

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CANON INC., and CANON U.S.A., INC.,

Petitioner,

v.

HS ASSET AND TECHNOLOGY, LLC,

Patent Owner.

Case IPR2018-00499
Patent 9,264,614 B2

Before MICHAEL R. ZECHER, STACEY G. WHITE, and
JOHN P. PINKERTON, *Administrative Patent Judges*.

PINKERTON, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
Inter Partes Review
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

Canon Inc. and Canon U.S.A., Inc. (collectively, “Petitioner”) filed a Petition for *inter partes* review of claims 1–9 of U.S. Patent No. 9,264,614 B2 (Ex. 1001, “the ’614 patent”). Paper 1 (“Pet.”). In the Decision on Institution (Paper 9, “Dec. on Inst.”), we instituted trial as to claims 1–9 of the ’614 patent on all asserted grounds of unpatentability. HS Asset and Technology, LLC (“Patent Owner”) filed a Patent Owner Response (Paper 12, “PO Resp.”), and Petitioner filed a Reply (Paper 13, “Pet. Reply”). An oral hearing was held on April 2, 2019, and the transcript of the hearing is included in the record. Paper 18 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–9 of the ’614 patent are unpatentable.

A. *Related Proceedings*

Petitioner has filed a separate petition for *inter partes* review of claims 1–9 of the ’614 patent. Pet. 2 (see IPR2018–00501). We address that Petition in a separate decision issued concurrently. There is also a pending district court action involving Patent Owner and Petitioner (*HS Asset & Tech., LLC v. Canon USA, Inc.*, 1:16-cv-06339 (E.D. N.Y.)). *Id.* at 77; Paper 5, 1.

B. *The ’614 Patent*

The ’614 patent generally is directed to a digital camera that includes a rotary switch, a state changing switch, and a restricting member. Ex. 1001,

2:29–32.¹ The specification explains that the “switching unit is configured to independently switch between two states.” *Id.* at 2:34–35. Figure 1B of the ’614 is shown below.

FIG.1B

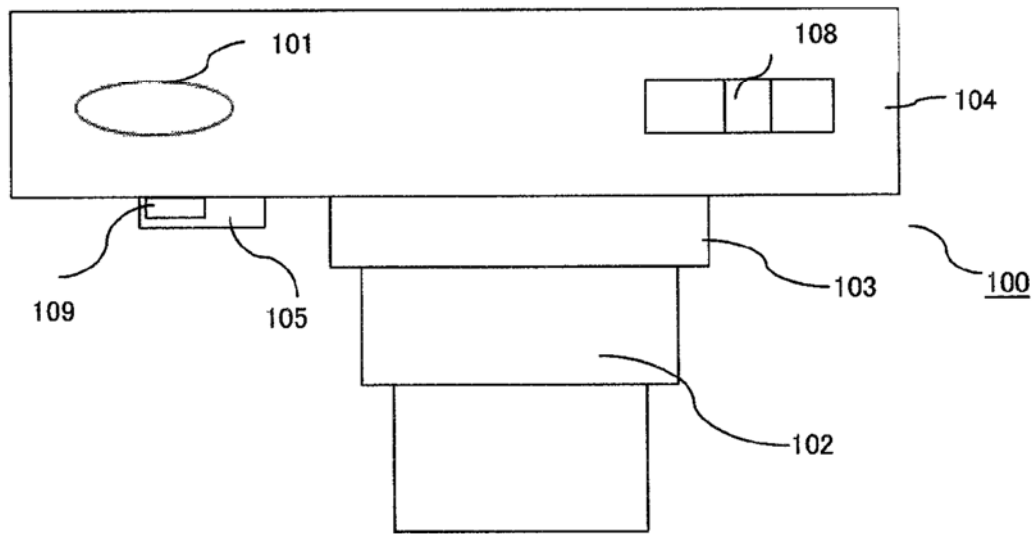


Figure 1B is a schematic diagram of a top view of digital camera 100 according to the first embodiment. Ex. 1001, 4:33–35. Figure 1B shows a

¹ The specification discloses that the “switching unit” switches between two states, restricted and non-restricted. Ex. 1001, 2:34–38. The specification also discloses that the “selector switch” is configured to switch between a restricted and non-restricted state. *See, e.g., id.* at 3:14–18. Although the terms “switching unit” and “selector switch” are used in the specification, the claims use the term “state changing switch” and recite “the state changing switch is configured to switch between two states.” *See, e.g.,* Ex. 1001, 11:9, 16, 25–26, 46; 12:43–53. Consistent with the claim language, our analysis refers to the term “state changing switch.”

