

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

**SAMSUNG ELECTRONICS CO., LTD. AND
SAMSUNG ELECTRONICS AMERICA, INC.,**
Petitioners

v.

MAXELL, LTD.,
Patent Owner

Inter Partes Review No.: IPR2024-00867

**PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO.
10,176,848 UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. §§ 42.1-100, ET SEQ**

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1010	Bederson, B. <i>PhotoMesa: A Zoomable Image Browser Using Quantum Treemaps and Bubblemaps</i> (2001). 14th Annual ACM Symposium on User Interface Software and Technology (UIST '01). Association for Computing Machinery, NY, NY, USA, 71–80. DOI: https://doi.org/10.1145/502348.502359
1011	Bederson, B., et al. <i>Automatic Thumbnail Cropping and its Effectiveness</i> (2003). 16th Annual ACM Symposium on User Interface Software and Technology (UIST '03). Association for Computing Machinery, NY, NY, USA, 95–104. DOI: https://doi.org/10.1145/964696.964707
1012	Bederson, B., et al. <i>Semi-Automatic Photo Annotation Strategies Using Event Based Clustering and Clothing Based Person Recognition</i> (2007). <i>Interacting with Computers</i> . 19, 4 (July 2007), 524–44. DOI: https://doi.org/10.1016/j.intcom.2007.02.002
1013	Bederson, B., et al. <i>Zoomable User Interfaces as a Medium for Slide Show Presentations</i> (2001).
1014	U.S. Patent No. 5,835,667
1015	Bederson, B., et al. <i>Capture, Annotate, Browse, Find, Share: Novel Interfaces for Personal Photo Management</i> (2007). <i>International Journal of Human-Computer Interaction</i> , 23, 315-37.

TABLE OF CLAIMS

Claim 8¹

[8pre] A recording and reproducing apparatus for recording and reproducing image information, comprising:
[8a] a processor; and
[8b] a memory coupled to the processor and storing instructions that, when executed by the processor, cause the processor to:
[8c] capture a photograph and generate image information of the photograph;
[8d] record the image information in a recording medium;
[8e] execute a face-recognizing process on the image information to recognize a face;
[8f] reproduce the recorded image information from the recording medium;
[8g] register a person in the image information as a specific person in a mode selected from a first setting mode and a second setting mode, wherein, when the first setting mode is selected, a person with a face is obtained by newly photographing the person in a photographing mode and thereafter registered as the specific person, and,
[8h] when the second setting mode is selected, a person with a face in the image information is selected from a plurality of faces in the image information recorded in the recording medium and thereafter registered as the specific person; and
[8i] selectively reproduce the recorded image information which includes the registered specific person.

¹ Claim 8 was amended via a certificate of correction. See EX1003, 12. This Table contains the corrected claim language.

Claim 11

[11pre] The recording and reproducing apparatus according to claim 8,
[11a] wherein the memory further stores instructions that, when executed by the processor, cause the processor to: control the reproduction of the image information in a reproducing mode set from one of a first reproducing mode and a second reproducing mode,
[11b] wherein a reproducing time required for reproducing the image information under the first reproducing mode is shorter than a reproducing time required for reproducing the image information under the second reproducing mode, and
[11c] the image information reproduced under the second mode includes the image information reproduced under the first reproducing mode and other of the image information not reproduced under the first reproducing mode.

Claim 12

[12pre] The recording and reproducing apparatus according to claim 11,
[12a] wherein the memory further stores instructions that, when executed by the processor, cause the processor to: control the reproduction of the image information in the reproducing mode set from one of the first reproducing mode, the second reproducing mode, and a third reproducing mode,
[12b] wherein a reproducing time required for reproducing the image information under the third reproducing mode is longer than the reproducing time required for reproducing the image information under the second reproducing mode.

Claim 13

[13pre] A recording and reproducing apparatus for recording and reproducing image information, comprising:
[13a] a photographing sensor configured to photograph an object and generate image information;
[13b] a recorder configured to record the image information generated by the photographing sensor in a recording medium;

[13c] a reproducer configured to reproduce the image information recorded by the recorder;
[13d] processing circuitry configured to:
[13e] execute a face-recognizing process on the image information generated by the photographing sensor to recognize a face,
[13f] register a person in the image information as a specific person in a mode selected from a first setting mode and a second setting mode, wherein, when the first setting mode is selected, a person with a face is obtained by newly photographing the person in a photographing mode and thereafter registered as the specific person, and,
[13g] when the second setting mode is selected, a person with a face in the image information is selected from a plurality of faces in the image information recorded in the recording medium and thereafter registered as the specific person,
[13h] firstly pick out image information which includes the registered specific person,
[13i] secondly pick out the image information based on a predetermined condition from among the picked-out image information which includes the registered specific person, the predetermined condition being set in accordance with an instruction by a user, and
[13j] control the reproducer to selectively and sequentially reproduce the image information picked out based on the predetermined condition.

Claim 16

[16pre] The recording and reproducing apparatus according to claim 13,
[16a] wherein the processing circuitry is further configured to control the reproducer to selectively and sequentially reproduce the image information picked out based on the predetermined condition in a reproducing mode set from one of a first reproducing mode and a second reproducing mode, and
[16b] wherein a reproducing time required for reproducing the image information under the first reproducing mode is shorter than a reproducing time required for reproducing the image information under the second reproducing mode, and

[16c] the image information reproduced under the second mode includes the image information reproduced under the first reproducing mode and other of the image information not reproduced under the first reproducing mode.

Claim 17

[17pre] The recording and reproducing apparatus according to claim 16,

[17a] wherein the processing circuitry is further configured to control the reproducer to selectively and sequentially reproduce the image information picked out based on the predetermined condition in the reproducing mode set from one of the first reproducing mode, the second reproducing mode, and a third reproducing mode, and

[17b] wherein a reproducing time required for reproducing the image information under the third reproducing mode is longer than the reproducing time required for reproducing the image information under the second reproducing mode.

Claim 18

[18pre] A recording and reproducing apparatus for recording and reproducing image information, comprising:

[18a] a photographing sensor configured to photograph an object and generate image information;

[18b] a recorder configured to record the image information generated by the photographing sensor in a recording medium;

[18c] a reproducer configured to reproduce the image information recorded by the recorder;

[18d] processing circuitry configured to:

[18e] execute a face-recognizing process on the image information generated by the photographing sensor to recognize a face;

[18f] register a person in the image information as a specific person, wherein a person with a face is obtained by newly photographing the person in a photographing mode and thereafter registered as the specific person;

[18g] firstly pick out image information which includes the registered specific person,

[18h] secondly pick out the image information based on a predetermined condition from among the picked-out image information which includes the registered specific person, the predetermined condition being set in accordance with an instruction by a user, and

[18i] control the reproducer to selectively and sequentially reproduce the image information picked out based on the predetermined condition.

Claim 19

[19pre] The recording and reproducing apparatus according to claim 18,

[19a] wherein the processing circuitry is further configured to control the reproducer to selectively and sequentially reproduce the image information picked out based on the predetermined condition in a reproducing mode set from one of a first reproducing mode and a second reproducing mode, and

[19b] wherein a reproducing time required for reproducing the image information under the first reproducing mode is shorter than a reproducing time required for reproducing the image information under the second reproducing mode, and

[19c] the image information reproduced under the second mode includes the image information reproduced under the first reproducing mode and other of the image information not reproduced under the first reproducing mode.

Claim 20

[20pre] The recording and reproducing apparatus according to claim 19,

[20a] wherein the processing circuitry is further configured to control the reproducer to selectively and sequentially reproduce the image information picked out based on the predetermined condition in the reproducing mode set from one of the first reproducing mode, the second reproducing mode, and a third reproducing mode, and

[20b] wherein a reproducing time required for reproducing the image information under the third reproducing mode is longer than the reproducing

time required for reproducing the image information under the second reproducing mode.

Claim 84²

[84pre] A recording and reproducing apparatus for recording and reproducing image information, comprising:

[84a] a processor;

[84b] a display displaying a first option and a second option, wherein when the first option is selected, the recording and reproducing apparatus enters a record mode to capture video information, and when the second option is selected, the recording and reproducing apparatus enters a reproduction mode to reproduce and display recorded video information;

[84c] a memory coupled to the processor and storing instructions that, when executed by the processor, cause the processor to:

[84c.i] capture a photograph and generate image information of the photograph;

[84c.ii] record the image information in a recording medium;

[84c.iii] execute a face-recognizing process on the image information to recognize a face;

[84c.iv] reproduce the recorded image from the recording medium;

[84c.v] register a person in the image information as a specific person in a mode selected from a first setting mode and a second setting mode, wherein, when the first setting mode is selected, an image information of a person with a face is obtained by newly photographing the person with a face in a photographing mode and, thereafter, the image information of the person with a face is used to register the person with a face as the specific person, and,

[84c.vi] when the second setting mode is selected, a person with a face in an image information of a person with a face is selected from a plurality of faces in the image information recorded in the recording medium and, thereafter, the

² Claim 84 was amended via a certificate of correction. *See* EX1004, 9-11. This

Table contains the corrected claim language.

image information of the person with a face is used to register the person with a face as the specific person;
[84c.vii] selectively reproduce the recorded image which includes the registered specific person; and
[84c.viii] generate a thumbnail corresponding to the recorded image in the recording medium such that the thumbnail is displayed on the display with an icon having a predetermined shape when an importance level is set for the recorded image via a user interface;
[84d] a touch panel adhered to a screen of the display, wherein the first setting mode and the second setting mode are each selected using the touch panel;
[84e] a video camera providing video image data, wherein, in response to the face-recognizing process recognizing that a face of a person is included in the video image data, the display displays the video image data with a frame surrounding at least a portion of the face of the person;
[84f] an analog/digital converter, wherein the analog/digital converter is configured to convert analog image data corresponding to the captured photograph into a digital image signal; and
[84g] a codec for compressing the digital image signal using a predetermined compression encoding method and generating encoded image information, wherein the encoded image information is stored in the recording medium,
[84h] wherein the video camera captures video information corresponding to a scene and the processor:
[84h.i] automatically sets a plurality of sections corresponding to the video information of the scene; and
[84h.ii] generates a plurality of thumbnails corresponding to the plurality of sections, wherein each of the plurality of thumbnails is associated with the same video information corresponding to the scene, and the display displays the plurality of thumbnails; and
[84i] wherein the display is configured to display at least a plurality of images recorded in the recording medium such that contents of each image in the plurality of images includes a face of a different person and background objects and displaying the plurality of images includes displaying the faces without displaying all of the background objects included in the contents of each image of the plurality of images.

I. INTRODUCTION

Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc. (“Petitioners”) request *inter partes* review of claims 11, 12, 16, 17, 19, 20, and 84 (the “Challenged Claims”) of U.S. Patent No. 10,176,848 (“the ’848 patent,” **EXError! Reference source not found.**, EX1002 [Reexamination Certificate]), owned by Maxell, Ltd. (“PO”).

II. STATEMENT OF PRECISE RELIEF REQUESTED

In accordance with 35 U.S.C. § 311, Petitioners request cancelation of the Challenged Claims in view of the following grounds:

Ground	Claims	Stat. Basis	Prior Art
1	11, 12, 16, 17, 19, 20	35 U.S.C. § 103	Nozaki, Haitani
2	84	35 U.S.C. § 103	Nozaki, Haitani, Graham
3	84	35 U.S.C. § 103	Nozaki, Haitani, Kim

III. THE ’848 PATENT

A. Overview of the ’848 Patent

The ’848 patent describes a device that serves three purposes: (1) identifying and registering people in a video; (2) segmenting a video into “chapters” so that users can navigate to the parts with the identified individuals; and (3) selectively reproducing video that includes a registered person. EX1001, 2:18-62. First, with respect to face-recognition, the ’848 patent discusses identifying people using one of two “registration” methods: (1) registering individuals using previously captured

video; and (2) registering individuals by newly capturing video of them. EX1001, 12:7-13:7. Second, the '848 patent discusses using face-recognition data of a registered individual to flag—as “chapters” or “sections”—the points in a video file where that person appears. EX1001, 5:14-6:13. Third, the '848 patent describes reproducing on a display a selection of video image data according to registered person data and user preferences such as a priority level. EX1001, 8:66-11:35. For example, the '848 patent discusses a “standard reproducing mode” that reproduces “all chapters” regardless of the priority level, and an “express reproducing mode” that reproduces “only the chapters have the importance levels ‘1’ to ‘3.’” EX1001, 9:20-45. The Challenged Claims recite one or more of these features. *See Supra*, Table of Claims.

