

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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U.S. Patent No.: 6,856,760
Issue Date: February 15, 2005
Appl. Serial No.: 10/191,504
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Title: RECORDING MEDIUM

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PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES

PATENT NO. 6,856,760 PURSUANT TO 35 U.S.C. §§ 311–319,

37 C.F.R. § 42

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EXHIBITS

- LG-1001 U.S. Patent No. 6,856,760 to Masaru Takahashi, et al. (“the ’760 Patent”)
- LG-1002 Excerpts from the Prosecution History of the ’760 Patent (“the Prosecution History”)
- LG-1003 Declaration and Curriculum Vitae of Jim C. Williams
- LG-1004 Complaint, Maxell, Ltd. v. LG Electronics Inc. et al, 5-23-cv-00152, E.D. Tex., filed December 29, 2023
- LG-1005 U.S. Patent No. 6,005,621 to Linzer et al. (“Linzer”)
- LG-1006 U.S. Pat. App. Pub. No. 2002/0131760 to Hirai et al. (“Hirai”)
- LG-1007 U.S. Patent No. 6,288,743 to Lathrop (“Lathrop”)
- LG-1008 U.S. Patent No. 6,028,603 to Wang et al. (“Wang”)
- LG-1009 International Publication No. WO1998057294A1 to Anderson (“Anderson”)
- LG-1010 U.S. Patent No. 5,724,579 to Suzuki (“Suzuki”)
- LG-1011-1019 RESERVED
- LG-1020 “Generic coding of moving pictures and associated audio information: video,” ITU-T, Recommendation H.262, July 1995. (“H.262”)
- LG-1021 Bohoris, “Simulation and optimization of JPEG and motion JPEG.” MSc Telematics (Telecommunications and Computer Engineering), Project report, University of Surrey, UK (1998). (“Bohoris”)
- LG-1022 Czyszczonek, et al., K.W., 1998, June. “Real-time implementation of JPEG encoder/decoder.” In Input/Output and Imaging Technologies (Vol. 3422, pp. 281-292). SPIE. (“Czyszczonek”)
- LG-1023 Fokker, “Functional specification of JPEG decompression, and an implementation for free.” In Programming Paradigms in Graphics: Pro-

ceedings of the Eurographics Workshop in Maastricht, The Netherlands, September 2–3, 1995, pp. 102-117. Vienna: Springer Vienna, 1995. (“Fokker”)

LG-1024 Wallace, 1992. The JPEG still picture compression standard. IEEE transactions on consumer electronics, 38(1), pp.xviii-xxxiv. (“Wallace”)

LG-1025 U.S. Patent No. 5,603,002 to Hashimoto (“Hashimoto”)

LG-1026 – LG-1027 RESERVED

LG-1028 McIntyre, et al., IETF RFC 2301, “File Format for Internet Fax,” March 1998, downloaded from the internet <https://data-tracker.ietf.org/doc/html/rfc2301> on December 29, 2024

LG-1029 (Excerpts) Hansen, “The Dictionary of Computing & Digital Media: Terms & Acronyms,” Franklin, Beedle & Associated, Incorporated, 1999. (“Hansen”)

LG-1030 (Excerpts) Botto, “Dictionary of Multimedia and Internet Applications: A Guide for Developers and Users, Wiley & Sons, 1999. (“Botto”)

LG-1031 *Olympus Corp. v. Maxell, Ltd.*, IPR2018-00905, Paper 9 (PTAB Nov. 19, 2018).

LG-1032 U.S. Patent No. 5,606,379 to Williams (“Williams”)

LG-1033 U.S. Patent No. 6,512,548 to Anderson (“Anderson-548”)

LG-1034 Memorandum, Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (USPTO June 21, 2022) (“Director’s Guidance”)

LG-1035 Federal Court Management Statistics–Profiles (September 30, 2024)

LG-1036 Patent Owner’s Infringement Contentions in *Maxell, Ltd. v. LG Electronics Inc. et al.*

LG-1037 (Excerpts) Freedman, “The Computer Desktop Encyclopedia,” The Computer Language Company Inc., 1996 (“Freedman”)

- LG-1038 (Excerpts) Margolis, “Computer & Internet Dictionary,” Third Edition, Random House, 1999 (“Margolis”)
- LG-1039 U.S. Patent No. 6,920,150 to Pauls, et al. (“Pauls”)
- LG-1040 U.S. Patent No. 7,359,439 to Conover (“Conover”)
- LG-1041 U.S. Patent No. 6,256,348 to Laczko, et al. (“Laczko”)
- LG-1042 (Excerpts) Downing, et al., “Dictionary of Computer and Internet Terms, Sixth Edition,” Barron’s Educational Series, Inc., 1998 (“Downing”)
- LG-1043 IETF RFC 2302, Tag Image File Format (TIFF) - image/tiff MIME Sub-type Registration, March 1998, <https://data-tracker.ietf.org/doc/html/rfc2302>, accessed on January 10, 2024.
- LG-1044 IETF RFC 2306, Tag Image File Format (TIFF) - F Profile for Facsimile, March 1998, <https://datatracker.ietf.org/doc/html/rfc2306>, accessed on January 10, 2025.
- LG-1045 “Adobe Photoshop version 5.0,” Adobe Systems Incorporated, 1998.
- LG-1046 (Excerpts) Kylander, et al., “GIMP: The Official Handbook,” The Coriolis Group, 1999, ISBN 1-57610-520-2.
- LG-1047 U.S. Patent No. 8,972,867 to Pavley, et al. (“Pavley”)
- LG-1048 U.S. Patent No. 7,567,276 to Anderson, et al. (“Anderson ’276”)
- LG-1049 U.S. Patent No. 5,528,293 to Watanabe (“Watanbe”)
- LG-1050 CCITT T.81, “Information Technology – Digital Compression and Coding of Continuous-Tone Still Images – Requirements And Guidelines,” 1993 (“CCITT”)
- LG-1051 T.I.F.F. Revision 6.0, 1992, Aldus Developers Desk (“TIFF 6.0”)
- LG-1052 (Excerpts) Pennebaker, et al., 1992. “JPEG: Still image data compression standard.” Springer Science & Business Media. (“Pennebaker”)
- LG-1053 Inside Macintosh, “Imaging With QuickDraw,” 1994, available at <https://developer.apple.com/library/archive/documentation/mac/pdf/ImagingWithQuickDraw.pdf>.

- LG-1054 Dr. Dobb's, "The BMP File Format, Part 1," March 1, 1995.
- LG-1055 Rec. ITU-R BT.601-5 (1995), "Studio Encoding Parameters Of Digital Television For Standard 4:3 And Wide-screen 16:9 Aspect Ratios."
- LG-1056 Rec. ITU-R BT.709-3 (1998), "Parameter Values For The HDTV Standards For Production and International Programme Exchange."
- LG-1057 Declaration of June Ann Munford
- LG-1058 U.S. Patent No. 5,614,952 to Boyce, et al. ("Boyce")

LISTING OF CLAIMS

Claim 1	
[1.1]	A machine-readable recording medium comprising:
[1.2.1]	a first still picture recorded thereon encoded by a first encoding methods,
[1.2.2]	wherein the first still picture having descriptive information associated therewith to allow a machine to recognize and decode the first still picture for display;
[1.3.1]	a second still picture recorded thereon encoded by a second encoding method,
[1.3.2]	wherein the second still picture having descriptive information associated therewith to allow the machine to recognize and decode the second still picture for display,
[1.3.3]	wherein the second encoding method is different from the first encoding method; and
[1.4.1]	a picture recorded thereon corresponding to said first and second still pictures, which has a smaller number of pixels than said first and second still pictures,
[1.4.2]	wherein the picture having descriptive information associated therewith to allow the machine to recognize and decode the picture for display,
[1.5]	wherein said first still picture, said second still picture and said picture are related pictures derived from common signal data.
Claim 2	
[2]	A recording medium in accordance with claim 1, wherein said first still picture is encoded by the MPEG standard as the first encoding method, and said second still picture is encoded by the JPEG standard as the second encoding method.

Claim 3	
[3]	A recording medium in accordance with claim 1, wherein said first encoding method is according to a first encoding standard and said second encoding method is according to a second encoding standard.
Claim 4	
[4.1]	A video reproducing method, comprising:
[4.2.1]	reproducing at least a first still picture, a second still picture and a picture from a recording medium,
[4.2.2]	wherein said first still picture is encoded by a first encoding method, said second still picture is encoded by a second encoding method different from the first encoding method, and
[4.2.3]	said picture corresponds to said first and second still pictures and has a smaller number of pixels than said first and second still pictures, and
[4.2.4]	wherein said first still picture, said second still picture and said picture are related pictures derived from common signal data;
[4.3]	outputting a plurality of pictures from the reproducing operation; and
[4.4]	outputting said first still picture corresponding to a selected picture.
Claim 5	
[5]	A video reproducing method in accordance with claim 4, wherein said first encoding method is the MPEG standard and said second encoding method is the JPEG standard.
Claim 6	
[6]	A video reproducing method in accordance with claim 4, wherein said first encoding method is according to a first encoding standard and said second encoding method is according to a second encoding standard.
Claim 7	
[7.1]	A video reproducing method, comprising:

[7.2.1]	reproducing at least a first still picture, a second still picture and a picture recorded on a recording medium,
[7.2.2]	wherein said first still picture is encoded by a first encoding method, said second still picture is encoded by a second encoding method different from the first encoding method, and
[7.2.3]	said picture corresponds to said first and second still pictures and has a smaller number of pixels than said first and second still pictures, and
[7.2.4]	wherein said first still picture, said second still picture and said picture are related pictures derived from common signal data;
[7.3]	displaying a plurality of pictures from the reproducing operation; and
[7.4]	displaying said first still picture corresponding to a selected picture.
Claim 8	
[8]	A video reproducing method in accordance with claim 7, wherein said first encoding method is the MPEG standard and said second encoding method is the JPEG standard.
Claim 9	
[9]	A video reproducing method in accordance with claim 7, wherein said first encoding method is according to a first encoding standard and said second encoding method is according to a second encoding standard.

LG Electronics Inc. and LG Electronics U.S.A., Inc. (“**Petitioners**” or collectively “**LG**”) petition for *Inter Partes* Review (“**IPR**”) of claims 1-9 (“**the Challenged Claims**”) of U.S. Patent No. 6,856,760 (“**the ’760 Patent**”). Compelling evidence presented in this Petition demonstrates at least a reasonable likelihood that LG will prevail with respect to at least one of the Challenged Claims.

I. REQUIREMENTS FOR IPR

A. Grounds for Standing

Petitioners certify that the ’760 Patent is available for IPR. This petition is being filed within one year of service of a complaint against LG. LG is not barred or estopped from requesting review of the Challenged Claims on the below-identified grounds.

B. Challenge and Relief Requested

LG requests an IPR of the Challenged Claims on the grounds noted below.

Jim Williams provides supporting testimony in his Declaration. LG-1003, ¶¶1-379

Ground	Claim(s)	§§102/103
1	1-9	Linzer-Hirai
2A	1, 3	Lathrop
2B	4, 6-7, 9	Lathrop-Wang
3	4, 6-7, 9	Anderson
4	1, 3-4, 6-7, 9	Suzuki

The '760 Patent claims priority to other applications, the earliest of which was filed July 5, 1999 ("Critical Date"). LG-1001, Cover. Each reference forming the Grounds pre-dates the '760 Patent's earliest proclaimed priority date (Critical Date), which Petitioners do not concede.

Reference	Filing or Priority Date	Publication Date	Prior Art Status
Linzer	December 23, 1996	December 21, 1999	§102(e)
Hirai	November 10, 1998	September 19, 2002	§102(e)
Lathrop	October 20, 1997	September 11, 2001	§102(e)
Wang	October 24, 1997	February 22, 2000	§102(e)
Anderson	June 10, 1997	December 17, 1998	§§102(a),(e)
Suzuki	March 6, 1995	March 3, 1998	§§102(a),(b),(e)

C. Claim Construction

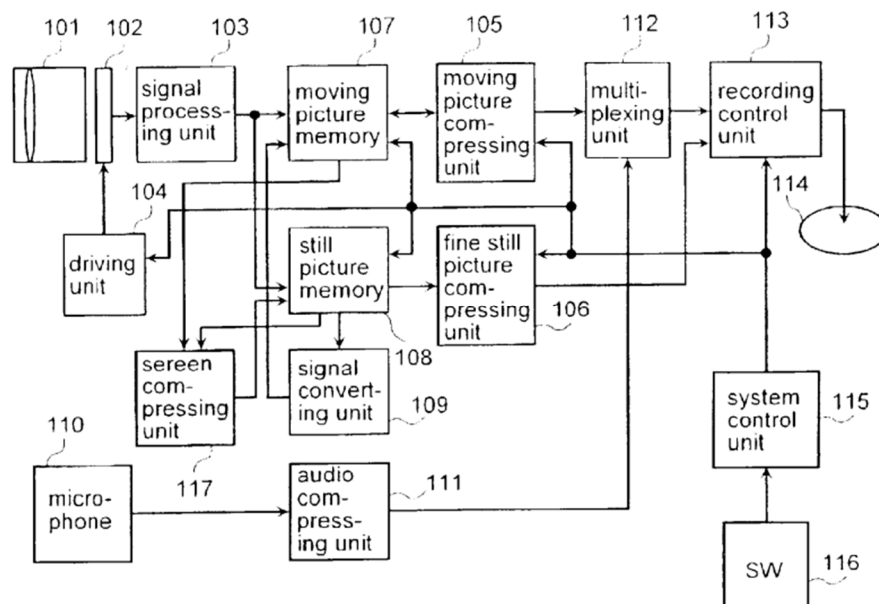
Petitioners submit that no formal claim constructions are necessary because "claim terms need only be construed to the extent necessary to resolve the controversy." *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011); LG-1003, ¶24. Petitioners reserve the right to respond to any constructions Patent Owner offers or the Board adopts. Petitioners are not conceding that each challenged claim satisfies all statutory requirements, nor waiving arguments/grounds that cannot be raised in this proceeding. Petitioners apply prior art

consistent with Patent Owner's allegations of infringement before the district court.

II. THE '760 PATENT

A. Brief Description

The '760 Patent describes a digital camera that records still images using two different recording methods and records thumbnail images for use when searching images on a display device. LG-1001, 8:31-9:12, 9:33-50. Figure 3 of the '760 Patent is reproduced below:



LG-1001, FIG. 3.

Figure 3 is a block diagram of a camera that includes moving picture compressing unit 105 for compressing video signals using a moving picture encoding standard such as MPEG. *Id.*, 5:41-43, 8:42-45. The camera also includes fine still

picture compressing unit 106 for compressing video signals using a fine still picture encoding standard such as JPEG. *Id.*, 8:45-48.

B. Prosecution History

During prosecution, Applicant added to claim 1, for each of first picture, second picture, and picture, the modifier “having descriptive information associated therewith to allow a machine to recognize and decode the ... picture for display.” LG-1002, 36. Applicant stated that “[i]t was well within the purview of those skilled in the art to be able to implement some type of descriptive information (e.g., *header, filename extension, etc.*) associated with the respective pictures so as to allow the machine to recognize and decode the pictures.” LG-1002, 43 (emphasis added). Examiner subsequently allowed the claims as amended. LG-1002, 24. However, Examiner did not have the benefit of the prior art cited in this Petition. *See generally* LG-1002.

Further, during prosecution, the Examiner took official notice “that it is well known to generate moving with MPEG and corresponding stills and further to generate other images with corresponding images with JPEG, therefore *it would have been obvious to one skilled in the art at the time of the invention to incorporate JPEG for the stills and MPEG for moving and corresponding still images.*” (emphasis added). LG-1002, 83.

III. THE CHALLENGED CLAIMS ARE UNPATENTABLE

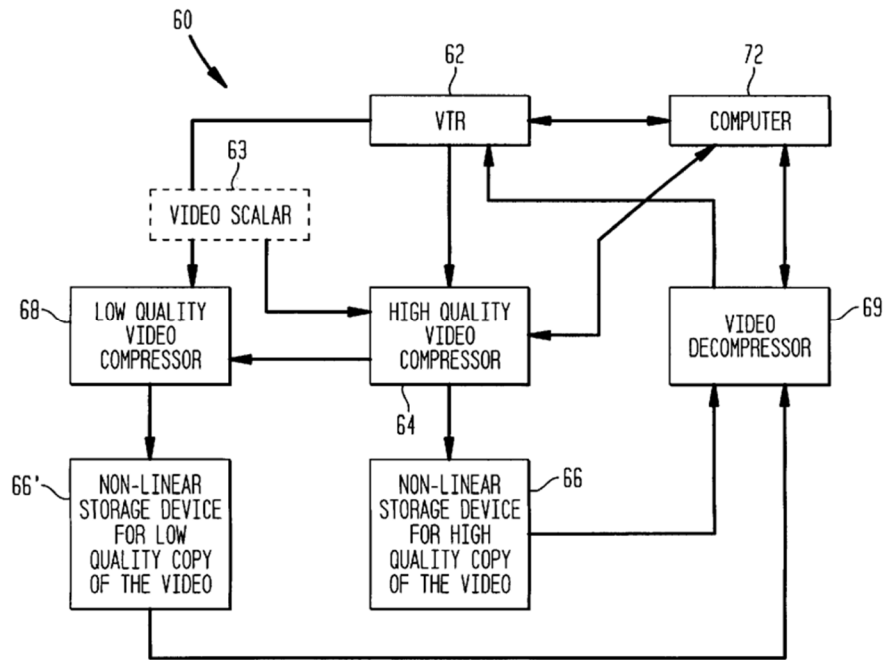
A. GROUND 1 – Linzer-Hirai Renders Obvious Claims 1-9

1. Linzer

Linzer describes “compressing multiple resolution versions of a video signal.” LG-1005, Abstract. Linzer explains that a “multiple resolution video compression system [is] particularly well-suited for use in applications such as ‘non-linear’ video editors.” LG-1005, 1:38-40, 5:47-50.

Linzer’s “FIG. 6 shows a non-linear video editing system 60.” LG-1005, 8:1. A video source “outputs an original video signal to a first video compressor 64 and a second video compressor 68.” LG-1005, 8:3-5. The “first video compressor 64 produces a high quality compressed video bitstream and the second video compressor 68 produces a low quality compressed video bitstream.” LG-1005, 8:5-8. The first and second video compressors can “receive the same version of the input video signal,” as illustrated in FIG. 6, reproduced below. LG-1005, 8:42-43, FIG. 6.

FIG. 6



LG-1005, FIG. 6.

The “first video compressor encodes the first resolution version of the video signal to generate a first compressed video bit stream in accordance with MPEG-2.” LG-1005, 4:20-22, claim 10. The second video compressor “produces a lower quality compressed video signal.” LG-1005, 8:44-52.

The high and low quality compressed versions of the video signal are preferably stored in the same “non-linear storage device.” LG-1005, 8:62-9:1. Further, Linzer’s system includes a computer “for viewing and editing video signals and a decompressor 69 for decompressing the low and high quality compressed video signals.” LG-1005, 9:1-3.

Linzer’s invention relies on both video streams produced from the linear

video source. LG-1005, 9:14-46; LG-1003, ¶60. Linzer explains that “the *low quality compressed video signal* is easier to store, retrieve, decompress and manipulate (perform edit operations on) than the high quality compressed video signal.” LG-1005, 9:29-35. Further, “the operator can easily preview several complex transitions on the *low quality compressed video signal* to determine which produces the best results.” LG-1005, 10:13-15. Once satisfied with the result, the “operator selects a desired complex transition and performs such a transition on the *high quality compressed video signal*.” LG-1005, 10:20-22. Based on this disclosure, a person of ordinary skill in the art (“POSITA”)¹ would have understood that both types of compression are occurring for an incoming video signal. LG-1003, ¶¶55-60.

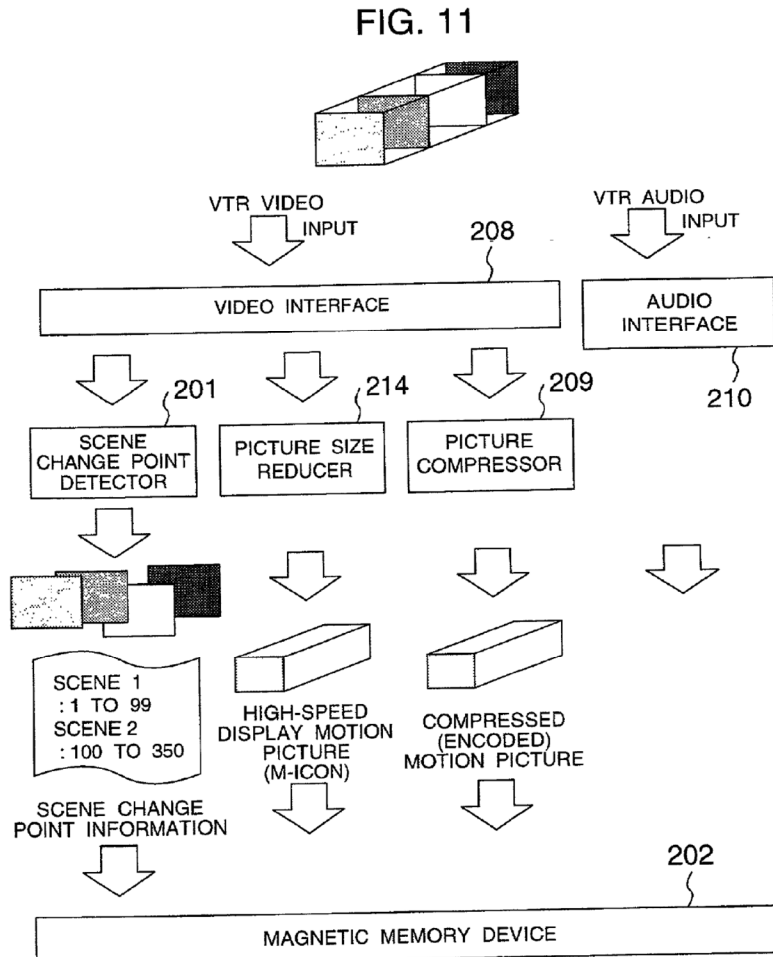
2. Hirai

Hirai describes a non-linear “moving picture editing apparatus for use in production of such a moving picture program.” LG-1006, [0001], [0003], FIG. 2. With Hirai’s invention, “since editing can be realized on a scene or cut (or clip) basis, story making can be facilitated.” LG-1006, [0011].

In FIG. 11, Hirai shows a video tape recorder that “reproduces a series of

¹ LG-1003, ¶22 (defining a “POSITA”). Positions in the Petition and LG-1003 are from the vantage point of a POSITA as of the Critical Date.

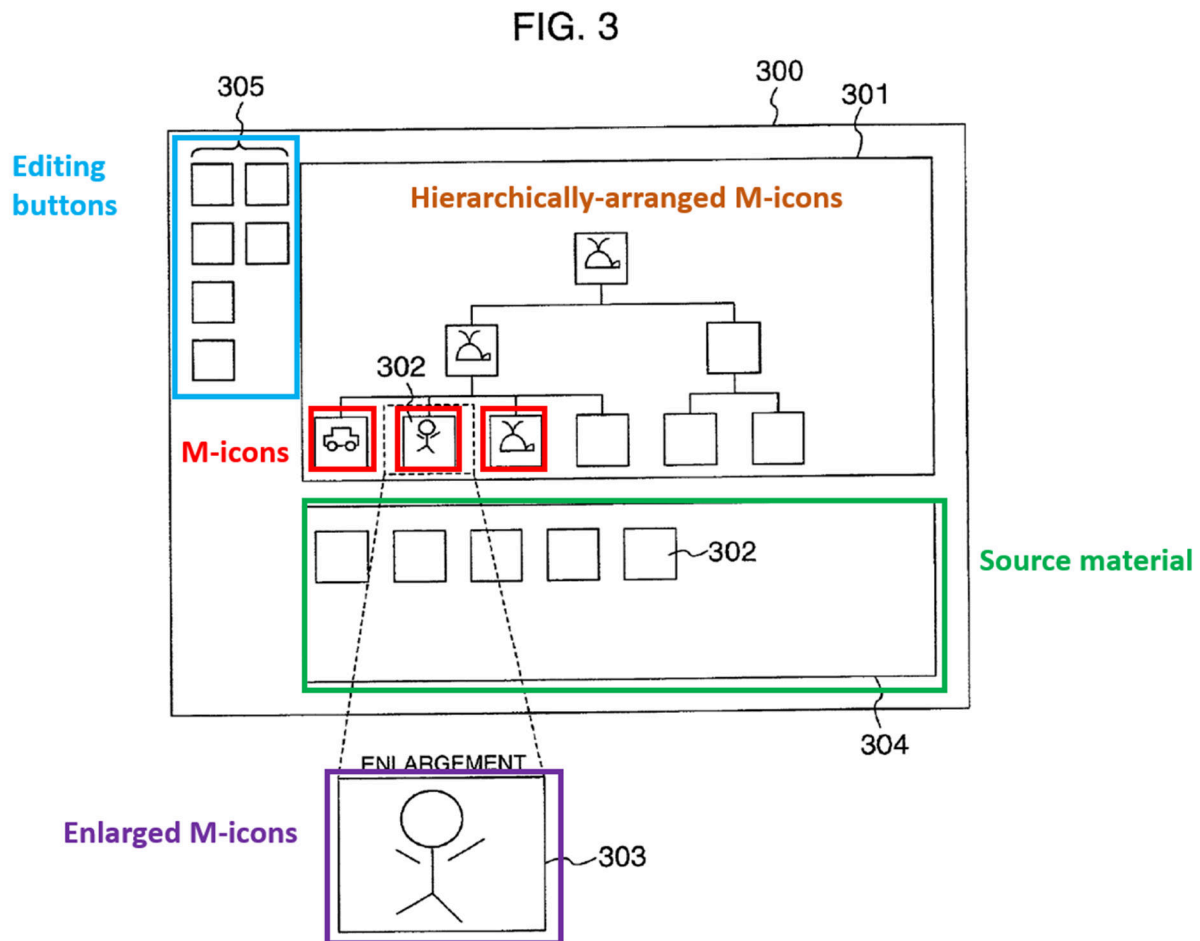
moving picture information containing plurality of scenes, sends moving picture in the reproduced information to the video interface,” which “converts the received moving picture information to information having a format processable by the moving picture editing apparatus.” LG-1006, [0006]. The picture compressor “compresses digital data of the reproduced moving pictures, e.g., based on [MPEG or JPEG]” and a “magnetic memory device 202 stores therein the received video information.” LG-1006, [0006].