“rotary switch” as ring 103 around lens-barrel 102. Ex. 1001, 2:66–67; 4:35–39. Figure 1B also shows shutter 101 for photographing, power switch 108, selector switch (“state changing switch”) 105 for switching a mode for continuous or discrete output values in the rotary ring, and function button 109 for further mode switching disposed on the outer surface of chassis 104. *Id.* at 4:39–46.

The ’614 patent explains that digital cameras may use a number of functions, such as focusing, zooming, exposure, shutter speed, ISO (sensitivity), and switching of imaging modes. *Id.* at 1:26–29. The patent acknowledges that rotary switches, such as ring 103, that control these various camera functions were well known prior to the invention of the ’614 patent. *Id.* at 1:50–2:1. The ’614 patent also acknowledges that camera functions typically known to have discrete values were controlled using a rotary switch whose “rotation is locked in a specific position,” whereas functions known to have continuous values were controlled using a rotary switch that “continuously rotates” without locking in a specific position. *Id.* at 2:13–18.

In the ’614 patent, the state changing switch is configured to independently switch between “a restricted state where an operation of the rotary switch causes a clicking feel; and a non-restricted state where an operation of the rotary switch does not cause a clicking feel.” *Id.* at 3:41–45. The ’614 patent explains that “[a] function with discrete output values [such as one of a shutter speed and aperture] is assigned to the restricted state, and a function with continuous output values [such as one of focusing and zoom magnification of a lens] is assigned to the non-restricted state.” *Id.* at 3:50–53, 2:41–46.

The '614 patent describes that the restricted state (*i.e.*, clicking feel) and non-restricted state (*i.e.*, smooth feel) are generated mechanically by restricting member 107 engaging or disengaging a trough or depressed portion between the projecting portions 201 on rotary switch 103. *Id.* at 2:38-41. Figures 3A and 3B of the '614 patent are reproduced below.

FIG.3A

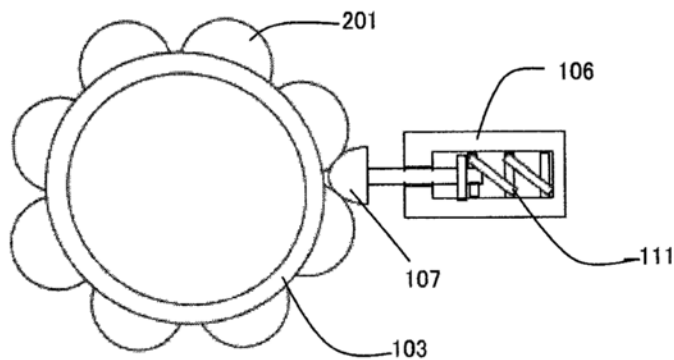
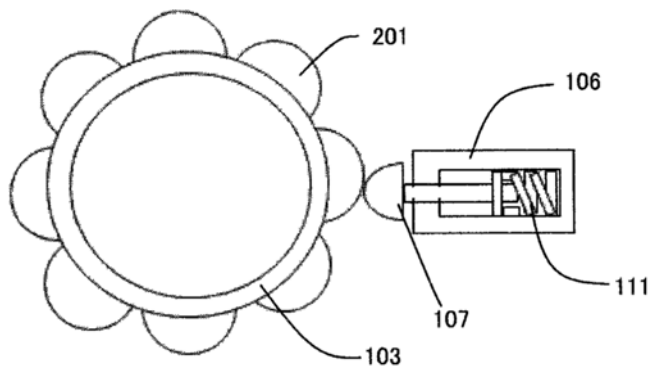