B. '848 Patent Prosecution History

The '848 patent was filed as application number 14/478,020 on September 5, 2014. EX1001, Cover. It claims priority to a Japanese application filed on May 19, 2008. *Id.* For purposes of this petition, Petitioners apply May 19, 2008 as the invention date for the Challenged Claims.

Challenged claims 11-12, 16-17, and 19-20 were added by the Applicant during prosecution. EX1003, 181-92, 243-54, 317-23. The examiner rejected the limitations of the underlying independent claims as obvious over Tang (U.S. Patent Publication No. 2008/0279425) and Nakashima (U.S. Patent Publication No.

2007/0019083), with the Examiner citing Nakashima for the claims’ “registration” limitations and Tang for their “selective reproduction” limitations. EX1003, 286-94, 395-405, 445-48. The Applicant conceded that Nakashima disclosed the registration limitations, but argued that Tang failed to disclose selective reproduction of images containing a registered person. EX1003, 255-60. The examiner subsequently issued a notice of allowance. EX1003, 29, 224.

C. ’848 Reexamination History

The ’848 patent was subject to reexamination from 2020 through 2022. EX1002, Cover. Apple’s reexamination request challenged the validity of claims 8, 10-13, and 15-20. EX1004, 358-400. The reexamination request relied upon two pieces of prior art: Gallagher (U.S. Patent Publication No. 2007/0098303) and Nakashima.³ *Id.* During reexamination, Patent Owner cancelled independent claims 8, 13, and 18, along with dependent claims 10 and 15, after those claims were rejected by the examiner as obvious in view of Gallagher and Nakashima. EX1004, 96-105, 136, 151-61.

Challenged claims 11-12, 16-17, and 19-20—which depend from the three cancelled independent claims—survived the reexamination. EX1001, 15:51-18:57 (claims 8-20); EX1004, 54. The examiner reasoned that these claims were

³ This is the same Nakashima reference cited during prosecution of the ’848 patent.

allowable over the prior art because they cover “reproducing only,” whereas, in the examiner’s opinion, the Gallagher and Nakashima references disclosed “capture modes.” EX1004, 55. The examiner did not address the apparent inconsistency in this rationale, namely, that each cancelled independent claim expressly recites “reproducing” limitations that were rendered obvious by Gallagher and Nakashima. *See, e.g.*, EX1001, 16:8-9 (reciting, in claim 8, “selectively reproduce the recorded image information which includes the registered specific person”), 17:15-17 and 18:27-29 (reciting, in claims 13 and 18, “control the reproducer to selectively and sequentially reproduce the image information picked out based on the predetermined condition”).

The examiner also allowed new claims 21-84 to issue. EX1004, 54. One of these new claims—claim 84—is among the Challenged Claims.

D. Person of Ordinary Skill in the Art

A person of ordinary skill in the art (“POSITA”) at the time of the alleged invention of the ’848 patent would have had a Bachelors’ degree in electrical or computer engineering or a comparable field of study, with at least two to three years of experience in the field of image processing. EX1005, ¶ 35. Additional education could substitute for professional experience, and significant experience in the field could substitute for formal education. *Id.*

E. Claim Construction

The Challenged Claims are interpreted using the same claim construction standard used to construe claims in a civil action in federal district court. 37 C.F.R. § 42.100(b). Petitioners contend that all claim terms in the Challenged Claims should be construed according to their plain and ordinary meaning to a POSITA.

IV. THE PRIOR ART REFERENCES

The challenges in this Petition are based on the knowledge of a POSITA and the prior art described below.

A. Nozaki

WO 2007/060980 (“Nozaki”) was filed on November 22, 2006, and published on May 31, 2007. EX1006, Cover. Nozaki is prior art to the ’848 patent at least under pre-AIA 35 U.S.C. § 102(a) and § 102(b). A U.S. publication of the Nozaki reference (U.S. Patent Publ. 2009/0135269) was disclosed but not expressly considered during prosecution of the ’848 patent. EX1003, 533. Nozaki was not addressed during reexamination of the ’848 patent. EX1004, 165-90.

Because Nozaki published in the Japanese language, Petitioners submit a certified translation for purposes of this petition. EX1006, 1.

B. Haitani

U.S. Patent No. 9,665,597 (“Haitani”) was filed on March 22, 2007 and issued on May 30, 2017. EX1007, Cover. Haitani is prior art to the ’848 patent at least under pre-AIA 35 U.S.C. § 102(e). Haitani was not considered during

prosecution of the '848 patent, and was disclosed but not expressly considered during reexamination of the '848 patent. EX1001, 2; EX1004, 165-90.

C. Graham

U.S. Patent Publication No. 2004/0095376 ("Graham") was filed on June 18, 2003, and published on May 20, 2004. EX1008, Cover. Graham is prior art to the '848 patent at least under pre-AIA 35 U.S.C. § 102(b). Graham was not considered during prosecution or reexamination of the '848 patent. EX1001, 2; EX1004, 165-90.

D. Kim

Korean Unexamined Patent Publication No. 2007/0017068A ("Kim") was filed on August 4, 2006, and published on February 8, 2007. EX1009, Cover. Kim is prior art to the '848 patent at least under pre-AIA 35 U.S.C. § 102(b). Kim was not considered during prosecution or reexamination of the '848 patent. EX1001, 2; EX1004, 165-90.

Because Kim published in the Korean language, Petitioners submit a certified translation for purposes of this petition. EX1009.

V. LEGAL STANDARD FOR OBVIOUSNESS

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious to a person having ordinary skill in the art to which said subject matter pertains. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406

(2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary considerations, including commercial success, long-felt but unsolved needs, failure of others, and unexpected results. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Factor (3) is discussed above. With respect to factor (4), PO has not provided any evidence of secondary considerations that would weigh in favor of non-obviousness, let alone any evidence that establishes a nexus between any secondary consideration and the challenged claims. In any event, the showing of invalidity in this Petition is strong and any alleged secondary considerations are insufficient to establish non-obviousness in light of this strong *prima facie* showing. Factors (1) and (2) are addressed below.

VI. GROUND 1: NOZAKI AND HAITANI (CLAIMS 11-12, 16-17, 19-20)

A. Motivation to Combine Nozaki and Haitani

Nozaki and Haitani are analogous art to the '848 patent, and a POSITA would have found it obvious to combine them for that reason alone. EX1005, ¶ 66. The '848 patent is directed to “a recording and reproducing apparatus” with methods for capturing and reproducing video information that are “suitable for application to, e.g., a video camera.” EX1001, 1:15-17. Nozaki and Haitani

likewise disclose devices with digital cameras that can capture and reproduce image/video files. *See, e.g.*, EX1006, [0001], [0047], [0048]; EX1007, 2:8-17.

The disclosures in Nozaki and Haitani are compatible and complementary to each other, and a POSITA would have been motivated to combine them for this additional reason. EX1005, ¶ 67. Nozaki uses face-recognition technology to organize recorded images/videos into “groups” according to whether they feature identified registered individuals. *See, e.g.*, EX1006, [0062]-[0065], [0073]-[0083], [0110]-[0114]. Although Nozaki discloses the reproduction of image/video files based on stored information about those files (e.g., face-recognition data, time/date data, event data, etc.), Nozaki does not explore the ways that the recorded information can be used to tailor the reproduction search process to produce broader or narrower results. EX1005, ¶ 67. Haitani teaches how to achieve this objective. EX1005, ¶ 67. Specifically, Haitani discloses selectively reproducing image and video information using combinations of filters, many of which use data that the Nozaki device already generates, including face-recognition data, date/time information, and event data. *See, e.g.*, EX1007, 1:29-33, 2:40-49, 6:39-42.

A POSITA would have recognized that Haitani’s filters-based search and reproduction would complement the Nozaki device in order to improve the efficiency of the Nozaki device in recalling and reproducing the images desired by the user. EX1005, ¶ 68. A POSITA would have known, similar to what Haitani

teaches, that users of devices with digital cameras generate a large number of image and video data and need ways to sort and locate those files. EX1005, ¶ 68. Haitani's search filters address this need and could have been easily implemented in the Nozaki device. EX1005, ¶ 68. Such implementation would have been within the skill of a POSITA. EX1005, ¶ 68.

B. Claim 8⁴

1. [8pre]

To the extent the preamble is limiting, Nozaki discloses it. EX1005, ¶ 69. Nozaki discloses “an electronic camera and an image processing device” (EX1006, [0001]) that “generates shooting image data” (i.e., still photos) and “moving image data” (i.e., videos) and also “outputs the video data on the liquid crystal monitor.” EX1006, [0047]-[0048]. The reproduced data can either be a “preview image” of whatever the camera currently observes (*id.*), or a “reproduction of the shooting image data.” EX1006, [0110]. Nozaki's “electronic camera” therefore constitutes a recording and reproducing apparatus as recited in the preamble.

2. [8a]

Nozaki discloses “a processor” as recited in this limitation. EX1005, ¶ 70. Nozaki discloses a “CPU” that “controls the operations of each section of an electronic camera.” EX1006, Fig. 1 (“CPU 26”), [0042], [0052].

⁴ The attached Claims Appendix maps the full claim language to each limitation.

3. [8b]

Nozaki discloses this limitation. EX1005, ¶ 71. Nozaki discloses that its CPU “controls the operations of each section of an electronic camera in accordance with sequence programs stored in a ROM.” EX1006, [0052]. Nozaki’s “ROM” is a memory coupled to a processor, and its “sequence programs” for execution by the “CPU” constitute stored instructions, as this limitation requires. EX1005, ¶ 71.

4. [8c]

Nozaki discloses this limitation. EX1005, ¶ 72. Nozaki discloses an “image sensor 16” for generating “an analog image signal of a subject image,” an “A/D converting section 18” to convert the “analog image signal of the image sensor 16 into a digital image signal,” and an “image processing section 20” that “generates” both photo “shooting image data” and video “moving image data.” EX1005, ¶ 72; EX1006, Fig. 1, [0045]-[0047].

5. [8d]

Nozaki discloses this limitation. EX1005, ¶ 73. Nozaki discloses a “built-in memory 19” that both “temporarily retains data for pre-processing and post-processing image processing” and serves as “a recording region capable of recording the shooting image data.” EX1005, ¶ 73; EX1006, Fig. 1, [0046]. Nozaki also discloses a “card I/F 21” for connecting a “recording medium 29... made up of a known semiconductor memory or the like.” EX1005, ¶ 73; EX1006, Fig. 1, [0048]. Nozaki states that the “card I/F 21 controls writing/read-in of shooting

image data on the recording medium 29.” EX1006, [0048]; *see also id.* at [0057] (describing “setting of recording destination” for the “shooting image data,” and explaining that “a directory path of the record folder inside the recording medium 29... can be specified for each registered person”). Finally, Nozaki discloses a “face registration memory 27” that stores “index image data and face registration image data” corresponding to a registered person, as discussed below in connection with limitations [8g] and [8h]. Nozaki states that “the built-in memory 19 and the face registration memory 27 may be made up of a common memory.” EX1006, [0188]. It also states that the data inside the “face registration memory 27” may be stored on “recording medium 29.” EX1006, [0189].

6. [8e]

Nozaki discloses this limitation. EX1005, ¶ 74. Nozaki discloses “an electronic camera and an image processing device provided with human face recognition functions.” EX1005, ¶ 74; EX1006, Fig. 1, [0001]. For example, Nozaki discloses using face recognition on an image stored in memory. EX1005, ¶ 74; EX1006, Fig. 12 (S1101), [0111]-[0114]. [0118]-[0124]. Additional disclosures from Nozaki regarding face registration and recognition are discussed below in limitations [8g] and [8h]. *See Infra* Sections VI.B.8 and VI.B.9.

