

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 33

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte FARAMARZ AZADEGAN

Appeal No. 2002-1632
Application No. 08/941,785¹

HEARD: MARCH 5, 2003

Before FLEMING, LEVY and SAADAT, Administrative Patent Judges.
SAADAT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the Examiner's final rejection of claims 1, 3-8, 10-37, 39-46, 48-55, 57-62, 64-69, 71, 72 and 74. Claims 2, 9, 38, 47, 56, 63, 70 and 73 have been canceled.

We reverse.

¹ Application for patent filed September 30, 1997, which claims priority benefit under 35 U.S.C. § 119 from provisional Application No. 60/033,426, filed January 24, 1996.

BACKGROUND

Appellant's invention is directed to a method of data compression for coding of video image signals. Data compression is performed by comparing a coding macroblock to at least one other reference macroblock in order to determine a difference and encoding the coding macroblock with the difference (specification, page 7). Thus, greater efficiency in video compression by reducing spatial redundancy may be achieved through macroblock intraframe coding (specification, page 3).

Representative independent claim 1 is reproduced below:

1. A method of data compression for intra-frame coding with an intra-frame, comprising the steps, performed by a processor, of:

receiving a plurality of macroblocks from a single frame;

selecting one of the macroblocks from the frame;

determining a difference between the selected macroblock and at least one other macroblock from the same frame in an adjacent positional relationship to the selected macroblock; and

encoding the selected macroblock based on the difference without reference to any predicted frame to reduce spatial redundancy in the intra-frame coding,

wherein the step of encoding the selected macroblock based on the difference includes the substep of

assigning a difference bit designating that the selected macroblock is encoded with the difference.

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Appellant further points to Figure 5 of Fujii and asserts that actually an interpolation circuit is used for error correction (id.). Further Referring to figures 6 and 7, Appellant points out that Fujii selects two adjacent blocks for intrafield interpolation if an error block is detected (brief, pages 10 & 11 and reply brief, pages 4 & 5). Appellant also indicates that the claims recite coding of image signals by determining a mathematical difference between macroblocks based on the comparison of one macroblock to another (brief, page 13). Additionally, Appellant argues that error flag 102 depicted in Figure 5 of Fujii, as relied on by the Examiner (answer, page 3), merely designates an error and is different from the claimed difference bit that designates whether the coding is based on macroblock intra-frame coding (brief, page 15).

In response to Appellant's arguments, the Examiner asserts that the argued features related to coding are not recited in the claims (answer, pages 4 & 5). The Examiner further relies on element 7 of Fujii (col. 3, lines 45-48 and col. 4, lines 17-22) as an error correction encoding circuit and concludes that the prior art relates to encoding data (answer, page 5). The Examiner also argues that comparison steps S104-S107, shown in Figure 7 of Fujii, are the same as the claimed step of

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determining a difference bit (id.). In particular, the Examiner asserts that "a reference bit (i.e. MODE bit from input 103) designates whether the coding is based on a normal mode (i.e. macroblock intra coding) or interframe coding mode" (answer, pages 5 & 6).

A rejection for anticipation under section 102 requires that the four corners of a single prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation. See Atlas Powder Co. v. Ireco Inc., 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999); In re Paulsen, 30 F.3d 1475, 1478-79, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994).

After a review of Fujii, we agree with Appellant's assertion that the claimed encoding the selected macroblock based on the difference determined between a selected macroblock and an adjacent macroblock and assigning a difference bit, are absent in the reference. Fujii relates to correcting errors of reproduced images and constructing images which cannot be corrected (col. 2, lines 9-16). The encoding circuit relied on by the Examiner (element 7 in Figure 2) is a part of the circuit used for error correction (col. 3, lines 44-50). As depicted in figure 7, if

the input image data is determined to be from an error block (S101) and normal reproduction is not selected (S102), an intrafield interpolation circuit is activated based on the output of an error pattern detection circuit (S103) (col. 5, line 56 through col. 6, line 5). The intrafield interpolation data is formed by using the image data of the blocks adjacent the error block in the order specified in steps S104 through S107 (col. 6, lines 6-32). Therefore, instead of the claimed encoding a selected macroblock based on its difference compared to an adjacent macroblock, Fujii reconstructs an error block by intrafield interpolation based on the data from two adjacent blocks, provided that the adjacent blocks are not error blocks.

We find Appellant's arguments distinguishing the claimed encoding macroblocks based on a difference from an adjacent macroblock over Fujii's reconstruction of an error block from the data contained in adjacent blocks, to be persuasive. As discussed above, what the Examiner characterizes in Fujii as the step of determining a difference is actually the step of forming the intrafield interpolation data by using the image data of two blocks adjacent the error block in order to reconstruct the error block data. Similarly, the Examiner neither points to any specific portion of Fujii for disclosing the difference bit

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designating that the selected macroblock is encoded with the difference, nor do we find the error flag in step S101 of Fujii for indicating that the data belongs to an error block to meet the claimed difference bit. Thus, Fujii does not anticipate claim 1, nor the other independent claims which recite determining a difference between the encoding macroblock and an adjacent one as well as assigning a difference bit. Accordingly, the 35 U.S.C. § 102 rejection of claims 1, 3-8, 10-15, 22-26, 33-37, 39-46, 48-55, 57-62, 64-69, 71, 72 and 74 over Fujii cannot be sustained.

Turning to the 35 U.S.C. § 103 rejection of claims 16-21 and 27-32, we note that each of these dependent claims recites features in addition to those of their base claims 15 and 26. The Examiner, in taking of the Official notice, has not provided sufficient support to overcome the deficiencies of Fujii above with respect to the rejection of base claims 15 and 26, and therefore, has failed to establish a prima facie case of obviousness. Accordingly, the rejection of claims 16-21 and 27-32 under 35 U.S.C. § 103 over Fujii is not sustained.

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CONCLUSION

In view of the foregoing, the decision of the Examiner rejecting claims 1, 3-8, 10-15, 22-26, 33-37, 39-46, 48-55, 57-62, 64-69, 71, 72 and 74 under 35 U.S.C. § 102 and rejecting claims 16-21 and 27-32 under 35 U.S.C. § 103 is reversed.

REVERSED

MICHAEL R. FLEMING)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
STUART S. LEVY)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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MAHSHID D. SAADAT)	
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