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KACVINSKY DAISAK BLUNI PLLC
C/O CPA Global
900 2nd Avenue South, Suite 600
MINNEAPOLIS, MN 55402

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TORRES, JUAN A

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte XINTIAN E. LIN and QINGHUA LI

Appeal 2015-007035
Application 13/648,603
Technology Center 2600

Before LARRY J. HUME, CATHERINE SHIANG, and
STEVEN M. AMUNDSON, *Administrative Patent Judges*.

SHIANG, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1–30, which are all the claims pending and rejected in the application. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

STATEMENT OF THE CASE

Introduction

The present invention relates to communication systems. *See generally* Spec. 1. Claim 1 is exemplary:

1. An apparatus, comprising:
a processor circuit arranged to select a precoding matrix for a transmitter of a remote device based on channel conditions of a communication channel for a closed-loop multiple-input and multiple-output (MIMO) orthogonal frequency-division multiple access (OFDMA) system, the precoding matrix constructed by a transform applied to one or more vectors by the processor circuit, and the transmitter of the remote device capable of utilizing multiple transmitter antennae (Nt) and multiple spatial channels (Ns).

References and Rejections¹

Claims 1–30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over AAPA (Applicant Admitted Prior Art: Background Section of the Specification), IEEE 802.16 (IEEE Std. 802.16-2004, *IEEE Standard for Local and metropolitan area networks, Part 16: Air Interface for Fixed Broadband Wireless Access Systems*), Tong (US 2008/0108310 A1, May 8, 2008), and Giaimo (US 2004/0090924 A1, May 13, 2004).

Alternatively, claims 1–30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over AAPA, IEEE 802.16, Ansari (Mehdi Ansari et al., *Unified MIMO Pre-Coding based on Givens Rotation*, IEEE C802.16e-04/516 (Nov. 4, 2004)), and Giaimo.

Alternatively, claims 1–30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over AAPA, IEEE 802.16, Roh (June Chul Roh &

¹ The Examiner withdrew an obviousness-type double patenting rejection. Ans. 27.

Bhaskar D. Rao, *Channel Feedback Quantization Methods for MISO and MIMO Systems*, 15th IEEE Int'l Symposium on Personal, Indoor and Mobile Radio Communications, PIMRC 2004, Vol. 2, 805–809 (Sept. 5–8, 2004)), and Giaimo.

ANALYSIS

We disagree with Appellants' arguments, and agree with and adopt the Examiner's findings and conclusions in (i) the action from which this appeal is taken and (ii) the Answer, to the extent they are consistent with our analysis below.²

Claims 1–12

On this record, and by a preponderance of evidence, the Examiner did not err in rejecting claim 1.

First, Appellants contend the Examiner fails to explain what constitutes the cited AAPA. *See* App. Br. 11. The Examiner explains “as indicated in the previous Office action, the AAPA are in the specification page 1 line 15 to page 2 line 12.” Ans. 28. Appellants do not dispute that explanation.

Second, Appellants contend the cited references fail to teach “a *closed-loop multiple-input and multiple-output (MIMO) orthogonal frequency-division multiple access (OFDMA) system*,” as recited in claim 1 (emphasis added). *See* App. Br. 12–13. In particular, Appellants argue “the Wikipedia MIMO reference (‘Wikipedia-MIMO’) is not available as prior

² To the extent Appellants advance new arguments in the Reply Brief without showing good cause, Appellants have waived such arguments. *See* 37 C.F.R. § 41.41(b)(2).

art,” “the cited portions of 802.16-2004 also fail to disclose a closed-loop MIMO OFDMA system,” and “although these portions of 802.16-2004 pertain to various features related to MIMO, they are silent with respect to closed-loop MIMO.” App. Br. 12–13.

Appellants have not persuaded us of error. In response to Appellants’ arguments, the Examiner provides further findings showing AAPA teaches “a closed-loop multiple-input and multiple-output (MIMO)” system. *See* Ans. 28; AAPA ¶ 3 (“[c]losed loop multiple-input-multiple-output (MIMO) systems”). Therefore, Appellants’ argument that 802.16-2004 does not teach a closed-loop MIMO is unpersuasive of error. Further, Appellants’ argument about Wikipedia is moot, because the Examiner’s further findings do not cite Wikipedia.

Third, Appellants generally assert the identified references fail to teach “a processor circuit arranged to select a precoding matrix for a transmitter of a remote device based on channel conditions of a communication channel for a closed-loop multiple-input and multiple-output (MIMO) orthogonal frequency-division multiple access (OFDMA) system” or “OFDMA,” as recited in claim 1. *See* App. Br. 12–13.

