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THE WEBB LAW FIRM, P.C.
ONE GATEWAY CENTER
420 FT. DUQUESNE BLVD, SUITE 1200
PITTSBURGH, PA 15222

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HIDETAKA SAWADA
and YUKIHITO KONDOH

Appeal 2016-003179
Application 12/564,277
Technology Center 2800

Before LINDA M. GAUDETTE, GEORGE C. BEST, and DEBRA L. DENNETT, *Administrative Patent Judges*.

BEST, *Administrative Patent Judge*.

DECISION ON APPEAL

The Examiner finally rejected claims 1–6 of Application 12/564,277 under 35 U.S.C. § 103(a) as obvious; claims 3 and 6 under 35 U.S.C § 112, ¶ 1 as failing to comply with the written description requirement, and claims 3 and 6 under 35 U.S.C § 102(b) as anticipated. Final Act. (February 6, 2015). Appellants[1] seek reversal of these rejections pursuant to 35 U.S.C. § 134(a). We have jurisdiction under 35 U.S.C. § 6.

For the reasons set forth below, we ***reverse***.

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[1] JEOL Ltd. is identified as the real party in interest. Appeal Br. 2.

BACKGROUND

The '277 Application describes an aberration corrector and a charged-particle beam system. Spec. ¶ 1. The claimed aberration corrector functions to correct spherical aberration and 6-fold astigmatism in a charged-particle beam. *Id.* Such charged-particle beams are used in devices like transmission electron microscopes. *Id.* ¶ 2.

Claim 3 is representative of the '277 Application's claims and is reproduced below from the Claims Appendix to the Appeal Brief:

> 3. An aberration corrector for a charged-particle beam, comprising:
>
> two stages of electric dodecapole elements, each of the dodecapole elements having first through twelfth poles arranged in this numerical order;
>
> *wherein the (4*s + *1)th poles are all electrically connected in a first circuit (where s = 0, 1, 2);*
>
> *wherein the (4*s + *2)th poles are all electrically connected in a second circuit;*
>
> *wherein the (4*s + *3)th poles are all electrically connected in a third circuit;*
>
> *wherein the (4*s + *4)th poles are all electrically connected in a fourth circuit;*
>
> wherein the first and fourth circuits connected *to opposite outputs of a first reversible bipolar power supply produce electric fields which are identical in absolute value but opposite in polarity*, and
>
> wherein the second and third circuits connected *to opposite outputs of a second reversible bipolar power supply produce electric fields which are identical in absolute value but opposite in polarity*,
>
> whereby selection of the polarities of the first and second reversible bipolar power supplies enables multipole elements to produce electric fields of 3-fold symmetry in two orientations

> 60 degrees apart or multipole elements to produce electric fields of 6-fold symmetry in two orientations 30 degrees apart.

Appeal Br. 17–18 (emphasis added).

REJECTIONS

On appeal, the Examiner maintains[2] the following rejections:

1. Claims 3 and 6 are rejected under 35 U.S.C. § 102(b) as anticipated by Matsuya.[3] Final Act. 4.
2. Claims 1, 3, 4, and 6 are rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Matsuya and Kawai.[4] Final Act. 6.
3. Claims 2 and 5 are rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Matsuya, Kawai, and Nakano.[5] Final Act. 7.

DISCUSSION

Rejection 1. Appellants argue for reversal of this rejection on the basis of limitations found in independent claim 3. Appeal Br. 10–11. Because Appellants do not present separate argument with respect to dependent claim 6, claim 6 will stand or fall with claim 3. 37 C.F.R. § 41.37(c)(1)(iv).

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[2] The Examiner has withdrawn the rejection of claims 3 and 6 for lack of written description support. Answer 2.

[3] US 2004/0227099 A1, published November 18, 2004.

[4] US 2005/0029466 A1, published February 10, 2005.

[5] US 2007/0181806 A1, published August 9, 2007.

In rejecting claim 3, the Examiner found that Matsuya describes the claimed first and second reversible bipolar power supplies and first, second, third, and fourth circuits. Final Act. 5 (citing Matsuya Figures 1, 7(A), 7(B), 8; Tables 4, 6).

Appellants argue that this rejection should be reversed because the Examiner erred in finding that Matsuya describes every limitation in claim 3. Appeal Br. 10–11. In particular, Appellants argue that Matsuya does not describe the claimed first reversible bipolar power supply and second reversible bipolar power supply. *Id.* Appellants also argue that the Examiner erred by finding that Matsuya describes the claimed first, second, third, and fourth circuits recited in claim 3. *Id.* at 11.

For the following reasons, we are persuaded that the Examiner erred by finding that claim 3 is anticipated by Matsuya.

First, the Examiner has not adequately explained which components of Matsuya's apparatus comprise the claimed first and second reversible bipolar power supplies. In rejecting claim 3 as anticipated by Matsuya, the Examiner determined that the claim term "reversible bipolar power supply" is sufficiently broad to encompass a power supply capable of supplying both positive and negative voltages to the pole in question. Answer 2. Based upon this claim construction, the Examiner found that the combination of the power sources and summing amplifiers shown in, for example, Matsuya's Figure 3 comprise a reversible bipolar power supply. *Id.*; *see also* Final Act. 5.