7. [8f]

Nozaki discloses this limitation. EX1005, ¶ 75. Nozaki discloses that “[a] reproduced image of shooting image data” may be “displayed on the liquid crystal monitor 24.” EX1005, ¶ 75; EX1006, [0050]. Nozaki also teaches that, in a “regeneration mode,” the CPU 26 “reads out face registration image data (shooting image data used in generating the face recognizing data) from the recording medium 29 or the built-in memory 19 and reproduces and displays a reproduced image of the face registration image data on the liquid crystal monitor 24.” EX1006, Fig. 12 (S1101), [0111]. As discussed above for limitation [8d], the “shooting image data” is stored in “memory 19” and/or “recording medium 29.” A POSITA would therefore understand that a “reproduced image of shooting image data” would be recalled from the image recorded in “memory 19” and/or “recording medium 29.” EX1005, ¶ 75. Nozaki also discloses “index image data and face registration image data” stored in a “face registration memory 27,” as discussed below in connection with limitations [8g] and [8h]. EX1005, ¶ 76.

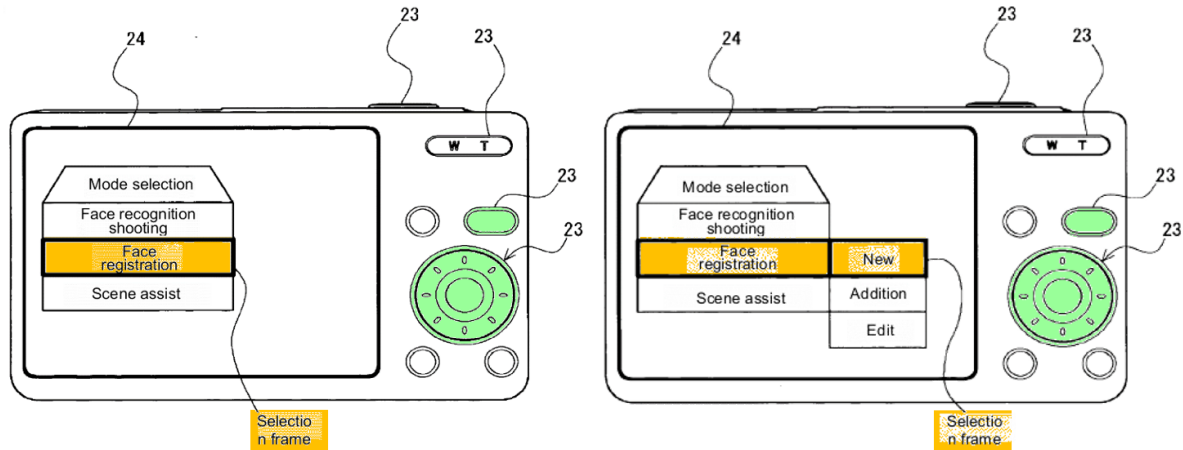
8. [8g]

Nozaki discloses this limitation. EX1005, ¶ 77. Nozaki discloses two modes for “face registration”: (1) a first mode (a “new” face registration mode) where an unregistered person is photographed for the first time as part of the registration process; (2) and a second mode (a “regeneration mode” face registration mode)

where an already captured photograph is reproduced from the device memory and used to register a previously unregistered person.⁵ EX1005, ¶¶ 77-81; EX1006, Figs. 2, 3, 5, [0062]-[0065], [0073]-[0083].

First, Nozaki discloses selecting a first setting mode (a “new” face registration mode) as recited in this limitation. EX1005, ¶ 78. With reference to the steps in the flowchart in Figure 2, Nozaki teaches that “[f]irst, the user sets a shooting mode of the electronic camera to a ‘face registration mode’ by using the operating member 23.” EX1006, Fig. 2 (flowchart step S101), [0062]. As shown below-left in Figure 3A, the “face registration mode” (orange) is selected from among the onscreen options using the device’s input controls (the “operating member 23,” highlighted green). EX1006, Fig. 3A, [0063]. This selection brings up a submenu (below-right in Figure 3B), wherein a user can select “new” to register “the face of a new person.” EX1006, Fig. 2 (flowchart step S102), [0064].

⁵ The second mode (“regeneration mode”) is discussed below in limitation [8h].

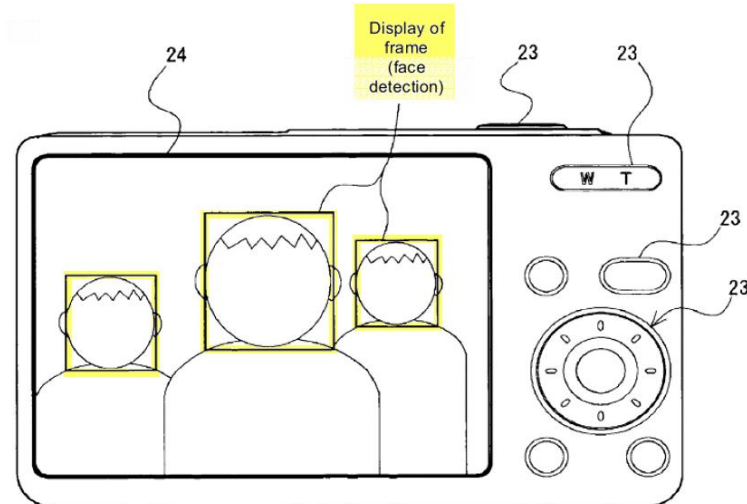


EX1006, Fig. 3A (left) and 3B (right) (highlighting added), [0063]-[0064].

Second, the first registration mode (the “new” face registration mode) in Nozaki involves newly photographing a person and using the new image to register him/her as a specific person. EX1005, ¶ 79. Nozaki teaches that selecting “new” face registration (above-right, Figure 3B) causes the device to “generate[] a group folder of a newly registered person (a registered person to be shot this time)” in a “face registration memory 27.” EX1006, Fig. 2 (flowchart steps S103 and S104), [0065]. The user can thereafter “input information on the ‘name of registered person,’” along with other data such as the photographing preferences for that person (e.g., exposure correction). EX1006, Fig. 2 (S103, S104), Fig. 5, [0065].

After the person’s registration information is inputted, Nozaki’s device newly captures a photograph of him/her. EX1005, ¶ 80. Nozaki teaches that “[t]he CPU 26 drives the image sensor 16 to acquire a moving image signal” and display it on the “monitor 24” as a “preview image.” EX1006, Fig. 2 (S106 and S107),

[0073]. The CPU's "face detecting section 31... applies known face detecting processing to the moving image data, thereby detecting a face area inside a shooting screen." EX1006, Fig. 2 (S108), [0073]. As illustrated below in Figure 6, when "the face of a person inside the shooting screen" is detected, the Nozaki device "displays a rectangular frame at a position of the face area of a preview image" so as to enable a user to "confirm the presence or absence of face detection by referring to the preview image." EX1006, Fig. 2 (S108), [0074].



EX1006, Fig. 6 (highlighting added).

If the face is detected and determined to be in a state ready for photographing (e.g., facing the camera with a neutral expression) (EX1006, Fig. 2 (S109, S110, S111), [0075]-[0079]), and if the user has pressed the shutter release button, then "CPU 26 drives the image sensor 16 to shoot a subject image" and "the image processing section 20 generates shooting image data (face registration image data) based on an image signal at release." EX1005, ¶ 81; EX1006, Fig. 2

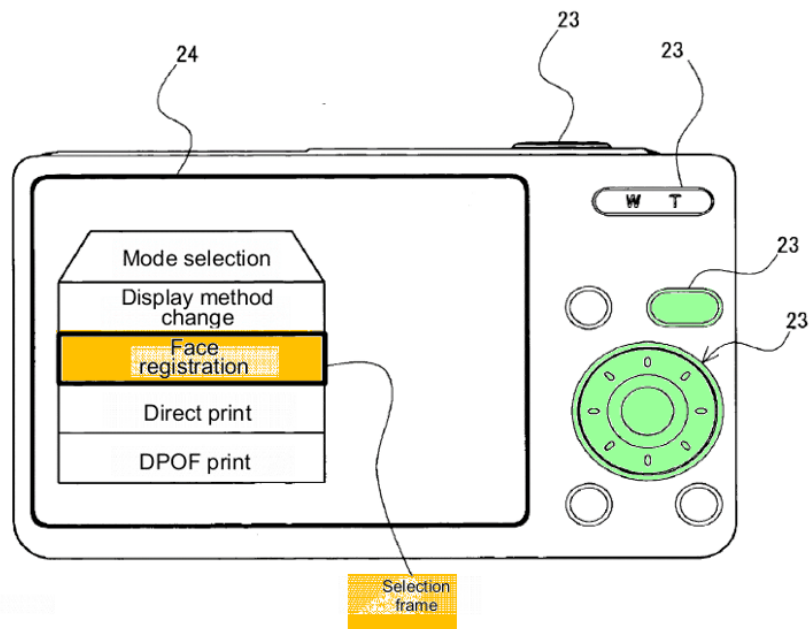
(S112 to S114), [0080]-[0081]. The device generates “face recognizing data”—i.e., data to identify a registered person in future image/videos—from the photograph of the newly registered person (the “face registration image data”). EX1006, Fig. 2 (S115), [0081]. The Nozaki device also “trims a face area of the face registration image data and resizes it into a predetermined size by resolution conversion to generate index image data,” i.e., a thumbnail image of the person’s face. EX1006, Fig. 2 (S115), Figs. 4 and 5, [0081]. “The CPU 26 records the shooting condition and the shooting date and hour for face recognizing data, index image data and face registration image data in the face registration memory 27” corresponding to the group folder of the registered person. EX1006, Fig. 2 (S116), [0082]. This completes the “new” face registration process. EX1006, [0083].

9. [8h]

Nozaki discloses this limitation. EX1005, ¶ 82. Nozaki discloses a second mode for registering a person that is complementary to the first mode described in limitation [8h] above, wherein a person is newly registered through the use of a “regeneration mode” that relies on a “reproduction of the shooting image data” rather than a newly captured photograph. EX1005, ¶¶ 82-86; EX1006, Figs. 5 and 12-16, [0110]-[0114], [0118]-[0124].

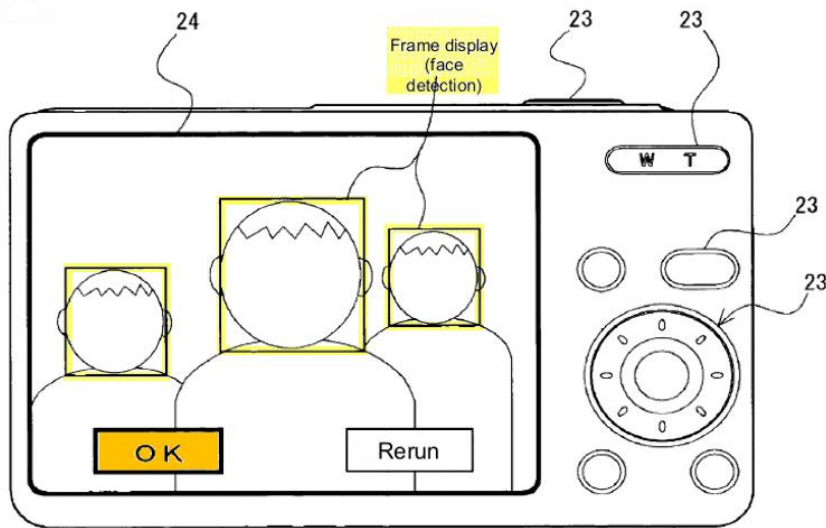
First, Nozaki discloses selecting the second setting mode (the “regeneration mode” of face registration) as recited in this limitation. EX1005, ¶ 83. With

reference to the steps in a flowchart (Figure 12), Nozaki teaches that, “[f]irst, a user sets the electronic camera to a ‘regeneration mode’ by using the operating member 23,” which causes the CPU 26 to “read[] out face registration image data (shooting image data used in generating the face recognizing data) from the recording medium 29 or the built-in memory 19 and reproduce[] and display[] a reproduced image of the face registration image data on the liquid crystal monitor 24.” EX1006, Fig. 12 (S1101), [0111]. From the screen showing the reproduced photograph, the user may use the “operating member 23”—highlighted green in Figure 13 below—to navigate the mode selection frame towards the option to perform “face registration” (orange).