FIG.3B



Figures 3A and 3B are conceptual diagrams illustrating the operation when selector switch 105 (not illustrated in Figures 3A and 3B) is set to a restricted state. *Id.* at 5:16–19. These figures show projecting portions 201 in semi-circular shapes evenly disposed on the periphery of rotary ring 103. *Id.* at 5: 9–11. They also show fixed portion 106 disposed adjacent, and to

the right of, ring 103, in which restricting portion 107 is coupled to the fixed portion via spring 111. *Id.* at 5:1–3. The '614 patent explains that, when selector switch 105 is set to a restricted state, fixed portion 106 moves to approach rotary ring 103 inside chassis 104. *Id.* at 5:19–23. Fixed portion 106 includes restricting portion 107 that is projected by spring 111. *Id.* at 5:21–23. When rotary ring 103 is rotated, the rotary ring is in a fixed position, as shown in Figure 3A. *Id.* at 5:23–25. When restricting portion 107 has a position other than the trough between the projecting portions, as shown in Figure 3B, restricting portion 107 moves to the closest trough by the pressing force of spring 111, causing the clicking feel to the user. *Id.* at 5:25–33.

C. Illustrative Claim

Among the challenged claims, claims 1 and 9 are independent; claims 2–8 depend directly from claim 1. Claim 1 is illustrative of the claimed subject matter and is reproduced below (with paragraph lettering added as in the Petition):

1. (a) A digital camera, comprising:

- (b) a rotary switch,
- (c) a state changing switch, and
- (d) a restricting member,

wherein

(e) the rotary switch has a surface with a plurality of depressed portions or trough portions, and the restricting member engages with the depressed portion or the trough portion of the rotary switch in a case where a restricted state is set by the state changing switch so as to restrict rotation of the

rotary switch, such that engagement and disengagement of the restricting member with the depressed portion or the trough portion of the rotary switch mechanically generate[s] a clicking feel;

(f) a rotating operation of the rotary switch causes a control corresponding to first and second functions respectively assigned to two states selected by the state changing switch;

(g) the state changing switch is configured to switch between two states, independently of a third function other than the first and second functions assigned to the respective states of the rotary switch, the two states including the restricted state and a non-restricted state;

(h) in the restricted state, the rotation of the rotary switch is restricted with the clicking feel, and a function of at least one of a shutter speed and an aperture as the first function with discrete output values is related to the rotating operation of the rotary switch;

(i) in the non-restricted state, the rotation of the rotary switch is not restricted and does not generate the clicking feel, and a function of at least one of focusing, and a zoom magnification of a lens, as the second function with continuous output values, is related to the rotating operation of the rotary switch; and

(j) the restricting member comprises a mechanical structure that restricts rotation of the rotary switch in a case where the restricted state is set by the state changing switch.

Ex. 1001, 11:6–46.

D. Evidence of Record

Petitioners rely upon the following references, as well as the Declaration of William Plummer, Ph.D. (Ex. 1002):

Reference	Exhibit(s)	Patent/Printed Publication
Tanaka	1003, 1004	Japanese Patent Application Publication No. 2011/39385 to Tanaka (Ex. 1003 and Ex. 1004 (certified English translation)) published Feb. 24, 2011
Tesch	1005	U.S. Patent No. 2,906,188 to Tesch (Ex. 1005) issued Sept. 29, 1959
Kawaji	1006, 1007	Japanese Patent Application Publication No. 2003/177294 to Kawaji (Ex. 1006 and Ex. 1007 (certified English translation)) published on June 27, 2003
Mikamo	1008	U.S. Patent Publication No. 2003/0160891 A1 to Mikamo (Ex. 1008) published on Aug. 28, 2003
Ishigaki	1009	U.S. Patent Publication No. 2008/0197004 A1 to Ishigaki et al. (Ex. 1009) published on Aug. 21, 2008
Nakao	1010, 1011	Japanese Utility Model Publication No. JPS4927439 to Nakao (Ex. 1010 and Ex. 1011 (certified English translation)) published on Mar. 8, 1974

E. Instituted Grounds of Unpatentability

Petitioner argues that all the prior art relied on in the Petition was issued or published more than one year before the '614 patent's earliest possible effective filing date of July 18, 2012, and is, therefore, prior art to the '614 patent under 35 U.S.C. § 102(b). Pet. 9.