LG-1006, FIG. 11.

A “picture size reducer 214 generates a reduced moving picture (M-icon) by thinning out data of each frame into video or moving picture data of 80×60 pixels on the basis of an analysis result of the scene change point detector 201.” LG-1006, [0006]. An M-icon is “a miniature image (for example, of 80×60 pixels)” stored in “magnetic memory device.” LG-1006, [0060].

Hirai’s “FIG. 3 shows an example of the editing display screen displayed on the monitor.” LG-1006, [0009].

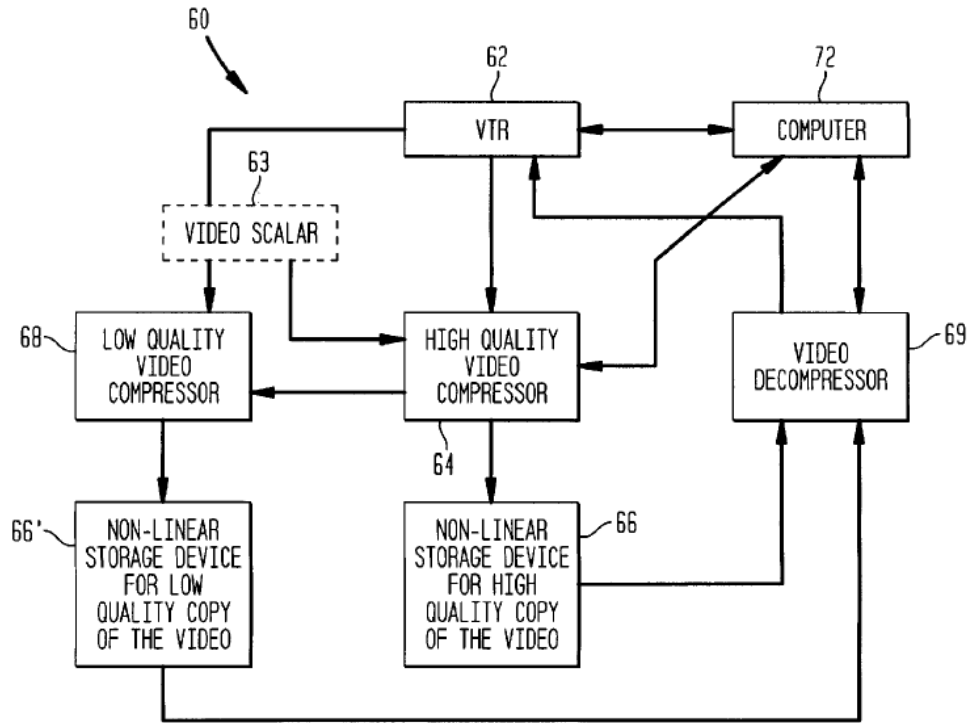


LG-1006, FIG. 3 (annotated)

Hirai explains that a user organizes M-icons, which each represent a scene, to generate a single video comprising the scenes. LG-1006, [0009], [0061]; LG-1003, ¶¶61-66.

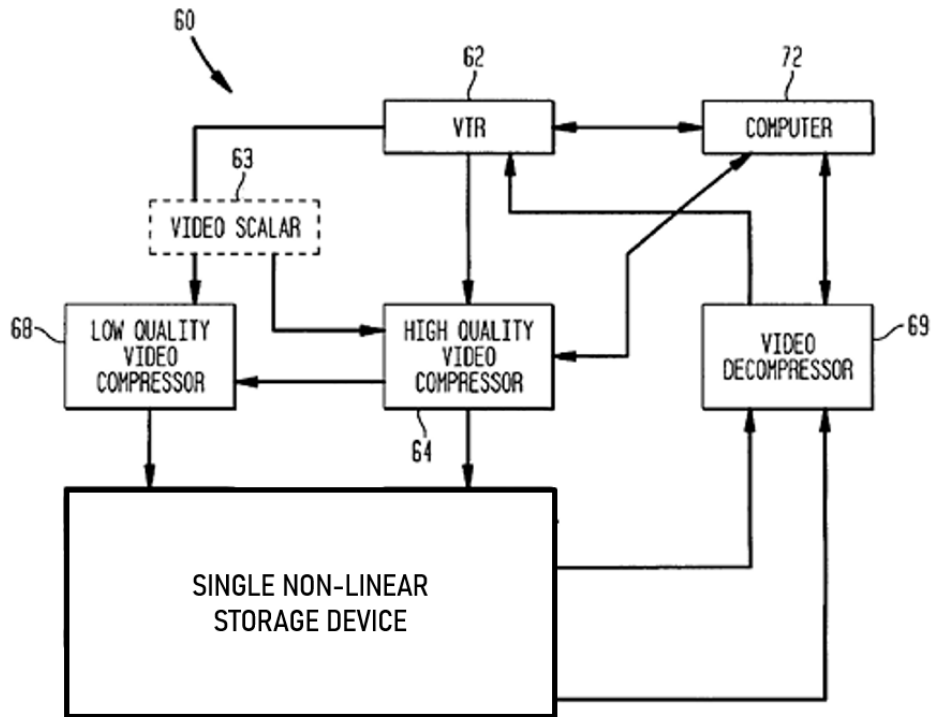
3. Combination

Linzer describes a “method for compressing multiple resolution versions” of “the same version of [an] input signal,” including a “first video compressor 64 [that] produces a high quality compressed video bitstream and [a] second video compressor 68 [that] produces a low quality compressed video bitstream.” LG-1005, Abstract, 8:3-8, 8:42-43, FIG. 6. Linzer explains it can be implemented with a computer “embodied as ... a general purpose work station” with “discrete integrated circuits” or “a single integrated circuit” for compression and decompression and a storage device(s) for storing compressed data, illustrated in Figure 6 below. LG-1005, 8:59-9:10.



LG-1005, FIG. 6.

Linzer further explains that a non-linear storage device can be “a magnetic disk,” and “preferably,” the first and second non-linear storage devices “are a single non-linear storage device,” illustrated below in modified Figure 6. LG-1005, 1:19-20, 8:66-9:1.



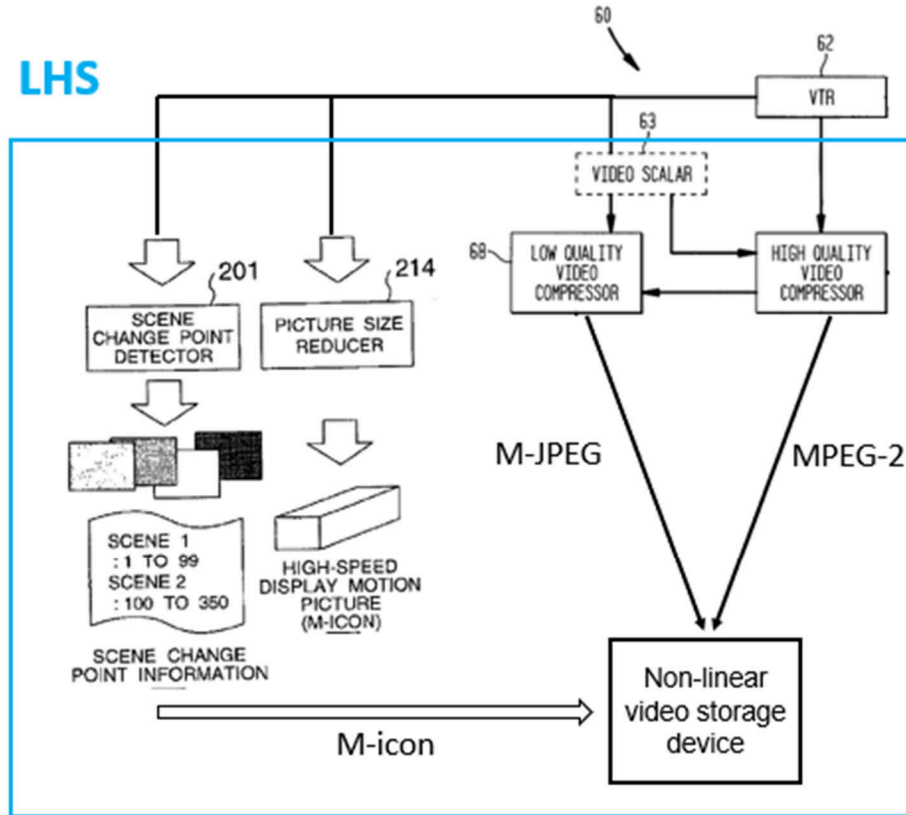
LG-1005, FIG. 6 (modified).

Linzer's "apparatus and method may be used in a non-linear video editor."

LG-1005, Abstract. A POSITA would have understood that a non-linear editor is a "moving picture editing apparatus for storing source material video pictures in an inexpensive hard disk which is easy to handle and save for editing of source material video pictures." LG-1006, [0002]; LG-1003, ¶¶67-69.

However, Linzer is silent regarding implementation details of a non-linear video editor, so a POSITA would have naturally looked to references, such as Hirai, which provide such implementation details for a non-linear "apparatus for editing moving picture having a related information." LG-1006, Abstract; LG-1003, ¶70.

The resulting Linzer-Hirai System (“LHS”), illustrated below, includes low-quality and high-quality video compressors, per Linzer, implemented in a non-linear editor that includes a picture size reducer, per Hirai, which assists in creating a “story” (collection of video segments). LG-1005, 8:5-18; LG-1006, [0009], [0060], FIG. 11; LG-1003, ¶71. In LHS, the low-quality version of the video signal is “used to determine how to edit the video to produce a final edited video event,” and the high-quality version is “used to create the final edited video event.” LG-1005, 3:60-64; LG-1003, ¶71. To enable story creation, per Hirai, LHS further includes a scene change point detector that “analyzes the received moving pictures on a frame basis and detects a scene change point and a cut change point on the basis of a degree of change in a color distribution between frames” and a picture size reducer that “generates a reduced moving picture (M-icon) by thinning out data of each frame into video or moving picture data of 80×60 pixels.” LG-1006, [0006], [0060].



Modified LG-1005, FIG. 6; LG-1006, FIG. 11; LG-1003, ¶71.

LHS includes a “non-linear storage device” for storing both the “high quality compressed version of the video signal” (MPEG-2) and “low quality compressed version of the video signal” (M-JPEG), per Linzer. LG-1005, 8:63-9:1; LG-1003, ¶72. A POSITA would have found obvious that LHS further stores the M-icons on the non-linear storage device, as Linzer and Hirai teach or suggest. LG-1003, ¶72; LG-1005, FIG. 6; LG-1006, [0060], FIG. 11. In this way, “the need for the decoding time can be eliminated, the processing time can be shortened, and the contents of the image can be quickly confirmed,” per Hirai. LG-1006, [0060]; LG-1003, ¶72.

In operation, to enable composition of a video story, LHS produces less efficiently compressed video in M-JPEG and a more efficiently-compressed video in MPEG-2, as Linzer teaches. LG-1005, 4:20-22, claim 10, 8:44-52; LG-1003, ¶73. According to Linzer, the dual streams enable an operator of a non-linear video editor “to access the video in a random fashion instead of a sequential fashion.” LG-1005, 1:38-40, 5:47-50 (“multiple resolution video compression system [is] particularly well-suited for use in applications such as ‘non-linear’ video editors”). The MPEG-2 is stored on a non-linear storage device (per Linzer), where it can be used to create a final video. LG-1005, 3:62-64, 10:63-65; LG-1003, ¶73.

The low quality video compressor 68 of LHS (shown in the modified figure above) provides an M-JPEG video, as both Linzer and Hirai teach. LG-1005, 3:58-64; LG-1006, [0006]; LG-1003, ¶74. After generating the M-JPEG, the picture size reducer 214 of LHS, shown above in the modified figure, generates “a reduced moving picture (M-icon) by thinning out data of each frame into video or moving picture data of 80×60 pixels on the basis of an analysis result of the scene change point detector,” as Hirai teaches. LG-1006, [0006]. By generating an M-icon, the improved LHS eliminates the need for decoding time, as described above. LG-1006, [0060]; LG-1003, ¶74.

Once the M-icons are generated, “the operator organizes the M-icons 302

into such a hierarchical structure as shown in a hierarchical structure display window 301 to thereby make a story,” as Hirai teaches. LG-1006, [0064]. When editing is complete, the compressed moving picture is used to “to see a final edited result in detail,” per Hirai. LG-1006, [0061]. Once the operator is satisfied with the video, LHS “produce[s] a final edited high quality video event” using the MPEG-2 where it is available for viewing on a computer, per Linzer. LG-1005, 4:1-2, 9:1-2; LG-1003, ¶75.

A POSITA would have had a reasonable expectation of success in combining Linzer and Hirai because both describe complementary functions of a non-linear editing system. Linzer teaches generating MPEG-2 and M-JPEG streams from a video stream so that editing can be performed efficiently. Hirai teaches generating reduced-pixel M-icons from the M-JPEGs for further efficiency. LG-1005, 4:20-23, 8:42-52; LG-1006, [0006], [0060]; LG-1003, ¶76.

The combination of Linzer and Hirai would have required only routine programming knowledge well within the skill of a POSITA before the Critical Date. LG-1003, ¶77. Indeed, implementing the combination would have amounted to using known techniques to improve similar systems (non-linear video editing) and combining prior art elements according to known methods to yield the predictable results described above. LG-1003, ¶77; *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007).

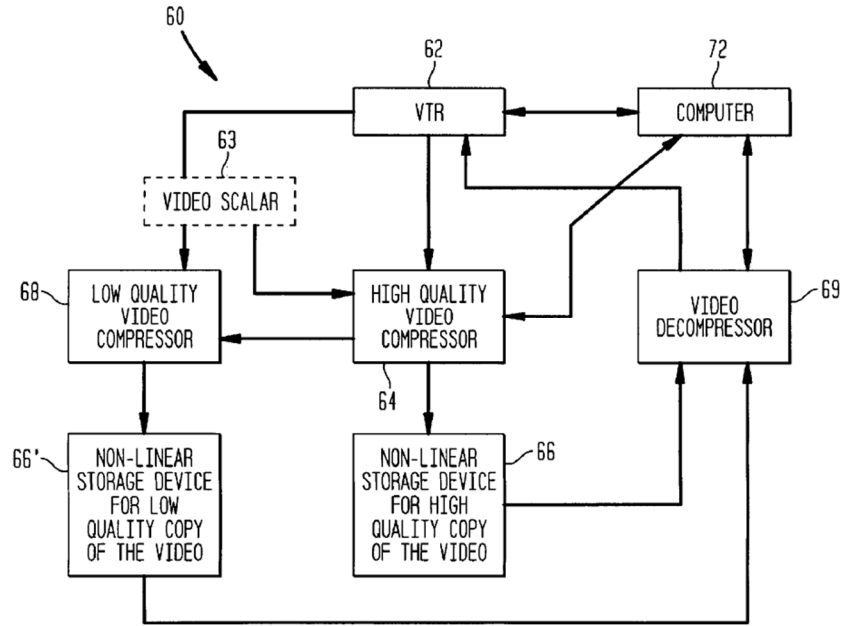
Finally, the elements of the resulting LHS would each perform functions they performed prior to combination—Linzer’s video generation techniques generate video streams and Hirai’s techniques generate M-Icons from the M-JPEG version of the stream. A POSITA would have therefore expected success when combining Linzer’s and Hirai’s teachings. LG-1003, ¶78.

4. Analysis

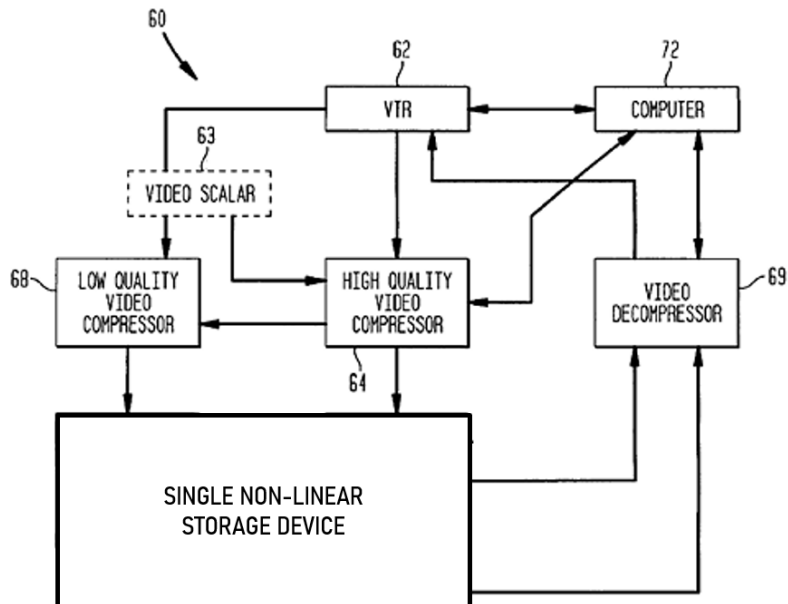
[1.1]

LHS renders [1.1] obvious. LG-1003, ¶¶105-109.

Linzer explains that a computer, which can be a “general purpose workstation,” is provided “for viewing and editing video signals.” LG-1005, 9:1-6. Referencing FIG. 6, Linzer describes “a non-linear video editor” where compressed versions of video bit streams are stored, preferably, in a “single non-linear storage device,” shown in modified FIG. 6 below. LG-1005, 5:42-43, 8:1-11:7, FIG. 3.



LG-1005, FIG. 6.



LG-1005, FIG. 6 (modified), 8:66-9:1.

In another embodiment, Linzer describes a “storage device 40” that “stores the resulting compressed video bit stream” and that “may be an optical or magnetic

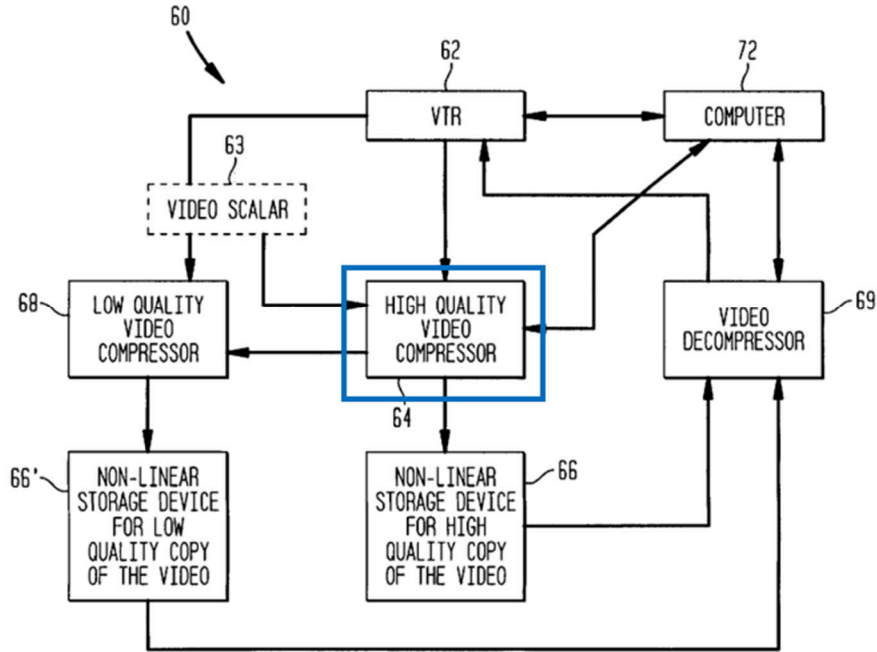
disk drive or disk array, an electronic memory or other suitable compressed video storage device.” LG-1005, 6:5-15. A POSITA would have understood that the “single non-linear storage device” Linzer discusses with reference to Figure 6 can similarly be embodied in any of the hardware forms as “storage device 40,” or any similar machine-readable and writeable recording medium. LG-1005, 11:7-17; LG-1003, ¶109.

[1.2.1]

LHS renders [1.2.1] obvious. LG-1003, ¶¶110-115.

Linzer teaches a machine-readable recording medium with a first still picture recorded thereon encoded by a first encoding method. For example, Linzer explains that the “first video compressor 64 produces a high quality compressed video bitstream.” LG-1005, 8:5-6. Linzer further teaches that the high-quality bitstream can be MPEG-2. LG-1005, 5:15-17, claim 10.

FIG. 6



LG-1005, FIG. 6 (annotated)

A POSITA would have understood that MPEG-2 video includes I-pictures,² which are individual still pictures. LG-1003, ¶¶112-113 (citing LG-1020, 7, 24; LG-1058, 1:31-38). Specifically, the first still picture is the I-picture at the beginning of the MPEG-2 video file. LG-1003, ¶114. As discussed above for [1.1], the compressed video streams (which include individual still images such as the I-picture) can be stored in a “single non-linear storage device.” LG-1005, 8:62-9:1; LG-1003, ¶114.

Therefore, Linzer teaches a first still picture (first I-picture of the MPEG-2

² I-pictures are sometimes called “I-frames.” LG-1003, n.4.

stream) encoded by a first encoding method (MPEG) recorded on a machine-readable recording medium (“single non-linear storage device”). LG-1005, 8:62-9:1; LG-1003, ¶115.

[1.2.2]

LHS renders [1.2.2] obvious. LG-1003, ¶¶116-122.

Linzer explains that “[t]he first video compressor encodes the first resolution version of the video signal to generate a first compressed video bit stream in accordance with *MPEG-2* or another suitable video encoding standard.” LG-1005, 4:20-23. As explained in §III.A.4.[1.2.1], the first still picture is the first I-picture in that MPEG-2 video stream. LG-1003, ¶117.

In the ’760 prosecution history, Applicant stated that “[i]t is respectfully submitted that it was well within the purview of those skilled in the art to be able to implement some type of descriptive information (e.g., *header*, filename extension, etc.) associated with the respective pictures so as to allow the machine to recognize and decode the pictures.” LG-1002, 43.

A POSITA would have understood that the MPEG-2 video bitstream (including the first still picture) includes descriptive header information that allows a machine to recognize and decode the stream, and therefore to recognize and decode the first still picture (first I-picture). LG-1003, ¶119. For example, the H.262 component of the MPEG-2 standard includes a picture header, illustrated below.

LG-1020, 33-35, 40, 183; LG-1003, ¶119.

Table E.7 – Picture header

#	Status						Type	
	HIGH SPATIAL SNR MAIN SIMPLE							
	Syntactic elements							Comments
01	temporal_reference	x	x	x	x	x	I	
02	picture_coding_type	x	x	x	x	x	I	Simple Profile: I, P at Main level, I, P, B at Low level Main, SNR, Spatial and High Profile: I, P, B
03	vbv_delay	x	x	x	x	x	I	
04	full_pel_forward_vector	x	x	x	x	x	I	'0' for MPEG-2
05	forward_f_code	x	x	x	x	x	I	'111' for MPEG-2
06	full_pel_backward_vector	x	x	x	x	x	I	'0' for MPEG-2
07	backward_f_code	x	x	x	x	x	I	'111' for MPEG-2
08	extra_information_picture	x	x	x	x	x	I	
09	picture_coding_extension()	x	x	x	x	x	I	
10	quant_matrix_extension()	x	x	x	x	x	I	
11	picture_display_extension()	x	x	x	x	x	P	
12	picture_spatial_scalable_extension()	o	o	o	x	x	I	
13	picture_temporal_scalable_extension()	o	o	o	o	o	I	

LG-1020, Table E.7 – Picture Header

The table includes descriptive information associated with the I-picture that enables recognition and decoding of the I-picture (first still picture). LG-1020, Table E.7; LG-1003, ¶120. For example, the “picture_coding_type identifies whether a picture is an intra-coded picture(I), predictive-coded picture(P) or bidirectionally

predictive-coded picture(B),” which is information necessary for decoding the picture. LG-1020, 60; LG-1003, ¶120.

Additionally or alternatively, Linzer explains that the first video compressor “compresses the full resolution unscaled version of the video signal from source 32 and stores the resulting compressed video bit stream in the storage device 40.” LG-1005, 6:5-8. A POSITA would have understood that an MPEG-2 file would have been stored with a file extension corresponding to the MPEG encoding, e.g., “.mpg.” LG-1003, ¶121 (citing LG-1039, 2:59-3:9). As described above, the first still picture is an MPEG-2 I-picture, and a POSITA would have understood that the “mpg” file extension is descriptive information that allows a machine to decode the entire stream, including the first still picture (and all other I-pictures in the MPEG-2 bitstream). LG-1003, ¶122; LG-1002, 43 (“filename extension” as descriptive information).