EX1006, Fig. 12 (S1102), Fig. 13 (highlighting added), [0112].

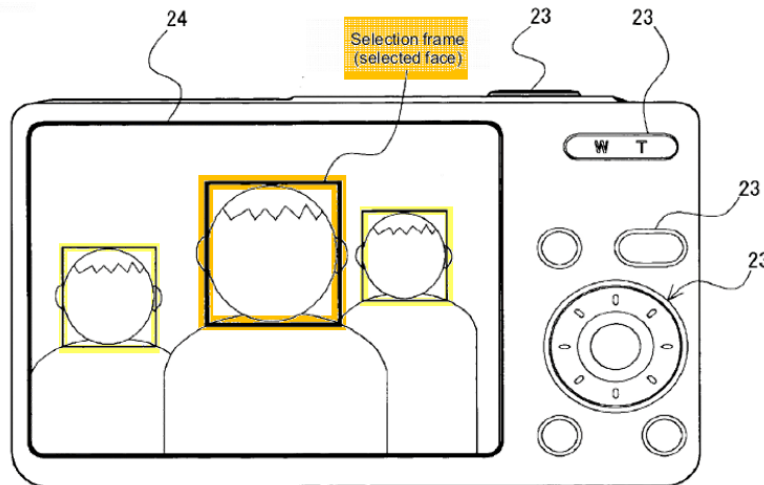
Second, Nozaki discloses registering a person by selecting him/her from a plurality of faces in the reproduced image information. EX1005, ¶ 84. Similar to the “new” face registration mode discussed in limitation [8g] above, Nozaki states that “[t]he face detecting section 31 of the CPU 26 applies known face detection processing to face registration image data” that is reproduced onscreen, and the “image processing section 20 synthesizes and displays a rectangular frame at a position of a face area of a reproduced image.” EX1006, Fig. 12 (S1103, S1104), [0113]. As depicted in Figure 14 below, where a plurality of faces are detected in a reproduced image, Nozaki “displays a rectangular frame” around each face (highlighted yellow).



EX 1004, Fig. 14 (highlighting added), [0113].

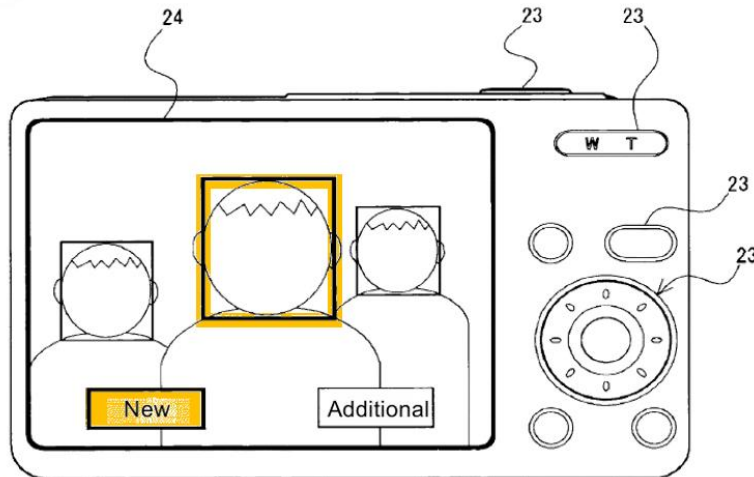
If the face of the person that the user desires to register has been detected (i.e., has a frame around his/her face), then the user selects “OK” (highlighted

orange above). EX1005, ¶ 85; EX1006, Fig. 12 (S1105), Fig. 14, [0114]. Selecting “OK” causes the Nozaki device CPU to “synthesize[] and display[] a selection frame on any of the face areas” in the reproduced image. EX1006, Fig. 12 (S1107), Fig. 15, [0118]. A user can “operate[] the selection frame by using the operating member 23,” thereby “select[ing] a person” for registration from among the plurality of detected faces. *Id.* Figure 15, reproduced below, illustrates the selecting frame (orange) that the user can manipulate to select a person for registration.



EX 1004, Fig. 12 (S1107), Fig. 15 (highlighting added), [0118].

Upon selecting a face for registration, “[t]he CPU 26 displays on the liquid crystal monitor 24 an indication prompting a user to confirm whether the thus selected person is a newly registered person,” i.e., a previously unregistered person that the user wishes to register for the first time. EX1005, ¶ 86; EX1006, Fig. 12 (S1108), Fig. 16, [0119]. Figure 16, reproduced below, shows the option to newly register a person.



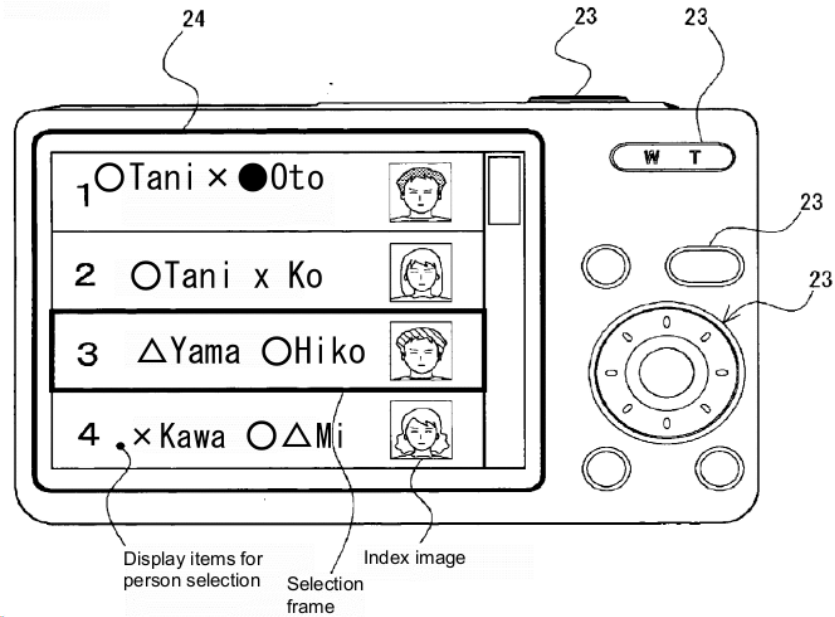
EX1006, Fig. 12 (S1108), Fig. 16 (highlighting added), [0119]. Nozaki teaches that “[w]here ‘new’ is selected... the CPU 26 generates a group folder of the newly registered person in the face registration memory 27” and subsequently displays the “detailed information screen of registered person” (Fig. 5) on the monitor so that the user may “input information on the ‘name of registered person’” along with photographing preferences (e.g., exposure controls). EX1006, Fig. 5, Fig. 12 (S1109), [0120]. Completion of this step causes the information to be saved to the “face registration memory 27” and for the Nozaki device to generate and save—to the same group folder in the same memory 27—the “face recognizing data,” the “index image data,” the “data on the shooting conditions and the shooting data and hour,” and the “face registration image data.” EX1006, Fig. 12 (S1109, S1110, S1111, S1112), [0120]-[0123]. This completes registration. EX1006, [0124].

10. [8i]

Nozaki in combination with Haitani renders obvious this limitation.

EX1005, ¶ 87. Nozaki discloses a “detailed information screen” (Figure 5) for each registered person that lists every instance in which the registered person appears in an image/video (“face registration data”). EX1005, ¶ 87; EX1006, Fig. 5, [0150]-[0152]. Each item in the list is selectable by a user. *Id.* Although Nozaki does not expressly disclose that selecting one or more items from the list would enable a user to reproduce onscreen each image associated with the face registration data (i.e., the “face registration image data”), it would have been obvious to implement this feature in Nozaki in view of Haitani, which discloses the use of search filters—including filters based on face-recognizing data—to selectively display photographs of certain individuals on a device monitor. EX1005, ¶¶ 87-93; EX1007, 1:29-33, 2:40-49, 6:39-42.

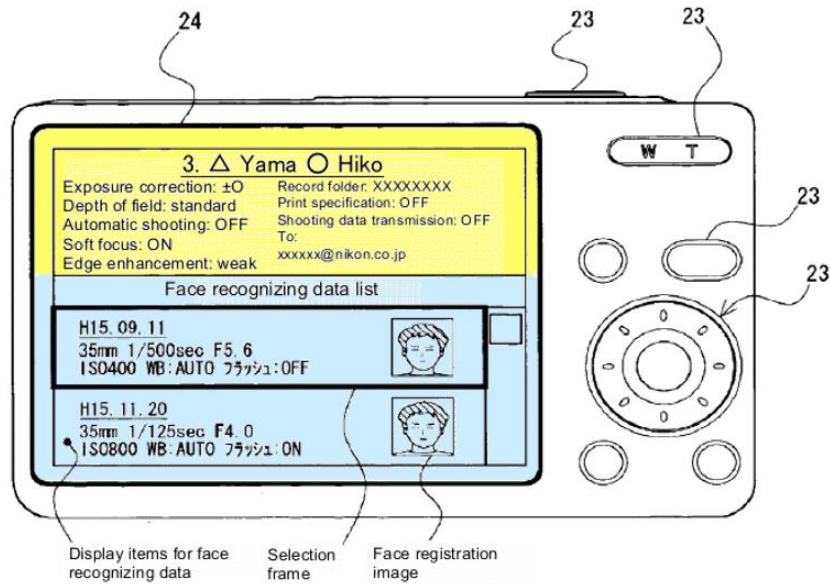
Nozaki discloses a method for navigating to the image information of registered individuals. EX1005, ¶ 88. First, Nozaki teaches a “selecting screen” for selecting among the people who have been registered on the device. EX1006, Fig. 4, [0138]. As shown in Figure 4 below, the “selecting screen” contains a list of “person-selecting display items” (e.g., items 1, 2, 3, and 4 in Figure 4 below) corresponding to the group folders “of registered persons on the face registration memory 27.”



EX1006, Fig. 4, [0138]-[0139], [0147]. Each “person-selecting display item” includes an “index image” of the person’s face.⁶ EX1006, Fig. 4, [0140].

Selecting one person from the display items (e.g., person 3 on the list) brings up a new screen, illustrated in Figure 5 below, which Nozaki calls a “detailed information screen of [a] registered person.” EX1005, ¶ 89; EX1006, Fig. 5, [0138], [0147].

⁶ As discussed above in limitations [8g] and [8h], the “index image” is an image of a registered person’s face “trim[med]” (i.e., cropped) from the larger image captured during registration (“face registration image data”). Nozaki clarifies that “any given shooting image of a registered person may be used as an index image”—it does not have to be a trimmed image. EX1006, [0191].



EX1006, Fig. 5 (highlighting added), [0150]-[0152]. The “detailed information screen” (Figure 5 above) is “divided into two parts,” with the name and the photographing preferences for the registered person displayed on the “upper part” (highlighted yellow above), and the “face recognizing data” from each captured photograph of the registered person displayed on the “lower part” (highlighted blue). EX1006, Fig. 5, [0150]-[0152]. Nozaki teaches that the listed items in the “lower part” of Figure 5 are selectable via a “selection frame,” and that “a user is able to operate a selection frame (a cursor or the like) indicated in bold lines in Fig. 5 [above] by using the operating member 23 and specify a display item for face recognizing data....” EX1006, Fig. 5, [0152]-[0153].

Although Nozaki does not expressly disclose that selecting an item from the lower part of the “detailed information screen” in Figure 5 will enable a user to reproduce the entire image/video file associated with that item (as opposed to the

trimmed down “index image” generated from that photo), it would have been obvious to implement such feature in view of Haitani. EX1005, ¶ 90. Haitani discloses the use of “filters used to limit the number of images displayed” on the monitor of a portable handheld device. EX1007, 2:40-45. The filters “may be user selectable” and “may use the data in the image file obtained from non-image applications.” EX1007, 2:45-49. Haitani states that one form of “non-image data” may come from an “image recognition program,” which “may be pretrained to identify certain individuals (such as individuals the user may photograph regularly) and then look for those people in the images” of a recording and reproducing apparatus. EX1007, 6:39-42. Thus, Haitani discloses the use of filters to selectively reproduce stored images/videos corresponding to an individual who has been previously registered on a recording and reproducing apparatus. EX1005, ¶ 90.