In IPR2018-00501, we determined that the earliest effective priority date for the '614 patent is January 16, 2015, the filing date of the United States application, and, therefore, the claims of the '614 patent are subject to

the Leahy-Smith America Invents Act (“AIA”), including the amendments to 35 U.S.C. §§ 102 and 103. See Final Decision (Paper 19, 29, fn. 3). At the joint hearing in this case and IPR2018-00501, counsel for the parties agreed that if we determined in IPR2018-00501 that the claims of the ’614 patent are subject to the AIA, then the provisions of the AIA should be applied in both cases. See Tr. 8:2–6; 27:14–17. Thus, we apply 35 U.S.C. §§ 102 and 103 of the AIA in this case.

Because each of the references relied on in the Petition has an issue or publication date before the effective filing date of the ’614 patent on January 16, 2015, the references are prior art under 35 U.S.C. § 102(a) of the AIA. Applying 35 U.S.C. § 103 of the AIA, instead of pre-AIA 35 U.S.C. § 103(a), we instituted trial based on the following grounds of unpatentability (“grounds”), which were all of the grounds raised in the Petition:

References	Basis	Claim(s) Challenged
Tanaka and Tesch	§ 103	1, 2, 4, and 7–9
Kawaji and Mikamo	§ 103	1–4, 7, and 9
Kawaji, Mikamo, and Ishigaki	§ 103	5 and 8
Mikamo and Nakao	§ 103	6

F. Person of Ordinary Skill in the Art

Petitioner asserts a person of ordinary skill in the art before the effective filing date of the claimed invention of the ’614 patent would have a bachelor’s degree in optical engineering, mechanical engineering, electrical engineering, optics or physics with at least three years of experience working in optical engineering, a master’s degree in one of the above disciplines with at least two years of experience working in optical

engineering, a Ph.D. in one of the above disciplines focusing on optical engineering, or other equivalent experience. Pet. 29 (citing Ex. 1002 ¶ 46). Patent Owner has not expressed a position on the level of ordinary skill in the art. *See generally* PO Resp. After reviewing the full record in this case, we adopt Petitioner’s description of the person of ordinary skill in the art because it is consistent with the asserted prior art and the ’614 patent, and we apply this level of ordinary skill in our analysis below.

II. DISCUSSION

A. Claim Construction

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b) (2018).² Under that standard, and absent any special definitions, we give claim terms their ordinary and customary meaning, as they would be

² The recent revisions to our claim construction standard do not apply to this proceeding because the new “rule is effective on November 13, 2018 and applies to all . . . petitions filed on or after the effective date.” Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51340 (Oct. 11, 2018) (to be codified at 37 C.F.R. § 42). Although Patent Owner argues that the broadest reasonable interpretation standard should be replaced with the standard applied in district court proceedings “in the interest of achieving a just result of this proceeding” (PO Resp. 6), Patent Owner provides no explanation or argument as to how the result here would change if the claim construction standard were changed. Thus, consistent with 37 C.F.R. § 42.100(b), which was the rule governing claim construction in an *inter partes* review at the time this Petition was filed on January 15, 2018, we apply the broadest reasonable interpretation standard in this proceeding.

understood by one of ordinary skill in the art, in the context of the entire patent disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

Petitioner and Patent Owner disagree on the interpretation of two limitations of claims 1 and 9 of the '614 patent: “independently of a third function other than the first and second functions;” and “a rotating operation of the rotary switch causes a control corresponding to first and second functions respectively assigned to two states selected by the state changing switch.” See Ex. 1001, 11:20–27, 12:39–45. In the Decision on Institution, we determined, for purposes of that decision, that the broadest reasonable interpretation of the “independently” limitation is “free of and not subject to any camera functions other than at least one of the first and second functions.” Dec. on Inst. 12. In the Decision on Institution, we did not construe expressly the “rotating operation” limitation. We address both of the disputed limitations below.

