings of Ashoff and Wasserman. *See* Appeal Br. 2. Consequently, we sustain the obviousness rejection of claims 1, 2, 7, 10, 17, and 18.

C. Obviousness of Claims 3–6, 8, 9, 11–16, and 19 Over Ashoff and Wasserman in Combination with Longman, Lys, Pederson, and/or Cagdaser

As noted above, the Examiner rejects claims 3–6, 8, 9, 11–16, and 19 under 35 U.S.C. § 103 as obvious over the combined teachings of Ashoff and Wasserman in combination with one or more of Longman, Lys, Pederson, and Cagdaser. Final Act. 8–17. Appellant does not argue these dependent claims separately, and, instead, relies solely on its challenges to the rejection of their base claims, claims 1, 10, and 18, to show Examiner error in these rejections. *See* Appeal Br. 2. On this record and for the reasons give above, we are not persuaded the Examiner errs in finding that independent claims 1, 10, and 18 are obvious over the combined teachings of Ashoff and Wasserman. Consequently, we are not persuaded that the Examiner errs in rejecting claims 3–6, 8, 9, 11–16, and 19, and we sustain the obviousness rejections thereof.

D. Obviousness of Claim 21 Over Ashoff, Wasserman, and Takeuchi

As noted above, the Examiner also rejects claim 21 under 35 U.S.C. § 103(a) as obvious over the combined teachings of Ashoff, Wasserman, and Takeuchi. Final Act. 17–18. As noted above, claim 21 recites, in the unit of claim 1, “the ionizing radiation detector includes an alpha/beta radiation

detector *on an outward-most side of the light* and a gamma radiation detector *on an inward side of the light.*” Appeal Br. 18 (Claims App.). The Examiner acknowledges that Ashoff and Wasserman do not teach or suggest this limitation, but finds Takeuchi teaches or suggests this limitation, and a person of ordinary skill in the relevant art would have had reason to combine the teachings of Ashoff and Wasserman with those of Takeuchi to achieve the units, as recited in claim 21. Final Act. 17–18 (citing Takeuchi ¶ 49).

In particular, Takeuchi discloses,

the radiation measurement apparatus further includes a fourth Geiger-Muller counter tube and a computing unit. In the fourth Geiger-Muller counter tube, one of an *inside* of an enclosing tube and an *outside* of the enclosing tube is covered with a metal film. The metal film shields beta ray. The first Geiger-Muller counter tube and the second Geiger-Muller counter tube are each configured to detect beta ray and gamma ray to be emitted from the sample.

Takeuchi ¶ 49 (emphases added). Thus, the Examiner finds that Takeuchi teaches an outward-most beta radiation detector and an inward-side gamma radiation detector. Final Act. 18–19.

Appellant disagrees and contends Takeuchi only teaches various radiation detectors positioned with regard *to each other*. Appeal Br. 16 (citing Takeuchi, Figs. 1–5B, ¶ 6). Although Takeuchi discloses displaying unit 150, which the Examiner appears to equate to the recited light, Takeuchi does not disclose the positioning of the detectors with respect to the displaying unit. *Id.* Thus, Appellant contends, “Takeuchi, while teaching multiple radiation detectors of differing type, fails to teach or suggest anything about the positioning of these detectors with regard to a lighting element.” *Id.*

In the Answer, the Examiner responds that Takeuchi’s Figure 6

shows the first detector 710a is *located outward side of the enclosure main body 770* and with reference to other elements including processor and display, whereas the detector 710c that is covered with casing 190 for gamma radiation detection is *located on inward of body and with reference to other elements including processor and display*.

Ans. 28–29 (emphases added). Thus, the Examiner finds that Takeuchi teaches or suggests the additional limitations of claim 21. We disagree.

Takeuchi's Figure 6 is reproduced below.