To the extent the feature is not already present in the Nozaki device, a POSITA would be motivated to add the filtered search and reproduction feature from Haitani to the Nozaki device, because adding such a feature would greatly improve the efficiency of searching for photos of registered individuals. EX1005, ¶ 91. Haitani recognizes that “[a] user may capture hundreds or thousands (or more) pictures and movies over the course of time using these various devices” like the one in Nozaki, and explains that “[t]he task of organizing these pictures often falls to the user of the device.” EX1007, 1:29-33. A POSITA would recognize that the

ability to selectively reproduce image files would aid users of the Nozaki device in efficiently searching for specific photos or videos when their image/video libraries have become extensive. EX1005, ¶ 91.

A POSITA would also recognize that Nozaki already implements a version of the “filter” criteria that Haitani describes—i.e., sorting photos and videos according to the presence of registered individuals, and listing that assortment of photo/video files in the “detailed information screen” of Figure 5. EX1005, ¶ 92. Moreover, Nozaki discloses a reproducing mode (“regeneration mode”) that “reads out face registration image data (shooting image data used in generating the face recognizing data) from the recording medium 29 or the built-in memory 19 and reproduces and displays a reproduced image of the face registration image data on the liquid crystal monitor 24.” EX1006, Fig. 12 (S1101), [0111]. A POSITA would recognize that implementing the filtered search of Haitani in the Nozaki device would allow users of the Nozaki device to more quickly locate and reproduce images in the “regeneration mode” using image data (e.g., registration data or time/date information) that the Nozaki device already records in connection with image/video capture. EX1005, ¶ 93.

Modifying the Nozaki device to display photographs of the registered individuals as disclosed in Haitani would be a simple addition to the Nozaki device that relies on data that the Nozaki device already generates and organizes. EX1005,

¶ 93. Such modification would be well within a POSITA's abilities, and would achieve the benefit disclosed in Haitani. EX1005, ¶ 93.

C. Claim 11

1. [11pre]

See Supra Section VI.B.

2. [11a]

Nozaki in combination with Haitani renders obvious this limitation. EX1005, ¶ 95. As an initial matter, and as discussed above in limitation [8b], Nozaki discloses a memory that stores program instructions for execution by a processor. *See Supra* Section VI.B.3. Haitani contains similar disclosures. EX1005, ¶ 95; EX1007, 26:53-54, 27:31-41, 31:51-59. Also, as discussed above for limitation [8i], Haitani discloses selectively reproducing images/videos using search filters—including filters based on face-recognizing data. *See Supra* Section VI.B.10. A POSITA would recognize this as a reproducing mode. EX1005, ¶ 95.

Haitani further discloses that one or more additional filters may be combined with the face-recognition filter, resulting in additional reproducing modes that generate narrower lists of photos and/or videos for reproduction. EX1005, ¶ 96; EX1007, 10:61-11:3, 11:15-33, 12:16-17, 13:9-13, 20:45-50. A POSITA would have understood that these modes of searching for images/videos are discrete from each other, and that using a single filter constitutes a reproducing mode that

reproduces a broader range of images/videos for display than reproducing modes that combine the original filter with one or more additional filters. EX1005, ¶ 96.

Haitani discloses that, “[i]f large numbers of image files exist,” a device can “reduce the number of files through which a user needs to sort to select an image for sharing, viewing, or taking other actions” by “filtering images 246 using generated filters, pre-configured filters, user entered filters, or some other type of filter.” EX1005, ¶ 97; EX1007, 10:61-66. Haitani teaches that its filters may employ a “combination of the non-image data... which may be associated with an image file.” EX1007, 10:66-11:3. As discussed for limitations [8i], face-recognition data is a type of “non-image data” that Haitani teaches for use as a filter, and which a user may select in order to pick out images/videos that contain a registered person. *See Supra* Section VI.B.10. Haitani also discloses other non-image filters including, among other things, a “time filter” and an “event-related filter” for sorting through and selectively displaying photo/video information. EX1005, ¶ 97; EX1007, 11:2-3, 12:16-17.

A POSITA would have understood Haitani to teach that a user may combine one or more of these additional filters with the face-recognition filter to employ a different reproducing mode that picks out a more narrowly focused set of images/videos. EX1005, ¶ 98. For example, Haitani explains that “[f]ilters selectable by a user” may have “varying degrees of specificity” and may be

arranged such that a first filter “may cover a broad range” followed by a second filter that is “responsive” to the first and customized to “display filter options that are narrower.” EX1007, 11:15-23; *see also id.* at 11:24-33 (discussing three filters that narrow the reproduced images from state, to city, to areas in a city).

A POSITA would have found it obvious to implement in the Nozaki device the combinations of filters disclosed in Haitani to create multiple reproducing modes that efficiently sort through, select, and display desired image(s) and/or video(s). EX1005, ¶ 99. A POSITA would have understood Haitani’s teachings regarding filters to be compatible with Nozaki because, in addition to face-recognizing data, Nozaki discloses generating the same types of non-image data that Haitani teaches for use as a filter—including, for example, date and time information (EX1006, [0058]), relationship to a user (EX1006, [0141]), and events “such as family and group activities” (EX1006, [0148]). EX1005, ¶ 99. Indeed, a POSITA would recognize that Nozaki already suggests sorting the index images on the detailed information screen (Figure 5) sequentially according to the times when the images were captured. EX1005, ¶ 99; EX1006, [0143]-[0144]. Further, a POSITA would recognize that Haitani teaches combining face-recognition and time-based filters. EX1007, 13:9-13, 20:45-50. A POSITA therefore would have found it obvious to implement the multiple-filter search of Haitani in the Nozaki device, such that the Nozaki device operates according to this limitation to

reproduce images in an additional mode. EX1005, ¶ 99. Such a modification would have required a minimal number of changes to Nozaki’s existing design, which were well within the skill in the art at the time. EX1005, ¶ 99.

3. [11b]

Nozaki in combination with Haitani renders obvious this limitation. EX1005, ¶ 100. As discussed above for limitation [11a], Haitani discloses different modes of reproducing data that use one filter or a combination of filters. *See Supra* Section VI.C.2. Haitani explains that a mode using one filter “may cover a broad range” whereas a mode that adds a second filter “responsive” to the first will “display filter options that are narrower.” EX1007, 11:15-23. This is consistent with the disclosures in the ’848 patent regarding, for example, a “standard reproducing mode” that reproduces “all chapters” and an “express reproducing mode” that reproduces only a subset of chapters. *See* EX1001, 9:20-45; EX1005, ¶ 100. A POSITA would have understood that the reproducing time for the first mode (i.e., a “narrower” search that combines multiple filters) would be shorter than a reproducing time for a second mode (i.e., a “broad” search that uses a single filter) as this limitation recites, because the first mode reproduces fewer image/video files than the second mode. EX1005, ¶ 100.

4. [11c]

Nozaki in combination with Haitani renders obvious this limitation.

EX1005, ¶ 101. As discussed above for limitations [11a] and [11b], Haitani discloses different modes of reproducing data that use one filter or a combination of filters, including a mode using one filter “cover[ing] a broad range” and a mode adding a second filter that reproduces a “narrower” range of images/videos. *See Supra* Sections VI.C.2 and VI.C.3. A POSITA would have understood that the images/videos reproduced in the “broad” second mode that uses a single search term (e.g., only face recognizing data) would include the images/videos reproduced in the “narrower” first mode (e.g., face recognizing data plus a date/time range) as well as other images/videos that the first mode did not cause to be reproduced, as this limitation recites. EX1005, ¶ 101.

D. Claim 12

1. [12pre]

See Supra Section VI.C.

2. [12a]

Nozaki in combination with Haitani renders obvious this limitation.

EX1005, ¶ 103. As an initial matter, and as discussed above in limitation [11a], Nozaki and Haitani both disclose a memory that stores program instructions for execution by a processor. *See Supra* Section VI.C.2. Also, as discussed above for limitations [11a] and [11b], Haitani discloses the use of different reproducing

modes that use a filter or a combination of filters (e.g., filters based on face-recognition data, date/time, location, or events) to search for and reproduce a set or subset of image/video files. *See Supra* Section VI.C.2 and CI.C.3. A POSITA would have understood that Haitani therefore discloses three search modes that use different filters, and that will generate different sets of image/video files. EX1005, ¶ 103. For example, a first mode might use face registration data as a filter, a second mode might add date/time as an additional filter, and a third mode might further add a third filter (e.g., location or events). EX1005, ¶ 103. A POSITA would have known that each mode would generate broader or narrower results. EX1005, ¶ 103. Each mode would correspond to a mode recited in this limitation. EX1005, ¶ 103.

3. 12[b]

Nozaki in combination with Haitani renders obvious this limitation. EX1005, ¶ 104. As discussed above in limitation [12a], a POSITA would have understood Haitani to disclose at least three reproducing modes, for example if each mode adds another filter to the filter(s) of the mode preceding it. *See Supra* Section VI.D.2. A POSITA would have known that each mode would generate broader or narrower results, with the broadest mode being a “third” mode having the characteristics recited in this limitation, i.e., a reproducing time longer than the second mode. EX1005, ¶ 104.

E. Claim 13

1. [13pre]

See Supra Section VI.B.1.

2. [13a]

See Supra Section VI.B.4. Nozaki's "image sensor 16" is the claimed "photographing sensor." EX1005, ¶ 106.

3. [13b]

See Supra Section VI.B.5. Nozaki's "CPU" combined with "built-in memory 19," "recording medium 29" and "card I/F 21 [that] controls writing/read-in of shooting image data on the recording medium 29," and/or "face registration memory 27" are the claimed "recorder" and "recording medium." EX1005, ¶ 107.

4. [13c]

See Supra Section VI.B.7. Nozaki's "CPU" combined with "built-in memory 19," "recording medium 29" and "card I/F 21 [that] controls writing/read-in of shooting image data on the recording medium 29," and/or "face registration memory 27" are the claimed "reproducer." EX1005, ¶ 108.

5. [13d]

See Supra Section VI.B.2. Nozaki's "CPU" is the claimed "processing circuitry." EX1005, ¶ 109.

6. [13e]

See Supra Section VI.B.6.

7. [13f]

See Supra Section VI.B.8.

8. [13g]

See Supra Section VI.B.9.

9. [13h]

See Supra Section VI.B.10, VI.C.2, VI.C.3. Nozaki in combination with Haitani renders obvious this limitation. EX1005, ¶ 113. Nozaki's "detailed information screen" lists each instance in which the registered person's face has been identified in a captured image. EX1006, Fig. 5, [0150]-[0153]; EX1005, ¶ 113. Haitani discloses "filters used to limit the number of images displayed" on the monitor of a portable handheld device, which may include "non-image data" from an "image recognition program." EX1007, 2:40-45. A POSITA would have understood that the filters in Haitani would be compatible with the "detailed information screen" of Nozaki for picking out images of a registered person from among a user's stored library of photographs and/or video files. EX1005, ¶ 113.

10. [13i]

See Supra Sections VI.B.10, VI.C.2, VI.C.3, and VI.E.9. Nozaki in combination with Haitani renders obvious this limitation. EX1005, ¶ 114. Haitani discloses the use of one or more filters, including "user entered filters," that can be combined to narrow the set of image/video files to be reproduced by a device. EX1007, 10:61-66. Haitani expressly discloses combining, for example, face-

recognition and time-based filters. EX1007, 13:9-13, 20:45-50. A POSITA

therefore would have found it obvious to implement the multiple-filter search of Haitani in the Nozaki device, such that the Nozaki device operates according to this limitation. EX1005, ¶ 114.

11. [13j]

See Supra Sections VI.B.10, VI.C.2, VI.C.3, VI.E.9 and VI.E.10. Nozaki and Haitani disclose reproducing a selective list of image/video files sequentially according to the date and time when the files were generated. *See, e.g.*, EX1006, [0143]-[0144]; EX1007, 1:32-34; EX1005, ¶ 115.