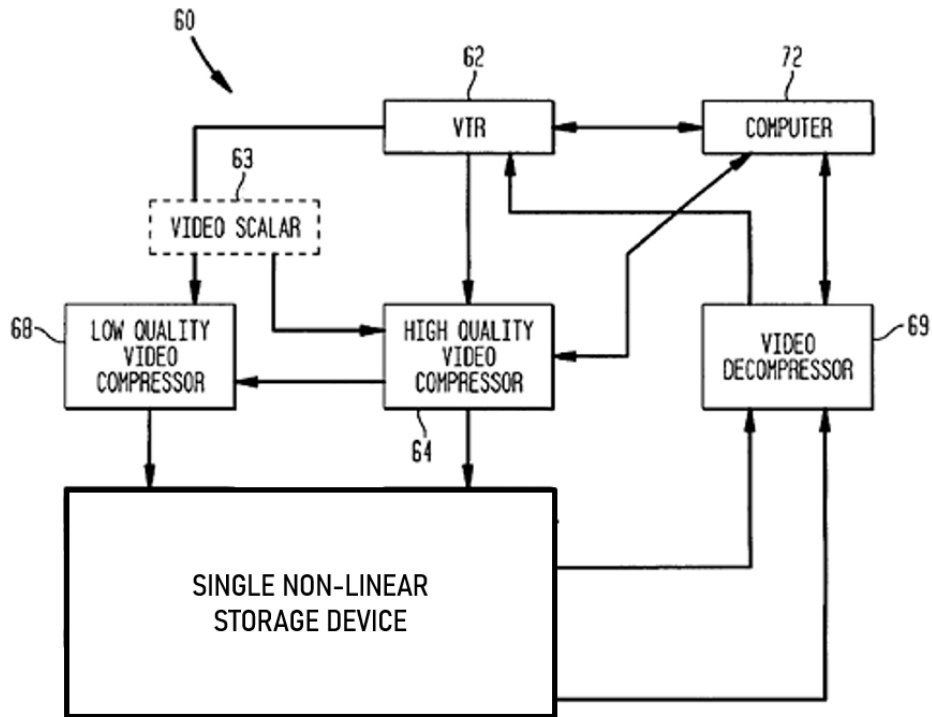
[1.3.1]

LHS renders [1.3.1] obvious. LG-1003, ¶123-127.

Linzer teaches a machine-readable recording medium with a second still picture recorded thereon encoded by a second encoding. For example, Linzer explains that “the video compressor 68 produces a lower quality compressed video signal because the video compressor 68 operates according to a less efficient compression standard (e.g. MPEG-1, *motion JPEG*, H.261, H.263).” LG-1005, 8:43-

48. This video compression is performed in addition to the high-quality compression, shown in FIG. 6. LG-1005, 8:5-8, 8:42-45, FIG. 6. A POSITA would have understood that motion JPEG (M-JPEG) video consists of a series of still pictures, each encoded as JPEG. LG-1003, ¶¶124-126 (citing LG-1021, 9, LG-1041, 1:27-31). Specifically, the second still picture is the JPEG image at the beginning of the M-JPEG video file. LG-1003, ¶125.

As discussed above for [1.1], the compressed video streams (which include individual still images such as the I-picture) can be stored in a “single non-linear storage device.” LG-1005, 8:62-9:1; LG-1003, ¶127. Therefore, Linzer teaches a second still picture (JPEG image at the beginning of the M-JPEG stream) encoded by a second encoding method (JPEG) recorded on a machine-readable recording medium (non-linear storage device). LG-1003, ¶127.



LG-1005, FIG. 6 (modified).

[1.3.2]

LHS renders [1.3.2] obvious. LG-1003, ¶128-138.

Linzer explains that the second video compressor “produces a lower quality compressed video signal” because it “operates according to a less efficient compression standard,” e.g., “motion JPEG.” LG-1005, 8:44-47. As explained in §III.A.4.[1.3.1], the second still picture is the first picture (encoded as JPEG) in that M-JPEG video stream. LG-1003, ¶129.

A POSITA would have understood that the JPEG images (which are included in M-JPEG streams), e.g., the second still picture, include descriptive header information that allows a machine to recognize and decode the image, and

therefore to recognize and decode the second still picture (first JPEG image in the M-JPEG stream). LG-1002, 43; LG-1003, ¶¶130-133 (citing LG-1049, 5:25-43, FIG. 2a; LG-1022, 4-5; LG-1023, 12).

Additionally or alternatively, Linzer explains that the “compressed stream or streams from the second video compressor 38 are also stored in the storage device 40.” LG-1005, 6:12-15. A POSITA would understand that a M-JPEG file would have been stored with a file extension corresponding to the M-JPEG encoding, e.g., “.M-JPEG.” LG-1003, ¶¶134-138 (citing LG-1039, 2:59-3:9); LG-1002, 43.

[1.3.3]

LHS renders [1.3.3] obvious. LG-1003, ¶¶139-140.

In Linzer, the second encoding method (JPEG) is different from the first encoding method (MPEG). *See* §III.A.4.[1.2.1], §III.A.4.[1.3.1]; LG-1003, ¶140 (citing LG-1020, LG-1024).

[1.4.1]

LHS renders [1.4.1] obvious. LG-1003, ¶¶141-146.

In LHS, a “reduced moving picture (M-icon),” which corresponds to the first and second still pictures and has fewer pixels than the first and second still pictures, is generated and stored. LG-1006, [0006]; §III.A.3.

As discussed in §III.A.3, Hirai discloses a “picture compressor 209 [that] compresses digital data of the reproduced moving pictures, e.g., based on a moving

picture experts group (MPEG) or motion joint photographic experts group (motion JPEG) system” and a “magnetic memory device 202 stores therein the received video information.” LG-1006, [0006]. Thus, in LHS, a “picture compressor,” per Hirai, can operate on the video (in M-JPEG format) generated by Linzer and containing the second picture. *See* §III.A.4.[1.3.1].

Hirai additionally explains that a “picture size reducer 214 generates a reduced moving picture (M-icon) by thinning out data of each frame into video or moving picture data of 80×60 pixels on the basis of an analysis result of the scene change point detector 201.” LG-1006, [0006]. An M-icon is “a miniature image (for example, of 80×60 pixels)” that is “stored in the magnetic memory device.” LG-1006, [0060].

As described in §III.A.3, the Linzer-Hirai combination includes picture compressors, as both Linzer and Hirai discuss, and a picture size reducer that “generates a reduced moving picture (M-icon) by thinning out data of each frame into video or moving picture data of 80×60 pixels on the basis of an analysis result of the scene change point detector.” LG-1006, [0006]; §III.A.3. The M-icon for the first frame of the M-JPEG video generated by the Linzer-Hirai system is a picture (M-icon) with a smaller number of pixels (80×60) than the first and second still pictures. LG-1003, ¶145.

Further, a POSITA would find obvious that LHS further stores the M-icons

on the non-linear storage device, per Linzer and Hirai. LG-1003, ¶146; LG-1005, FIG. 6; LG-1006, [0060], FIG. 11; §III.A.3. By storing the M-icon in this manner, “the need for the decoding time can be eliminated, the processing time can be shortened, and the contents of the image can be quickly confirmed,” per Hirai. LG-1006, [0060]; LG-1003, ¶146.

[1.4.2]

LHS renders [1.4.2] obvious. LG-1003, ¶¶147-149.

Hirai explains that the “generated M-icon is sent to the magnetic memory device 202 and stored therein.” LG-1006, [0006]. In addition, “[m]oving picture analysis information (including frame numbers for scene change points or cut change points) indicative of a relationship between the M-icon and the detection result of the scene change point detector 201 is also sent to the magnetic memory 202 and saved therein,” and the “monitor 203 displays the moving pictures stored in the magnetic memory device 202 *on the basis of analysis information* thereof to offer a graphical user interface (GUI) to the operator.” LG-1006, [0006]. A POSITA would understand that the moving picture analysis information is descriptive information (which is Applicant states should be construed broadly in the ’760 prosecution history) associated with the M-icon to allow the machine to recognize and decode the picture for display since the monitor displays the pictures on the basis of the analysis information. LG-1002, 43; LG-1006, [0006]; LG-1003, ¶148.

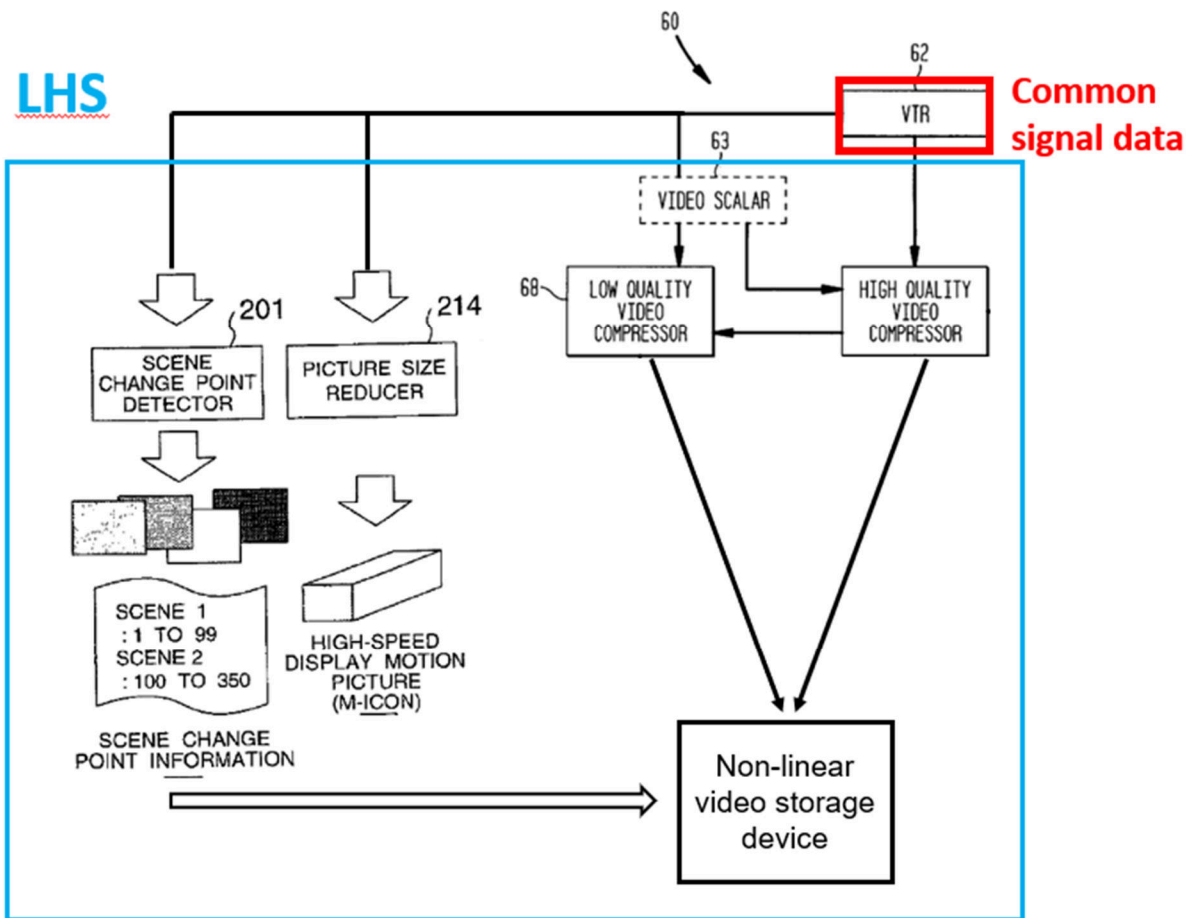
Additionally or alternatively, since the M-Icon is “stored in the magnetic memory device” (LHS’s non-linear storage device), a POSITA would understand that the M-icon is stored as a file with a file extension indicating the type of a file. LG-1006, [0060]; LG-1003, ¶149 (citing LG-1039, 2:59-3:9). The M-icon’s file extension is “descriptive information associated therewith to allow the machine to recognize and decode the picture for display.” LG-1003, ¶149; LG-1002, 43.

[1.5]

LHS renders [1.5] obvious. LG-1003, ¶¶150-152.

Linzer explains that “*a linear-video source* 62 outputs an original video signal to a first video compressor 64 and a second video compressor 68,” so the first and second still pictures are derived from common signal data (from the VTR). LG-1005, 8:3-5; LG-1003, ¶151.

Further, since, per Hirai, the M-icon is generated from the first frame of the M-JPEG, picture is also derived from the common signal data.



LG-1005, FIG. 6 (annotated).

[2]

LHS renders [2] obvious. LG-1003, ¶¶153-154.

In Linzer, the first still picture is encoded by the MPEG standard and the second still picture is encoded by the JPEG standard. *See* §III.A.4.[1.2.1], §III.A.4.[1.3.1]; LG-1021, 9; LG-1040, 4:24-29; LG-1041, 1:27-31; LG-1022, 4; LG-1023, 12; LG-1024; LG-1003, ¶154.

[3]

LG-1003, ¶¶155-159. *See* §III.A.4.[2]. LG-1003, ¶156 (citing LG-1037, 3; LG-1038, 4).

[4.1]

LHS renders [4.1] obvious. LG-1003, ¶¶160-161.

For example, Linzer describes a “method for compressing multiple resolution versions of a video signal,” where the “method may be used in a non-linear video editor, a video server or other video processing system.” LG-1005, Abstract. Hirai describes techniques for “editing moving picture.” LG-1006, Abstract. As described in [4.2.1], the method performed by the LHS includes reproducing video.

Moreover, as the Board previously noted in IPR2018-00905:

In the ’760 patent, the term “video encompasses both moving and still pictures. *See* Ex. 1001, 2:50-51 (referring to “a video recording apparatus that can record both moving and still pictures on a recording medium”).

LG-1031, 4 n.2.

Thus, to the extent the preamble is limiting, it can be interpreted as a moving picture and/or still picture reproducing method. *Id.*

[4.2.1]

LHS renders [4.2.1] obvious. LG-1003, ¶¶164-171; §§III.A.4.[1.2.1]-[1.4.2].

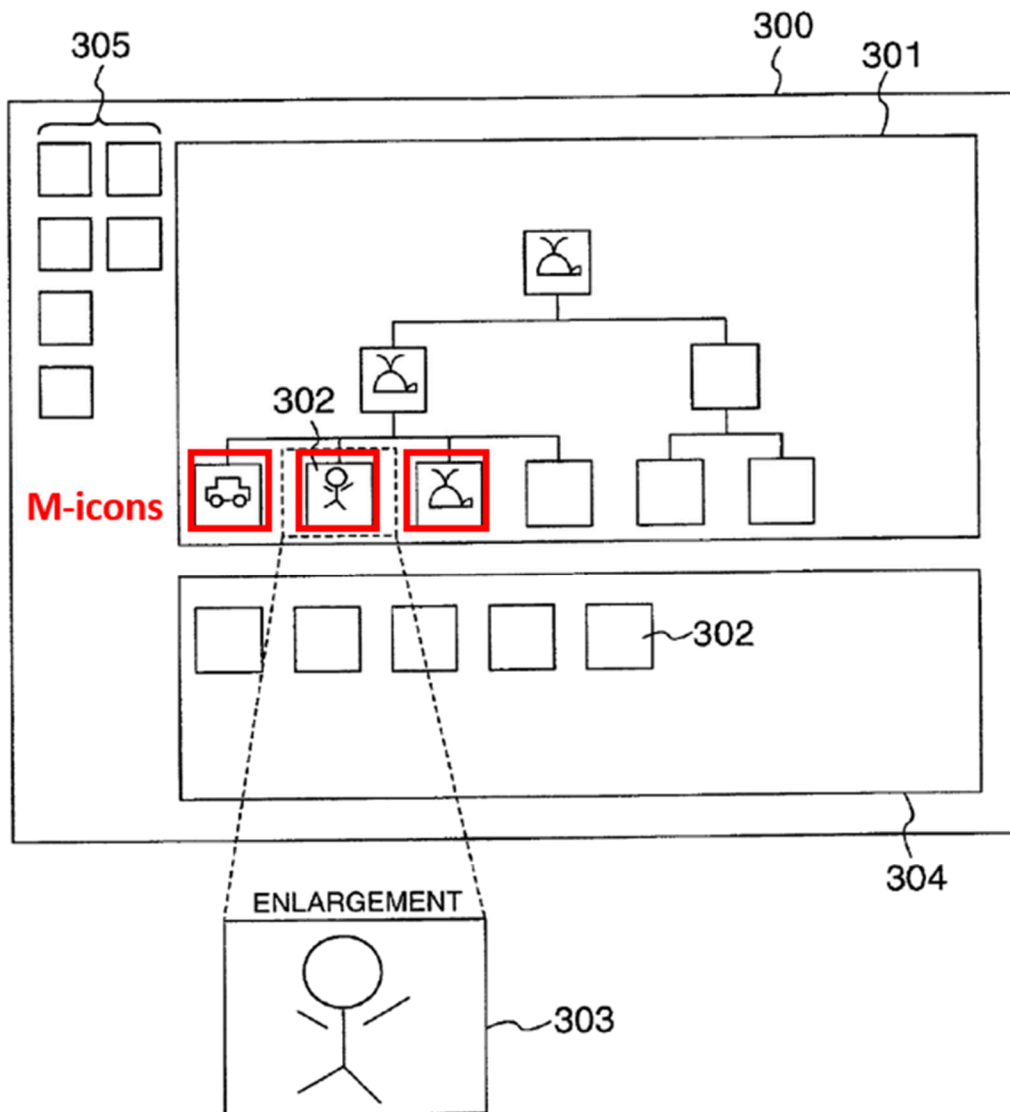
Hirai teaches reproducing a second still picture from a recording medium. LG-1003, ¶166. For example, Hirai explains that the “moving picture (compressed

moving picture) is used, for example, when it is desired to see a final edited result in detail.” LG-1006, [0061]. Since LHS, including Hirai’s non-linear editor, runs on the computer, a POSITA would recognize that when the edited result (in M-JPEG) was viewed, the second picture (JPEG image in the M-JPEG) would be reproduced. LG-1003, ¶166. Per Linzer, the low-quality video (M-JPEG containing the second picture) is stored on LHS’s non-linear storage device. LG-1005, 8:62-9:1; LG-1003, ¶166.

Hirai teaches reproducing a picture (M-icon). LG-1003, ¶167. For example, in Hirai, an “operator instructs *reading of an M-icon* registered in the magnetic memory device 202 with use of such an input device 206 as a mouse or a keyboard.” LG-1006, [0062]. Additionally, in FIG. 3, Hirai illustrates “an example of the editing display screen” where “[e]diting is carried out by constructing M-icons into such a hierarchical structure,” and “[i]n the tree (in the hierarchical structure area 301), M-icons (for example M-icon 302) of a lowest layer are cuts which are composed a plurality of frame images, M-icons of a upper layer of said lowest layer are scenes which are composed a plurality of cuts, and a M-icon of a uppermost layer are moving pictures which are composed a plurality of scenes. LG-1006, [0009].

A POSITA would find obvious that LHS further stores the M-icons on the non-linear storage device, per Linzer and Hirai. LG-1003, ¶168; LG-1005, FIG. 6;

LG-1006, [0060], FIG. 11; §III.A.3. Hirai explains that, by storing the M-icons, “the need for the decoding time can be eliminated, the processing time can be shortened.” LG-1006, [0060]; LG-1003, ¶168. Since the M-icons are stored on the non-linear storage device, a POSITA would find obvious that LHS reproduces the M-icons from the storage device when used by the non-linear video editor. LG-1003, ¶168.



LG-1006, FIG. 3 (annotated).

Linzer teaches reproducing a first still picture from a recording medium.³

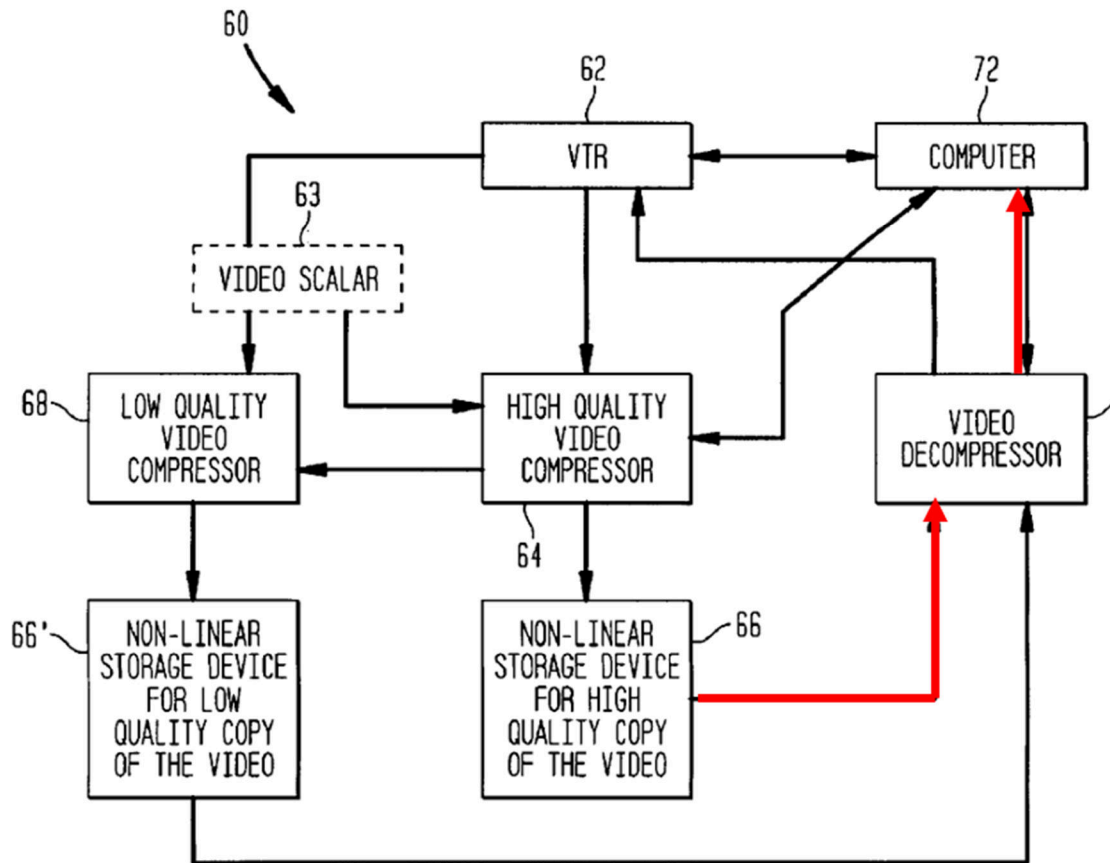
LG-1003, ¶169. Linzer teaches that the high-quality video, which contains the first still picture (I-picture in the MPEG-2), is stored on the non-linear storage device.

LG-1005, 8:62-64; LG-1003, ¶169. Linzer further explains that the computer is provided “for **viewing** and editing video signals.” LG-1005, 9:1-2; LG-1003, ¶169.

From Linzer FIG. 6, a POSITA would understand that viewing the video signal on the computer includes reproducing it from the non-linear storage device. LG-1003, ¶169.

³ The '760 Patent provides only non-limiting examples of a “recording medium,” explaining that “[n]umeral 114 is **such a** recording medium as an optical disk, *etc.*” and “the like.” LG-1001, 6:23-24, 11:32-34.

FIG. 6



LG-1006, FIG. 6 (annotated).

Since first picture (MPEG-2 I-picture), second picture (JPEG image in M-JPEG) and picture (M-icon) are, as described above, all stored on LHS's non-linear storage device, which can be a magnetic disk (per Linzer), a POSITA would understand each of the three pictures, when needed by LHS (for the uses described above), are reproduced from the non-linear storage device. LG-1005, 1:19-20; LG-1003, ¶170. For example, a POSITA would understand that the magnetic disk of Linzer necessarily includes a circuitry, e.g., a hard disk controller, between the

CPU and the physical storage platter of the magnetic disk that serves as an intermediary providing buffering, error correction, servo control, etc., when reading and writing data from the hard drive. LG-1003, ¶171. Indeed, such circuitry was well known long before the Critical Date to include in hard drives to provide buffering, servo control, etc. for reading data from the hard drive. LG-1025, 5:34-40 (“A hard disk controller 14 (HDC) is connected to the head controller 6, the buffer memory 13, a servo controller 15 and a microcontroller 22,” and “contains an interface controller 14a, a first buffer memory controller 14b [] a second buffer memory controller 14e.”), 5:51-53 (“The first buffer memory controller 14b prepares read/write control signals and controls buffer addresses for data access to the buffer memory 13.”). Since the LHS’s non-linear storage device (hard drive) includes a controller that provides buffering when reading data, a POSITA would understand that LHS necessarily reproduces each of the first picture, second picture and picture from the hard drive platter (where those pictures are stored) to the hard drive controller’s buffers when the pictures are used by LHS. LG-1003, ¶171.

[4.2.2]

See §III.A.4.[1.2.1]-[1.3.3].

[4.2.3]

See §III.A.4.[1.4.1].

[4.2.4]

See §III.A.4.[1.5].

[4.3]

LHS renders [4.3] obvious. LG-1003, ¶¶179-182.

LHS reproduces M-icons (picture from the reproducing operation). LG-1003, ¶180. For example, Hirai explains that the “editing display screen displayed on the monitor 203,” and “numeral 302 denotes an M-icon.” LG-1006, [0009], FIG. 3.

Additionally or alternatively, LHS outputs the second still picture (in the M-JPEG). LG-1003, ¶181. For example, Hirai explains that the “moving picture (compressed moving picture) is used, for example, when it is desired to see a final edited result in detail.” LG-1006, [0061].

