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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/914,871	06/11/2013	Shih-Ming Wang	TSM10-1122D1	2940

43859 7590 01/02/2020

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ART UNIT	PAPER NUMBER
1777	

NOTIFICATION DATE	DELIVERY MODE
01/02/2020	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SHIH-MING WANG and WEN-CHENG CHOU

Appeal 2019–002409
Application 13/914,871
Technology Center 1700

Before BEVERLY A. FRANKLIN, KAREN M. HASTINGS, and N. WHITNEY WILSON, Administrative Patent Judges.

FRANKLIN, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant appeals from the Examiner's final decision to reject claims 1, 2, and 5–22.[1] We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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[1] We use the word Appellant to refer to "applicant" as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Taiwan Semiconductor Manufacturing Company. Appeal Br. 2

CLAIMED SUBJECT MATTER

Claim 1 is illustrative of Appellant's subject matter on appeal and is set forth below:

> 1. A chemical mechanical polishing (CMP) slurry concentration unit comprising:
>
> a filter with a filter inlet, a concentrated outlet, and a permeate outlet, the filter having a first flow of operation from the filter inlet to the permeate outlet, the filter configured to receive dilute CMP slurry or CMP slurry concentrate through the filter inlet, discharge CMP slurry concentrate from the concentrated outlet, and discharge waste permeate from the permeate outlet in the first flow of operation; a waste tank consisting of:
>
> a housing;
>
> a waste tank inlet in the housing;
>
> a first waste tank outlet in the housing, the first waste tank outlet different than the waste tank inlet; and
>
> a second waste tank outlet in the housing, the second waste tank outlet being different than the waste tank inlet, and the second waste tank outlet being different than the first waste tank outlet;
>
> a first line connected to the waste tank inlet, wherein the first line is configured to provide waste permeate from the filter through the permeate outlet to the waste tank through the waste tank inlet;
>
> a second line connected to the first waste tank outlet, wherein the second line is configured to provide waste permeate from the waste tank through the first waste tank outlet to the filter through the permeate outlet, the second line different than the first line, the second line connected to the first line; and

a third line connected to the second waste tank outlet, the third line different than the first line and different than the second line;

wherein the waste tank is configured to:

in the first flow of operation, discharge waste permeate from the filter through the first line into the waster tank;

in a second flow of operation, discharge waste permeate from the waste tank through the second line into the filter; and

in a third flow of operation, discharge waste permeate through the third line to a waste water treatment facility;

a valve on the first line interposed between the waste tank and the permeate outlet, the valve configured to be open in the first flow of operation, the valve configured to be closed in the second flow of operation, wherein the second line is connected to the first line between the valve and the permeate outlet; and

a pressure differential switch connected to both the permeate outlet and the filter inlet, the pressure differential switch operative to switch from the first flow of operation to the second flow operation when a differential pressure is greater than 0.8 bar.

REFERENCES

The prior art relied upon by the Examiner pertinent to the issues in this instant appeal is:

Name	Reference(s)/Basis	Date
Knibbs	US 4,219,421	August 26, 1980
Russ	US 6,165,048	December 26, 2000
Osuda	US 2004/0069878	April 15, 2004
Umezawa	US 2004/0262209 A1	December 30, 2004
Hammer	US 6,436,281 B2	August 20, 2002
Smith	US 2007/0138092 A1	June 21, 2007
Bonnelye	US 2007/0187326 A1	August 16, 2007
Suty	US 2009/0066316 A1	March 12, 2009

SDWF Safe Drinking Water Formulation, *ULTRAFILTRATION, NANOFILTRATION AND REVERSE OSMOSIS*, www.safewater.org, last visited December 2019 (hereinafter "SDWF").

REJECTIONS

1. Claims 1, 2, and 6 are rejected under pre-AIA 35 U.S.C. §103(a) as being unpatentable over Osuda in view of Russ, Hammer, Smith, and Bonnelye. Final Act. 2–7.

2. Claim 5 is rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Osuda, Russ, Hammer, Smith, and Bonnelye, and by SDWF. Final Act. 7–8.

3. Claim 7 is rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Osuda, Russ, Hammer, Smith, and Bonnelye, as applied to the claims above, and further in view of Suty. Final Act. 8–9.

4. Claims 8–11, 13, 15–18, and 20 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Osuda in view of Russ, Hammer, Knibbs, Smith, and Bonnelye. Final Act. 9–20.

5. Claims 12, 19, 21, and 22 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Osuda, Russ, Hammer, Knibbs, Smith, and Bonnelye, as applied to the claims above, and further as evidenced by SDWF. Final Act. 20–21.

6. Claim 14 is rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Osuda, Russ, Hammer, Knibbs, Smith, and Bonnelye, as applied to the claims above, and further in view of Umezawa. Final Act. 21.

OPINION

Our Decision addresses the claims separately to the extent they are argued by Appellant. *See* 37 C.F.R. § 41.37(c)(1)(iv). We select claims 1, 8 and 15 as representative.

Having considered the respective positions advanced by the Examiner and Appellant in light of this appeal record, we affirm the Examiner's rejections based on the fact finding and reasoning set forth in the Answer (mailed Nov. 27, 2018, hereinafter "Ans.") and the Final Office Action (mailed February 21, 2018, hereinafter "Final Act."), which we adopt as our own. We highlight and address specific findings and arguments below.

