

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NAREN MALAYATH, CHIENCHUNG CHANG, and
SUHAIL JALIL

Appeal 2008-3153
Application 10/176,028
Technology Center 2600

Decided: November 26, 2008

Before JOSEPH F. RUGGIERO, ROBERT E. NAPPI, and ELENI
MANTIS-MERCADER, *Administrative Patent Judges*.

RUGGIERO, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from the Final Rejection of claims 1-8, 10, 12-18, 20, 22, 23, 25, 27-33, 35, 36, 38-45, 48, 49, 51, and 53-65. We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

Appellants' invention relates to video encoding in which a pixel location associated with a video block in a search space is identified based on motion vectors associated with a set of video blocks within a video frame to be encoded. The video blocks in the set are spatially located at defined locations relative to a current video block of the video frame to be encoded. Upon identification of the pixel location, a motion estimation routine is initialized for the current video block at the identified pixel location. (Spec. ¶ 0007).

Claim 1 is illustrative of the invention and reads as follows:

1. A device comprising:
 - an encoder that encodes video frames, wherein the encoder identifies a pixel location associated with a video block in a search space based on calculated motion vectors associated with a set of video blocks within a video frame, the video blocks in the set being located at three or more neighboring locations relative to a current video block of the video frame to be encoded, initializes a motion estimation routine for the current video block at the identified pixel location and encodes the current video block using the motion estimation routine; and
 - a transmitter that transmits the encoded video frames.

The Examiner relies on the following prior art references to show unpatentability:

Thomas	US 4,873,573	Oct. 10, 1989
Jung	US 5,619,281	Apr. 8, 1997
Ando	US 6,594,314 B1	Jul. 15, 2003 (filed Oct. 18, 1999)

Claims 13-17, 20, 22, 23, 27-29, 31-33, 53, and 54 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Ando.

Claims 1-8, 10, 12, 18, 25, 30, 35, 36, 38-45, 48, 49, 51, and 55-65 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ando in view of Jung.¹

Claims 18, 30, and 44 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ando in view of Thomas.

Rather than reiterate the arguments of Appellants and the Examiner, reference is made to the Briefs and Answer for the respective details. Only those arguments actually made by Appellants have been considered in this decision. Arguments which Appellants could have made but chose not to make in the Briefs have not been considered and are deemed to be waived [see 37 C.F.R. § 41.37(c)(1)(vii)].

ISSUES

- (i) Under 35 U.S.C § 102(e), does Ando have a disclosure which anticipates the invention set forth in claims 13-17, 20, 22, 23, 27-29, 31-33, 53, and 54? A pivotal issue before us is whether Ando has a disclosure of encoding a current video block by

¹ The Examiner's statement of the grounds of rejection in the Answer fails to include claims 55-65 in the list of claims included in this rejection. Since these claims were included in the list of claims rejected in the final Office action mailed December 9, 2006, and the Examiner acknowledged (Ans. 2) that Appellants' statement of the status of the claims on appeal which lists these claims (App. Br. 2) was correct, we treat the Examiner's failure to include these claims as an inadvertent error. We also treat the Examiner's inclusion of canceled claims 9, 11, 19, 21, 24, 26, 34, 37, 46, 47, 50, and 52 in the statement of the grounds of rejection as an inadvertent error.

using a motion estimation routine which is initialized at the identified pixel location. A further pivotal issue is whether Ando discloses the beginning of encoding when an identified second pixel location within a defined circle around a first pixel location corresponds to the center of the circle.

- (ii) Under 35 U.S.C § 103(a), with respect to appealed claims 1-8, 10, 12, 18, 25, 30, 35, 36, 38-45, 48, 49, 51, and 55-65, would one of ordinary skill in the art at the time of the invention have found it obvious to combine Ando with Jung to render the claimed invention unpatentable?
- (iii) Under 35 U.S.C § 103(a), with respect to appealed claims 18, 30, and 44, would one of ordinary skill in the art at the time of the invention have also found it obvious to combine Ando with Thomas to render the claimed invention unpatentable?

FINDINGS OF FACT

The relevant facts are:

1. Ando discloses (col. 5, lines 51-64, col. 17, lines 15-40, and col. 18, lines 10-55) the identification of a pixel location in a search space based on motion vectors of a set of video blocks located relative to a current video block.
2. Ando also discloses (Figure 11; col. 13, ll. 51-58) the drawing of circles around a pixel location as part of the establishment of a search space for detecting motion vectors.
3. Jung discloses (Figure 1, col. 4, ll. 34-55) the transmission of encoded video frames at the output of entropy encoder 107.

4. Thomas discloses (col. 5, ll. 10-22) the use of weighted functions in motion vector determination.

PRINCIPLES OF LAW

1. ANTICIPATION

It is axiomatic that anticipation of a claim under § 102 can be found if the prior art reference discloses every element of the claim. *See In re King*, 801 F.2d 1324, 1326 (Fed. Cir. 1986) and *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1458 (Fed. Cir. 1984).

In rejecting claims under 35 U.S.C. § 102, “[a] single prior art reference that discloses, either expressly or inherently, each limitation of a claim invalidates that claim by anticipation.” *Perricone v. Medicis Pharmaceutical Corp.*, 432 F.3d 1368, 1375 (Fed. Cir. 2005) (citing *Minn. Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 1565 (Fed. Cir. 1992)). “Anticipation of a patent claim requires a finding that the claim at issue “reads on” a prior art reference.” *Atlas Powder Co. v. IRECO, Inc.*, 190 F.3d 1342, 1346 (Fed Cir. 1999) (“In other words, if granting patent protection on the disputed claim would allow the patentee to exclude the public from practicing the prior art, then that claim is anticipated, regardless of whether it also covers subject matter not in the prior art.”) (internal citations omitted).