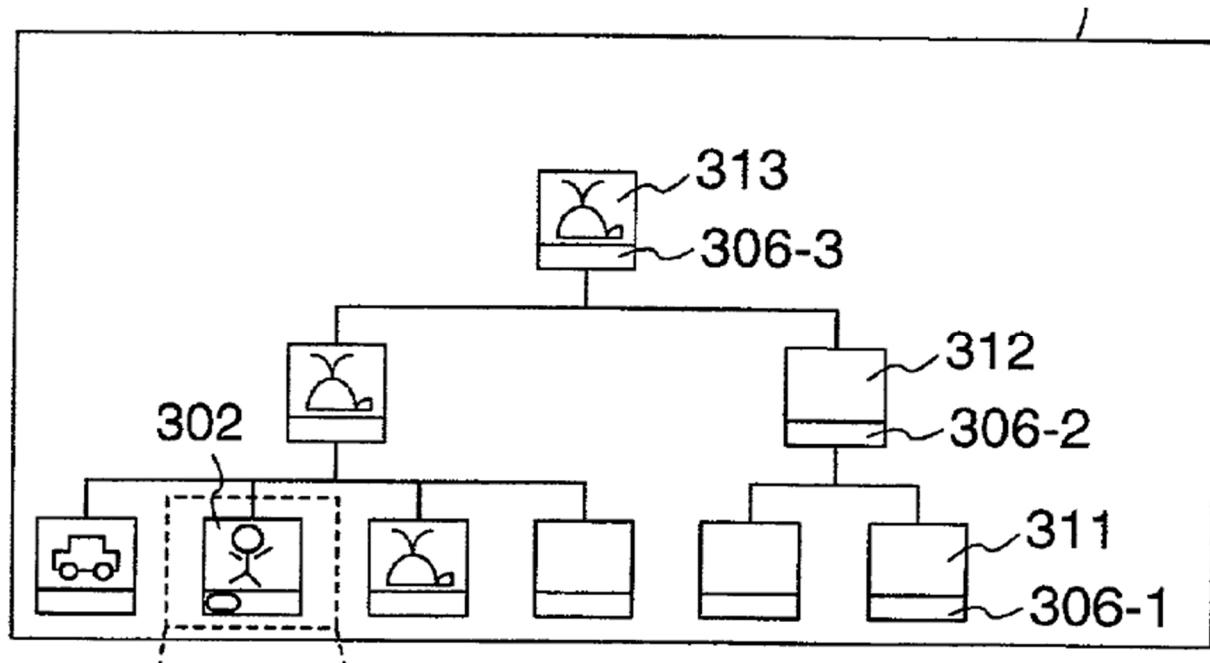
Moreover, per Linzer, LHS outputs the first still picture (I-picture in the MPEG-2). LG-1003, ¶182. For example, Linzer explains that the computer is provided “for *viewing* and editing video signals.” LG-1005, 9:1-2; LG-1003, ¶182. A POSITA would recognize that viewing the signal includes outputting it. LG-1003, ¶182.

[4.4]

LHS renders [4.4] obvious. LG-1003, ¶¶183-188 (citing LG-1038).

Hirai teaches selecting a picture (M-icon) for inclusion in a story. LG-1003, ¶185. For example, Hirai explains that “the operator organizes the M-icons 302

into such a hierarchical structure as shown in a hierarchical structure display window 301 to thereby make a story.” LG-1006, [0064]. A POSITA would understand that “organizing the M-icons” includes selecting an icon (picture), e.g., M-icon 302 in FIG. 1.



LG-1006, FIG 1 (excerpt).

Per Hirai, the selected M-icons, including the picture, are included in the final story. LG-1006, [0009]; LG-1003, ¶186.

Per Linzer, the high-quality video (MPEG-2, including I-picture that is the first still picture) is used for the final edited video event. LG-1005, 3:62-64; LG-1003, ¶187. Linzer further explains that a computer is provided “for **viewing** and editing video signals.” LG-1005, 9:1-2; LG-1003, ¶187. A POSITA would recognize that viewing the signal includes displaying the video signals. LG-1003, ¶187.

Since the final video signal includes the first still picture (in the MPEG-2) and since first still picture is included based on selection of the corresponding M-icon during the editing process, the first still picture is output and corresponds to the selected picture (M-icon). LG-1003, ¶188.

[5]

See §III.A.4.[2].

[6]

See §III.A.4.[3].

*[7.1]-[7.4]*⁴

See §III.A.4.[4.1]-[4.4].

[8]

See §III.A.4.[2].

[9]

See §III.A.4.[3].

B. GROUND 2A – Lathrop Renders Obvious Claims 1 and 3

1. Lathrop

Lathrop explains that prior art digital cameras “capture and digitize images” and “store the resultant digital data as relatively ‘raw’ (unprocessed) data in a non-

⁴ Regarding [7.3]/[4.3], a POSITA would understand that displaying is one form of outputting. LG-1003, ¶196 n.8 (citing LG-1038, 3; LG-1042, 3).

volatile image memory.” LG-1007, 1:12-17. However, Lathrop explains that “[i]f the processing time per picture is long, either the time the user must wait before taking the next picture will be equally long, or else an expensive, multi-image buffer memory must be provided.” LG-1007, 1:51-54.

Per Lathrop, “the image processor incrementally processes the original digital image data such that processed image data of each increment is stored in the non-volatile memory as each increment of processing is completed,” and the “incremental processing of the original image data can then be interrupted in order to capture a new image, while the processed image data for the completed increments of the original image is saved in the non-volatile memory.” LG-1007, 2:13-24.

Once the camera stores the data, the data are “conveyed to the host computer 12 preferably by removing the storage device 32 from the camera 10 and then inserting the device 32 into a reader 34, e.g., a PCMCIA memory card reader, associated with the computer 12.” LG-1007, 4:52-57. Lathrop also provides an alternative in which “[i]nstead of conveying the digital image data to the host computer 12 by physically transporting the storage device 32 to the computer 12, the camera 10 may be tethered directly to the computer 12 and the data may be transferred directly to the computer 12 via a host interface 42, such as an IEEE 1394 interface connected via cable 44 to a corresponding interface 46 on the computer.” LG-1007, 4:64-5:3. In either case “the computer 12 does not require camera-specific

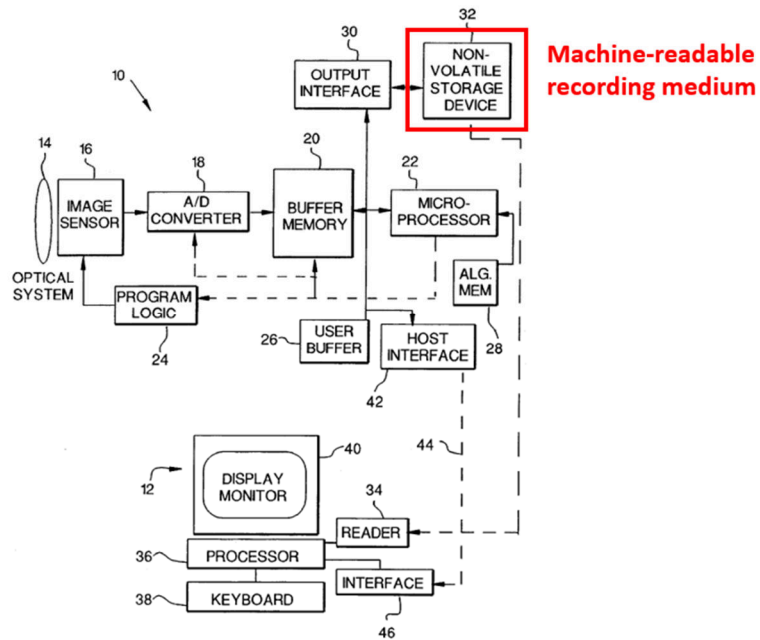
processing capability, and need only handle the conventional JPEG format.” LG-1007, 6:62-64.

2. Analysis

[1.1]

To the extent the preamble is limiting, Lathrop renders [1.1] obvious. LG-1003, ¶¶199-200.

For example, Lathrop teaches that “data is [] transferred via an output interface 30 to a non-volatile storage device 32.” LG-1007, 3:59-61. Lathrop further explains that “[w]hile not necessary for practice of the invention, the storage device 32 is a removable storage device, such as a memory card.” LG-1007, 3:62-63. A POSITA would understand that Lathrop’s non-volatile storage device (e.g., memory card) is a machine-readable recording medium. LG-1003, ¶200.



LG-1007, FIG. 1 (annotated).

[1.2.1]

Lathrop renders [1.2.1] obvious. LG-1003, ¶¶201-206.

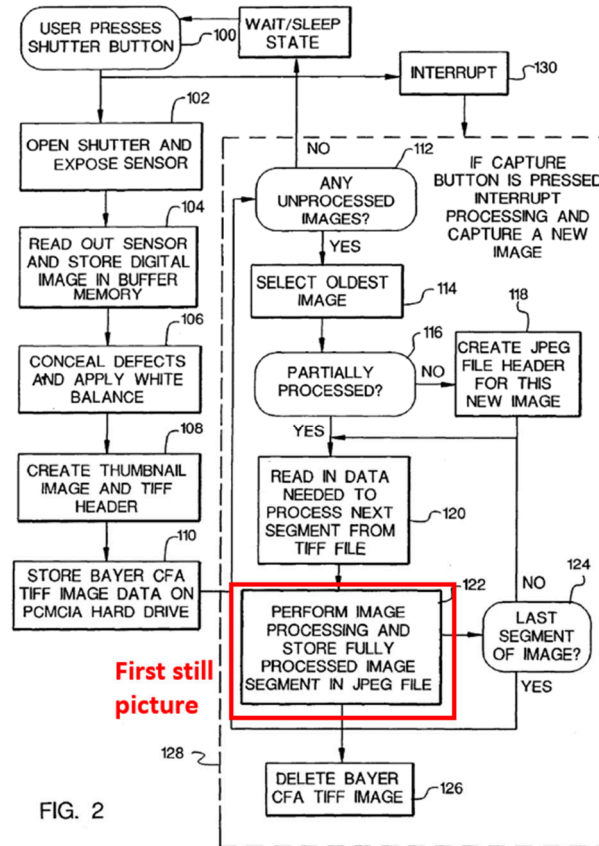


FIG. 2

LG-1007, FIG. 2 (annotated).

For example, Lathrop explains that “stored image data is retrieved in incremental stages by the digital processor 22 and processed according to more comprehensive time-intensive image processing algorithms,” e.g., “color filter array (CFA) interpolation, color correction, tone scale correction, edge enhancement, and compression.” LG-1007, 4:2-9. “The processed image data is then transferred via the output interface 30 to the *non-volatile storage device* 32 in a second file format,” which can be the “*JPEG file format*.” LG-1007, 4:9-16.

Thus, Lathrop teaches a first still picture (image in JPEG format) is stored on a machine-readable recording medium (storage device). LG-1003, ¶¶201-206.

[1.2.2]

As described in [1.2.1], Lathrop's first still picture is encoded as JPEG. A POSITA would understand that the JPEG images include descriptive header information that allows a machine to recognize and decode the image, and therefore to recognize and decode the first still picture. LG-1003, ¶¶207-210 (citing LG-1049, 5:25-43, FIG. 2a; LG-1022, 4, 5; LG-1023, 12); LG-1002, 43.

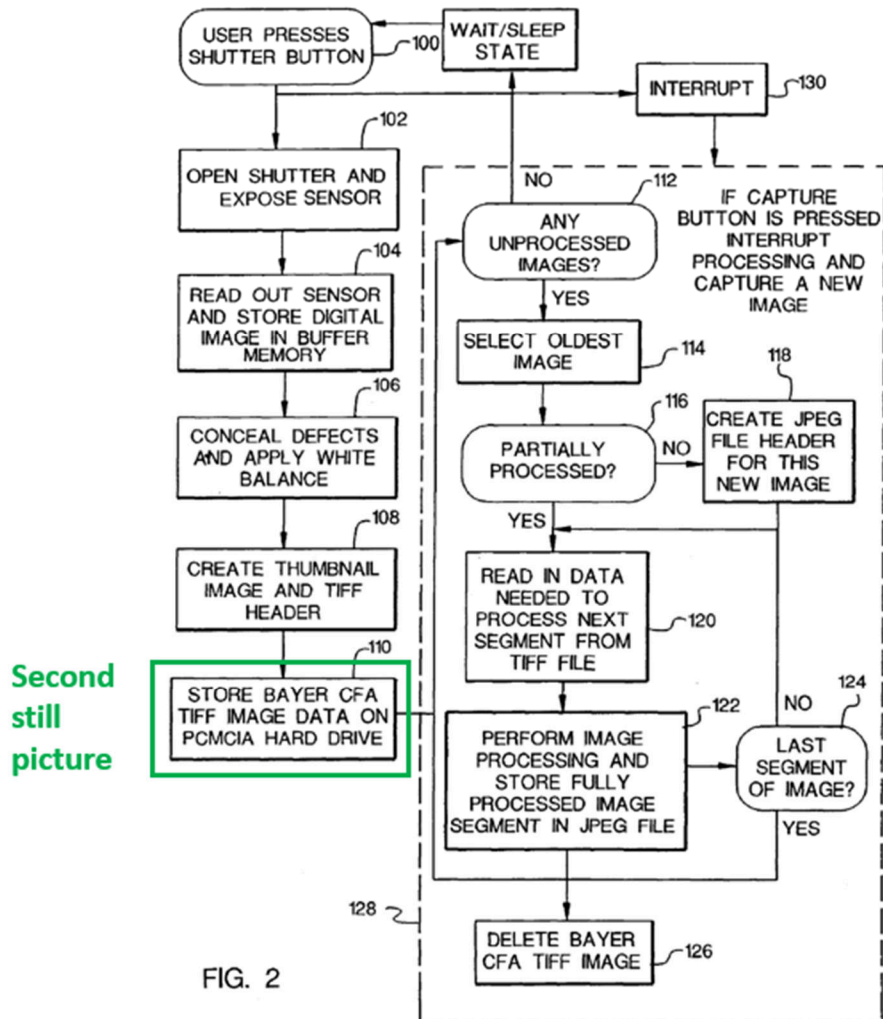
Moreover, because the first still picture is a JPEG image, a POSITA would understand it would have a JPEG file extension, which further provides descriptive information to allow a computer to recognize and decode the image. LG-1003, ¶212 (citing LG-1039, 2:59-3:9); LG-1002, 43 (applicant listing "filename extension" as an example of descriptive information).

[1.3.1]

Lathrop renders [1.3.1] obvious. LG-1003, ¶¶214-218.

For example, Lathrop explains that "the storage device 32 stores the "finished" file data in the second file format and at least *temporarily stores the "raw" file data in the first file format,*" which in "the preferred embodiment," "is a TIFF

file format.” LG-1007, 4:13-18. A POSITA would understand that TIFF is an encoding method. LG-1003, ¶217 (citing LG-1043,⁵ 1 (“baseline encoding is defined by [TIFF].”), 3; LG-1044, 23).



LG-1007, FIG. 2 (annotated).

⁵ The Declaration of June Ann Munford (LG-1057) is provided in support of the prior art status of certain exhibits discussed in this petition and Mr. Williams’s declaration (LG-1003).

Thus, Lathrop teaches a second still picture (TIFF image) recorded on a machine-readable (storage device). LG-1003, ¶218.

[1.3.2] wherein the second still picture having descriptive information associated therewith to allow the machine to recognize and decode the second still picture for display,

Lathrop renders [1.3.2] obvious. LG-1003, ¶¶219-221.

As described in [1.3.1], the second still picture is encoded in TIFF. A POSITA would understand that TIFF files have descriptive information associated therewith to allow the machine to recognize and decode the second still picture. LG-1003, ¶220 (citing LG-1028, 7-8); LG-1002, 43 (applicant listing “header” as an example of descriptive information).

Moreover, because the second still picture is a TIFF image, a POSITA would understand it would have a TIFF file extension, which further provides descriptive information to allow a computer to recognize and decode the image. LG-1003, ¶221 (citing LG-1039, 2:59-3:9); LG-1002, 43.

[1.3.3]

Lathrop renders [1.3.3] obvious. LG-1003, ¶¶222-224.

A POSITA would understand that the second (TIFF) and first (JPEG) encoding methods are different. LG-1003, ¶223; LG-1021; LG-1040, 4:24-29; LG-1041, 1:27-31; LG-1022; LG-1023; LG-1024; LG-1028.

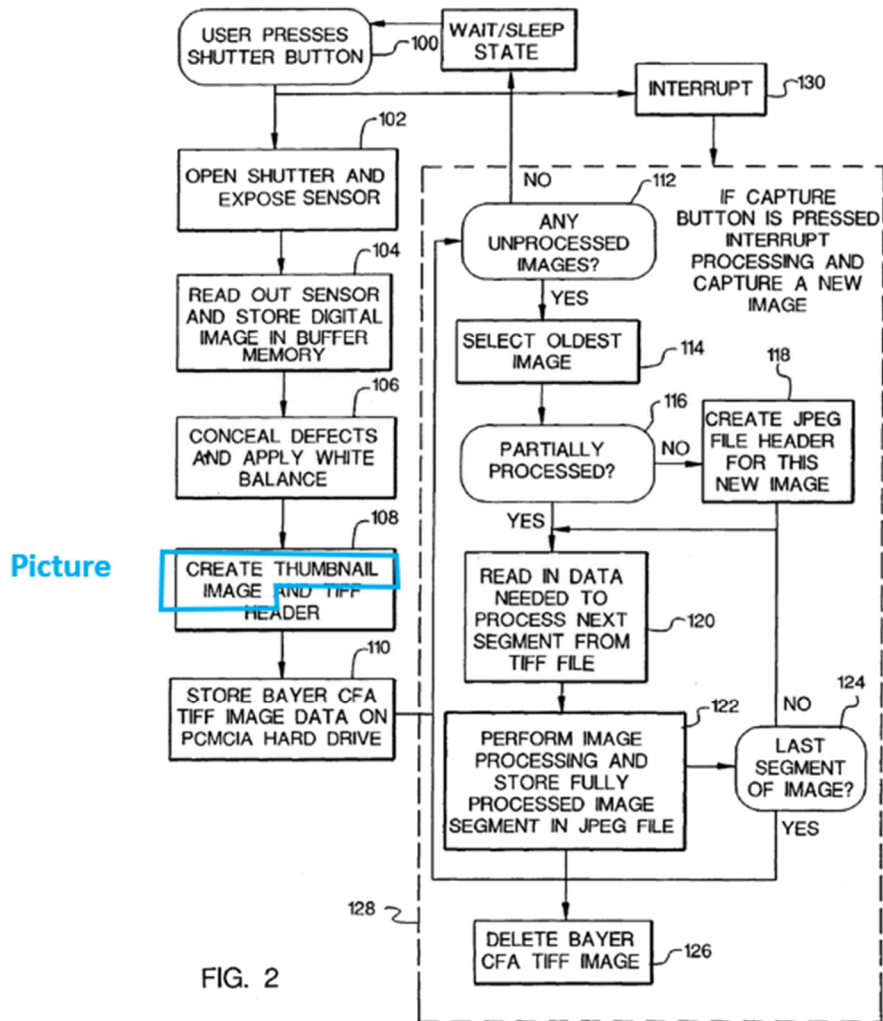
[1.4.1]

Lathrop renders [1.4.1] obvious. LG-1003, ¶¶225-229.

For example, Lathrop explains that “[a] *reduced resolution thumbnail image* is generated along with a TIFF header (step 108) and *stored* together with the essentially ‘raw’ image data *in the non-volatile, storage device 32.*” (step 110). 5:36-39.

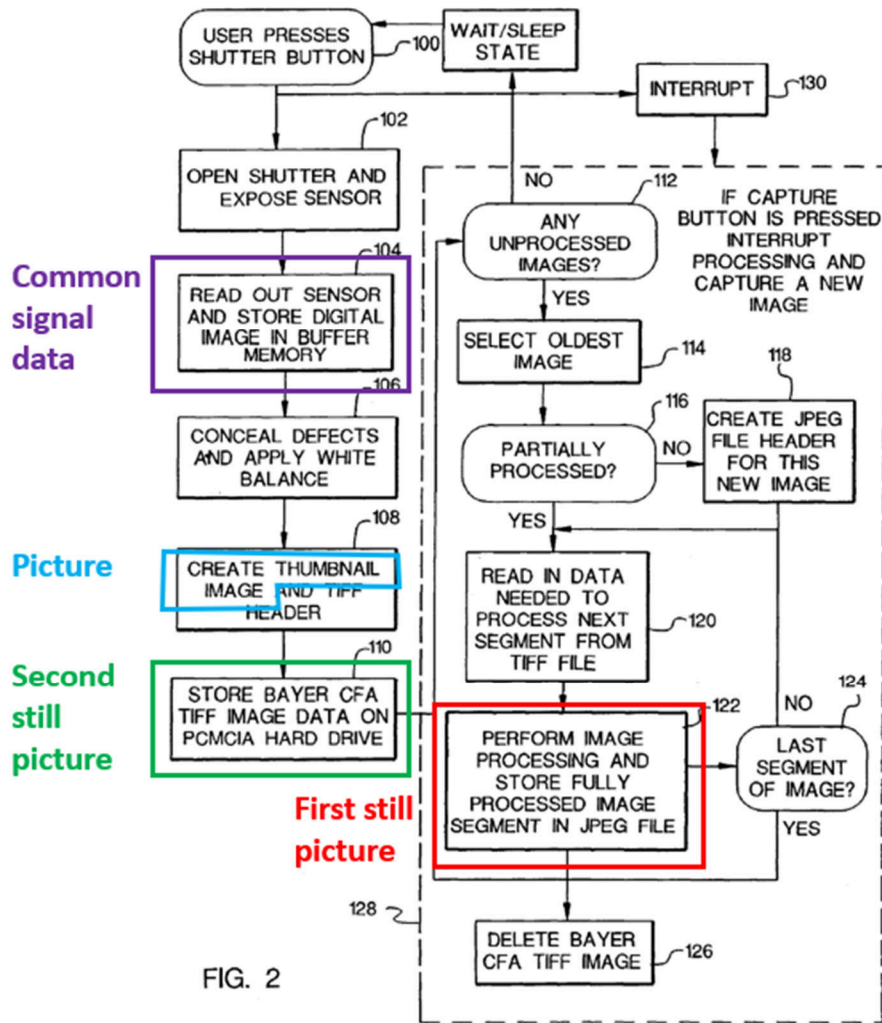
Since the thumbnail has a “reduced resolution” image, a POSITA would understand that it has fewer pixels than the first and second still pictures. LG-1007, 3:55, 5:36-37; LG-1003, ¶227 (citing LG-1029, 3, LG-1030, 3 (“Resolution” is “measurement of the concentration of dots or *pixels*)).

Lathrop further explains “[t]his image data is stored using the TIFF image format,” and “[t]hese ‘raw’ Bayer pattern TIFF images can, according to the prior art, be downloaded to the host computer.” LG-1007, 5:41-45. Since Lathrop refers to plural “these” when referencing the TIFF images, a POSITA would understand that both the second still picture and thumbnail are encoded in TIFF. LG-1003, ¶228.



LG-1007, FIG. 2 (annotated).

Since, as illustrated in FIG. 2, the first still picture (JPEG), second still picture (TIFF) and picture (thumbnail) derive from a common signal (camera sensor data), the picture corresponds to the first and second picture. LG-1007, 4:1-18, 5:9-50, FIG. 2; LG-1003, ¶229.



LG-1007, FIG. 2 (annotated).

[1.4.2]

Lathrop renders [1.4.2] obvious. LG-1003, ¶¶230-231.

As explained in [1.4.1], the thumbnail is encoded as TIFF, and as explained in [1.3.2], the TIFF format has descriptive information that allows a machine to recognize and decode a TIFF-encoded picture. Therefore, the picture has descriptive information that allows the machine to recognize and decode the picture. LG-

1003, ¶231.

[1.5]

Lathrop renders [1.5] obvious. LG-1003, ¶¶232-235.

For example, Lathrop explains that the camera's image sensor image sensor "is a conventional charge-coupled device (CCD) using, e.g., either well-known interline transfer, progressive scan, or frame transfer techniques" such that when "the sensor 16 is exposed to image light to capture a particular image, analog image information corresponding to the particular image is generated in respective photosites of the sensor 16." 3:17-32. Next, the "**analog image signals** are applied to an A/D converter 18, which generates **digital image data** from the analog input signals for each picture element." LG-1007, 3:33-35.

Once the digital image data is created, the microprocessor generates "a reduced resolution **thumbnail** image." LG-1007, 3:51-55; LG-1003, ¶234. In addition, the "preliminarily processed data is then ... **stored in the first file format.**" LG-1007, 3:59-63; LG-1003, ¶234. Next, the "processed image data is then transferred via the output interface 30 to the non-volatile storage device 32 in a **second file format,**" where "the second file format is the aforementioned JPEG file format and the first file format is a TIFF file format." LG-1007, 4:9-16.

Therefore, digital image data is produced from the analog image signals, and the second still picture (digital image data converted to the TIFF format), the first

still picture (digital image data converted to the JPEG format) and the “reduced resolution thumbnail” are all related to the common (analog image) signal data (via the digital image data) from the camera’s image sensor. LG-1007, 3:7-31, FIG. 2; LG-1003, ¶235.

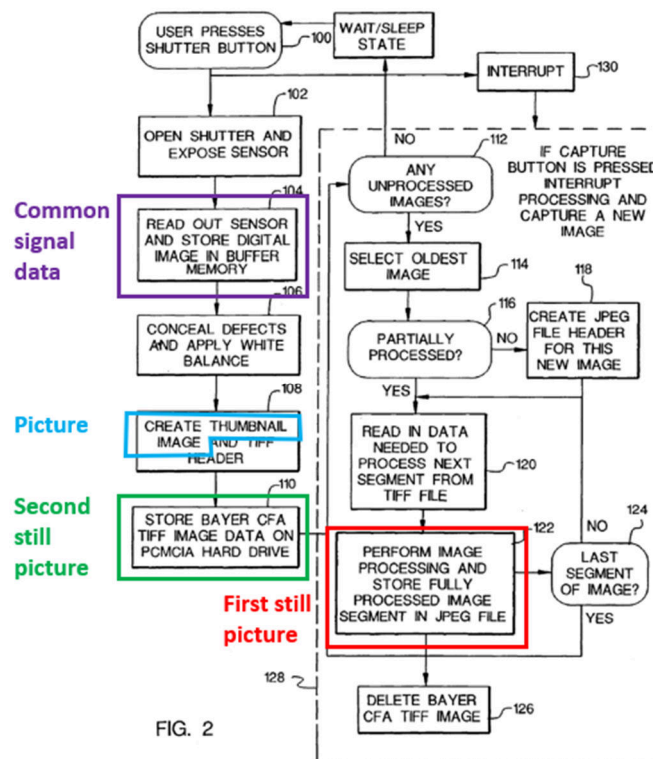


FIG. 2
LG-1007, FIG. 2 (annotated).

[3]

LHS renders [3] obvious. LG-1003, ¶¶236-238.

As described in [1.2.1], the first picture is encoded according to JPEG, which is a first encoding standard.

As described in [1.3.1], the second picture is encoded according to TIFF,

which is a second encoding standard.

