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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HYUNG JOON KIM, MINHUA ZHOU,
AKIRA OSAMOTO, and HIDEO TAMAMA

Appeal 2019-001056
Application 13/548,100
Technology Center 2400

Before JENNIFER S. BISK, BETH Z. SHAW, and
JULIET MITCHELL DIRBA, *Administrative Patent Judges*.

DIRBA, *Administrative Patent Judge*.

DECISION ON APPEAL[1]

Pursuant to 35 U.S.C. § 134(a), Appellant[2] seeks review of the Examiner's rejection of claim 22. We have jurisdiction under 35 U.S.C. § 6(b). We *reverse* the rejection, and enter a *new ground of rejection* under 37 C.F.R. § 41.50(b).

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[1] This Decision uses the following abbreviations: "Spec." for the original Specification, filed July 12, 2012, which claims the benefit of a provisional application; "Final Act." for the Final Office Action, mailed Sept. 25, 2017; "Appeal Br." for Appellant's Appeal Brief, filed May 30, 2018; "Ans." for Examiner's Answer, mailed Sept. 21, 2018; and "Reply Br." for Appellant's Reply Brief, filed Nov. 19, 2018.

[2] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42. According to Appellant, the real party in interest is Texas Instruments Incorporated. Appeal Br. 2.

BACKGROUND

Appellant's disclosed embodiments and claimed invention relate to "fast motion estimation for hierarchical coding structures in video coding." Spec. ¶ 2. Claim 22 is the only claim at issue on appeal, and it recites:

> 22. A method comprising:
>
> refining, with one or more processors, a motion vector selected for a child coding unit (CU) of a parent CU to determine a motion vector for a PU of the parent CU, the parent CU including all pixel values of the child CU.

Appeal Br. 9 (Claims App.).

REJECTION

Claim 22 stands rejected under 35 U.S.C. § 103 as obvious over Song (US 6,208,692 B1, issued March 27, 2001), Sjoberg (US 2012/0140832 A1, published June 7, 2012), and Shi (US 2011/0170596 A1, published July 14, 2011). Final Act. 7, 14.[3]

ANALYSIS

The Examiner's Obviousness Rejection of Claim 22

The Examiner rejected claim 22, finding that: Shi discloses "refining . . . a motion vector selected for a child coding unit (CU) of a parent CU to determine a motion vector for a [partition unit (PU)] of the parent CU," and Song teaches or suggests "the parent CU includ[es] all pixel

[3] The Final Office Action also rejected claims 1–21 and 23 (Final Act. 1, 5–17), but these claims were subsequently canceled by Appellant (*see* Amendment, filed May 30, 2018; Advisory Action, mailed June 26, 2018).

values of the child CU." Final Act. 4 (citing Shi ¶ 63; Song, 6:26–30); *see also id.* at 7, 10, 14; Ans. 15–17.

Appellant argues that the rejection is in error because Song fails to teach or suggest a "parent CU including all pixel values of the child CU," as required by claim 22 (referred to in this Decision as the "disputed limitation"). Appeal Br. 4–5. In particular, Appellant submits that Song derives a "parent pixel value . . . by taking an average of the children pixel values." Appeal Br. 5. As a result, Appellant contends that, in Song, "the children pixel values are specifically omitted from the parent level," and Song uses "the average value of the children pixel values" instead of including a child's values in the parent, as required by the disputed limitation. *Id.*

The Examiner responds that Song generates a single parent pixel value from four children pixel values. Ans. 16–17 (citing Song, Fig. 3, 6:10–15). The Examiner states that this indicates "that all of the children values are used or are included in the parent coding unit." *Id.* at 17. In its reply, Appellant argues that the Examiner fails to explain "how ***generating*** a single [parent] value from multiple [child] values discloses, teaches, or suggests '***including*** all pixel values of the child CU.'" Reply Br. 2.

We are persuaded of error in the Examiner's finding that Song teaches or suggests the disputed limitation. Appellant and the Examiner agree that Song uses four child pixels from an original image to calculate a single parent pixel in a higher level; the child pixels themselves are not included in the higher level. *See* Appeal Br. 5; Ans. 16–17; *see also* Song, 6:1–19 (referring to the calculated pixel as the "parent" and the four input pixel as the "children"). The Examiner appears to have interpreted the disputed

limitation such that "including" encompasses using the child's pixel values to calculate a value for the parent. *See* Ans. 17 (explaining that child's values "are *used or* are *included* in the parent coding unit" (emphases added)). However, such an interpretation is not reasonable.[4] First, the plain language of the disputed limitation requires the parent CU to include the child CU's values, not a value derived therefrom. Second, the Specification consistently describes a parent CU and its children CUs in the context of the hierarchical relationship between them. *E.g.*, Spec., Figs. 4A–4C. The Examiner identifies (and we perceive) no disclosure in Song of a parent CU that includes all pixel values of a child CU. Accordingly, we are persuaded of error in the Examiner's reliance on Song to teach or suggest the disputed limitation.