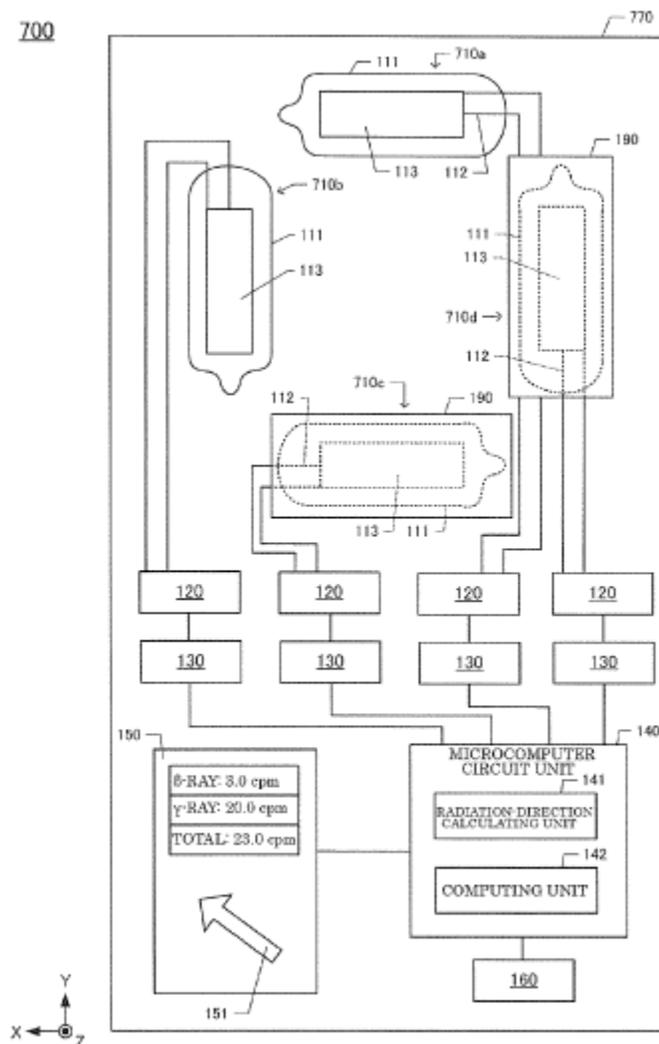


FIG. 6

Figure 6, reproduced above, is a schematic configuration diagram of a radiation measurement apparatus 700. Takeuchi ¶ 16. Takeuchi discloses that detectors 710a and 710c are oriented along the X-axis at the +X and -X positions, respectively; and detectors 710b and 710d are oriented along the Y-axis at the -Y and +Y positions, respectively.⁵ *Id.* ¶ 41. Further, Takeuchi discloses that detectors 710a and 710b may be alpha/beta radiation detectors, and detectors 710b and 710d, enclosed in casings 190, may be gamma radiation detectors. *Id.* ¶ 43. Nevertheless, even if the schematic diagram depicted in Takeuchi's Figure 6 shows that a gamma radiation detector (i.e., detector 710c) may be located inward within main body 770 from an alpha/beta radiation detector (i.e., detector 710a), the Examiner fails to show how this figure and/or the related descriptive paragraphs teach(es) or suggest(s) the positional relationship of each detector 710a and 710c to a light, as recited in claim 21. *See* Reply Br. 8.

For the reasons given above, we agree with Appellant that the Examiner errs in finding that Ashoff, Wasserman, and Takeuchi teach or suggest the units, as recited in claim 21. Thus, we do not sustain the obviousness rejection of claim 21.

DECISION

1. The Examiner does not err in rejecting:
 - a. claim 21 under 35 U.S.C. § 112(a) as lacking adequate written description;

⁵ We note that the X/Y/Z axis depicted at the lower left corner of Takeuchi's Figure 6 is not consistent with the description in Takeuchi's Paragraph 41.

- b. claims 1, 2, 7, 10, 17, and 18 under 35 U.S.C. § 103 as obvious over the combined teachings of Ashoff and Wasserman;
 - c. claims 3 and 4 under 35 U.S.C. § 103 as obvious over the combined teachings of Ashoff, Wasserman, and Longman;
 - d. claim 5 under 35 U.S.C. § 103 as obvious over the combined teachings of Ashoff, Wasserman, and Lys;
 - e. claims 6 and 8 under 35 U.S.C. § 103 as obvious over the combined teachings of Ashoff, Wasserman, and Pederson;
 - f. claim 9 under 35 U.S.C. § 103 as obvious over the combined teachings of Ashoff, Wasserman, Pederson, and Cagdaser;
 - g. claims 11, 12, 16, and 19 under 35 U.S.C. § 103 as obvious over the combined teachings of Ashoff, Wasserman, and Cagdaser; and
 - h. claims 13–15 under 35 U.S.C. § 103 as obvious over the combined teachings of Ashoff, Wasserman, Cagdaser, and Longman.
2. The Examiner errs in rejecting claim 21 under 35 U.S.C. § 103, as obvious over the combined teachings of Ashoff, Wasserman, and Takeuchi.
3. Thus, on this record, claims 1–19 and 21 are not patentable.

CONCLUSION

Because we affirm at least one of the Examiner's rejections for each of claims 1–19 and 21, we affirm the Examiner's decision rejecting claims 1–19 and 21.

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
21	112(a)	Written Description	21	
1, 2, 7, 10, 17, 18	103	Ashoff, Wasserman	1, 2, 7, 10, 17, 18	
3, 4	103	Ashoff, Wasserman, Longman	3, 4	
5	103	Ashoff, Wasserman, Lys	5	
6, 8	103	Ashoff, Wasserman, Pederson	6, 8	
9	103	Ashoff, Wasserman, Pederson, Cagdaser	9	
11, 12, 16, 19	103	Ashoff, Wasserman, Cagdaser	11, 12, 16, 19	
13–15	103	Ashoff, Wasserman, Cagdaser, Longman	13–15	
21	103	Ashoff, Wasserman, Takeuchi		21
Overall Outcome			1–19, 21	

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

AFFIRMED