1. *“independently of a third function other than the first and second functions”*

Independent claim 1 recites “the state changing switch is configured to switch between two states, independently of a third function other than the first and second functions assigned to the respective states of the rotary switch, the two states including the restricted state and a non-restricted state.” Ex. 1001, 11:25–29. Similarly, independent claim 9 recites “the state changing switch is configured to switch two states independently of a third function other than the first and second functions assigned to the rotary switch.” *Id.* at 12:43–45.

Claims 1 and 9 recite that, in the “restricted state,” the “first function” is “at least one of a shutter speed and an aperture.” Ex. 1001, 11:30–34,

12:47–49. Claim 1 also recites that, in the “non-restricted state,” the “second function” is “at least one of focusing, and a zoom magnification of a lens.” *Id.* at 11:37–41. The Abstract of the ’614 patent explains that “[t]he [state changing switch] switches between two states independently of a function other than functions assigned to the respective states of the rotary switch.” *Id.* at [57]. The specification explains that the state changing switch is configured to switch between two states, a restricted state (with a clicking feel) and a non-restricted state (without a clicking feel) and that “[a] function with discrete output values is assigned to the restricted state, and a function with continuous output values is assigned to the non-restricted state.” *Id.* at 3:41–45, 50–52; *see also, id.* at 2:34–35; 3:15–16.

Petitioner argues the ordinary meaning of the word “independently” is “free” of or “not subject to the control of others.” Pet. 12 (citing Ex. 1002 ¶ 55 (citing Ex. 1015 (*Merriam-Webster’s Collegiate Dictionary*), 5; Ex. 1028 (*The Oxford English Dictionary*), 3–4)). Thus, Petitioner contends that the “independently” limitations of claims 1 and 9 should be construed to require that “the state changing switch does not affect any function other than the first and second assigned functions.” *Id.* at 12–13 (citing Ex. 1002 ¶ 58). Petitioner also argues that the claimed “third function” is not described by the ’614 patent and the specification does not “limit[] the third function to a particular type of function other than that it cannot be the first and second functions.” *Id.* at 12 (citing Ex. 1002 ¶ 54).

Patent Owner does not propose a specific definition for the “independently” limitation. See PO Resp. 6–8. Instead, Patent Owner argues that, in the Decision on Institution, we interpreted “the state changing switch out of context with the operation control process disclosed in the ’614

Patent for which it is configured to operate in combination” with other features recited in each of independent claims 1 and 9. *Id.* at 7. In particular, Patent Owner argues that Figure 4 shows, and the ’614 patent describes, a control operation process that executes a function based on a state of a selector switch and a state of a function button. *Id.* Patent Owner argues that, as an example, when the selector switch selects a restricted state, and the function button is in an “on” state, the process executes an aperture mechanism control (i.e., a first function). *Id.* (citing Ex. 1001, Fig. 4, S300, S401, S601). When the selector switch selects a non-restricted state, and the function button is in the “on” state, the process executes a zoom-motor drive control (i.e., a second function). *Id.* (citing Ex. 1001, Fig. 4, S300, S402, S604). Thus, according to Patent Owner, “the selector switch selects between two states, and as a result, two functions, independently of a third function, such as the focus mechanism control, which is only accessible when the function button is in the ‘off’ state.” *Id.* at 7–8.

Patent Owner also disagrees with our preliminary finding in the Decision on Institution that “the ‘third function’ is not defined expressly in the specification and that nothing in the specification or the claims limits the third function to a particular camera function, other than it cannot be the first or second function.” *Id.* at 8 (citing Dec. on Inst. 10–11). Specifically, Patent Owner argues that “this finding ignores the role of the function button in further selecting additional states in the camera operation control process.” *Id.* Patent Owner further argues as follows:

FIG. 4 itself expressly discloses that when the function button is, for example, in an “on” state, the state changing switch can affect selection between two functions that are not the focus mechanism control function, i.e., a third function. Patent Owner

respectfully submits that Petitioner's construction, as adopted by the Board, is based on a misinterpretation of the claims and a failure to account for the role of the function button in the operation control process that the claimed camera is configured to carry out.