Appellants’ general assertion is unpersuasive of error. *See* 37 C.F.R. § 41.37(c)(1)(iv) (“A statement which merely points out what a claim recites will not be considered an argument for separate patentability of the claim.”); *see also In re Lovin*, 652 F.3d 1349, 1357 (Fed. Cir. 2011) (holding that “the Board reasonably interpreted Rule 41.37 to require more substantive arguments in an appeal brief than a mere recitation of the claim elements and a naked assertion that the corresponding elements were not found in the prior art”).

Because Appellants have not persuaded us the Examiner erred, we sustain the Examiner's rejection of claim 1. For similar reasons, we sustain the Examiner's rejection of independent claim 6.

We also sustain the Examiner's rejection of corresponding dependent claims 2–5 and 7–12, which Appellants do not separately argue with substantive contentions.

Claims 13–25

On this record, and by a preponderance of evidence, the Examiner did not err in rejecting claim 13.

First, Appellants contend the Examiner fails to explain what constitutes the cited AAPA. *See* App. Br. 13. As discussed above with respect to claim 1, the Examiner explains “as indicated in the previous Office action, the AAPA are in the specification page 1 line 15 to page 2 line 12.” Ans. 33. Appellants do not dispute that explanation.

Second, Appellants argue the cited references do not teach the limitations recited in claim 13:

selecting, by a processor circuit, a vector from a set of vectors stored by a first device;

selecting one or more columns of a matrix formed from a transform of the selected vector, the selected columns comprising a codeword for a transmitter of a second device; and

sending feedback based on the codeword from the first device to the second device.

See App. Br. 14–15. In particular, Appellants contend “the identified references fail to disclose at least sending feedback based on a codeword comprising one or more selected columns of a matrix formed from a transform of a vector selected from a set of vectors.” App. Br. 14.

Appellants argue:

none of these respective portions of the identified references [Tong, Ansari, and Roh] disclose a matrix that is formed from a transform of a vector selected from a set of vectors and from which one or more columns would be selected to form a codeword based upon which feedback would be sent.

App. Br. 14.

Appellants' arguments are unpersuasive because they are not directed to the Examiner's specific findings, which cite AAPA as the primary reference for the rejection, and rely on Tong (alternatively, Ansari or Roh) as a secondary reference. *See* Final Act. 12–13, 20–21, 28–29; Ans. 35–38. Because the Examiner relies on the combination of AAPA, IEEE 802.16, Tong (alternatively, Ansari or Roh), and Giaimo to teach the disputed claim limitations, Appellants cannot establish nonobviousness by attacking a secondary reference individually. *See In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986).

Because Appellants have not persuaded us the Examiner erred, we sustain the Examiner's rejection of claim 13. For similar reasons, we sustain the Examiner's rejection of independent claim 18.

We also sustain the Examiner's rejection of corresponding dependent claims 14–17 and 19–25, which Appellants do not separately argue with substantive contentions.

Claims 26–30

On this record, and by a preponderance of evidence, the Examiner did not err in rejecting claim 26.

First, Appellants contend the Examiner fails to explain what constitutes the cited AAPA. *See* App. Br. 15. As discussed above with

respect to claim 1, the Examiner explains “as indicated in the previous Office action, the AAPA are in the specification page 1 line 15 to page 2 line 12.” Ans. 40. Appellants do not dispute that explanation.

Second, Appellants argue the cited references do not teach “select a precoding matrix for a transmitter based on a channel condition, the precoding matrix constructed by applying a transform to one or more vectors; select an index for the precoding matrix; and cause transmission of the index for the precoding matrix to a remote device with the transmitter,” as recited in claim 26. *See* App. Br. 16–17. In particular, Appellants contend “the identified references fail to disclose at least causing transmission of an index selected for a precoding matrix constructed by applying a transform to one or more vectors.” App. Br. 16. Appellants argue “none of these respective portions of the identified references [Tong, Ansari, and Roh] disclose selecting an index for a precoding matrix constructed by applying a transform to one or more vectors.” App. Br. 16.

Appellants’ arguments are unpersuasive because they are not directed to the Examiner’s specific findings, which cite AAPA as the primary reference for the rejection, and rely on Tong (alternatively, Ansari or Roh) as a secondary reference. *See* Final Act. 15–16, 23, 31; Ans. 42–45. Because the Examiner relies on the combination of AAPA, IEEE 802.16, Tong (alternatively, Ansari or Roh), and Giaimo to teach the disputed claim limitations, Appellants cannot establish nonobviousness by attacking a secondary reference individually. *See Merck*, 800 F.2d at 1097.

Because Appellants have not persuaded us the Examiner erred, we sustain the Examiner’s rejection of claim 26.

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We also sustain the Examiner's rejection of corresponding dependent claims 27–30, which Appellants do not separately argue with substantive contentions.

DECISION

We affirm the Examiner's decision rejecting claims 1–30.

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