

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today
(1) was not written for publication in a law journal and
(2) is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SEONG-HUN KIM

Appeal No. 96-0654
Application 08/103,207¹

HEARD: FEBRUARY 10, 1999

Before BARRETT, FLEMING and DIXON, **Administrative Patent Judges.**

FLEMING, **Administrative Patent Judge.**

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1 through 12. Claims 13 through 15 have been later added by an amendment under 37 CFR § 1.193(b) which have entered into the record. Therefore, claims 1 through 15 are

¹ Application for patent filed August 9, 1993.

properly before us for our consideration.

The invention relates to an imaging apparatus for generating a high definition picture in a video camera by segmenting a received image into N pieces and extending each of the N pieces by interpolation so that a high definition image can be obtained without utilizing a high resolution charged coupled device (CCD) containing a high number of pixels.

The independent claim 1 is reproduced as follows:

1. An apparatus generating a high definition picture in a video camera, said apparatus comprising:

an optical processor for segmenting a received image into N pieces, where N is an integer greater than 1, and extending each of said N pieces N times in a predetermined direction;

an optical convertor for converting each of said N pieces into a respective Nth electrical signal; and

a signal processor receiving each respective Nth electrical signal for interpolating and generating a high definition picture corresponding collectively to said N pieces of said received image.

The Examiner relies on the following references:

Takagi et al. (Takagi)	4,383,170	May 10,
1983		
Toriumi et al. (Toriumi)	4,616,262	Oct.
7, 1986		
Hirahara et al. (Hirahara)	4,692,812	Sep. 8,

Appeal No. 96-0654
Application 08/103,207

1987		
Tanimoto	5,048,926	Sep. 17,
1991		
Kizu et al. (Kizu)	5,282,060	Jan. 25,
1994		

Claims 1 through 15 stand rejected under 35 U.S.C. § 103 as being unpatentable over Takagi. The following is a new ground of rejection which was made in the Examiner's answer. The specification stands objected to under 35 U.S.C. § 112, first paragraph, for failing to provide an adequate written description of the invention. Claims 1, 5, 6, 9, 11 and 12 stand rejected under 35 U.S.C. § 112, first paragraph, for the reason set forth in the objection to the specification.

Claims 1, 5, 6, 9, 11, 12 through 15 stand rejected under 35 U.S.C. § 103 as being unpatentable over Takagi in view of Hirahara. Claims 1, 5, 6, 9, 11, 12 through 15 stand rejected under 35 U.S.C. § 103 as being unpatentable over Takagi in view of Toriumi. Claim 3 stands rejected under 35 U.S.C. § 103 as being unpatentable over Takagi in view of Tanimoto. Claim 4 stands rejected under 35 U.S.C.

§ 103 as being unpatentable over Takagi in view of Kizu.

Appeal No. 96-0654
Application 08/103,207

Rather than reiterate the arguments of Appellant and the Examiner, reference is made to the briefs² and answers³ for the respective details thereof.

OPINION

We will not sustain the rejection of claims 1 through 15 under 35 U.S.C. §§ 112 or 103.

In regard to the rejection under 35 U.S.C. § 112, first paragraph for failing to provide an adequate written description of the invention, the Examiner argues that the specification does not describe any function which is known in the art as inter-polating. The Examiner acknowledges that the specification refers to an interpolating reproduction unit

² Appellant filed an appeal brief on June 5, 1995. We will refer to this appeal brief as simply the brief. Appellants filed a reply appeal brief on October 23, 1995. The Examiner responded to the reply brief with a supplemental Examiner's answer thereby entering and considering the reply brief.

³ The Examiner responded to the brief with an Examiner's answer, mailed August 22, 1995. We will refer to the Examiner's answer as simply the answer. The Examiner responded to the reply brief with supplemental Examiner's answer, mailed February 7, 1996.

Appeal No. 96-0654
Application 08/103,207

which is used to compensate for the time differences of the picture signals stored in memory. The Examiner argues that Appellant's specification fails to describe a procedure, an algorithm or a means for compensating for time differences. The Examiner argues that the specification does not clearly present interpolation as functioning according to the recognized definition of the term.