Id.

Based on the record developed during trial, we are not persuaded by Patent Owner's arguments for two reasons. First, we are not persuaded by Patent Owner's argument that we interpreted the state changing switch "out of context" with the process disclosed in Figure 4 of the '614 patent that executes a function based on a state of a selector switch "and a state of a function button" or that we ignored or failed to account for the role of the function button in selecting additional states in that process. *See* PO Resp. 7–8. As Petitioner argues, and we agree, the claims of the '614 patent do not recite or require a function button. *Pet. Reply 3*. As Petitioner also argues, the specification makes it clear that the function button used in Figure 4 is optional because it states the "function button can be removed corresponding to the number of functions." *Id.* at 4 (citing Ex. 1001, 7:28–29). Petitioner further argues, and we agree, "the claims expressly cover [] a two-function embodiment, which would **not** require a function button, because they only require that 'at least **one function**' be assigned to each of the two states (restricted and non-restricted)" of the rotary switch. *Id.* (citing Ex. 1001, 11:33–34, 40–41).

Second, we are not persuaded by Patent Owner's arguments concerning the claimed "third function." *See* PO Resp. 7–8. Although Patent Owner disagrees with our preliminary finding in the Decision on Institution that the "third function" is not defined expressly in the specification, Patent Owner did not cite to an express definition in the

specification of the term “third function” in its Response. Instead, Patent Owner argues that the first or second functions shown in Figure 4, and recited in the claims, such as the “focus” function, are also the claimed “third function.” *Id.* at 8. We disagree. As Petitioner argues, this argument “must be rejected” because it contradicts the express language of independent claims 1 and 9—namely, a “third function” “***other than*** the first and second functions.” Pet. Reply 5 (citing Ex. 1001, 11:26–27 (emphasis added)); *see also* Ex. 1001, 12:44–45). That is, the express language of these claims provides that the “third function” is a function “other than” the first functions (*e.g.*, shutter speed and aperture) and the second functions (*e.g.*, focusing and zoom). Thus, contrary to Patent Owner’s argument, we agree with Petitioner that “in an embodiment where there are only two functions, *e.g.*, focusing and shutter speed, focusing must be the ‘second function’ and cannot be the ‘third function.’” *Id.* at 5–6.

Thus, considering the full record before us, including the language of claims 1 and 9 in light of the specification, and Petitioner’s dictionary definition of “independently,” we maintain that the broadest reasonable interpretation of the limitations of claims 1 and 9 reciting that the state changing switch is configured to switch between two states “independently of a third function other than the first and second functions” is that the state changing switch is configured to switch between two states “free of and not

subject to any camera functions other than at least one of the first and second functions.”³ See Dec. on Inst. 12.

2. *“a rotating operation of the rotary switch causes a control corresponding to first and second functions respectively assigned to two states selected by the state changing switch”*

Patent Owner argues that the ’614 patent is directed to a digital camera having “a rotary switch, i.e., a ring that can rotate to change the value of camera functions, and a restricting member that restricts rotation of the rotary switch depending upon a state of a state changing switch.”

PO Resp. 9. According to Patent Owner, the claims require that “one of a plurality of functions be assigned to each state.” *Id.* Patent Owner also argues that, although the camera executes a process based on the detected state of the selector switch, “the switch itself does not necessarily change a function. Rather, the position of the switch affects selection of a first or second function, independently of a third function, in an operation control process, as shown in FIG. 4.” *Id.* Thus, Patent Owner argues that “this limitation covers a camera control ring to which at least two functions can be assigned, and a state changing switch that can change a tactile feedback of