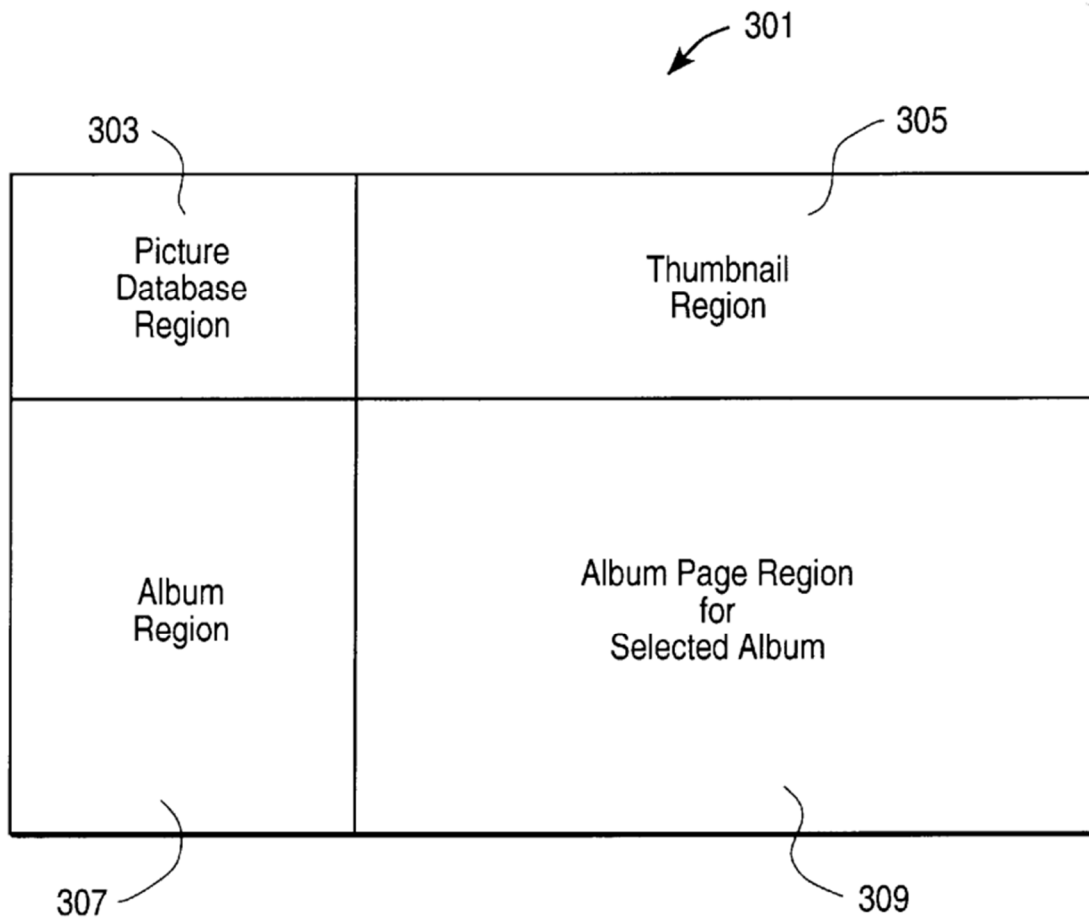
**C. GROUND 2B – Lathrop in view of Wang Renders Obvious
Claims 4, 6-7, and 9**

1. Wang

Wang describes “presenting a collection of digital media in a media container.” LG-1008, 1:67-2:1. “[D]igital media or digital pictures,” which includes “video digital media,” “are assembled into a picture album, where the album has multiple pages and where at least some of the pages include multiple pictures,” and provides non-limiting examples of JPEG and BMP⁶ media objects. LG-1008, 8:18-26, 8:34-35.

Wang’s system includes a user interface for an album with “four regions which may be displayed simultaneously”: picture database region, thumbnail region, album list region, and album page region for a selected album. LG-1008, 6:49-50.

⁶ “BMP” indicates a bitmap file. LG-1003, ¶83.

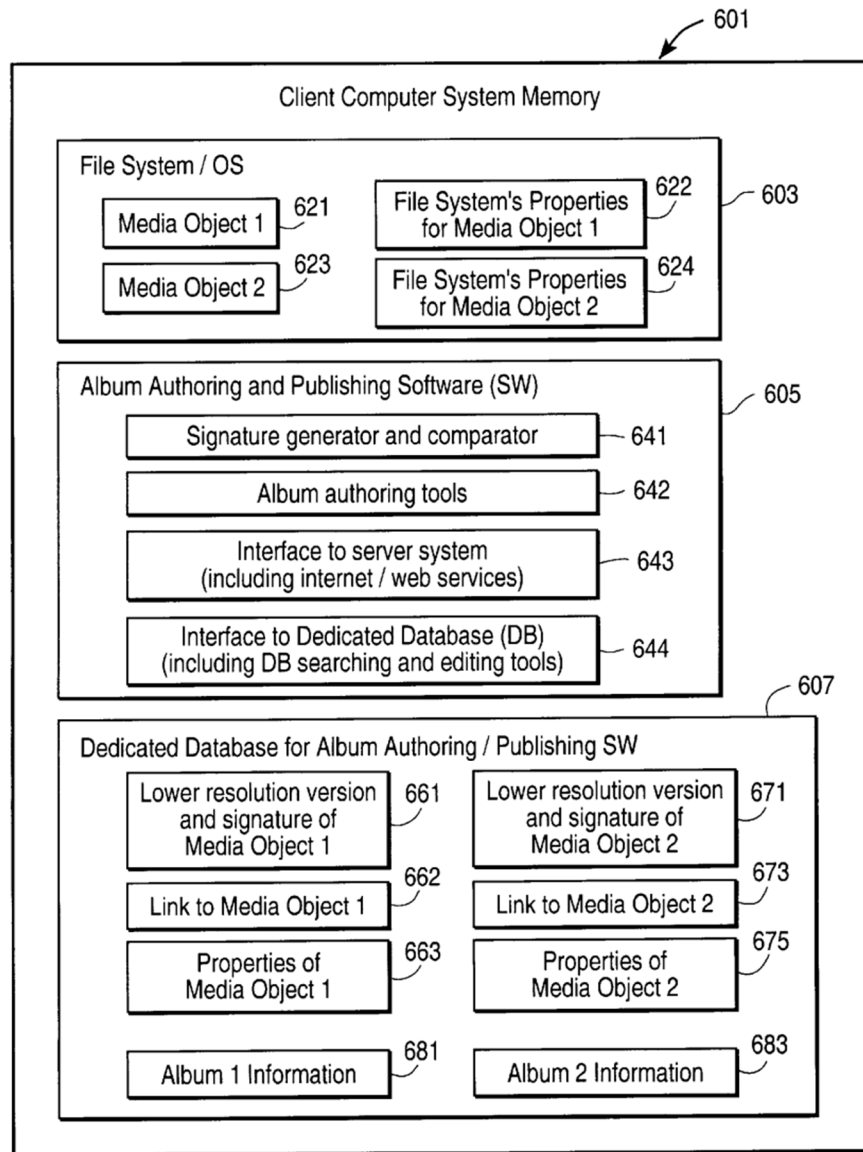


LG-1008, FIG. 5.

The “*picture database region* 303 displays an icon ... for all pictures which have been inputted into the album authoring software;” the “*thumbnail region* 305 displays miniaturized thumbnail versions for the images in either the entire database (if the icon for the database is selected) or for the particular album if the icon in the region 303 for that album has been selected;” the “*album list region* 307 displays icons or representations of the various albums which have been created using the album authoring software.” LG-1008, 6:48-7:17. When “the user selects “a

particular icon in the album list region,” it causes “a page to be displayed from that selected album in the *album page region* 309.” LG-1008, 7:17-20.

Wang’s “FIG. 6 illustrates an example of a computer readable storage medium containing various elements which are used with one embodiment of the present invention,” and includes a “database element 607 includes information for the various pictures in the various albums a user may create.” LG-1008, 8:3-17. The database stores, for each media object, “a lower resolution version of the digital picture,” which can be a thumbnail image. LG-1008, 8:56-9:1.



LG-1008, FIG. 6.

Wang's FIG. 12B "shows a window created by one embodiment of the album authoring software." LG-1008, 13:4-5. In the figure, the currently selected view shown "is the thumbnail and album page view which may be invoked by clicking on the icon 1233," which "causes the album authoring software to display

thumbnails 809 in the thumbnail region for all the pictures in the picture database since the opened shoebox icon 803 has been selected.” LG-1008, 13:7-13. In this example, “the user is viewing the first page of two pages of this sample album.” LG-1008, 13:21-23. Using the editor, “the user may add a picture to a picture album by selecting a thumbnail representation in the thumbnail region and dragging this representation onto a slot of a page displayed in the album page region.” LG-1008, 13:61-63.

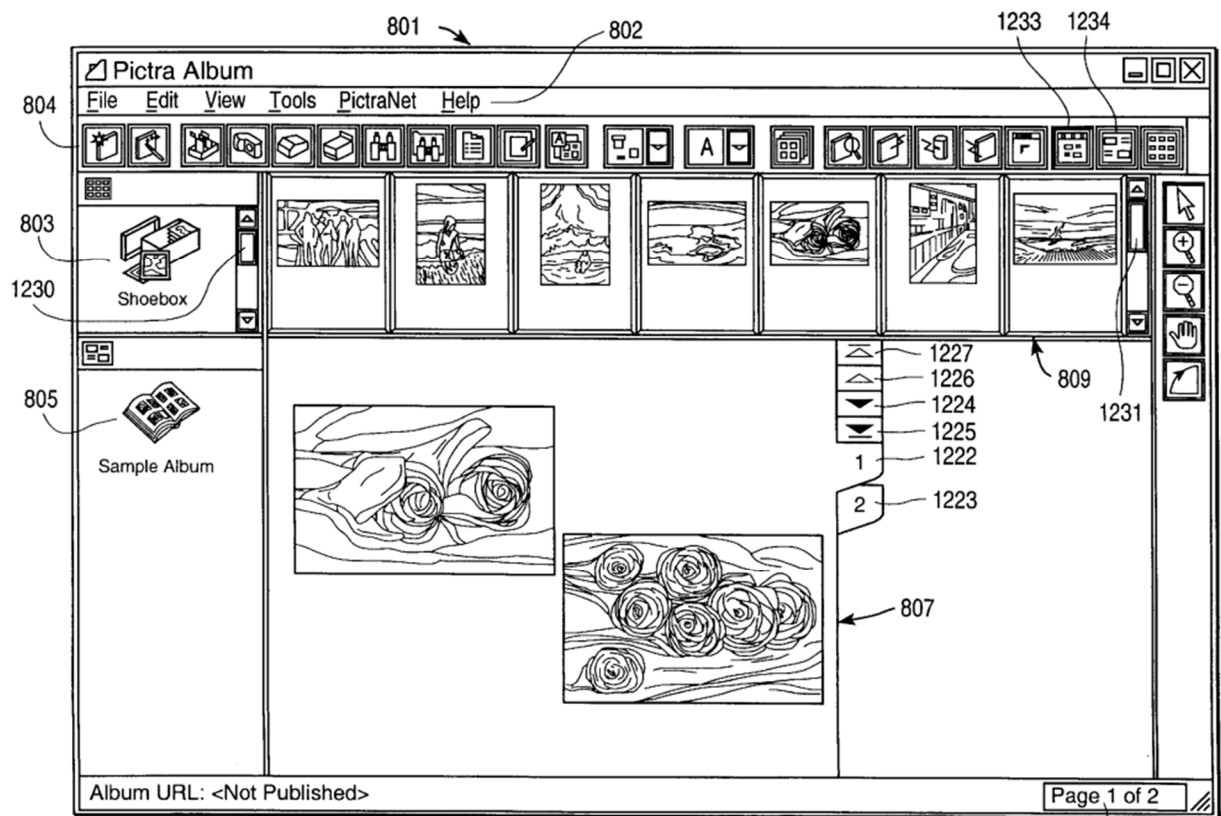


FIG. 12B

LG-1008, FIG 12B.

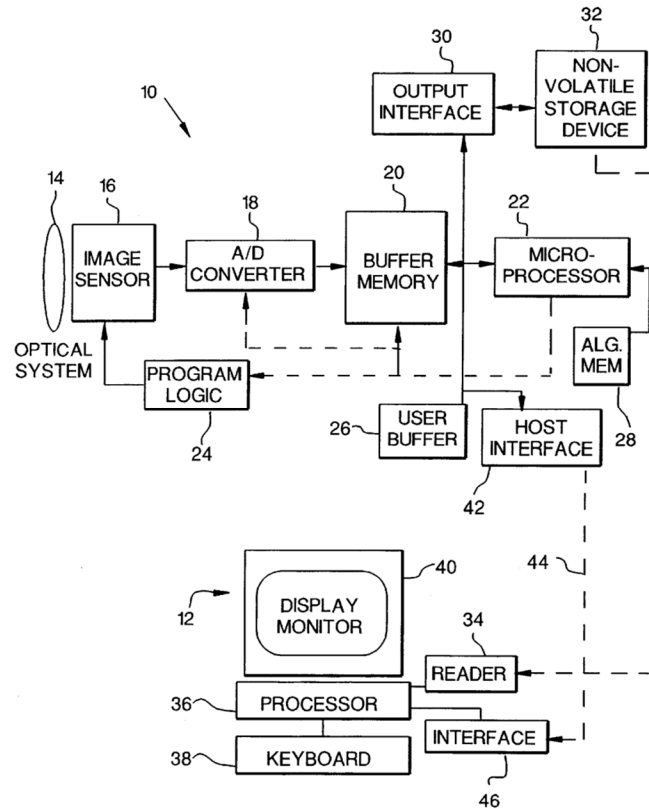
2. Combination

Lathrop describes techniques for efficiently creating JPEG files on a digital camera. §III.B.1. In Lathrop, “the image processor incrementally processes the original digital image data such that processed image data of each increment is stored in the non-volatile memory as each increment of processing is completed,” and the “incremental processing of the original image data can then be interrupted in order to capture a new image, while the processed image data for the completed increments of the original image is saved in the non-volatile memory.” LG-1007, 2:13-24; §III.B.1. Lathrop further explains that files captured by the digital camera are transferred to a computer for further viewing and editing. LG-1007, 4:52-5:3. Lathrop does not, however, describe interacting with the digital camera files on the computer or techniques for organizing and viewing digital images, so a POSITA would naturally look to other references, such as Wang, to better understand how the captured images are then managed on a computer. LG-1003, ¶89. Wang explains that existing systems allow users to “create elaborate and creative documents,” but were “difficult to understand and/or to use.” LG-1008, 1:11-20; LG-1003, ¶89. Therefore, to both capture and benefit from digital images, a POSITA would be motivated to combine the image capture techniques of Lathrop with the image organization and viewing techniques of Wang. LG-1003, ¶89.

The resulting Lathrop-Wang System (“LWS”) includes a digital camera, per

Lathrop, enhanced by an apparatus for collection of digital media in a media container, per Wang. §III.B.1; §III.C.1; LG-1003, ¶90.

First, the camera captures sensor data and converts the data to a TIFF image, JPEG image and thumbnail, per Lathrop. §III.B.1. Then, also per Lathrop, the three images are stored on a non-volatile storage device, which “is a non-volatile PCMCIA memory card containing either solid state memory, such as Flash EPROM memory, or a small hard drive (categorized as a PCMCIA-ATA Type III Hard Drive under the PCMCIA card interface standard),” and “non-volatile, storage device 32 (step 110), which in the preferred embodiment incorporates a PCMCIA-ATA type III hard drive.” LG-1007, 3:57-60, 4:9-11, 4:19-22; 5:33-41. Once stored, data are transferred to a computer (per Lathrop), and as noted by Lathrop, “the computer 12 does not require camera-specific processing capability, and need only handle the conventional JPEG format,” instead of also processing the TIFF data. §III.B.1; LG-1007, 6:62-64; LG-1003, ¶91.



LG-1007, FIG. 1.

Once transferred to the computer, Wang's digital media system then reads the JPEG images and thumbnails from the non-volatile storage device (which Wang calls "computer readable storage medium") and presents the thumbnails and images in a user interface that allows users to create electronic albums, e.g., by "defin[ing] at least one parameter or criteria in order to perform [a] search." LG-1007, 4:42-46, 5:38-41. LG-1008, 5:1-6, 8:3-5, 10:55-60; LG-1003, ¶92.

Then, per Wang, on the computer, the user can identify candidate images to the album using Wang's search techniques, and include a subset of the results in the album by selecting thumbnails of the desired images. §III.C.2. Also, per

Wang, the images in the album are displayed in an album page of the user interface. LG-1008, 12:49-53; LG-1003, ¶93.

A POSITA would have a reasonable expectation of success in combining the teachings of Lathrop and Wang because both describe complementary functions of an image capture and organization system. LG-1003, ¶94. Lathrop teaches efficient techniques for capturing images (including thumbnail images) and storing them on a storage device, while Wang teaches reading images and corresponding thumbnail data from a storage device, and organizing the images into albums, all of which would be desirable for managing large amounts of multimedia files. LG-1003, ¶94.

The combination of Lathrop and Wang would have required only routine programming knowledge well within the skill of a POSITA. LG-1003, ¶95. Indeed, implementing the combination would have amounted to using known techniques to improve complementary systems (image capture and image organization) and combining prior art elements according to known methods to yield the predictable results described above. LG-1003, ¶95; *KSR*, 550 U.S. at 417.

Finally, the elements of the resulting LWS would each perform functions they performed prior to combination—Lathrop’s image capture techniques generate images and Wang’s techniques organize those images. A POSITA would therefore expect success when combining Lathrop’s and Wang’s teachings. LG-

1003, ¶96.

3. Analysis

[4.1]

To the extent the preamble is limiting, LWS renders [4.1] obvious. LG-1003, ¶¶239-240.

For example, Wang describes reproduction of digital images, while further indicating that “it will be appreciated that digital media or media objects refers generally to audio digital media, *video digital media* and software files, such as a word processing file created by a word processing computer program.” LG-1008, 8:18-22; §III.C.2. Thus, to the extent the preamble is limiting, the LWS offers a method of reproducing both video and images.⁷ LG-1003, ¶240.

[4.2.1]

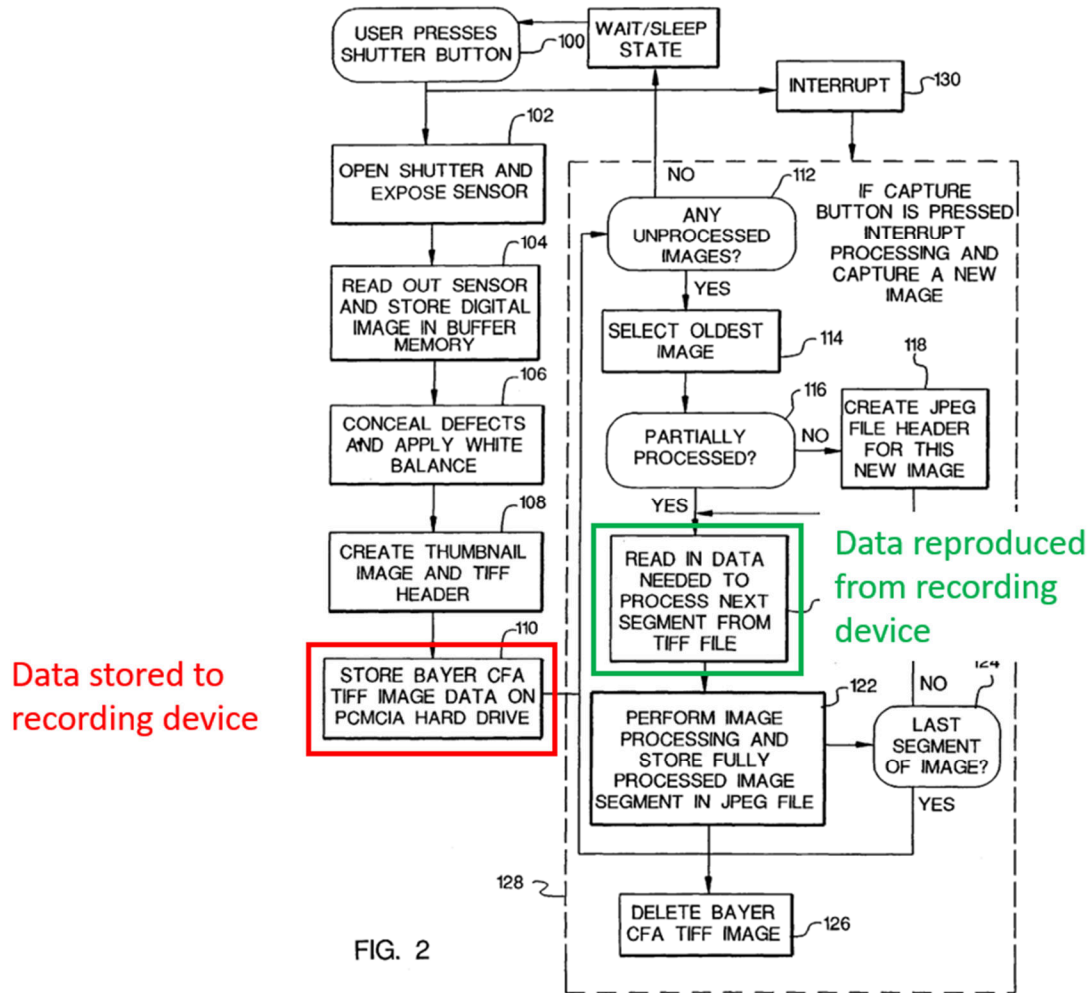
LWS renders [4.2.1] obvious. LG-1003, ¶¶241-246.

Lathrop teaches reproducing a first still picture (JPEG), a second still picture (TIFF), and a picture (thumbnail) from a recording medium. LG-1003, ¶242; §III.C.2.

Lathrop explains that “the microprocessor 22 in the camera begins to perform image processing of the stored ‘raw’ Bayer pattern TIFF image, in order to create a ‘finished’ JPEG inter-change format image file format as described in

⁷ See §III.A.4.[4.1] (discussion of LG-1031, 4 n.2).

ISO/IEC 10918-1:1994,” where the TIFF image is a *second still picture*. LG-1007, 5:58-62. To display the picture, “[t]he processor begins by reading from the TIFF file the data needed to process the next segment (step 120).” LG-1007, 6:28-29; LG-1003, ¶243. A POSITA would understand that, to “perform image processing of the stored ‘raw’ Bayer pattern TIFF image,” LWS reads (reproduces) the stored data from LWS’s recording medium, e.g., memory card. LG-1007, 3:58-63; LG-1003, ¶243; §III.C.2. To the extent Lathrop does not explicitly disclose displaying TIFF encoded images, a POSITA would find it obvious to do so. LG-1003, ¶244 (citing LG-1045, 60; LG-1046, 21).



LG-1007, FIG. 2 (annotated).

Moreover, Lathrop explains that “the *digital processor 22 generates JPEG* (Joint Photographic Experts Group) interchange format image files that are stored on the removable storage device 32,” so “the computer 12 does not require camera-specific processing capability, and need only handle the conventional JPEG format,” where a generated JPEG image is a *first still picture*. LG-1007, 4:59-64; LG-1003, ¶245. Lathrop further explains that “[t]he digital image data captured

and processed by the digital still camera 10 is conveyed to the host computer 12 preferably by removing the storage device 32 from the camera 10 and then inserting the device 32 into a reader 34, e.g., a PCMCIA memory card reader, associated with the computer 12.” LG-1007, 4:52-57. A POSITA would understand that conveying the data to the host computer includes reproducing the data (e.g., JPEG image). LG-1003, ¶245.

Third, Lathrop states a “reduced resolution thumbnail image,” which is a *picture*, “is generated along with a TIFF header (step 108) and stored together with the essentially “raw” image data in the non-volatile, storage device 32.” LG-1007, 5:36-39. Lathrop further explains that “the microprocessor 22 begins to create a new JPEG file (step 118) by writing the JPEG header information, which includes the start of image and start of image JPEG segments, as well as an application segment, such as the Exif application segment,” including “the TIFF thumbnail data and other TIFF tags, for example the DateTime tag and the Fnumber tag.” LG-1007, 6:3-12. Once the “digital image data [is] captured and processed by the digital still camera,” it “is conveyed to the host computer 12 preferably by removing the storage device 32 from the camera 10 and then inserting the device 32 into a reader 34, e.g., a PCMCIA memory card reader, associated with the computer 12.” LG-1007, 4:52-57. A POSITA would understand that conveying the data to the host computer includes reproducing the data (e.g., picture). LG-1003, ¶246.

[4.2.2]

LWS renders [4.2.2] obvious. LG-1003, ¶247-248.

Lathrop teaches a first still picture encoded by a first encoding method (JPEG). *See* §III.B.2.[1.2.1]. Lathrop teaches a second still picture is encoded by a second encoding method (TIFF). *See* §III.B.2.[1.3.1]. JPEG is different from TIFF. *See* §III.B.2.[1.3.3].

[4.2.3]

LWS renders [4.2.3] obvious. *See* §III.B.2.[1.4.1].

[4.2.4]

See §III.B.2.[1.5].