F. Claim 16

1. [16pre]

See Supra Section VI.E.

2. [16a]

See Supra Section VI.C.2.

3. [16b]

See Supra Section VI.C.3.

4. [16c]

See Supra Section VI.C.4.

G. Claim 17

1. [17pre]

See Supra Section VI.F.

2. [17a]

See Supra Section VI.D.2.

3. 17[b]

See Supra Section VI.D.3.

H. Claim 18

1. [18pre]

See Supra Section VI.B.1.

2. [18a]

See Supra Sections VI.B.4 and VI.E.2.

3. [18b]

See Supra Sections VI.B.5 and VI.E.3.

4. [18c]

See Supra Sections VI.B.7 and VI.E.4.

5. [18d]

See Supra Sections VI.B.2 and VI.E.5.

6. [18e]

See Supra Section VI.B.6.

7. [18f]

See Supra Section VI.B.8.

8. [18g]

See Supra Section VI.E.9.

9. [18h]

See Supra Section VI.E.10.

10. [18i]

See Supra Section VI.E.11.

I. Claim 19

1. [19pre]

See Supra Section VI.H.

2. [19a]

See Supra Section VI.C.2.

3. [19b]

See Supra Section VI.C.3.

4. [19c]

See Supra Section VI.C.4.

J. Claim 20

1. [20pre]

See Supra Section VI.I.

2. [20a]

See Supra Section VI.D.2.

3. 20[b]

See Supra Section VI.D.3.

VII. GROUND 2: NOZAKI, HAITANI, AND GRAHAM (CLAIM 84)

A. Motivation to Combine Nozaki-Haitani with Graham

Graham is analogous art to the '848 patent because, like Nozaki and Haitani, it discloses a method for selectively reproducing video files in the context of a computer device (with or without a camera) like a PDA, a cell phone, or a video camera. EX1008, [0072], [0073], [0318]. For this reason, a POSITA would have found it obvious to combine Graham with Nozaki and Haitani. EX1005, ¶ 140.

The disclosures of Graham are compatible with, and complementary to, those in Nozaki and Haitani, and a POSITA would have been motivated to combine them for this reason as well. EX1005, ¶ 141. As discussed above, a POSITA would have been motivated to combine Haitani with Nozaki so that the Nozaki device could take advantage of Haitani's filter-based search method for selectively reproducing broader and narrower sets of image/video files. *See Supra* Section VI.A. A POSITA would have also found it obvious to modify the Nozaki device to incorporate the disclosures in Graham, which are directed to searching for and reproducing specific segments within individual video files. EX1008, Fig. 3, [0005], [0060]-[0062], [0088]. A POSITA would have recognized that Graham's method of segmenting video files into individual "keyframe" chapters and displaying those keyframes as selectable thumbnail images is compatible with the reproduction software disclosed in Nozaki. EX1005, ¶ 141. A POSITA would

have also recognized that Nozaki’s face-detection data could be used as an additional method by which to identify keyframes in a video file, such that the listing of “face recognizing data” in Figure 5 of Nozaki could be alternatively configured as a scrollable list of keyframe data similar to Graham. EX1005, ¶ 141.

A POSITA would have been motivated to implement this modification to improve the efficiency of searching for specific moments within a long video file. EX1005, ¶ 142. Graham’s video segmenting methods address this need and could have been easily implemented in the Nozaki device. EX1005, ¶ 142. Such implementation would have been within the skill of a POSITA. EX1005, ¶ 142.

B. Claim 84

1. [84pre]

See Supra Section VI.B.1.

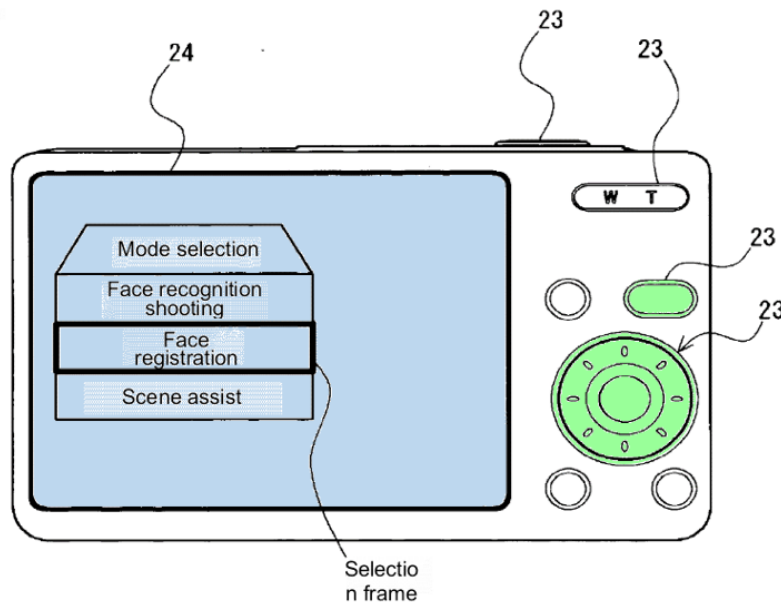
2. [84a]

See Supra Section VI.B.2.

3. [84b]

Nozaki discloses this limitation. EX1005, ¶ 145. Nozaki discloses a display (“liquid crystal monitor 24”) that presents a “mode setting screen” to a user, including options to enter a record mode to capture video information (e.g., “face recognizing shooting mode”) and to enter a reproducing mode (“regeneration mode”). EX1005, ¶ 145-146; EX1006, Figs. 1, 3-6, 11, 13-16, [0049], [0062]-[0063], [0084]-[0085], [0110]-[0112].

First, Nozaki discloses a display. Nozaki states that its embodiments use a “liquid crystal monitor 24” that is “in most cases arranged at the back face of an electronic camera.” EX1006, Fig. 1 (“monitor 24”), Figs. 3-6, 11 and 13-16 (showing the display screen), [0050]. The figure reproduced below (Figure 3A) shows an example of the “monitor 24” taught by Nozaki (highlighted blue).



EX1006, Fig. 3A (highlighting added). As demonstrated above, Nozaki’s display shows users “a setting screen or the like for changing various types of settings.” EX1006, [0050]. The displayed settings options are selectable using “operating member 23” (highlighted green above), which Nozaki describes as including an “input button” that “accepts switching input.” EX1006, Fig. 3A, [0049].

Second, Nozaki discloses that the display shows options for a “record mode” and a “reproduction mode,” which Nozaki names a “shooting mode” and a “regeneration mode.” EX1005, ¶ 146. Nozaki states that “[t]he input button of the

operating member 23 accepts switching input, for example, shooting modes of an electronic camera (such as normal shooting mode, regeneration mode, face registration mode, and face recognizing shooting mode).” EX1006, [0049] (emphasis added). These modes are shown on a “mode selection screen,” which is displayed “on the liquid crystal monitor 24” similar to what is shown in Figure 3A above. EX1006, [0062]-[0063] (disclosing displaying and selecting the “face registering mode” on the “mode setting screen”), [0084]-[0085] (same for “face recognizing shooting mode”), [0110]-[0112] (“regeneration mode”).

4. [84c]

See Supra Section VI.B.3.

5. [84c.i]

See Supra Section VI.B.4.

6. [84c.ii]

See Supra Section VI.B.5.

7. [84c.iii]

See Supra Section VI.B.6.

8. [84c.iv]

See Supra Section VI.B.7.

9. [84c.v]

See Supra Section VI.B.8.

10. [84c.vi]

See Supra Section VI.B.9.

11. [84c.vii]

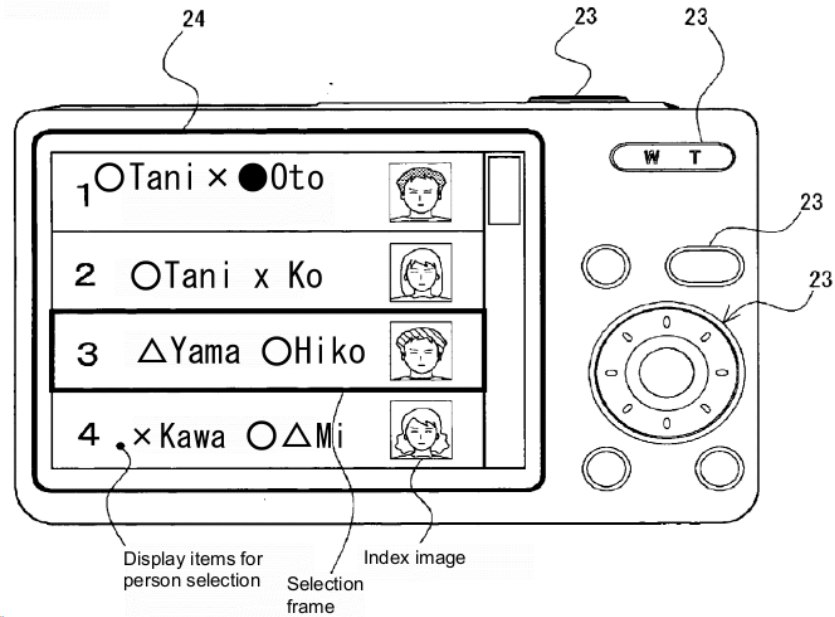
See Supra Section VI.B.10.

12. [84c.viii]

Nozaki discloses this limitation. EX1005, ¶ 155. Nozaki discloses an “illustration image”—e.g., “a heart mark”—that may be “selected by a user” and then set onto the thumbnail “index image” of a registered person that corresponds to the recorded “face registration image data” captured during registration. EX1005, ¶ 155-156; EX1006, Fig. 4, [0138]-[0141].

As discussed above for limitation [8i], Nozaki discloses a “selecting screen” for selecting among the people who have been registered on the device, and that includes thumbnail “index images” of each registered person that correspond to the images captured of that person during registration.⁷

⁷ As discussed above in limitations [8g] and [8h], the “index image” is an image of a registered person’s face “trim[med]” (i.e., cropped) from the larger image captured during registration (“face registration image data”). Nozaki clarifies that “any given shooting image of a registered person may be used as an index image”—it does not have to be a trimmed image. EX1006, [0191].



EX1006, Fig. 4, [0138]-[0139], [0147]. Nozaki states that, for each person listed in the “selecting screen” of Figure 4, the CPU may “set[] an illustration image selected by a user from a predetermined group of illustration images to the index image.” EX1006, Fig. 4, [0141]. The “illustration image” set to an “index image” may include “graphic symbols such as a heart mark and a star as well as characters such as ‘family’ and ‘friend.’” EX1006, Fig. 4, [0141]. According to Nozaki, the “illustration image” aids in “specifying or classifying a registered person according to the intention of the user.” EX1005, ¶ 156; EX1006, Fig. 4, [0141].

13. [84d]

Nozaki, alone or in combination with Haitani, renders obvious this limitation. EX1005, ¶ 157. As discussed above for limitation [84b], Nozaki discloses a display with an “operating member 23” for selecting among the available functions on the device. *See Supra* Section VII.B.3. And as discussed

above for limitations [8g] and [8h], Nozaki discloses the two “registering” modes recited in claim 84. *See Supra* Sections VI.B.8 and VI.B.9. Nozaki therefore discloses every element of this limitation except selecting registering modes using a touch panel.

A POSITA would have found it obvious to modify Nozaki so that it used a touch panel rather than “operating member 23” because a POSITA would have understood that—at the relevant time—there existed a finite number of ways for users to control the type of device disclosed in Nozaki, and a touch-screen interface was among those known ways. EX1005, ¶ 158. Haitani, for example, lists the types of “user input devices” known to be employed in a recording apparatus like the one in Nozaki, including a “button, switch, touch screen, keyboard, keypad, voice command circuit, etc.” EX1007, 29:14-17 (emphasis added). Haitani suggests that “a button or touch screen input” are interchangeable (*id.* at 3:15-19), and Haitani describes the use of a “touch-sensitive color thin-film transistor (TFT) LCD screen” (*id.* at 31:1-16), which would be compatible with the “liquid crystal monitor 24” of Nozaki. EX1005, ¶ 158. A POSITA would have known—with or without the disclosures in Haitani—that Nozaki’s display and operating member configuration could be modified to be a touch-screen interface. EX1005, ¶ 158. Such a modification would have been a matter of design choice, and would have required a simple substitution within the skill of a POSITA. *Id.* at ¶ 158.