Applying the reasoning provided by the Examiner, we determine that, properly understood, the apparatus shown in Matsuya's Figure 3 could be found to describe a single power supply which is connected to and separately powers each of the poles in the dodecapole array. *See* Matsuya

¶ 64. In the alternative, each of the summing amplifiers A_1 through A_{12} could be found to constitute a reversible bipolar power supply. *See* Matsuya Fig. 3. In this approach, each of the power supplies 11–14 and 21–24 shown in Matsuya's Figure 2 would, for the purpose of the rejection, be regarded as comprising a set of 12 reversible bipolar power supplies, each of which is connected to a single pole in the dodecapole array. *See* Matsuya Figs. 2, 3; ¶¶ 64–68. Due to the lack of specificity in the Examiner's findings, we are unable to determine which of these two theories the Examiner is using to reject claim 3. The rejection, therefore, is reversible because the Examiner has not adequately explained its basis.

Second, we determine that the Examiner has not properly identified how Matsuya describes the first, second, third, and fourth circuits recited in claim 3. In rejecting claim 3, the Examiner found that each of the 12 poles in the array is connected to the supply portion of a single power supply. Final Act.5. Thus, the Examiner reasoned, each of the poles is electrically interconnected. *Id.* Based upon these findings, the Examiner further found that Matsuya describes the claimed first, second, third, and fourth circuits:

> wherein the (4s + 1)th poles are all electrically connected (where s= 0, 1, or 2) in a first circuit (Figure 7a, part from power supply to U_1, U_5, U_9 or in Figure 7b, W_1, W_5, W_9 create a circuit);
>
> wherein the (4s + 2)th poles are all electrically connected in a second circuit (as above, creating a circuit for poles 2,6,10, within the entirety of the power supply and control system circuit);
>
> wherein the (4s + 3)th poles are all electrically connected in a third circuit (as above, for 3,7,11);
>
> wherein the (4s + 4)th poles are all electrically connected (Figure 1, power supplies 11 and 21 and [57], all electric poles

> are attached to the power supply of the electric pole power supply) in a fourth circuit (above, for 4,8,12);

Id.

As the above quoted portion of the Final Action makes clear, the Examiner's findings are based upon the assumption that the claimed first, second, third, and fourth circuits must exist within "the entirety of the power supply and control system circuit" because each of the poles in the multipole array is connected to the same power supply. Final Act. 5. Such an assumption is not appropriate within the context of an anticipation rejection.

We, therefore, reverse the Examiner's rejection of claims 3 and 6 as anticipated by Matsuya.

Rejection 2. The Examiner rejected claims 1, 3, 4, and 6 as unpatentable over the combination of Matsuya and Kawai. Final Act. 6–7. We address the rejection of independent claims 1 and 3 separately.

Claim 1. We reverse the rejection of claims 1 and 4 as obvious over the combination of Matsuya and Kawai. As discussed above, Matsuya does not teach the claimed first and second reversible power supplies. The Examiner does not find that Kawai remedies this failure. Furthermore, as Appellants explain, the Examiner's proposed combination of Matsuya and Kawai would eliminate the functions and features of Matsuya:

> The objectives of the Matsuya reference require independently variable power supplies (A_1 to A_{12}). To connect the poles (U_1 to U_{12}) in series would eliminate the ability to independently vary the current or voltage to each pole. This is the main feature of the Matsuya invention.
>
> The summing amplifiers A_1 to A_{12} (as shown in Fig. 3 of Matsuya) are individually and respectively connected to poles (say, U_1 to U_{12}). The power sources 31_1 to 31_{12} feed the summing amplifiers A_1 to A_{12} so that the different superimposed fields can be created. (See paragraphs [0067]

> and [0068].) If the summing amplifiers are not individually and respectively connected to the poles, the ability of the Matsuya system to change the combination of deflecting fields (normal dipole . . . skew dodecapole) would be defeated.

Br. 13.

We, therefore, reverse the rejection of claims 1 and 4.

Claim 3. Although the Examiner's summary statement of this ground of rejection states the claims 3 and 6 are rejected as unpatentable over the combination of Matsuya and Kawai, the body of the rejection contains no discussion or analysis pertaining to either of these claims. Even if we were to assume that the Examiner intended to have the factual findings made with respect to Matsuya in Rejection 1 used as the starting point for the rejection of claims 3 and 6, the Examiner has provided no discussion of the applicability of Kawai to either of these claims. Nor has the Examiner provided any discussion of the differences between the prior art and these claims or an explanation of why such differences, if any, would have been obvious to a person of ordinary skill in the art at the time of the invention. We, therefore, cannot ascertain the Examiner's basis for the rejection of these claims.

Furthermore, the Examiner has not provided any findings of fact with respect to Kawai that cure the deficiencies in the rejection of claims 3 and 6 as anticipated by Matsuya. Accordingly, the Examiner has not adequately explained how the combination of Matsuya and Kawai establish a prima facie case of obviousness.

For the reasons set forth above, we reverse the rejection of claims 1, 3, 4, and 6 as unpatentable over the combination of Matsuya and Kawai.

Rejection 3. Appellants argue that the rejection of claims 2 and 5 as unpatentable over the combination of Matsuya, Kawai, and Nakano should

be reversed for the same reasons that the rejection of parent independent claims 1 and 3, respectively, should be reversed. Appeal Br. 14.

As discussed above, we have reversed the rejection of claims 1 and 3. Thus, we also reverse the rejection of claims 2 and 5.

CONCLUSION

For the reasons set forth above, we reverse the rejection of claims 3 and 6 as anticipated by Matsuya. We also reverse the § 103(a) rejections of claims 1–6.

REVERSED