[4.3]

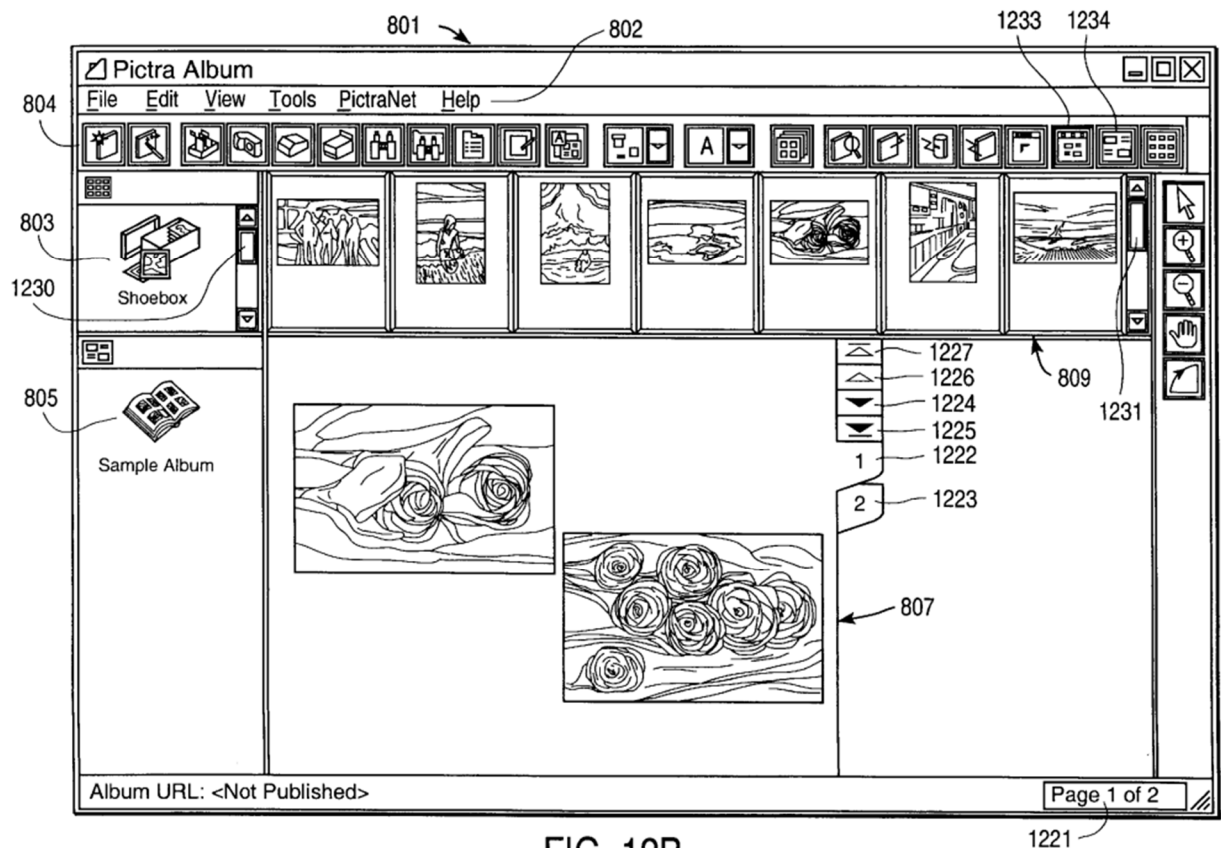
LWS renders [4.3] obvious. LG-1003, ¶¶251-253.

For example, Wang's FIG. 12B "shows a window created by one embodiment of the album authoring software." LG-1008, 13:4-5. In the figure, the currently selected view shown "is the thumbnail and album page view which may be invoked by clicking on the icon 1233," which "causes the album authoring software to ***display thumbnails*** 809 in the thumbnail region for all the pictures in the picture database since the opened shoebox icon 803 has been selected." LG-1008, 13:7-13. The thumbnail (picture) was produced by the reproducing operation. *See* §III.C.3.[4.2.1]. A POSITA would have further found obvious that the other thumbnails would have also been reproduced by the reproducing operation (e.g.,

such that they could be displayed/output). LG-1003, ¶252. Thus, a plurality of pictures from the reproducing operation are output. *Id.*

Moreover, in this example, “the user is *viewing the first page* of two pages of this sample album.” LG-1008, 13:21-23. Using the editor, “the user may add a picture to a picture album by selecting a thumbnail representation in the thumbnail region and dragging this representation onto a slot of a page displayed in the album page region.” LG-1008, 13:61-63. The JPEG (first still picture) was produced by the reproducing operation. *See* §III.C.3.[4.2.1].

Thus, additionally or alternatively, since the thumbnail (picture) and JPEG were reproduced and output, a plurality of pictures from the reproducing operation are output. LG-1003, ¶253; §III.C.2.



LG-1008, FIG 12B.

[4.4]

LWS renders [4.4] obvious. §III.C.2; LG-1003, ¶¶254-255.

For example, in Wang's example in FIG. 12B, using the editor, "the user may add a picture to a picture album by *selecting a thumbnail* representation in the thumbnail region and dragging this representation onto a slot of a page displayed in the album page region." LG-1008, 13:61-63. The added picture can be the first still picture (JPEG from the camera) and is added in response to selecting a picture (the corresponding thumbnail). LG-1003, ¶255. In this example, "the user

is viewing the first page of two pages of this sample album,” which includes the outputted first still picture, which was added by the selecting operation. LG-1008, 13:22-23; LG-1003, ¶255.

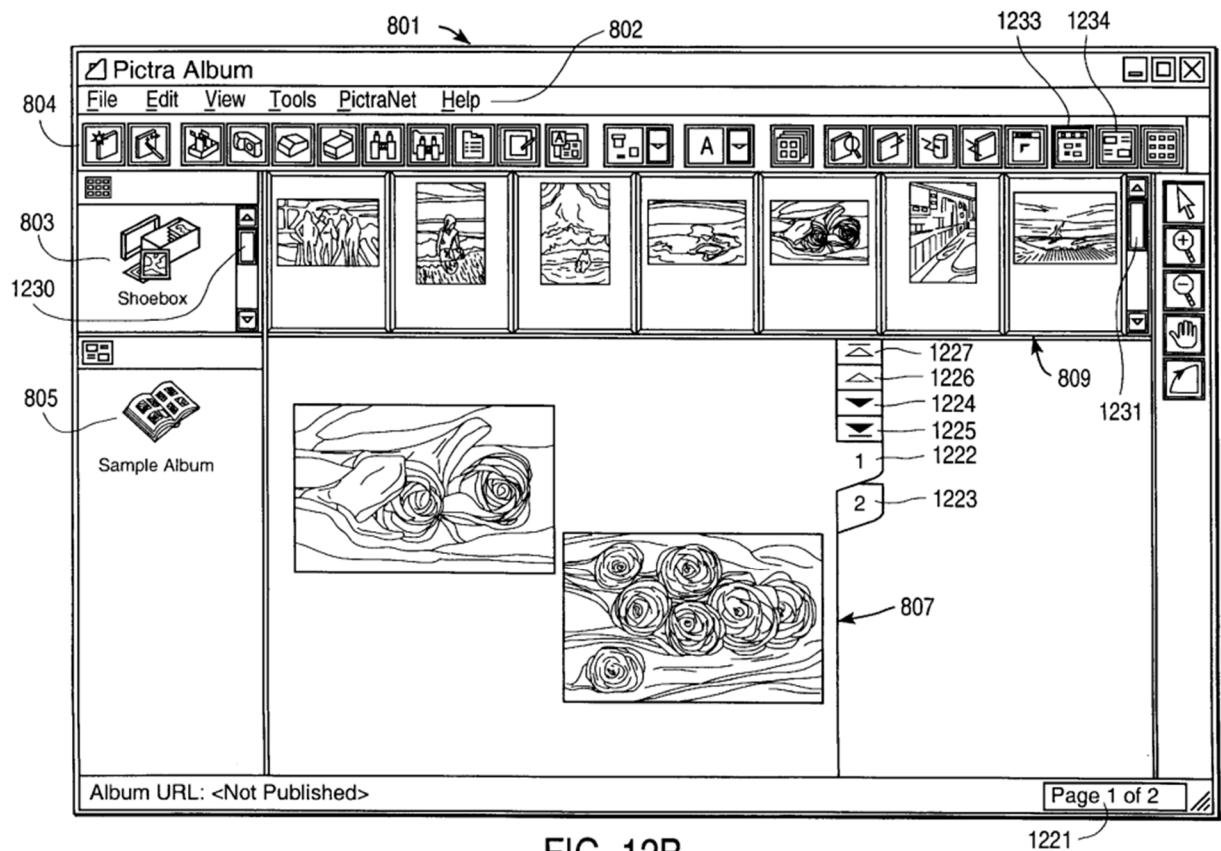


FIG. 12B

LG-1008, FIG 12B.

[6]

See §III.B.2.[3].

[7.1]-[7.4]

See §III.C.3.[4.1]-[4.4].

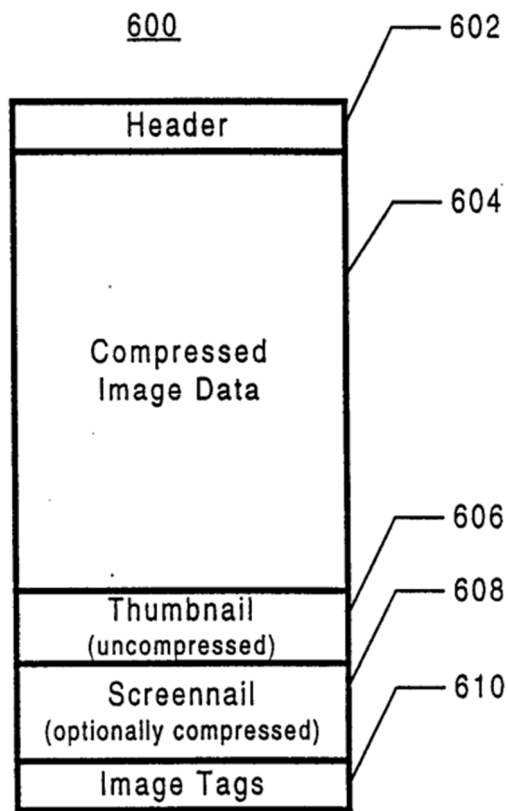
[9]

See §III.B.2.[3].

D. GROUND 3 – Anderson Renders Obvious Claims 4, 6-7, and 9

1. Anderson⁸

Anderson describes an imaging device that captures images and stores the data representing the image “in a single image file that includes a compressed image, a low-resolution image, and a medium-resolution image.” LG-1009, Abstract.



⁸ Citations to Anderson reference the stamped exhibit page number rather than the original page numbers of the PCT publication.

The compressed image data “is the actual data comprising the full-sized captured image in compressed form, preferably in JPEG format,” which can be “captured at a resolution of 640x480 pixels.” LG-1009, 12:21-24. The medium resolution image, a “scrennail image,” “is preferably 288X216,” and can be compressed or uncompressed. LG-1009, 12:33-13-4. The “thumbnail image 606 is a small, uncompressed low-resolution version of the image,” with a pixel size “less than the display size of the LCD screen 402 (e.g., 80x60 pixels).” LG-1009, 12:29-31.

Anderson explains that “the image file is used to accelerate the user interface of the image capture unit when the unit is in certain operating modes,” such as “review mode” and “play mode.” LG-1009, 5:13-14, 13:18-20.

2. Analysis

[4.1]

To the extent the preamble is limiting, Anderson renders it obvious. LG-1003, ¶¶266-267.

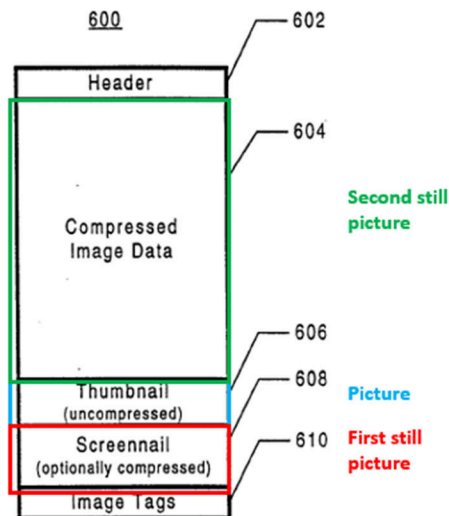
Anderson explains that “the camera can be programmed to monitor whether it is attached to a higher resolution device, such as a PC monitor or television, via the camera's *video jack*,” and if so, “the compressed image data 608 is also decompressed and displayed on higher resolution device.” LG-1009, 21:6-10. Anderson further explains that “[u]sers can also play back various media types, such as time

lapse, bursts and slide show images according to either default or user defined play back rates.” LG-1009, 19:3-5. Since the images are reproduced over the video jack, and displayed, for example, as burst or time lapse, a POSITA would understand or find obvious that such images are a form of video.⁹ LG-1003, ¶267 (citing LG-1001, 2:49-58).

[4.2.1]

Anderson renders [4.2.1] obvious. LG-1003, ¶¶268-276.

Anderson discloses reproducing a first still picture, second still picture and picture from a recording medium. LG-1003, ¶269.



LG-1009, FIG. 6 (annotated).

An uncompressed screenail image is an example of a first still picture. LG-

⁹ See §III.A.4.[4.1] (discussion of LG-1031, 4 n.2).

1003, ¶270; LG-1009, 12:33-13-1 (“*screenail image* 608 is a medium-resolution version of the image” that can be uncompressed).

The compressed full-sized image is an example of a second still picture. LG-1003, ¶271. Anderson explains that “[t]he image data 604 is the actual data comprising the *full-sized captured image* [first still picture] in compressed form, preferably in JPEG format,” which can be “captured at a resolution of 640x480 pixels.” LG-1009, 12:21-24.

A thumbnail image is an example of a picture. LG-1003, ¶272. Anderson explains that the “thumbnail image 606 is a small, uncompressed low-resolution version of the image,” with a pixel size that is “less than the display size of the LCD screen 402 (e.g., 80x60 pixels).” LG-1009, 12:29-31.

Anderson discloses reproducing the first still picture, second still picture and picture from a recording medium. LG-1003, ¶273. For example, Anderson describes a “process of accelerating the user interface of the digital camera when in play mode,” where “the *screenail image* 608 corresponding to the selected image is *fetched* from the image data file 600 stored on the removable memory” and “decompressed and displayed in the LCD screen.” LG-1009, 20:6-13.

Anderson further explains that “if the user presses and holds down the left/right buttons,” “then a series of screenail images 608 are continually decompressed and displayed in the LCD screen.” LG-1009, 20:17-19. Then,

“[a]fter the button is released, whichever image is currently being displayed becomes the selected image, and the *compressed image data 604* corresponding to the selected image is *fetches* from the image file 600 and decompressed and resized to fit the display.” LG-1009, 20:20-23.

Additionally, Anderson explains that “after review mode is invoked, each of the *thumbnail images 606* to be displayed in the current screen are *fetches* from the corresponding image data files 600 stored on the removable memory 354.” LG-1009, 17:31-33.

A POSITA would understand that fetching and displaying the scrennail, compressed image data, and thumbnail includes reproducing those pictures from a recording medium (removable memory). LG-1003, ¶276.

[4.2.2]

Anderson renders [4.2.2] obvious. LG-1003, ¶¶277-281.

Anderson explains that “previously processed YCC data in the frame buffers 536 is used to generate the thumbnail 606 and scrennail,” and “the YCC data in the frame buffers 536 is converted from YCC 222 format into YCC 422 format,” which is optionally compressed. LG-1009, 13:35-14:1,14:23-26, FIG. 6. Therefore, a POSITA would understand that the scrennail (first still picture) is encoded according to a first encoding method, uncompressed YCC. LG-1003, ¶¶278-279 (citing LG-1047, 6:38-42; LG-1048, 4:36-41).

Anderson further explains that “image data 604 [second still picture] is the actual data comprising the full-sized captured image in *compressed form*, preferably in *JPEG format*.” LG-1009, 12:22-24.

Since the image data 604 is compressed JPEG, and the scrennail is uncompressed YCC, Anderson teaches or renders obvious a second encoding method different from the first encoding method. LG-1003, ¶281.

[4.2.3]

Anderson renders [4.2.3] obvious. LG-1003, ¶¶282-287.

The first still picture is an uncompressed scrennail, “preferably 288X216.” LG-1009, 12:3-4; LG-1003, ¶283. The second still picture is the full resolution image “captured at a resolution of 640x480 pixels.” LG-1009, 12:27; LG-1003, ¶284. The picture is a thumbnail with a pixel size “less than the display size of the LCD screen 402 (e.g., 80x60 pixels).” LG-1009, 12:29-31; LG-1003, ¶285.

Therefore, the picture (thumbnail) has fewer pixels than the first and second still pictures. LG-1003, ¶286.

Additionally, since the picture, first still picture, and second still picture are all derived from common signal data, as explained in reference to [4.2.4], the picture (thumbnail) corresponds to the first and second still pictures. §III.D.2.[4.2.4]; LG-1003, ¶287.

[4.2.4]

Anderson renders [4.2.4] obvious. LG-1003, ¶¶288-291.

Anderson explains that “[o]nce the user presses the shutter button 418 to capture an image, the raw image data is captured by the image device 114 at a resolution set by the user and the raw image data is stored into an appropriate number of input buffers 538.” LG-1009, 14:11-13. “The raw image data is then used to generate an enhanced image file 600 for the captured image including the *compressed image data 604, the thumbnail 606, and the screennail 608*.” LG-1009, 14:13-16.

Since the raw image data is used to generate the compressed image data (second still picture), the thumbnail (picture), and the screennail (first still picture), the first still picture, second still picture and picture are related pictures derived from common signal data (the raw image data captured by the image device). LG-1003, ¶291.

[4.3]

Anderson renders [4.3] obvious. LG-1003, ¶¶292-296.

Anderson explains that, after “review mode is invoked, each of the *thumbnail images 606* [picture] to be displayed in the current screen are fetched from the corresponding image data files 600 stored on the removable memory 354.” LG-1009, 17:31-33. Anderson further explains that “[w]hen displaying a given review mode screen, all the screen elements are first drawn in the draw buffer and then

moved to the display buffer where the *data is then output to the LCD 402* for display.” LG-1009, 18:3-6. A POSITA would have further found obvious that the other thumbnails would have also been reproduced by the reproducing operation (e.g., such that they could be displayed/output). LG-1003, ¶293. Therefore, Anderson teaches outputting (displaying) a plurality of pictures, including the thumbnail (picture). *Id.*

Moreover, Anderson explains that “after play mode is invoked, the *screen-nail* image 608 [first still picture] corresponding to the selected image is fetched from the image data file 600 stored on the removable memory 354 (or a host computer if connected) in step 802,” then “decompressed¹⁰ and *displayed in the LCD* screen 402 in step 804.” LG-1009, 20:9-12; §III.D.2.[4.2.1]. Therefore, Anderson teaches outputting (displaying) the screennail (first still picture). LG-1003, ¶295. Thus, additionally or alternatively, Anderson discloses outputting a plurality of pictures (thumbnail/picture and screennail/first still picture). LG-1003, ¶295.

As described in [4.2.1], the reproducing operation results in the screennail (first still picture), full-size image (second still picture), and thumbnail (picture) being stored on the removable memory 354. §III.D.2.[4.2.1]. Since both the

¹⁰ A POSITA would understand that when the screennail (first still image) is uncompressed, the decompression step would be omitted. LG-1003, ¶395 n.13.

screenrail and thumbnail are “fetched from the image data file 600 stored on the removable memory 354,” the screenrail (first still picture) and thumbnail (picture) are from the reproducing operation. LG-1009, 19:1-3, 20:10-11; LG-1003, ¶296.

[4.4]

Anderson renders [4.4] obvious. LG-1003, ¶¶297-298.

For example, Anderson explains that “after play mode is invoked, the screenrail image 608 [first still picture] *corresponding to the selected image* is fetched from the image data file 600 stored on the removable memory 354 (or a host computer if connected) in step 802,” then “decompressed and displayed in the LCD screen 402 in step 804.”¹¹ LG-1009, 20:12-13; §III.D.2.[4.2.1].

[6]

Anderson renders [6] obvious. LG-1003, ¶¶299-303.

As described in [4.2.2], the screenrail (first still picture) is encoded according to a first encoding method, the YCC standard (uncompressed). LG-1009, 13:35-14:1, 14:23-26, FIG. 6; §III.D.2.[4.2.2]; LG-1003, ¶¶300-302 (citing LG-1032, 3:22-26 (“*standards such as Ycc...*”); LG-1037, 3; LG-1038, 4). Also as described in [4.2.2], the image data (second still picture) is encoded according to a second encoding method, JPEG. LG-1009, 12:22-24; §III.D.2.[4.2.2]. Therefore,

¹¹ See n.10.

the first encoding method is according to a first encoding standard (YCC) and said second encoding method is according to a second encoding standard (JPEG). LG-1003, ¶303.

[7.1]

See §III.D.2.[4.1].

[7.2.1]

See §III.D.2.[4.2.1].

[7.2.2]

See §III.D.2.[4.2.2].

[7.2.3]

See §III.D.2.[4.2.3].

[7.2.4]

See §III.D.2.[4.2.4]

[7.3]

See §III.D.2.[4.3].

[7.4]

See §III.D.2.[4.4].

[9]

See §III.D.2.[3].

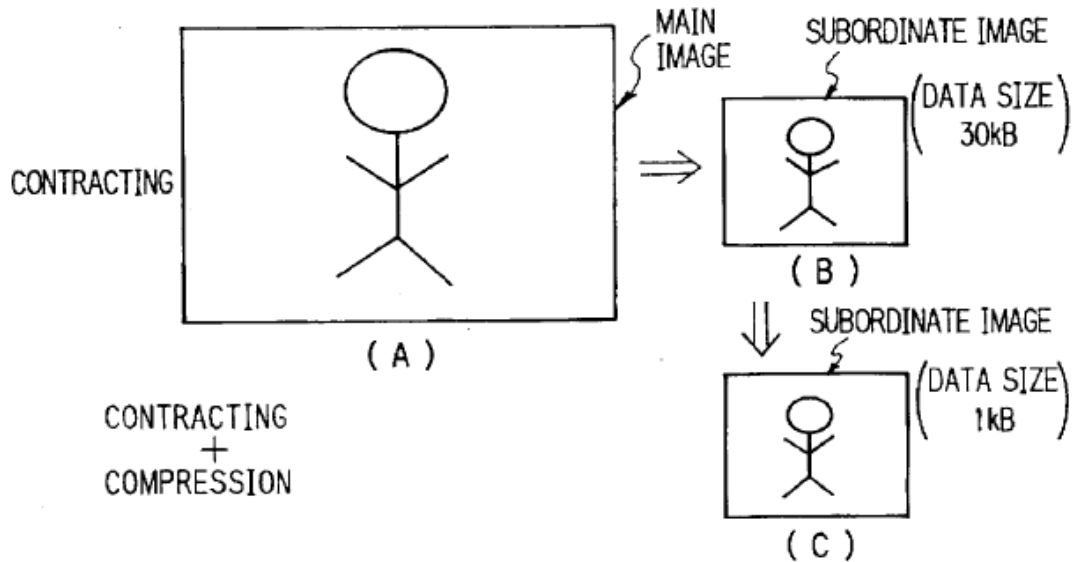
E. GROUND 4 – Suzuki Renders Obvious Claims 1, 3-4, 6-7, and 9

1. Suzuki

Suzuki is directed to producing “subordinate images.” LG-1010, Abstract. Suzuki explains that “the subordinate image (e.g., thinned image, contracted image, etc.) is produced by extracting part of the image data of one image frame (hereinafter referred to as the main image), the extracted image being stored in a memory, transmitted to a different image processing apparatus or otherwise being processed.” LG-1010, 9:49-59. “The recording of the extracted or subordinate image in the memory is made through the operation of system controller 16.” *Id.*

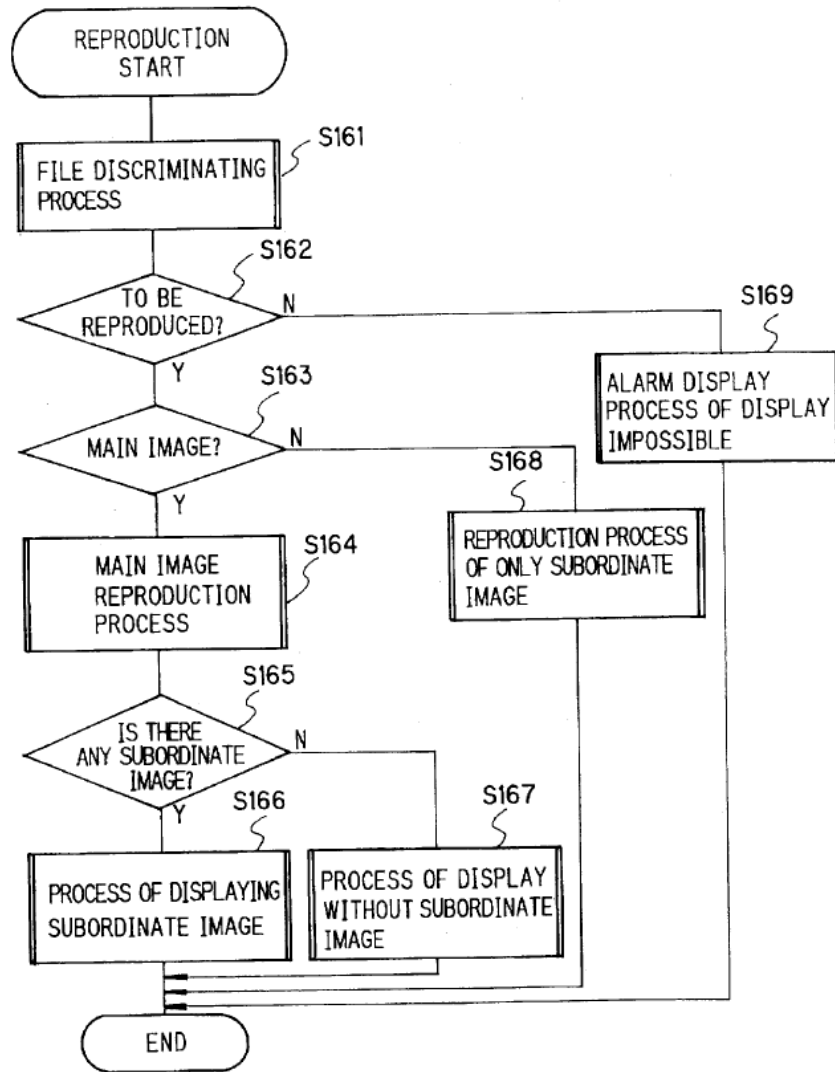
For example, Suzuki explains that “the main image in FIG. 31(a) is contracted to obtain the subordinate image of a data size of 30 kB as shown in FIG. 31(B),” which is “further compressed to an image of data size of 1 kB as shown in FIG. 31(C).” LG-1010, 18:20-28, FIG. 31. Suzuki further explains that both the main image and subordinate images are recorded in “IC memory card 15.” LG-1010, 9:21-30, 13:58-64, 13:65-14:8, FIGS. 1, 13.