2. OBVIOUSNESS

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of

obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). “[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability.” *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). Furthermore,

“ . . . there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness” . . . [H]owever, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

KSR Int’l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1741 (2007)(quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

ANALYSIS

35 U.S.C. § 102(e) REJECTION

Claims 13-17, 20, 22, 27-29, 31, 32, and 53

With respect to the 35 U.S.C. § 102(e) rejection of independent claims 13, 27, and 53, based on the teachings of Ando, the Examiner indicates (Ans. 4-5) how the various limitations are read on the disclosure of Ando. In particular, the Examiner directs attention to the illustration in Figure 15 of Ando as well as the portions of the disclosure at column 5, lines 51-64, column 17, lines 15-40, and column 18, lines 10-55 of Ando.

Appellants’ arguments in response assert that the Examiner has not shown how each of the claimed features is present in the disclosure of Ando

so as to establish a prima facie case of anticipation. After reviewing the Ando reference in light of the arguments of record, we are in general agreement with Appellants' position as stated in the Briefs.

We would point out, however, that we do not agree with Appellants' initial contention (App. Br. 10-11; Reply Br. 1-3) that the Examiner has improperly relied on three separate and distinct embodiments of the motion vector detection disclosure of Ando to address the requirements of independent claims 13, 27, and 53. Appellants' arguments to the contrary notwithstanding, we find that Ando, at the very least, at column 18, lines 47-55, suggests that the second and third motion vector detection programs are refinements of the motion vector detection program of the first embodiment as argued by the Examiner (Ans. 9-10). We further find no convincing arguments from Appellants that convince us of any error in the Examiner's finding (Ans. 4-5) that Ando's disclosed motion vector detection programs disclose the claimed feature, set forth in each of the independent claims 13, 27, and 53, of the identification of a pixel location in a search space based on motion vectors of a set of video blocks located relative to a current video block.

Despite our agreement with the Examiner that Ando discloses the identification of a pixel location based on a motion vector based search space technique, however, we do agree with Appellants (App. Br. 12-13; Reply Br. 3-4) that Ando provides no disclosure of the encoding of a current video block using a motion estimation routine which is initialized at the identified pixel location as required by each of the independent claims 13, 27, and 53. While we do agree with the Examiner (Ans. 11-12) that Ando's motion vector detection programs are broadly disclosed within the context of

an MPEG encoding environment, we simply find no disclosure in Ando, nor has the Examiner pointed to any, which would satisfies the particular claimed requirement of encoding a current video block by using a motion estimation routine which is initialized at the motion vector based identified pixel location.

In view of the above discussion, since all of the claim limitations are not present in the disclosure of Ando, we do not sustain the Examiner's 35 U.S.C. § 102(e) rejection of appealed independent claims 13, 27, and 53, nor of claims 14-17, 20, 22, 28, 29, 31, and 32 dependent thereon.

Claims 23, 33, and 54

We also do not sustain the Examiner's 35 U.S.C. § 102(e) rejection of independent claims 23, 33, and, 54 based on Ando. These claims add additional video frame encoding features to the previously discussed independent claims 13, 27, and 53 by requiring the identification of a second pixel location within a defined circle around a first pixel location and beginning encoding when the second pixel location corresponds to a center of the circle. While Ando discloses (Figure 11; col. 13, ll. 51-58) the drawing of circles around a pixel location as part of the establishment of a search space for detecting motion vectors, we agree with Appellants (App. Br. 13-18; Reply Br. 3-4) that Ando has no disclosure of the encoding requirements of claims 13, 27, and 53. More particularly, we agree with Appellants that Ando provides no disclosure that satisfies the claimed conditions, i.e., that encoding begins when an identified second pixel location within a defined circle around a first pixel location corresponds to the center of the circle.

35 U.S.C. § 103(a) REJECTIONS

We also do not sustain the Examiner's obviousness rejection of claims 1-8, 10, 12, 18, 25, 30, 35, 36, 38-45, 48, 49, 51, and 55-65 based on the combination of Ando and Jung, nor the obviousness rejection of claims 18, 30, and 44 based on the combination of Ando and Thomas. The Examiner has applied the Jung and Thomas references to Ando to address, *inter alia*, the encoded video frame transmission, MPEG-4, and the weighted function features of the rejected claims. We find nothing in the disclosures of Jung or Thomas, taken individually or collectively, however, which overcome the innate deficiencies of the Ando reference discussed *supra*.

CONCLUSION OF LAW

Based on the findings of facts and analysis above, we conclude that Appellants have shown that the Examiner erred in rejecting claims 13-17, 20, 22, 23, 27-29, 31-33, 53, and 54 for anticipation under 35 U.S.C. § 102(e), and in rejecting claims 1-8, 10, 12, 18, 25, 30, 35, 36, 38-45, 48, 49, 51, and 55-65 for obviousness under 35 U.S.C. § 103(a).

Appeal 2008-3153
Application 10/176,028

DECISION

The Examiner's decision rejecting claims 13-17, 20, 22, 23, 27-29, 31-33, 53, and 54 under 35 U.S.C. § 102(e) and claims 1-8, 10, 12, 18, 25, 30, 35, 36, 38-45, 48, 49, 51, and 55-65 under 35 U.S.C. § 103(a) is reversed.

REVERSED

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