Rejection 1 involves the combination of Osuda in view of Russ, Hammer, Smith, and Bonnelye. The other rejections also involve this combination of references (in addition to other references applied). Appellant does not specifically mention the additional references applied in the other rejections. Hence, our determination made with regard to Rejection 1 is dispositive for the other rejections.

Rejection 1

We refer to pages 3–8 of the Answer regarding the Examiner's statement of Rejection 1.

Appellant first argues that the applied art does not suggest the claimed pressure threshold of 0.8 bar (this limitation is found in each of independent claims 1, 8, and 15). We refer to Appellant's arguments on this issue made on pages 11–12 of the Appeal Brief (filed Aug. 20, 2018, hereinafter "Appeal Br.") and on pages 1–2 of the Reply Brief (filed Jan. 28, 2019, hereinafter "Reply Br.").

We refer to the Examiner's response made on pages 22–24 of the Answer. Therein, the Examiner makes the point that:

> [b]ecause the structure and programming of the automated controller of the prior art combination is capable of automatically altering valve configurations to adjust the flow through the CMP filtration system in response to a measured differential pressure value, the structure of the prior art combination is capable of "switch[ing] from the first flow of operation to the second flow of operation when a differential pressure is greater than 0.8 bar." Likewise, the structure of the prior art combination is capable of having a defined threshold differential pressure value. Therefore, the prior art meets the claim limitations. One in the art can set the threshold differential pressure for the sensors of modified Osuda to any desired value to trigger a switch in the flow of operation. The actual structure of the pressure differential switch necessary to be capable of the recited functional language is not dependent on the particular differential pressure value.

Ans. 24.

It is noted that in the Reply Brief, Appellant does not dispute the Examiner's position that one can set the threshold differential pressure of a sensor to a desired value to trigger a switch in the flow operation. Ans. 24;

see also Reply Br. 1–2. Appellant argues that the claims do no recite a pressure differential that "is capable of" having a threshold value of greater than 0.8 bar, but recite a switch that has such a threshold value. Reply Br. 2. This argument overlooks the position taken by the Examiner that setting a desired threshold value in a switch that is capable of doing so is within the purview of the skilled artisan and therefore obvious.[2] Appellant has not convincingly argued how the switch in the applied art cannot be set at a pressure differential greater than 0.8 bars. We thus are unpersuaded by this line of argument by Appellant.

Appellant next argues that the proposed modification to Osuda would result in an impermissible change in function. Appeal Br. 12–14. Appellant argues that the modification would remove Osuda's function of a "strong rejection" of permeate achieved by a high-pressure gas purge. We are unpersuaded by this line of argument for the reasons provided by the Examiner on pages 24–25 of the Answer, which we adopt as our own, and note that Appellant does not dispute the position taken therein, in the Reply Brief (we note that a factual finding not shown by the Appellant to be erroneous may be accepted as fact. *See In re Kunzmann*, 326 F.2d 424, 425 n.3 (CCPA 1964)).

Next, Appellant argues that that the Examiner's interpretation of the recycle output that is "operationally connected" to the first input is unreasonably broad as it is an interpretation that is inconsistent with

[2] The Examiner does not ignore the limitation of a pressure differential greater than 0.8 bars by taking the position that it is capable of doing so. Rather, the Examiner's position is that it is within the purview of the artisan to select a desired value in a switch capable of doing so to trigger a switch in the flow operation. Ans. 24.

Appellant's Specification. Appeal Br. 14–18; *see also* Reply Br. 4–9. We are unpersuaded by this line of argument for the reasons provided by the Examiner on pages 25–29 of the Answer. Appellant desires an interpretation of this phrase such that its meaning is limited to "during an operation, the material output of the recycle output flows to and is the same as the material that flows into the first input." Reply Br. 6. However, as the Examiner points out, the only place in the Specification that this phrase is mentioned is in paragraph 52. Appellant refers to Figure 2 of the Specification in an effort to define the meaning of this term, but as the Examiner explains on page 26 of the Answer, that Appellant does not explain how the embodiment in paragraph 52 relates to Figure 2. We thus are unpersuaded by this line of argument.

In view of the above, we affirm Rejections 1–6.

CONCLUSION

We affirm the Examiner's decision.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 2, 6	103(a)	Osuda Russ, Hammer, Smith, and Bonnelye	1, 2, 6	
5	103(a)	Osuda Russ, Hammer, Smith, Bonnelye, SDWF	5	
7	103(a)	Osuda Russ, Hammer, Smith, and Bonnelye, Suty	7	
8–11, 13, 15–18, 20	103(a)	Osuda Russ, Hammer, Smith, Bonnelye, Knibbs	8–11, 13, 15–18, 20	
12, 19, 21, 22	103(a)	Osuda Russ, Hammer, Smith, Bonnelye, Knibbs, SDWF	12, 19, 21, 22	
14	103(a)	Osuda, Russ, Hammer, Smith, Bonnelye, Knibbs, Umezawa	14	
Overall Outcome	103(a)		1, 2, 5–22	

TIME PERIOD FOR RESPONSE

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