A POSITA would have been motivated to modify Nozaki to use a touch-screen interface instead of using a display and separate operating member.

EX1005, ¶ 159. For example, a POSITA would have understood that switching from the display and operating member setup in Nozaki to a touch-screen interface would have allowed the display on the backside of the Nozaki device to be larger, which would allow users to better view reproduced images, particularly the thumbnail images of registered faces that Nozaki displays. EX1005, ¶ 159. A POSITA would have also been motivated to implement a touch-screen interface in Nozaki to make the interface more intuitive for users. EX1005, ¶ 159.

14. [84e]

Nozaki discloses this limitation. EX1005, ¶ 160. Nozaki discloses that “the image processing section 20 generates various display video data (such as frame display on face recognition) according to instructions from the CPU 26 and outputs the video data on the liquid crystal monitor 24 by superimposing the data on the moving image data.” EX1005, ¶ 160; EX1006, [0048]. The frame around the face of the person (highlighted yellow below) is clearly illustrated in Nozaki Figure 6.

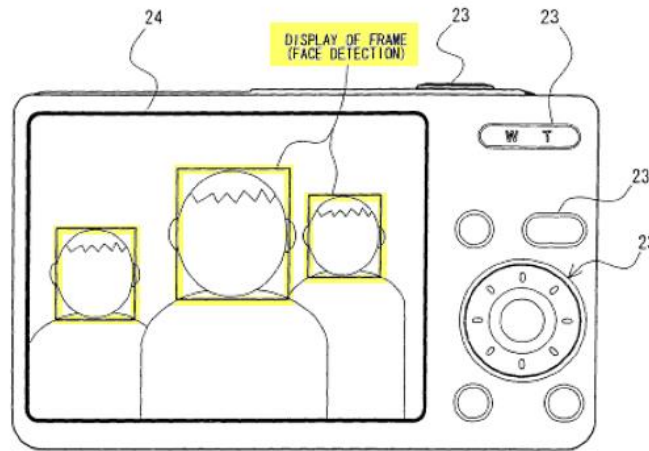


FIG. 6

EX1006, Fig. 6 (highlighting added). Regarding Figure 6 above, Nozaki states that “where the face detecting section 31 detects the face of a person inside the shooting screen, the image processing section 20 synthesizes and displays a rectangular frame at a position of the face area.” EX1006, [0074].

15. [84f]

See Supra Section VI.B.4. Nozaki’s “A/D converting section 18” is the claimed “analog/digital converter.” EX1005, ¶ 161.

16. [84g]

Nozaki discloses this limitation. EX1005, ¶ 162. Nozaki discloses that “the image processing section 20 executes compression treatment to the shooting image data.” EX1005, ¶ 162; EX1006, [0047]. Nozaki also discloses the use of standardized image file formats, for example, stating that “face registration image data” (i.e., photographs used for registration) may be “an image file based on the standards of Exif (Exchangeable image file format for digital still cameras).”

EX1006, [0122]; *see also id.* at [0058] (referring to standard print file formats). A POSITA would have understood Nozaki's disclosures to expressly, or at least inherently, disclose this limitation because file formats for compressed photos and videos were standardized at the relevant time to include, for example, EXIF and MPEG files, and a codec for encoding and compressing photo and video files for storage in these standardized formats was a ubiquitous part of the image processing methodology employed by cameras at the time. EX1005, ¶ 162. The '848 specification confirms as much, stating that a codec "encodes the supplied image information by a predetermined compression encoding method such as a Moving Picture Expert Group (MPEG) method." EX1001, 4:14-20 (emphasis added).

Alternatively, Nozaki in combination with Haitani renders this limitation obvious. EX1005, ¶ 163. Haitani discloses that image files "may use a standard image file format (e.g., EXIF, JFIF, GIF, PICT, MPEG, AVI, motion JPEG, etc.)" and that "the image file may be compressed... such as by JPEG compression, MPEG compression, LZW compression, other DCT-based compression, etc." EX1007, 3:28-40. A POSITA would have understood that performing the "compression treatment" disclosed in Nozaki using one of the standard image file compression formats disclosed in Haitani would be a simple design choice, easily implemented in the Nozaki device. EX1005, ¶ 163. A POSITA would have recognized, for example, that both Nozaki and Haitani expressly refer to the same

image file format (EXIF) for compression and encoding. EX1005, ¶ 163; EX1006, [0122]; EX1007, 3:28-40. A POSITA would have been motivated to use a codec to compress the Nozaki image files into one of the standard image file compression formats disclosed in Haitani to (1) enable the saved image/video files of the Nozaki device to be transferred to and viewed on other devices that could recognize the standard file format type, and (2) to preserve space on the Nozaki device's memory (e.g., memory 19 and/or memory 29). EX1005, ¶ 163.

17. [84h]

See Supra Section VII.A.3. Nozaki discloses a video camera for capturing video information (“moving image data”) corresponding to a scene.⁸ EX1005, ¶ 164.

18. [84h.i]

Nozaki in combination with Graham renders obvious this limitation. EX1005, ¶ 165. Graham discloses a method of “retrieving and displaying multimedia information” such as “video information” wherein “thumbnail images”

⁸ A “scene” in the context of the '848 patent refers to a single video recording. *See* EX1001, 1:31-34 (“A scene means a series of images recorded during a period from when a user depresses a record button to start photographing to when the user depresses again the record button to stop photographing.”).

of “video keyframes” are “extracted from the video information... at various points in time using a specified sampling rate” and then displayed to the user in a vertical interface. EX1008, Fig. 3, [0005], [0060]-[0062], [0088]. Figure 3 of Graham, below, shows an example of the “thumbnail images 312-2” (highlighted yellow) corresponding to the “video keyframes” extracted from the video information.

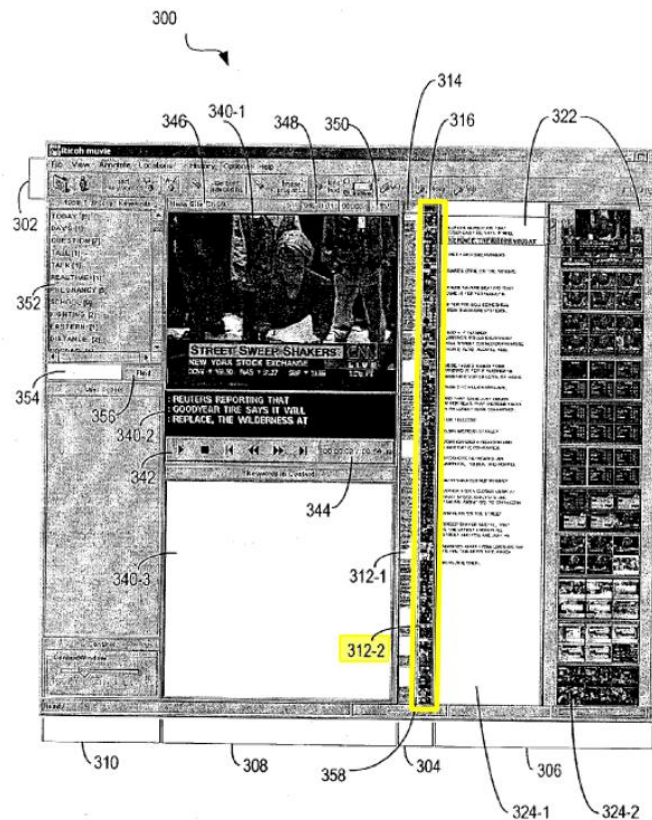


Fig. 3

EX1008, Fig. 3 (highlighting added), [0088]. A POSITA would recognize Graham’s “video keyframes” as a plurality of sections corresponding to the video information of the scene, as this limitation recites. EX1005, ¶ 165.

Graham further discloses, in a flowchart shown at Figure 15, the “method of displaying thumbnail 312-2, which depicts video keyframes extracted from the video information.” EX1008, Fig. 15, [0188]. For example, Graham states that “video keyframes may be extracted from the video information by sampling the video information at a particular sampling rate” such as “1 frame per second.” EX1008, Fig. 15 (step 1502), [0188]. The extracted keyframe information is stored and “then used for generating thumbnail 312-2.” EX1008, Fig. 15 (step 1504), [0188]-[0189]. The keyframes are then divided into groups and, for each group of keyframes, one or more thumbnail images are selected for display to the user in the vertical display column. EX1008, Fig. 15 (steps 1506, 1508, 1510, 1512, 1514), [0191]-[0198]; EX1005, ¶ 166. Graham discloses a method for selecting keyframes for display, e.g., “if each group of video keyframes comprises 8 keyframes and if 6 video keyframes are to be displayed” then Graham suggests to “select the first two video keyframes, the middle two video keyframes, and the last two video keyframes.” EX1008, Fig. 15 (step 1514), [0198]; EX1005, ¶ 166. Graham notes, however, that “[v]arious different techniques may be used for selecting the video keyframes to be displayed.” EX1008, Fig. 15 (step 1514), [0198]; EX1005, ¶ 166.

A POSITA would have found it obvious to combine Nozaki-Haitani with Graham to achieve this limitation. Nozaki discloses a “regeneration mode” for viewing stored image and video files. *See Supra* Section VI.B.9 ([8h]). A POSITA

would have recognized that the method of reproducing video information disclosed in Graham would be compatible with the Nozaki device because, for example, the vertical display setup in Graham is similar to the vertical listing of “face recognizing data” shown on the lower part of the “detailed information screen” (Figure 5) in Nozaki. EX1005, ¶ 167. A POSITA would have recognized that the Nozaki device could display the video keyframes of Graham as part of its “regeneration mode” for video files, and a POSITA would have been motivated to make such change to improve user efficiency in locating and playing back a desired portion of a video file. EX1005, ¶ 167. A POSITA would have known that, similar to what Graham discloses, users of electronic devices “are increasingly being called upon to assimilate vast quantities of information in a short period of time.” EX1008, [0013]. A POSITA would have recognized that Graham’s disclosures of how to help address this problem would apply equally to the device disclosed in Nozaki. EX1005, ¶ 167. Such a change would have been within the skill of a POSITA to implement. EX1005, ¶ 167.

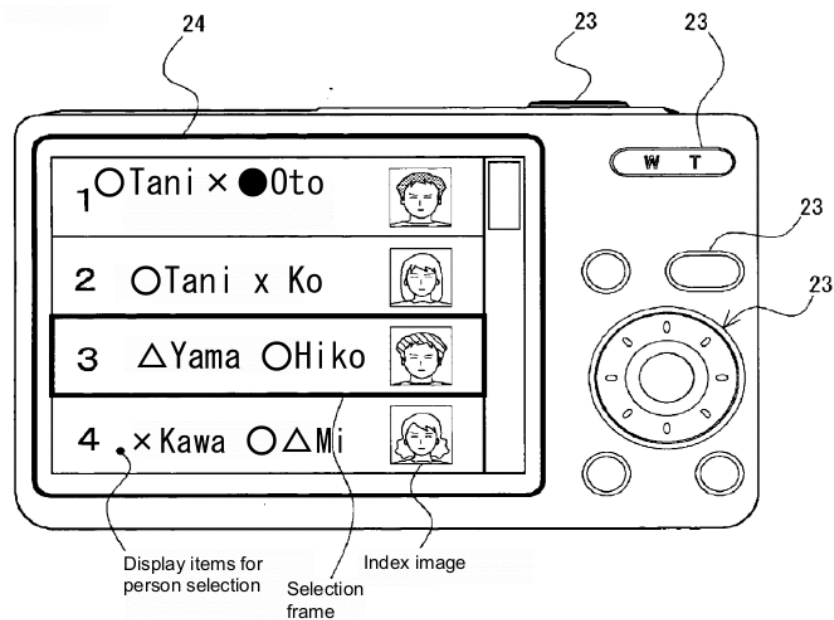
19. [84h.ii]

Nozaki in combination with Graham renders obvious this limitation. EX1005, ¶ 168. As discussed above in limitation [84h.ii], Graham discloses the use of a plurality of “thumbnail images” corresponding to “video keyframes” that are “extracted from the video information... at various points in time using a specified

sampling rate” and then displayed to the user in a vertical interface. *See Supra* Section VII.B.18. A POSITA would have found it obvious to modify Nozaki as recited in this limitation. *See Supra* Section VII.B.18.