"The function of the description requirement [of the first paragraph of 35 U.S.C. 112] is to ensure that the inventor had possession, as of the filing date of the application relied on, of the specific subject matter later claimed by him." ***In re Wertheim***, 541 F.2d 257, 262, 191 USPQ 90, 96 (CCPA 1976). "It is not necessary that the application describe the claim limitations exactly, . . . but only so clearly that persons of ordinary skill in the art will recognize from the disclosure that appellants invented processes including those limitations." ***Wertheim***, 541 F.2d at 262, 191 USPQ at 96 ***citing In re Smythe***, 480 F.2d 1376, 1382, 178 USPQ 279, 284 (CCPA 1973). Furthermore, the Federal Circuit points out that "[i]t is not necessary that

Appeal No. 96-0654
Application 08/103,207

the claimed subject matter be described identically, but the disclosure originally filed must convey to those skilled in the art that applicant had invented the subject matter later claimed." ***In re Wilder***, 736 F.2d 1516, 1520, 222 USPQ 369, 372 (Fed. Cir. 1984), ***cert. denied***, 469 U.S. 1209 (1985), *citing*

In re Kaslow, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983).

In the originally filed specification, Appellant describes on page 4 an interpolating reproduction unit 70 as illustrated in Figure 1. Therefore, the description requirement of the first paragraph of 35 U.S.C. § 112 has been met because the specification conveys to persons of ordinary skill in the art that Appellant had possession, as of the filing date of the application relied on, of the specific subject matter later claimed by him.

An inventor is indeed free to define the specific terms used to describe his or her invention, this must be done with reasonable clarity, deliberateness, and precision. ***In re***

Appeal No. 96-0654
Application 08/103,207

Paulsen, 30 F.3d 1475, 1479, 30 USPQ2d 1671, 1674 (Fed. Cir. 1994). Furthermore, we emphasize that the description requirement of the first paragraph of 35 U.S.C. § 112 is to ensure that the inventor had possession, as of the filing date of the application relied on, of the specific subject matter later claimed by him and does not require that terms be used according to their ordinary meaning. Therefore, we will not sustain the Examiner's rejection of claims 1, 5, 6, 9, 11 and 12 under 35 U.S.C. § 112, first paragraph, for being directed to subject matter that has not been described at the time of the filing.

In regard to the rejection under 35 U.S.C. § 103, the Examiner has failed to set forth a **prima facie** case. It is the burden of the Examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the express teachings or suggestions found in the prior art, or by implications contained in such teachings or suggestions. **In re Sernaker**, 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983). "Additionally, when determining

Appeal No. 96-0654
Application 08/103,207

obviousness, the claimed invention should be considered as a whole; there is no legally recognizable 'heart' of the invention." *Para-Ordnance Mfg. v. SGS Importers Int'l*, 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995), **cert. denied**, 117 S.Ct. 80 (1996) **citing** *W. L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983), **cert. denied**, 469 U.S. 851 (1984).

Claims 1 through 15 stand rejected under 35 U.S.C. § 103 as being unpatentable over Takagi. Appellant argues on pages 15-20 of the brief that Takagi fails to teach or to suggest an apparatus generating a high definition picture in a video camera comprising a signal processor receiving each respective Nth electrical signal for interpolating and generating a high definition picture corresponding collectively to N pieces of received image as recited in Appellant's claim 1. Appellant argues that nowhere is it taught or suggested to modify Takagi to provide interpolating between the image signals to generate a high definition video picture. Appellant argues on pages 8-10 of the reply brief that Takagi teaches away from interpolating because Takagi teaches a document scanner for

Appeal No. 96-0654
Application 08/103,207

scanning a non-moving document in which interpolation is
neither required nor desired.

The Federal Circuit states that "[t]he mere fact that the
prior art may be modified in the manner suggested by the
Examiner does not make the modification obvious unless the
prior art

suggested the desirability of the modification." ***In re***
Fritch, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14
(Fed. Cir. 1992), ***citing In re Gordon***, 733 F.2d 900, 902, 221
USPQ 1125, 1127 (Fed. Cir. 1984).

As pointed out by our reviewing court, we must first
determine the scope of the claim. "[T]he name of the game is
the claim." ***In re Hiniker Co.***, 150 F.3d 1362, 1369, 47 USPQ2d
1523, 1529 (Fed. Cir. 1998). Appellant's claim 1 recites an
"apparatus generating a high definition picture in a video
camera, said apparatus comprising: . . . a signal processor
receiving each respective Nth electrical signal for
interpolating and generating a high definition picture
corresponding collectively to said N pieces of said received

image." We note that Appellant does not simply require any function of interpolation but requires that the N electrical signals are interpolated to produce a high definition picture in a video camera. On page 2-3 and 7 of the specification, Appellant discloses that an interpolating reproduction unit 70 is for compensating for the time differences of the first and second images signals to produce a video picture. We note that the time difference is due to the first image taken prior in time to the second image signal and compensation is required to produce a composite video picture. Thus, Appellant's claim language requires that data points are interpolated so that a high definition video picture is produced.