FIG. 31



LG-1010, FIG. 31.

FIG. 32 is a “flow chart illustrating an image reproduction sequence,” which can be used to reproduce “the main image (step S163)” and “the subordinate image” (step S168). LG-1010, 18:29-55, FIG. 32; *see id.*, 18:56-19:15, FIG. 33.



LG-1010, FIG. 32.

2. Analysis

[1.1]

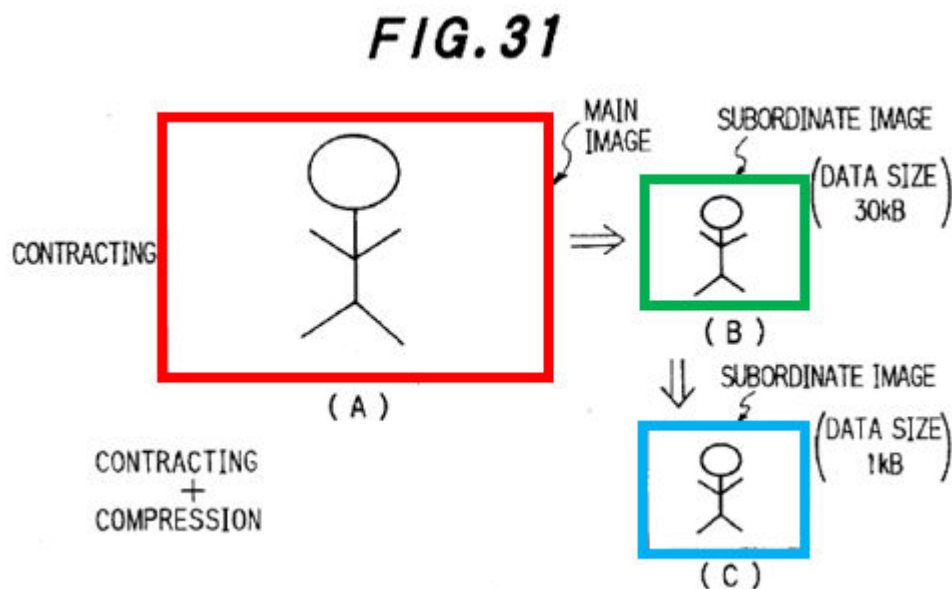
To the extent the preamble is limiting, Suzuki renders [1.1] obvious. LG-1003, ¶312. Specifically, Suzuki discloses “IC memory card 15 which is used as a storage means” on which “compressed image data is recorded” and can be read

out. LG-1010, 9:27-38, 13:58-60, FIG. 1. The main image and subordinate images are recorded in “IC memory card 15,” which “is used as a storage means,” and a POSITA would understand to be machine readable. LG-1010, 9:21-30, 13:58-64, 13:65-14:8, FIGS. 1, 13; LG-1003, ¶312.

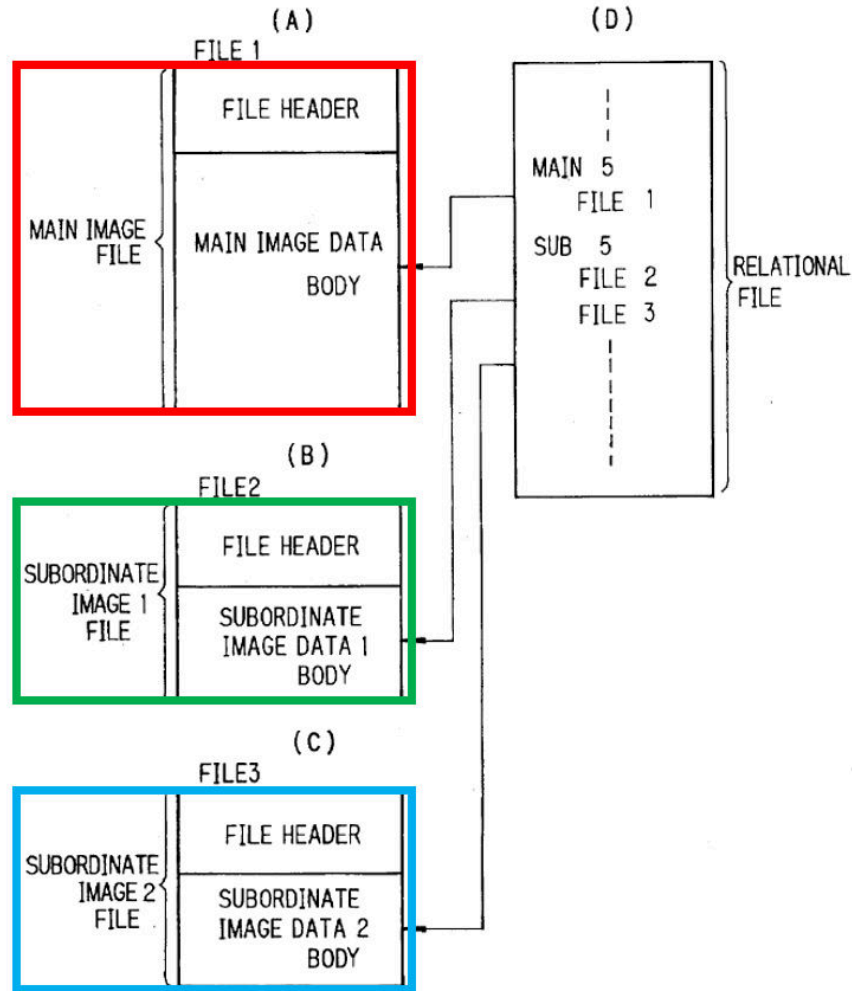
[1.2.1]

Suzuki renders [1.2.1] obvious. LG-1003, ¶¶313-316; *see infra* §III.E.2.[4.2.1]-[4.2.2].

As discussed in [1.1], Suzuki discloses a main image (first still picture) recorded on the IC memory card. Example “main image” is shown in FIG. 31 (red), and “an example of recording the subordinate image data in separate files from that of the main image data” is shown in FIG. 6 (red). LG-1010, 11:15-27, 18:20-28, FIGS. 6, 31.



LG-1010, FIG. 31(annotated).



LG-1010, FIG. 6 (annotated).

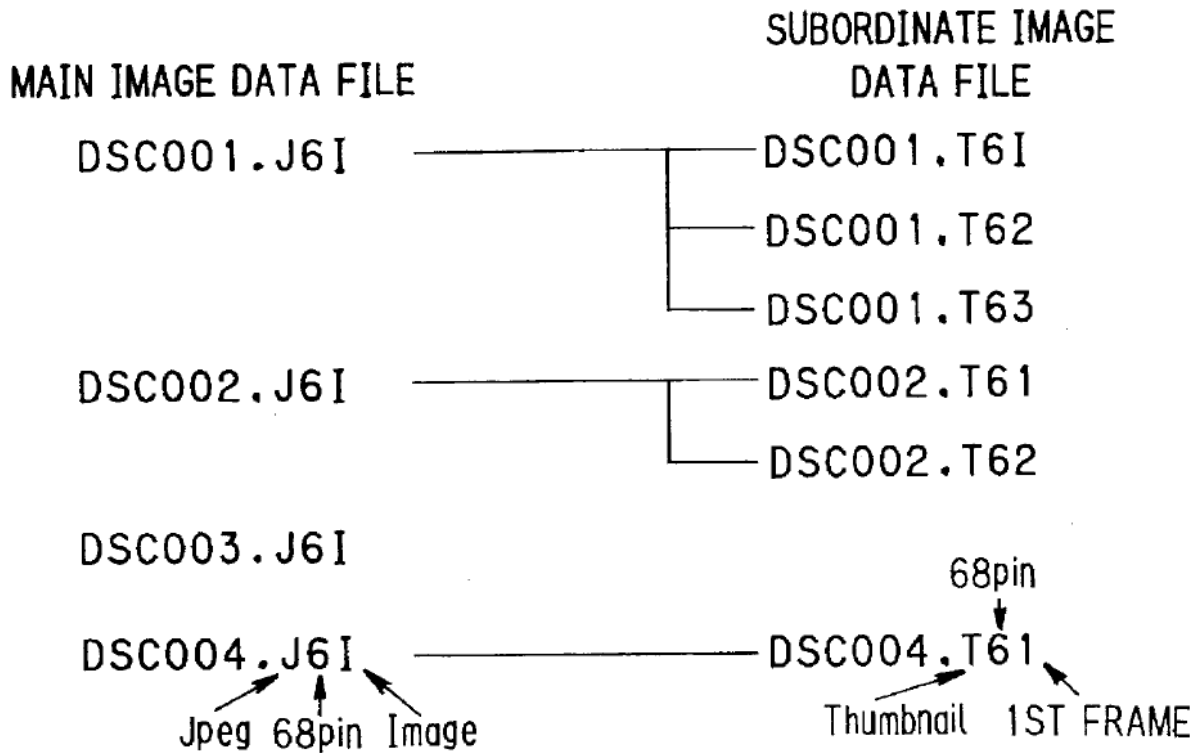
The main image is “coded in coder/decoder 13 and subjected to a compression process in a compression system conforming to the *JPEG* system” (first encoding method). LG-1010, 9:21-30 (emphasis added), 10:60-63, 11:55-64.

[1.2.2]

As described in [1.2.1], Suzuki’s first still picture is encoded as JPEG. Suzuki further discloses JPEG files with a header, so a POSITA would understand that the JPEG images include descriptive header information that allows a machine

to recognize and decode the image, and therefore to recognize and decode the first still picture. LG-1010, 10:64-11:1, FIG. 5; LG-1003, ¶¶317 (citing LG-1022, 4, 5; LG-1023, 12); LG-1002, 43.

Moreover, a POSITA would understand that the JPEG first still picture has a JPEG file extension, which further provides descriptive information for recognizing and decoding the image. LG-1003, ¶318 (citing LG-1039, 2:59-3:9); LG-1002, 43. For instance, FIG. 8 shows “the main and subordinate image data [] recorded in separate files for discriminating and relating of data on the basis of file names.” LG-1010, 7:42-44. The main image has an “extender” (i.e., file extension) “J6I,” where “‘J’ represents JPEG as the compression system,” and “‘I’ image.” *Id.*, 11:46-59. A POSITA would understand that this “extender” allows the computer to recognize the main image (e.g., as JPEG) and decode (e.g., decompress) the image for display. *Id.*; LG-1003, ¶¶318-322.



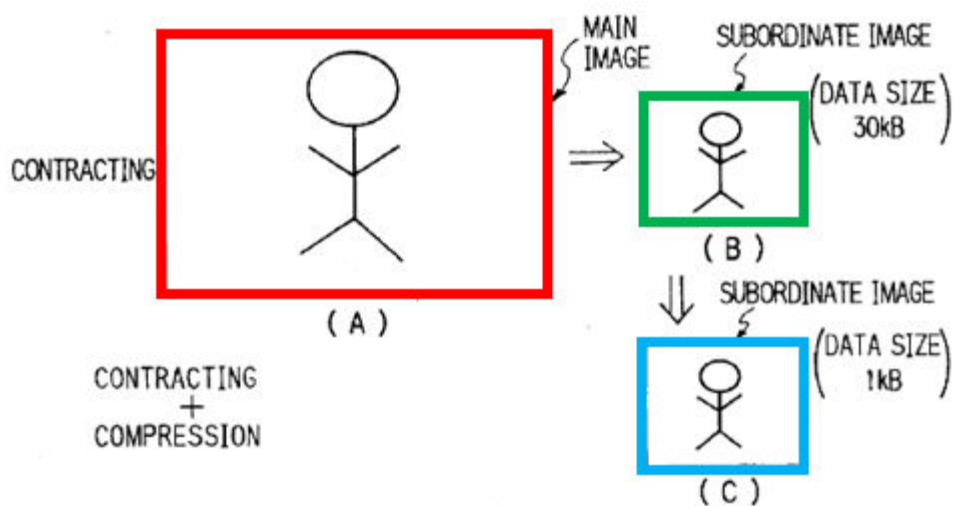
LG-1010, FIG. 8.

[1.3.1]

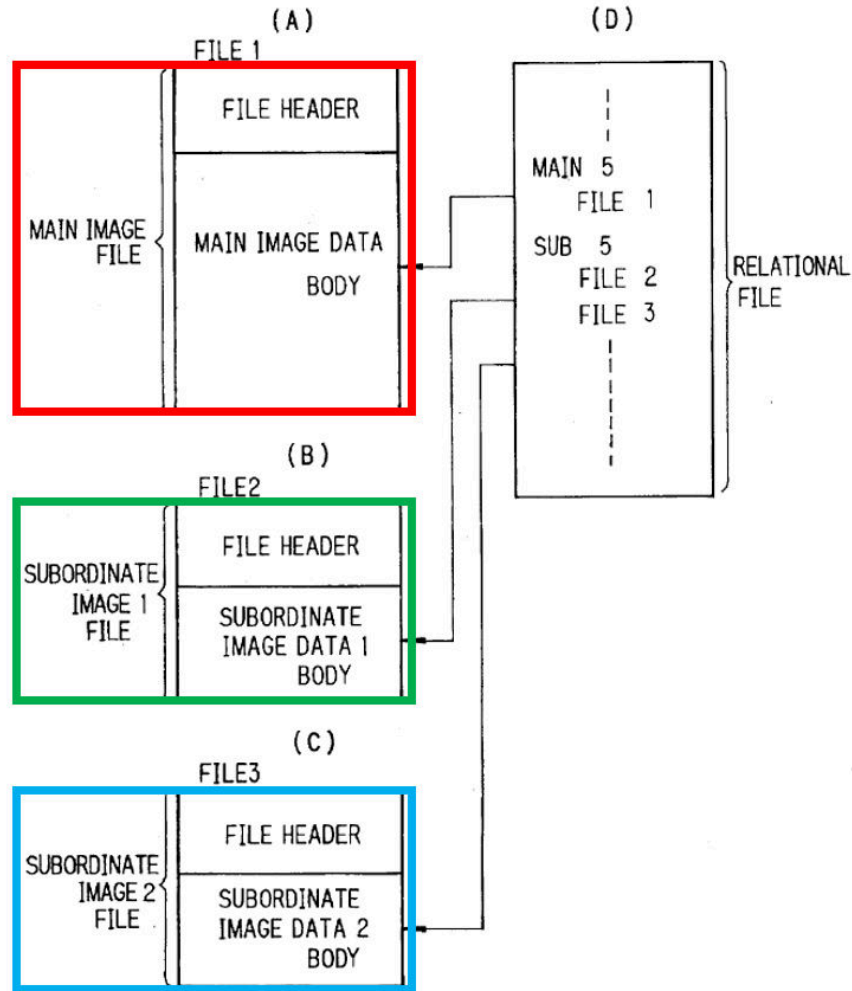
Suzuki renders [1.3.1] obvious. LG-1003, ¶¶323-326; *see infra* §III.E.2.[4.2.1]-[4.2.2].

As discussed in [1.1], Suzuki discloses subordinate image (B) (second still picture) recorded on the IC memory card. Subordinate image (B) is shown, for example, in FIG. 31 (green), with “an example of recording the subordinate image data in separate files from that of the main image data” shown in FIG. 6 (green). LG-1010, 11:15-27, 18:20-28, FIGS. 6, 31.

FIG. 31



LG-1010, FIG. 31(annotated).



LG-1010, FIG. 6 (annotated).

Suzuki describes a subordinate image production process that includes “a conversion conforming to a format necessary for personal computer processing.” LG-1010, 14:9-54, FIG. 14. “Image data formats available for personal computers include TIFF, PICT, BMP, etc. as well as JPEG, and the present invention is applicable to those systems as well.” LG-1010, 11:3-6, 11:56-64, FIG. 8. Thus, a POSITA would understand that the subordinate images of Suzuki, including subordinate image (B), can be non-JPEG formats, including, for example TIFF, PICT,

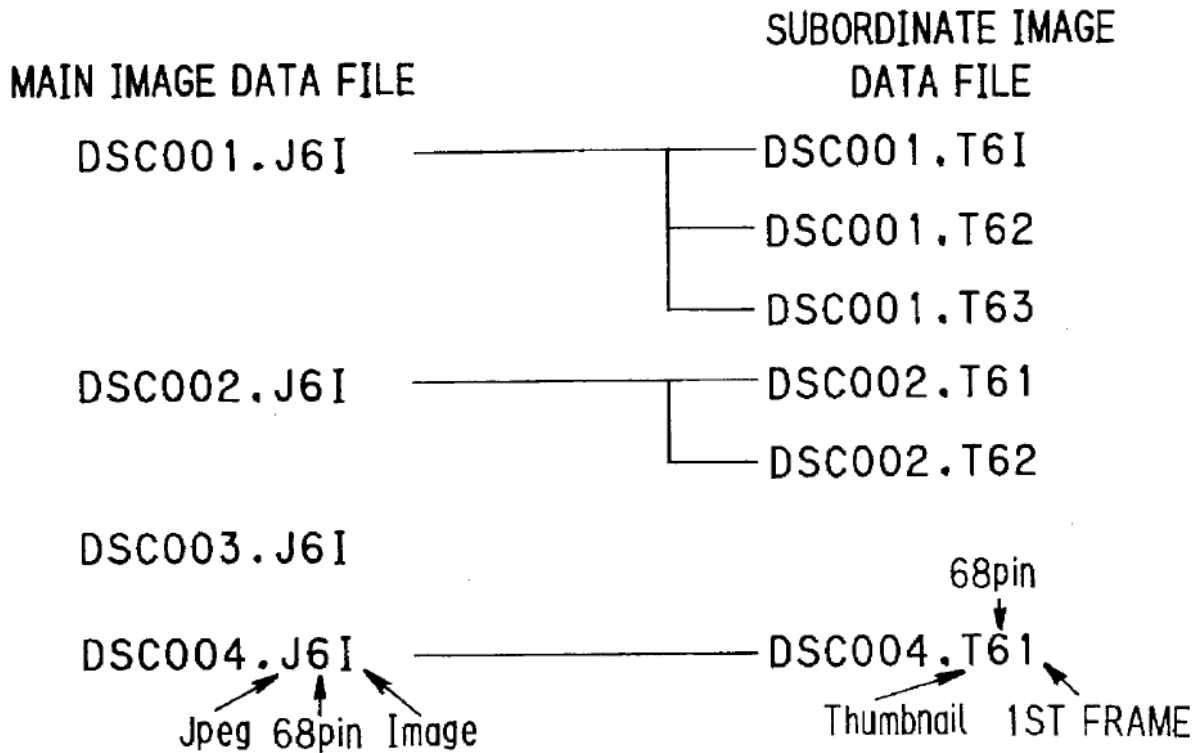
BMP. *Id.*; LG-1003, ¶325.

[1.3.2]

Suzuki renders [1.3.2] obvious. LG-1003, ¶¶327-332.

As described in [1.3.1], the second still picture is encoded in TIFF, PICT, or BMP. Suzuki discloses writing subordinate images in a way that permits recognition and decoding. LG-1010, 15:21-26, FIG. 16; LG-1003, ¶328. Also, a POSITA would understand that files in these formats have descriptive information associated therewith to allow the machine to recognize and decode the second still picture. LG-1003, ¶329 (citing LG-1028, 7-8; LG-1039, 2:39-3:9); LG-1002, 43; LG-1053, 501; LG-1054.

Moreover, a POSITA would understand that the TIFF, PICT, or BMP second still picture has a file extension that further provides descriptive information for recognizing and decoding the image. LG-1003, ¶329 (citing LG-1039, 2:59-3:9); LG-1002, 43. The subordinate image has an “extender” (i.e., file extension) “T6N,” where “‘T’ represents subordinate image data called ‘Thumbnail’” and “‘N’ subordinate image data frame No.” *Id.*, 11:56-59, FIG. 8. A POSITA would understand that this “extender” allows the computer to recognize and decode the image for display. *Id.*; LG-1003, ¶330.



LG-1010, FIG. 8.

[1.3.3]

Suzuki renders [1.3.3] obvious. LG-1003, ¶¶331-334. See §III.E.[1.2.1],[1.3.1].

A POSITA would understand that the second encoding method (TIFF, PICT, or BMP) is different from the first encoding method (JPEG). LG-1003, ¶332; LG-1021; LG-1040, 4:24-29; LG-1041, 1:27-31; LG-1022; LG-1023; LG-1024; LG-1028. Regarding the first still picture, Suzuki explains that the main image is “coded in coder/decoder 13 and subjected to a compression process in a compression system conforming to the *JPEG* system.” LG-1010, 9:21-30 (emphasis

added), 10:60-63, 11:55-64.

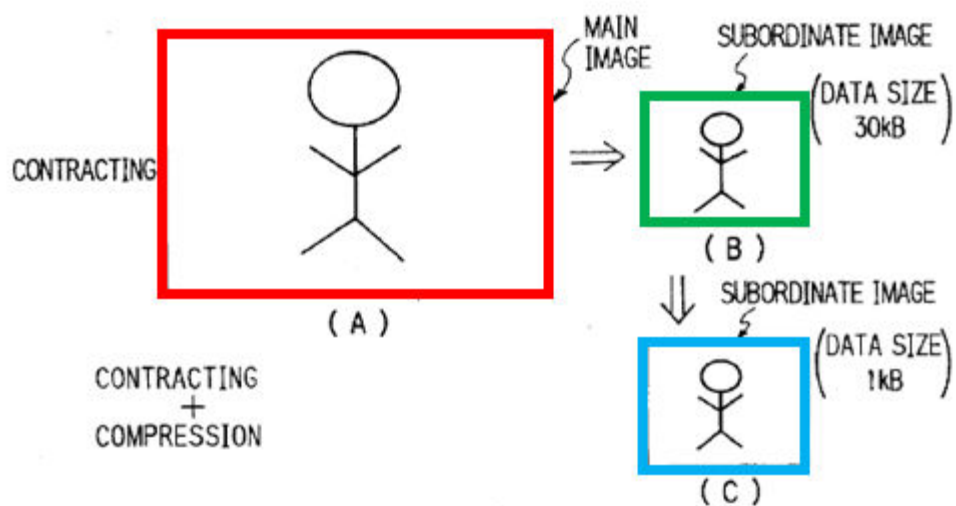
Regarding the second still picture, Suzuki teaches or suggests that the subordinate images are TIFF, PICT, or BMP. LG-1003, ¶334; LG-1010, 11:3-6, 11:56-64, 14:9-54, FIG. 14. Suzuki describes a subordinate image production process that includes “a conversion conforming to a format necessary for personal computer processing.” LG-1010, 14:9-54, FIG. 14. “Image data formats available for personal computers include TIFF, PICT, BMP, etc.” LG-1010, 11:3-6, 11:56-64, FIG. 8. Moreover, Suzuki teaches subordinate images can be uncompressed, which a POSITA would understand as BMP, TIFF, or PIC format and not JPEG (which is a compressed format). LG-1003, ¶334; LG-1010, 14:31-54. The BMP, TIFF, or PICT subordinate image (second still picture) is then encoded by an encoding method that is different from the encoding method of the main image (first still picture)—JPEG. *Id.*

[1.4.1]

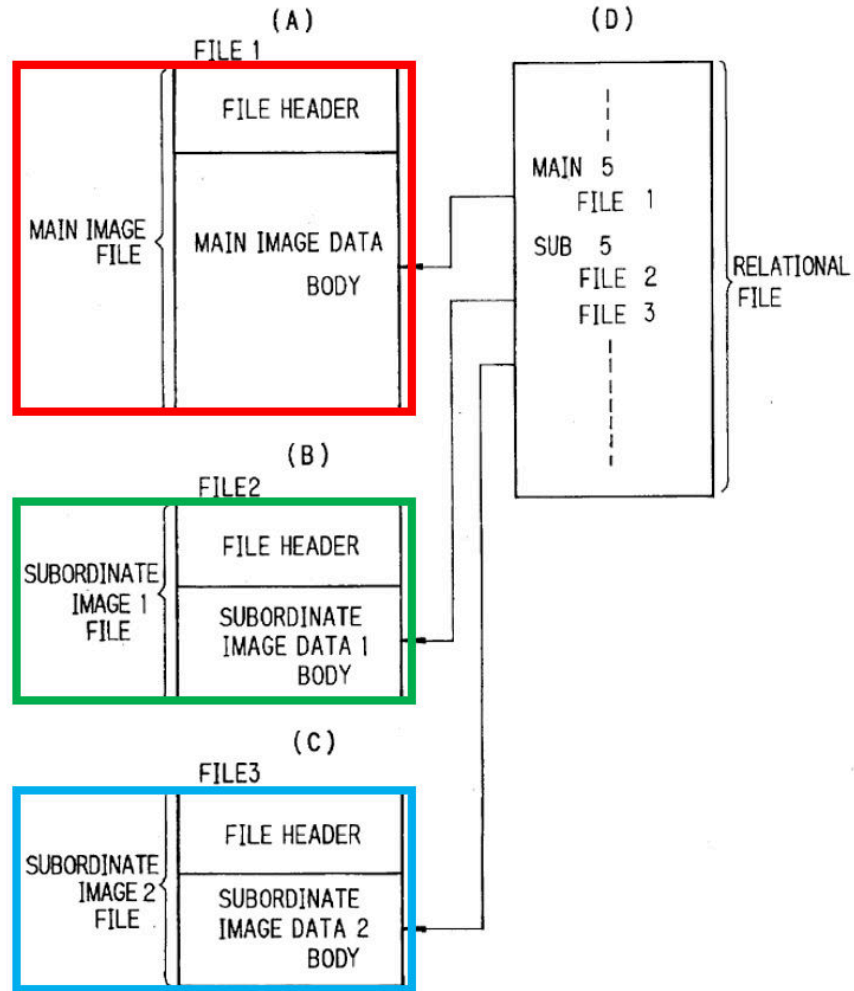
Suzuki renders [1.4.1] obvious. LG-1003, ¶¶335-340.