Consequently, because we find error in the Examiner's reliance on Song for the disputed limitation, we are constrained to reverse the Examiner's rejection of claim 22.

New Ground of Rejection

In the Final Office Action, the Examiner pointed to the disclosure of Sjoberg for a limitation similar to (but narrower than) the disputed

[4] During prosecution, claims must be given their broadest reasonable interpretation when reading claim language in light of the specification as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). Under this standard, we interpret claim terms using "the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification." *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

limitation. *See* Final Act. 8 (rejecting independent claim 1, subsequently canceled) (citing Sjoberg ¶¶ 5, 38). However, the Examiner did not address Sjoberg in the rejection of claim 22. *See generally* Final Act.; Ans.

We find that Sjoberg discloses the disputed limitation. In particular, Sjoberg discloses a parent CU and four child CUs, where the parent CU includes all pixel values of the four child CUs. Sjoberg ¶¶ 5, 37–39. Accordingly, Sjoberg discloses "the parent CU including all pixel values of the child CU," as required by the disputed limitation of claim 22.

Because the Examiner did not rely upon Sjoberg to teach the disputed limitation, we exercise our discretion under 37 C.F.R. § 41.50(b) to enter a new ground of rejection for claim 22. This new rejection relies upon our finding that Sjoberg discloses the disputed limitation (*see* Sjoberg ¶ 5, 37–39), and it incorporates the Examiner's findings and analysis from the Final Office Action and the Answer regarding Shi's disclosure (*see* Final Act. 4, 9–10; Ans. 15–16)[5] and the motivation to combine the cited references (*see* Final Act. 8–10).[6]

Consequently, we enter a new ground of rejection against independent claim 22 under 35 U.S.C. § 103 as unpatentable over Song, Sjoberg, and Shi.

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[5] In response to Appellant's arguments (*see* Appeal Br. 7), the Answer provides additional findings, analysis and explanation in support of the Examiner's finding that Shi discloses "refining . . . a motion vector selected for a child coding unit (CU) of a parent CU to determine a motion vector for a PU of the parent CU." *See* Ans. 15–16 (citing Shi ¶ 63, Figs. 6–8). Appellant does not respond to these findings (*see generally* Reply Br.), and consequently, we are not persuaded of error in them.

[6] In the Appeal Brief, Appellant asserts, without sufficient explanation or support, that "there is not a sufficient rationale to support a combination of references." Appeal Br. 7. This conclusory argument, which fails to address the Examiner's findings or rationale, does not persuade us of error.

CONCLUSION

In summary:

Claim Rejected	35 U.S.C. §	Reference(s)/ Basis	Affirmed	Reversed	New Ground
22	103	Song, Sjoberg, Shi		22	
22	103	Song, Sjoberg, Shi			22

This Decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). Section 41.50(b) provides "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review." Section 41.50(b) also provides:

> When the Board enters such a non-final decision, the appellant, within two months from the date of the decision, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:
>
> (1) *Reopen prosecution*. Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the [E]xaminer, in which event the prosecution will be remanded to the [E]xaminer. The new ground of rejection is binding upon the [E]xaminer unless an amendment or new Evidence not previously of Record is made which, in the opinion of the [E]xaminer, overcomes the new ground of rejection designated in the decision. Should the [E]xaminer reject the claims, appellant may again appeal to the Board pursuant to this subpart.
>
> (2) *Request rehearing*. Request that the proceeding be reheard under § 41.52 by the Board upon the same Record. The request for rehearing must address any new ground of rejection and state with particularity the points believed to have been misapprehended or overlooked in entering the new ground of

> rejection and also state all other grounds upon which rehearing is sought.

Further guidance on responding to a new ground of rejection can be found in the Manual of Patent Examining Procedure § 1214.01 (9th ed. 2018).

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). *See* 37 C.F.R. § 41.50(f).

REVERSED
37 C.F.R. § 41.50(b)