20. [84i]

Nozaki discloses this limitation. EX1005, ¶ 169. Nozaki discloses a “selecting screen” (Figure 4) that lists a plurality of registered individuals along with an “index image” of each person.



EX1006, Fig. 4, [0138]-[0139], [0147]. Each index image is generated by “trim[ming] a face area of the face registration image data and resiz[ing] it into a predetermined size,” which results in an image containing both the person’s face and the closest surrounding portions of the background. EX1006, Fig. 2 (S115), Figs. 4 and 5, [0081]. Thus, Nozaki’s “selecting screen” displays a plurality of recorded images, each of which includes a face of a different person and

background objects, without displaying all of the background objects included in the contents of each image. EX1005, ¶ 169.

VIII. GROUND 3: NOZAKI, HAITANI, AND KIM (CLAIM 84)

A. Motivation to Combine Nozaki-Haitani with Kim

Kim is analogous art to the '848 patent because, similar to Nozaki and Haitani, it discloses a method for selectively reproducing video files in the context of a computer device (with or without a camera) like a PDA, a cell phone, or a video camera. EX1009, 11. For this reason, a POSITA would have found it obvious to combine Kim with Nozaki and Haitani. EX1005, ¶ 170.

The disclosures of Kim are compatible with, and complementary to, those in Nozaki and Haitani, and a POSITA would have been motivated to combine them for this reason as well. EX1005, ¶ 171. As discussed above, a POSITA would have been motivated to combine Haitani with Nozaki. *See Supra* Section VI.A. A POSITA would have also found it obvious to modify the Nozaki device to incorporate the disclosures in Kim, which are directed to searching for and reproducing specific segments within individual video files. EX1008, Fig. 3, [0005], [0060]-[0062], [0088]. A POSITA would have recognized that Kim's method of segmenting video files into individual "key frame" chapters and displaying those key frames as selectable thumbnail images is compatible with the reproduction software disclosed in Nozaki. EX1005, ¶ 171. A POSITA would have

also recognized that Nozaki’s face-detection data could be used in a manner that is consistent with Kim’s “face detecting unit,” such that the Nozaki device’s face-detection functionality could be used to identify key frames in a video file.

EX1005, ¶ 171. A POSITA would have understood, for example, that the listing of “face recognizing data” in Figure 5 of Nozaki could be configured according to the “topic list” in Kim to provide a scrollable list of key frame chapter thumbnails, that, similar to Kim, would enable a user to navigate a video file. EX1005, ¶ 171.

A POSITA would have been motivated to implement this modification to improve the efficiency of searching for specific moments within a long video file. EX1005, ¶ 172. Kim’s video segmenting methods address this need and could have been easily implemented in the Nozaki device. EX1005, ¶ 172. Such implementation would have been within the skill of a POSITA. EX1005, ¶ 172.

B. Claim 84

1. [84pre] – [84h]

See Supra Sections VII.B.1 – VII.B.17.

2. [84h.i]

Nozaki in combination with Kim renders obvious this limitation. EX1005, ¶ 174. Kim discloses “video partitioning” of a “shot”—i.e., “a sequence of video frames obtained from a single camera without interruption”—where a “multimedia content indexing technique[.]... extract[s] key special elements such as key frames” from a video and automatically “indexes” them by chapters (or “partitions”), “in a

way that describes them on a time axis, allowing users to easily browse or search for desired parts.” EX1009, 6-7. Kim gives an example of a “news video” that the described invention has divided into 25 chapters, wherein “each chapter consists of a starting shot set as a key frame in which the main characters appear and a data screen supporting the content, that is, an episode part.” EX1009, Fig. 1, Fig. 4A-4C, 7. Kim discloses that a “face detecting unit 330” of the invention could be used to help identify when to create a key frame for segmenting the video into chapters. *Id.* A POSITA would recognize the “chapters” in Kim to be sections corresponding to the video information of a scene as recited in this limitation. EX1005, ¶ 174.

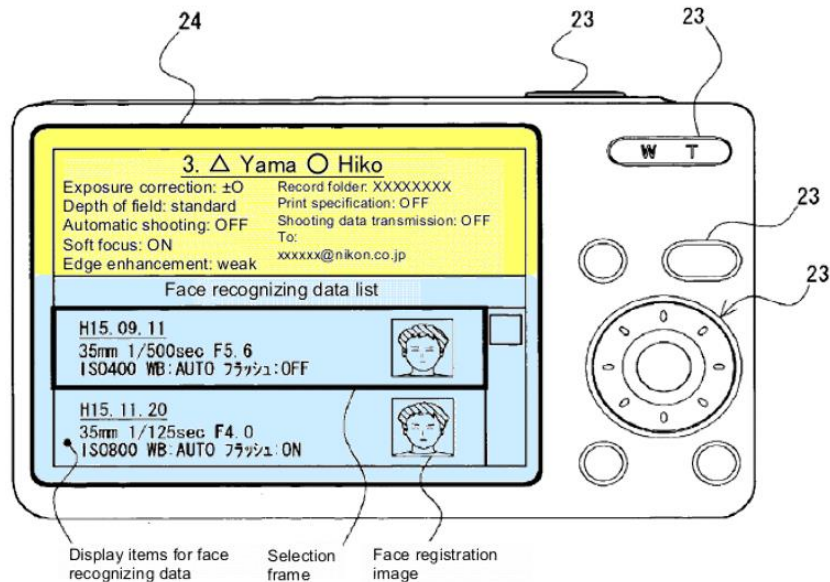


EX1009, Fig. 1 (depicting segmented “chapters” of a video).

A POSITA would have found it obvious to combine the disclosures of Kim with the invention disclosed in Nozaki. EX1005, ¶ 175. As discussed above in limitation [8i] (*see supra* Section VI.B.10), Nozaki’s “detailed information screen”

(Figure 5) lists, in its “lower part” (blue below), every instance in which a registered person’s face has been recognized in a captured image or video.

EX1006, Fig. 5, [0138], [0147].



EX1006, Fig. 5 (highlighting added), [0150]-[0152]. A POSITA would have found it obvious that the role of the “face detecting unit” in Kim could be filled by the face-recognition technology in Nozaki. EX1005, ¶ 175. Moreover, a POSITA would have found it obvious that Kim’s “multimedia content indexing technique” would be compatible with the list of face-recognition data in the “lower part” of Figure 5 above, because the listing of face recognizing data could be used to identify “key frames” in a video file and generate “chapter” or “segment” markers for said file as disclosed in Kim. EX1005, ¶ 175. This modification to the Nozaki device would have been within the skill of a POSITA at the time. EX1005, ¶ 175.

A POSITA would have been motivated to modify the Nozaki device to include the automatic video segmenting functionality of Kim to improve the efficiency with which a user could search for and locate specific people in large (lengthy) video files. EX1005, ¶ 176. Kim recognizes that its segmenting function results in increased convenience of the user and “allow[s] users to easily browse or search a desired part” of a video file. EX1009, 7. A POSITA would have appreciated that these benefits could apply to the Nozaki device. EX1005, ¶ 176.

3. [84h.ii]

Nozaki in combination with Kim renders obvious this limitation. EX1005, ¶ 177. Kim discloses a “key frame determining unit 350” that produces a “topic list” of the key frame “chapters” into which a video has been segmented, and displays the topic list as thumbnail images as shown below in Figure 4C.



EX1009, Fig. 1, Fig. 4A-4C, 6-8.

Similar to limitation [84h.i] above, a POSITA would have found it obvious to combine Kim and Nozaki to obtain this limitation. EX1005, ¶ 178. Nozaki discloses displaying thumbnail images of a person's face in its listing of face recognizing data in the lower part of Figure 5, wherein the thumbnail images show index images of a person's face corresponding to each instance in the image/video files in which each piece of face recognition data was captured. EX1005, ¶ 178. A POSITA would have found it obvious to modify Nozaki so that it could list the key frame "chapters" of Kim using thumbnails of the key frame as disclosed in Kim, to aid users in navigating to specific portions of a video file. EX1005, ¶ 178. Such a modification would have been within the skill of a POSITA. EX1005, ¶ 178.

4. [84i]

See Supra Section VII.B.20.

IX. DISCRETIONARY DENIAL IS NOT WARRANTED

A. 35 U.S.C. § 314(a) Analysis

Discretionary denial is not warranted because this Petition satisfies the "compelling merits" standard set forth in the June 21, 2022, *Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation* at 4.

B. 35 U.S.C. § 325(b) Analysis

Applying the two-part framework discussed in *Advanced Bionics, LLC v. Med-El Elektromedizinische Gerate GMBH*, IPR2019-01469, Pap. 6, *8-9, the Board should not exercise its § 325(d) discretion to deny institution.

First, none of the challenges in this Petition are substantially the same as those considered during prosecution or reexamination, and none of the art cited herein was expressly considered during prosecution or reexamination of the '848 patent. Second, to the extent that the challenges are found to be based on prior art that is the same as or cumulative to prior art considered by the examiner during prosecution, the examiner has made a clear error in allowing the claims over such prior art. This is at least because the challenges in this Petition satisfy the compelling merits standard, and allowing the claims over such prior art is therefore clear error.

X. COMPLIANCE WITH FORMAL REQUIREMENTS

A. Mandatory Notices Under 37 C.F.R. §§ 42.8(b)(1)-(4)

1. Real Party-In-Interest

Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc. are the Petitioners and real parties-in-interest.

2. Related Matters

The '848 patent is subject to the following action: *Maxell, LTD. v. Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc.*, 5:23-cv-00092-RWS (ED TX 2023) (“District Court Litigation”).

3. Lead and Backup Counsel

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4. Service Information

Service information for lead and backup counsel is provided in the designation of lead and backup counsel above.

B. Proof of Service on the Patent Owner

In accordance with 37 C.F.R. §§42.6(e) and 42.105, as identified in the attached Certificate of Service, a copy of this Petition in its entirety is being served electronically to the Patent Owner’s attorney of record, as well as on counsel for Patent Owner in the District Court Litigation.

C. Power of Attorney

Powers of attorney are being filed with designation of counsel in accordance with 37 C.F.R. § 41.10(b).

D. Standing

In accordance with 37 C.F.R. § 42.104(a), Petitioner certifies that the '848 patent is available for *inter partes* review and that Petitioner is not barred or estopped from requesting an *inter partes* review challenging the patent claims on the grounds identified in this Petition.

E. Fees

The undersigned authorizes the Director to charge the fee specified by 37 C.F.R. § 42.15(a) and any additional fees that might be due in connection with this Petition to Deposit Account No. 50-3266.

XI. CONCLUSION

All Challenged Claims of the '848 patent should be found unpatentable for the reasons discussed in this Petition.

Date: May 1, 2024

Respectfully submitted,

/s/ James Heintz

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U.S. Patent No. 10,176,848
Petition for *Inter Partes* Review

Fax: + 1 703 773 5000

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Attorney for Petitioners

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), Petitioner certifies that this petition includes 10,886 words, as measured by Microsoft Word, exclusive of the table of contents, mandatory notices under § 42.8, certificates of service, word count, claim listing, and exhibits.

Date: May 1, 2024

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CERTIFICATE OF SERVICE

The undersigned certifies pursuant to 37 C.F.R. §§ 42.6(e) and 42.105 that on May 1, 2024, a true and correct copy of the Petition for *Inter Partes* Review of U.S. Patent No. 10,176,848 challenging claims 11, 12, 16, 17, 19, 20, and 84 was served by emailing a copy of same (by agreement) to the following attorneys for the Patent Owner:

maxell-samsung-service@mayerbrown.com

A courtesy copy was sent electronically to counsel for Patent Owner in the District Court Litigation:

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