As discussed in [1.1], Suzuki discloses subordinate image (C) (picture) recorded on the IC memory card. Example subordinate image (C) is shown in FIG. 31 (blue), with “an example of recording the subordinate image data in separate files from that of the main image data” shown in FIG. 6 (blue). LG-1010, 11:15-27, 18:20-28, FIGS. 6, 31.

FIG. 31



LG-1010, FIG. 31(annotated).



LG-1010, FIG. 6 (annotated).

As illustrated in FIG. 31, the picture (“subordinate image” (C)) corresponds to the first still picture (“main image” (A)) and the second still picture (“subordinate image” (B)), where both the picture and second still picture were derived from the first still picture. LG-1010, 18:20-28, FIG. 31; LG-1003, ¶336; *see* LG-1010, 2:55-67, 14:55-67.

Regarding pixels, the “main image in FIG. 31(A) is contracted to obtain the

subordinate image of a data size of 30 kB as shown in FIG. 31(B),” which is “further compressed to an image of a data size of 1 kB as shown in FIG. 31(C).” LG-1010, 18:20-28, FIG. 31. Thus, a POSITA would understand that subordinate image (C) has fewer pixels than main image (A) because it was generated by contracting, or “thinning,” the main image. *Id.*; LG-1010, 9:49-59, 20:31-34; LG-1003, ¶337.

Suzuki further describes several instances where a second subordinate image is generated. *E.g.*, LG-1010, 1:47-60, 2:15-32. For instance, Suzuki teaches a “first subordinate image producing means [that] includes ... means for making contracted image data obtained through contraction of the main image to be the part of image data” and a “second subordinate image producing means [that] includes ... means for making contracted image data obtained through contraction of the first subordinate image to be the part of image data.” LG-1010, 2:1-33, 14:55-67. That is, the second subordinate image is generated by two separate contracting means, or steps. *Id.* Thus, while Suzuki explains that subordinate image (C) in FIG. 31 is generated by compressing subordinate image (B), a POSITA would find it obvious, in view of Suzuki’s teaching, for subordinate image (C) to be generated by further contracting subordinate image (B). LG-1003, ¶¶338-339. Thus, it would have been obvious for subordinate image (B) to be further contracted by the “second image contracting means” of the “second subordinate image producing

means” to produce subordinate image (C) and would have a reasonable expectation of success in doing so, because Suzuki already teaches contracting the same image twice. *Id.*; LG-1003, ¶338. Suzuki provides a motivation for such contraction: “When a contracted subordinate image is produced, it is simpler and requires less data to record the contraction factor alone than to record the pixel size as the parameters.” LG-1010, 10:41-47. Where subordinate image (C) (picture) is generated by contracting subordinate image (B) (second still picture), as Suzuki teaches or suggests, subordinate image (C) has fewer pixels than subordinate image (B). LG-1003, ¶338.

[1.4.2]

Suzuki renders [1.4.2] obvious. LG-1003, ¶¶341-342.

As explained in [1.4.1], like the second still picture, the picture is a subordinate image. As explained in [1.3.2], subordinate images, like subordinate image (C), have descriptive information that allows the machine to recognize and decode the picture. LG-1003, ¶324.

[1.5]

Suzuki renders [1.5] obvious. LG-1003, ¶¶343-345.

The first still picture, second still picture, and picture are related pictures derived from common “image data read out from frame memory 11.” LG-1010, 9:4-20. Suzuki teaches that image data is used to generate the main image (first still

picture), which is used to generate subordinate images (second still picture, picture). LG-1010, 2:55-67, 9:49-59, 13:46-14:8, 14:55-67, 18:20-28, FIG. 31.

[3]

LHS renders [3] obvious. LG-1003, ¶¶346-348.

As described in [1.2.1], the first picture is encoded according to JPEG, which is a first encoding standard. LG-1003, ¶347.

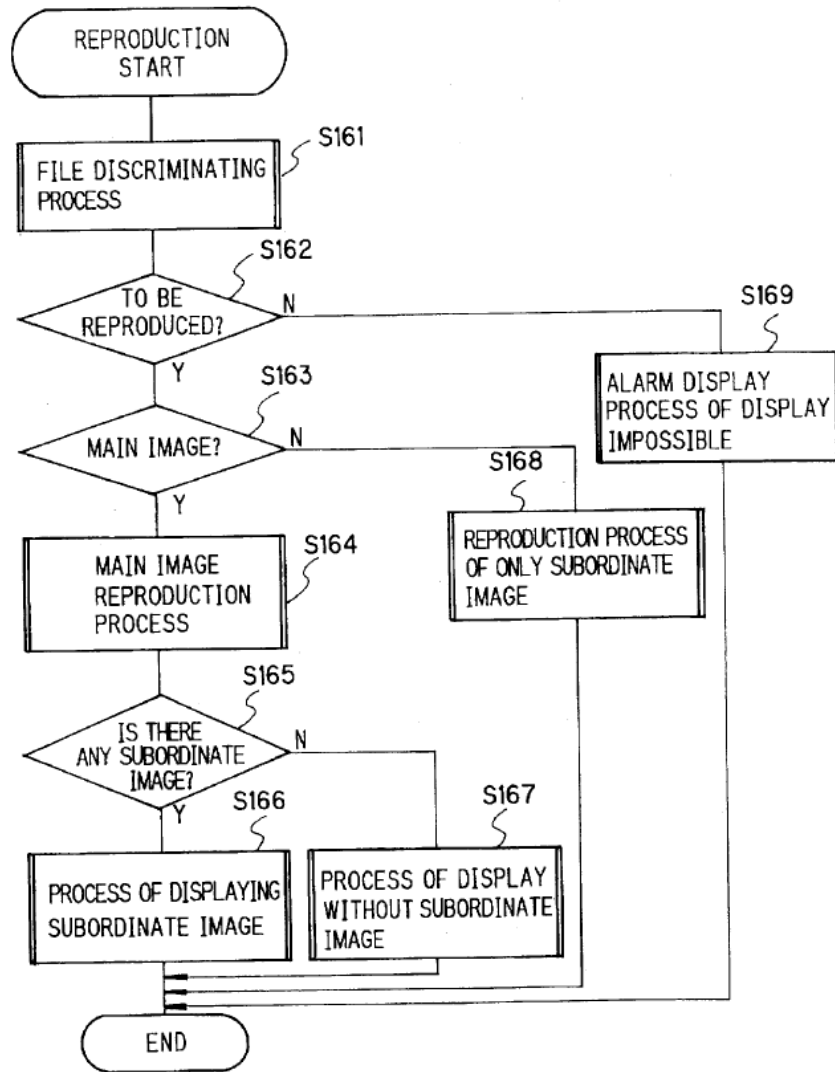
As described in [1.3.1], the second picture is encoded according to TIFF, PICT, or BMP which is a second encoding standard. LG-1003, ¶348.

[4.1]

To the extent the preamble is limiting,¹² Suzuki renders it obvious. LG-1003, ¶¶349-351; LG-1010, 17:17-28, FIG. 26.

FIG. 32 shows “an image reproduction sequence” for reproducing “the main image” (S163) and “the subordinate image” (S168). LG-1010, 18:29-55, FIG. 32; *see id.*, 18:56-19:15, FIG. 33. Suzuki further explains that both the main image and subordinate images are recorded in “IC memory card 15,” which “is used as a storage means.” LG-1010, 9:21-30, 13:58-64, 13:65-14:8, FIGS. 1, 13.

¹² *See* §III.A.4.[4.1] (discussion of LG-1031, 4 n.2).



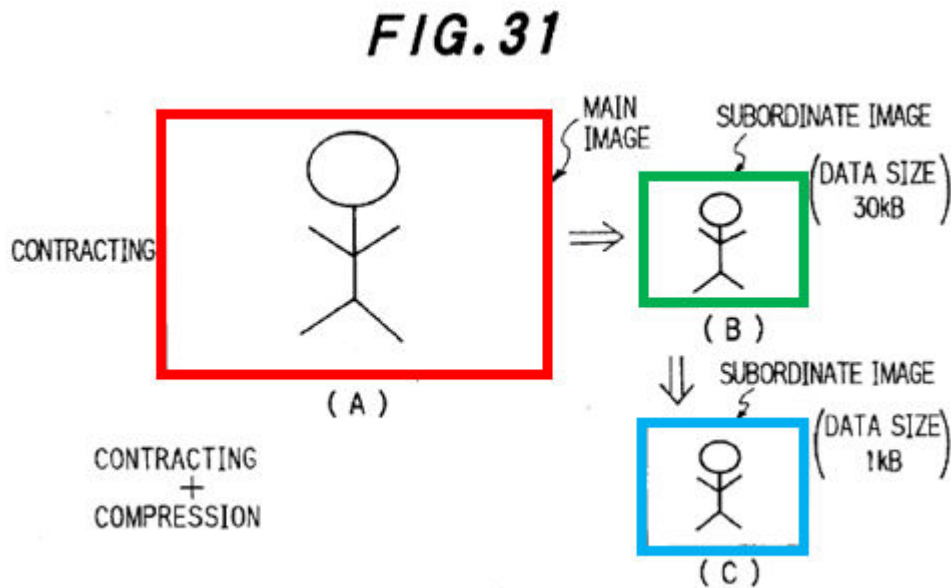
LG-1010, FIG. 32

[4.2.1]

Suzuki renders [4.2.1] obvious. LG-1003, ¶¶352-361.

Suzuki discloses reproducing a first still picture, second still picture and picture from a recording medium. LG-1003, ¶353. As discussed in [4.1], the main and subordinate images are stored in an IC memory card. 9:21-30, 13:58-14:8, FIGS. 1, 13. Suzuki further teaches several examples where multiple subordinate

images are generated. LG-1010, 1:47-60, 2:15-32, 10:23-29, 10:48-59, 11:15-64, 12:15-64, 16:21-49, 17:53-61, 18:5-8, FIGS. 2(C), 4, 6, 7, 8, 10, 11, 23, 24, 28, 31LG-1010. FIG. 31, for example, shows a first still picture (“main image” (A)), second still picture (“subordinate image” (B)), and picture (“subordinate image” (C)). LG-1010, 18:20-28, FIG. 31; LG-1003, ¶353.

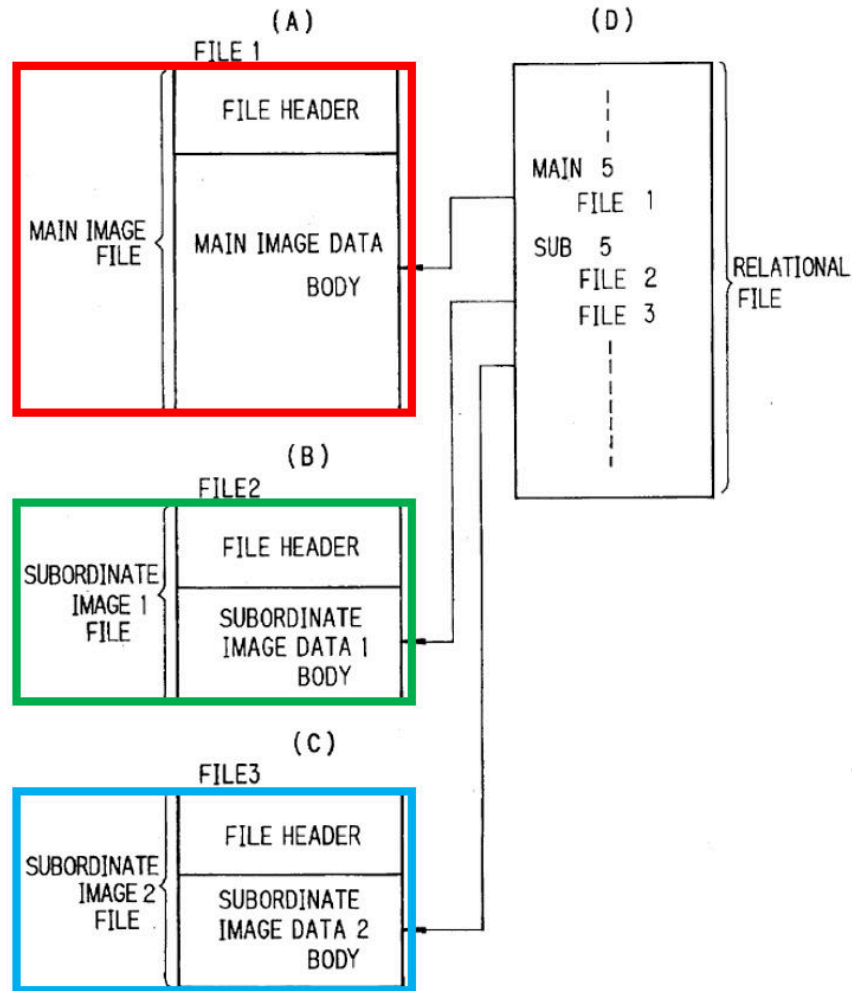


LG-1010, FIG. 31(annotated).

The “main image in FIG. 31(A) is contracted to obtain the subordinate image of a data size of 30 kB as shown in FIG. 31(B),” which “is further compressed to an image of a data size of 1 kB as shown in FIG. 31(C).” LG-1010, 18:20-28, FIG. 31. A POSITA would understand that the FIG. 31(C) image is a second subordinate image, as labeled in FIG. 31. LG-1003, ¶354.

In another example, Suzuki shows “recording the subordinate image data in separate files from that of the main image data,” including “main image file” (first

still picture) (A), “subordinate image 1 file” (second still picture) (B), and “subordinate image 2 file” (picture) (C). LG-1010, 7:34-37, 11:15-27. A “relational file” “indicates that the main image data in the fifth frame is recorded in FILE 1” and “the subordinate image data in the fifth frame is recorded in FILES 2 and 3.” *Id.*



LG-1010, FIG. 6 (annotated).

A POSITA thus would find obvious that the subordinate images (B) and (C) of FIG. 31 are recorded in memory, for example, as in FIG. 6, where a relational file indicates that (B) and (C) are subordinate images of main image (A). LG-

1003, ¶356.

Suzuki describes reproducing these images with reference to FIG. 32. LG-1010, 18:29-55, FIG. 32; *see id.*, 18:1-8, 18:56-19:15, FIGS. 27-28, 33. Per FIG. 32, the system checks whether the image is the main image, and if so, the main image is reproduced. LG-1010, 18:1-8, 18:29-46. The system also checks whether there is a subordinate image, and if so, the subordinate image is reproduced per FIG. 27 or 28. *Id.* A POSITA would understand that following the FIG. 32 process would result in the production of the main image and any and all subordinate images. LG-1003, ¶357. Also, because Suzuki teaches scenarios where multiple subordinate images generated, a POSITA would understand that reproducing the images (e.g., per FIG. 32) would include checking for each subordinate image and reproducing them all (i.e., displaying (B) and (C) of FIG. 31, or both subordinate images files in FIG. 6). LG-1003, ¶359.

[4.2.2]

See §III.E.2.[1.2.1]-[1.3.3].

[4.2.3]

See §III.E.2.[1.4.1].

[4.2.4]

See §III.E.2.[1.5].

[4.3]

Suzuki discloses [4.3]. LG-1003, ¶¶380-383.

Referencing FIG. 32, Suzuki describes “an image reproduction sequence” that includes “displaying the subordinate image data,” which includes all subordinate images that are determined to exist (i.e., (B) and (C)). LG-1010, 18:1-8 (“subordinate image is displayed... main image is displayed”), 18:29-55, FIGS. 27-28, 32; *see id.*, 19:63-20:11, FIG. 36. Referencing FIG. 33, Suzuki describes “reproducing a subordinate image” where “the main image has already been reproduced and displayed for the subordinate image production,” and, indeed, a POSITA would know that it was common for low-res thumbnails to be displayed together and would have been obvious to do so in Suzuki. LG-1010, 18:56-19:10, FIG. 33; LG-1003, ¶¶381-382.

Additionally or alternatively, referencing FIG. 36, Suzuki provides “a flow chart showing the procedure of transmitting the subordinate and main image data.” LG-1010, 19:63-20:8, FIG. 36. Thus, the reproduced first still picture (main image) and second still picture and picture (subordinate images) are output (transmitted). LG-1003, ¶383.

[4.4]

Suzuki teaches [4.4]. LG-1003, ¶385-386.

Referencing FIG. 36, Suzuki provides “the procedure of transmitting the subordinate and main image data.” LG-1010, 19:63-20:8, FIG. 36. Suzuki explains that “a necessary image is selected (step S302), and designation data about

the frame No., file name, etc. of the selected image is *transmitted* to the transmitting side (step S303).” LG-1010, 20:2-5 (emphasis added). “Receiving the designation data, the transmitting side transmits the main image data of the designation frame No. to the receiving side.” LG-1010, 20:6-8. “The receiving side receives, *reproduces* and confirms the designated main image data.” LG-1010, 20:6-12 (emphasis added). A POSITA reading Suzuki would understand that images that are reproduced are reproduced for the purpose of displaying or outputting the image, and would thus find obvious that the receiving side outputs/displays the first still picture. LG-1003, ¶386; LG-1010, 5:28-50 (“main image is reproduced and displayed”), 18:55-64. Thus, the first still picture (main image) is output (transmitted and/or reproduced/displayed) when the “necessary image is selected.” LG-1003, ¶386.

[6]

See §III.E.2.[3].

[7.1]-[7.4]

See §III.E.2.[4.1]-[4.4].

[9]

See §III.E.2.[6].

IV. PTAB DISCRETION SHOULD NOT PRECLUDE INSTITUTION

A. General Plastic

The factors in *General Plastic Industries Co., Ltd. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 (PTAB Sept. 6, 2017) (precedential) do not favor denial.

Factor 1: While prior petitioners—Olympus Corporation, Olympus America, Inc., and Olympus Corporation of the Americas (collectively “Olympus”)—challenged the ’760 Patent in IPR2018-00905, LG was neither the same petitioner nor a real party-in-interest. Rather, LG and Olympus sell different products and do not have a “significant relationship ... with respect to [the challenged patent].”

Valve Corp. v. Elec. Scripting Prods., Inc., IPR2019-00062, Paper 11 at 2, 9 (PTAB Apr. 2, 2019) (precedential).

Factors 2-5: The remaining *General Plastic* factors are “necessarily outweigh[ed]” when different petitioners have no “significant relationship.” *Videndum Prod. Sols., Inc. v. Rotolight Ltd.*, IPR2023-01218, Paper 12, at 6 (PTAB Apr. 19, 2024) (Vidal); see *Toshiba Am. Info. Sys., Inc. v. Wallex Microelectronics Ltd.*, IPR2018-01538, Paper 11, at 21 (PTAB Mar. 5, 2019). *Videndum* is controlling here.

Factors 6-7 favor institution. The Petition presents compelling evidence of unpatentability and furthers “the Board’s mission to improve patent quality.” *Code200, UAB v. Bright Data Ltd.*, IPR2022-00861, 2022 WL 3646167, at *3

(PTAB Aug. 23, 2022) (precedential). The Petition—the only one challenging the ’760 Patent now before the Board—provides an efficient means for resolving patentability. *See Micron Tech., Inc. v. Sonrai Memory Ltd.*, IPR2023-00909, Paper 7, 9 (PTAB Nov. 28, 2023).

Thus, discretionary denial under *General Plastic* is not warranted.

B. *Advanced Bionics*

Discretionary denial under §325(d) is not warranted. *See Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6, 8-9 (PTAB Feb. 13, 2020) (precedential). Preliminarily, all grounds are based on references that the Office has not considered in connection with the ’760 Patent.

During prosecution, the Examiner relied on U.S. Patent No. 6,512,548 (“Anderson-548”) (LG-1033) as a secondary reference in rejecting then-pending claims 1-2. LG-1002, 83-85. While the inventor of Anderson-548 is the same as Anderson (from Ground 3), the references are neither the same nor cumulative. For example, Anderson includes numerous figures and corresponding text that are not included in Anderson-548 (Figures 5A-5B, 8-10, 11A-11D, 12-13, 14A-14B, 15). *Compare* LG-1009, *with* LG-1033. For at least this reason, Anderson is not cumulative of prior art considered during prosecution. *See id.*

If Anderson is considered cumulative of Anderson-548, the Examiner made a clear material error in allowing the Challenged Claims in view of Anderson-548,

as illustrated in Ground 3. *See* §III.D. Notably, claims 4, 6-7, and 9 were added *after* the Examiner initially relied on Anderson-548.

Moreover, Petitioners have shown a reasonable likelihood that at least one of the Challenged Claims is unpatentable over the applied art based on the current record. *Supra* §§III.A-E; *see Tokyo Ohka Kogyo Co., Ltd. v. Fujifilm Elec. Materials U.S.A., Inc.*, PGR2022-00010, Paper 9, 8-9 (PTAB June 6, 2022).

C. *Fintiv*

The merits of Petitioners’ arguments are compelling. The supporting evidence is substantial. That “alone demonstrates that the PTAB should not discretionarily deny institution under *Fintiv*.” LG-1034, 4-5. Moreover, the *Fintiv* factors do not favor denial.

Factor 1 is neutral; neither party has requested a stay in co-pending litigation.

Factor 2 favors institution; the Court has not set a trial date. The Board will issue its FWD around August 2026, almost **1.5 years before** the projected trial date (12/27/2027). LG-1035, 66.

Factor 3 favors institution; Petitioners have filed this Petition ahead of the one-year time bar, while litigation is in its early stages. Significant resources have not been expended. LG-1036.

Factor 4 favors institution; Patent Owner only alleges infringement of

claims 4, 6-7, and 9, while this Petition challenges claims 1-9. LG-1004; LG-1036. Accordingly, many Challenged Claims will likely be unaddressed in the litigation. *See Apple, Inc. v. SEVEN Networks, LLC*, IPR2020-00156, Paper 10, 21-22 (June 15, 2020).

Factor 5: The parties in the parallel NDCA litigation are the same.

Factor 6 favors institution; the merits of this Petition are compelling. *See* §§III.A-E.

Notably, the Office had not reviewed the references relied upon in this Petition. §III.

V. CONCLUSION AND FEES

The Challenged Claims are unpatentable. Petitioners authorize charge of fees to Deposit Account 06-1050.

VI. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8(a)(1)

A. Real Party-In-Interest Under 37 C.F.R. § 42.8(b)(1)

LG Electronics Inc. and LG Electronics U.S.A., Inc. are the real parties-in-interest.

B. Related Matters Under 37 C.F.R. § 42.8(b)(2)

The '760 Patent is the subject of a civil action, *Maxell, Ltd. v. LG Electronics Inc. et al.*, 5-23-cv-00152 (E.D. Tex.) filed December 29, 2023 (transferred) and *Maxell, Ltd. v. LG Electronics Inc. et al.*, 5-24-cv-04972 (N.D. Cal.) filed August 9, 2024 (pending). The '760 Patent was previously at issue in *Hitachi Maxell*,

Ltd. v. Huawei Technologies Co., Ltd. et al., 5-16-cv-00178 (E.D. Tex.) filed November 18, 2016 (settled), and *Olympus Corporation et al. v. Maxell, Ltd. f/k/a Hitachi Maxell, Ltd.*, IPR2018-00905 (PTAB) filed May 18, 2018 (terminated).

Petitioners are not aware of any other disclaimers, reexamination certificates, or IPR petitions addressing the '760 Patent.

C. Lead And Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3)

Petitioners provide the following designation of counsel.

Lead Counsel	Backup counsel
Timothy W. Riffe, Reg. No. 43,881 Fish & Richardson P.C. 60 South Sixth Street, Suite 3200 Minneapolis, MN 55402 Tel: 202-783-5070 Fax: 877-769-7945 Email: IPR18768-0217IP2@fr.com	Jennifer Huang, Reg. No. 64,297 R. Andrew Schwentker, Reg. No. 59,402 Jack R. Wilson, Reg. No. 75,011 60 South Sixth Street, Suite 3200 Minneapolis, MN 55402 Tel: 202-783-5070 Fax: 877-769-7945 PTABInbound@fr.com

D. Service Information

Please address all correspondence and service to the address listed above.

Petitioners consent to electronic service by email at IPR18768-0217IP2@fr.com

(referencing No. 18768-0217IP2 and cc'ing PTABInbound@fr.com).

Respectfully submitted,

Dated January 21, 2025

/Jennifer J. Huang/
 Timothy Riffe, Reg. No. 43,881
 Jennifer Huang, Reg. No. 64,297

Attorney Docket No. 18768-0217IP2

IPR of U.S. Patent No. 6,856,760

R. Andrew Schwentker, Reg. No. 59,402

Jack R. Wilson, Reg. No. 75,011

Fish & Richardson P.C.

60 South Sixth Street, Suite 3200

Minneapolis, MN 55402

T: 202-783-5070

F: 877-769-7945

(Control No. IPR2025-00518)

Attorneys for Petitioners

CERTIFICATION UNDER 37 CFR § 42.24

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petition for *Inter Partes* Review totals 13,950 words, which is less than the 14,000 allowed under 37 CFR § 42.24.

Dated January 21, 2025

/Jennifer J. Huang/
Timothy Riffe, Reg. No. 43,881
Jennifer Huang, Reg. No. 64,297
R. Andrew Schwentker, Reg. No. 59,402
Jack R. Wilson, Reg. No. 75,011
Fish & Richardson P.C.
60 South Sixth Street, Suite 3200
Minneapolis, MN 55402
T: 202-783-5070
F: 877-769-7945

Attorneys for Petitioners

CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4)(i) *et seq.* and 42.105(b), the undersigned certifies that on January 21, 2025, a complete and entire copy of this Petition for *Inter Partes* Review and all supporting exhibits were provided by Express Mail, to the Patent Owner, by serving the correspondence address of record as follows:

ANTONELLI, TERRY, STOUT & KRAUS, LLP
PO Box 472
Upper Marlboro, MD 20773

/Anastasia Renard/
Anastasia Renard
Fish & Richardson P.C.
60 South Sixth Street, Suite 3200
Minneapolis, MN 55402
renard@fr.com