Upon a closer review of Takagi, we agree with Appellant that Takagi teaches a document scanner in which there is no need for interpolation between data to generate a high definition picture. In column 3, lines 5-12, Takagi teaches that Figures 2 and 3 show an image source 11 which is a document illuminated by light. In column 3, lines 12-32, the image source 11 is divided into a plurality of image light components 11A, 11B, 11C and 11D by shutter 14. The shutter

includes four windows 14A, 14B, 14C and 14D which are opened in turn in a predetermined time order so that a component of image light passes through the opened window and focuses on light sensor 12. In column 3, lines 44-49, Takagi discloses that the light sensor 12 can generate four partial image signals corresponding to the four partial image sources 11A, 11B, 11C and 11D which composed into one image signal in a memory not shown. Takagi teaches in column 3, lines 50-60, that the apparatus has four times the resolution of an apparatus which does not have shutter 14 and compound eye lens 14. Takagi further states in column 3, lines 57-60, that "[a]s a result, by use of the method of this embodiment, a light sensor equivalent to a high density light sensor can be obtained by use a low density light sensor." In other words, Takagi teaches that a high resolution is obtained by increasing the resolution of light sensor 12 by sensing only one fourth of the document at a time. Takagi does not teach or suggest the use of interpolation to increase the resolution of the apparatus nor does Takagi recognize any problem of time differences between the when each one fourth of the document is sensed. It is clear that Takagi does not suggest that time

difference is a problem because the document is not moving. Therefore, we fail to find any reason to modify the Takagi teaching as proposed by the Examiner, therefore, we will not sustain the Examiner's rejection of claims 1 through 15 stand rejected under 35 U.S.C. § 103 as being unpatentable over Takagi.

Claims 1, 5, 6, 9, 11, 12 through 15 stand rejected under 35 U.S.C. § 103 as being unpatentable over Takagi in view of Hirahara. Claims 1, 5, 6, 9, 11, 12 through 15 stand rejected under 35 U.S.C. § 103 as being unpatentable over Takagi in view of Toriumi. Claim 3 stands rejected under 35 U.S.C. § 103 as being unpatentable over Takagi in view of Tanimoto. Claim 4 stands rejected under 35 U.S.C. § 103 as being unpatentable over Takagi in view of Kizu. In all of the rejections, the Examiner argues that the reasons to use either Hirahara's interpolation teachings or Toriumi interpolation teachings is to compensate for variations by temporal amplitude variations due to system noise or other variations caused by the time sequential images.

Appellant argues on pages 8-14 of the reply brief that Takagi teaches a document scanner for scanning a non-moving

Appeal No. 96-0654
Application 08/103,207

document in which the entire document is illuminated by the same light source where interpolation to compensate for time differences in neither required nor desired. Appellant further argues that Takagi teaches away from using interpolation to compensate for time differences because Takagi teaches a document scanner that does not introduce these variation that require compensation by interpolation. We agree.

Furthermore, we fail to find that either Hirahara or Toriumi teach interpolation of data points in order to generate a high definition video picture as required by Appellant's claims. In column 3, lines 15-60, Hirahara teaches a picture image reader which weights each picture image information in the overlapped section and then adds the weighted picture image information to produce one picture. In column 2, lines 5-23, Toriumi teaches apparatus for combining an image signal in which the density differences at the interface of the combined images are smoothed.

Neither reference teaches the use of interpolation to generate a high definition composite video picture as required by

Appeal No. 96-0654
Application 08/103,207

Appellant's claims.

The Examiner has failed to show that the prior art suggested the desirability of the Examiner's proposed modification. We are not inclined to dispense with proof by evidence when the proposition at issue is not supported by a teaching in a prior art reference or shown to be common knowledge of unquestionable demonstration. Our reviewing court requires this evidence in order to establish a ***prima facie*** case. ***In re Knapp-Monarch Co.***, 296 F.2d 230, 232, 132 USPQ 6, 8 (CCPA 1961); ***In re Cofer***, 354 F.2d 664, 668, 148 USPQ 268, 271-72 (CCPA 1966). Therefore, we find that the Examiner has failed to establish why one having ordinary skill in the art would have been led to the claimed invention by teachings or suggestions found in the prior art.

Appeal No. 96-0654
Application 08/103,207

We have not sustained the rejection of claims 1 through 15 under 35 U.S.C. § 103, nor have sustained the rejection of claims 1, 5, 6, 9, 11 and 12 under 35 U.S.C. § 112, first paragraph. Accordingly, the Examiner's decision is reversed.

REVERSED

	LEE E. BARRETT)	
	Administrative Patent Judge)	
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)	
	MICHAEL R. FLEMING)	BOARD OF
PATENT	Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
)	
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Appeal No. 96-0654
Application 08/103,207

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