³ In IPR2018-00501, Petitioner contends that the “independently” limitation “is a negative limitation that excludes embodiments in which the switching of the state changing switch affects a third function.” Pet. 10–11 (citing Ex. 1002 ¶ 50); Pet. Reply 5. Although Petitioner does not specifically make that contention in this case, we incorporate by reference the section of the Final Decision in IPR2018-00501 in which we determine that the “independently” limitation is a “negative” limitation because it excludes state changing switches configured to switch between two states that are subject to any camera functions other than the first and second functions. See Final Decision (Paper 19, 16–17).

the ring.” *Id.* Patent Owner further argues “[t]he state changing switch does not itself change a function, but operation by the control ring to select and execute a function in a control process is affected by a state selected by changing switch.” *Id.* Moreover, Patent Owner argues that “Petitioner’s asserted construction that the ring selects [a] function completely independent of the state changing switch is unreasonable, and ignores a plain and ordinary meaning interpretation of the claims.” *Id.* at 9–10.

Petitioner argues that Patent Owner does not offer its own construction for this limitation, but attempts to “square its position in the parties’ co-pending infringement litigation.” Pet. Reply 7. According to Petitioner, in the pending district court action, Patent Owner “asserts that the state changing switch does **not** change the function assigned to the rotary ring,” but in this proceeding, Patent Owner “asserts that both the state changing switch and the function button are required to change camera function.” *Id.* Petitioner also asserts that its argument in the obviousness ground based on the combination of Tanaka and Tesch, in which the state changing switch merely changed feel, but not function, invalidated the ’614 patent claims, was based on Patent Owner’s litigation position “that a [state changing] switch with no effect on the function of the ring infringes the claim.” *Id.* at 7–8. Petitioner further argues that, as explained in Section (III)(2) of Petitioner’s Reply, to the extent Patent Owner is no longer pursuing such an interpretation of the ’614 patent claims, Petitioner “agrees that [the obviousness ground based on the combination of Tanaka and Tesch] should fail.” *Id.* at 8. Moreover, Petitioner argues that Patent Owner’s distinction between the state changing switch “affecting” the

function assigned to the rotary ring and “changing” the functions assigned to the ring are irrelevant to the prior art disputes and need not be addressed. *Id.*

Petitioner contends that Patent Owner’s argument that the claims should be limited to the “control process” or the embodiment of Figure 4 is “completely unsupported by the ‘rotating operation’ claim limitation.” *Id.* at 8–9. Petitioner argues that the “rotating operation” limitation “only requires that ‘a rotating operation of the rotary switch causes a **control** corresponding to first and second functions.’” *Id.* at 9 (citing Ex. 1001, 11:21–24).

Petitioner further argues that the term “control” provides no basis to limit the claim to the specific process illustrated in Figure 4. *Id.* Rather, according to Petitioner, the claim language merely describes “that rotation of the rotary switch changes the values, *i.e.*, controls, whichever of the two camera control functions is assigned to the ring.” *Id.* (citing Ex. 1001, 2:46–51). Thus, Petitioner further argues that, if the Board finds it necessary to construe this limitation, “it merely requires that the rotating operation of the rotary switch causes control of values corresponding to first and second functions respectively assigned to two states, and the state changing switch determines whether the first or second function is controlled by the ring.” *Id.*

Having considered the parties’ arguments with respect to this limitation, and based on the full record developed during trial, we agree with Petitioner’s arguments. More specifically, we agree with Petitioner that the “rotating operation” limitation should be construed according to its plain and ordinary meaning consistent with the specification. In that regard, we note the specification of the ’614 patent states “a rotating operation of the rotary switch causes an output corresponding to a function assigned to a state

selected by the switching unit to a digital camera system.” Ex. 1001, 2:46–49. Thus, the plain and ordinary meaning of the limitation “a rotating operation of the rotary switch causes a control corresponding to first and second functions respectively assigned to two states selected by the state changing switch” is that (1) rotation of the rotary switch “controls” the first and second functions respectively assigned to two states by changing the value of the function and outputting the values and (2) the state changing switch determines whether the first or second function is controlled by the rotary switch.

B. Asserted Obviousness of Claims 1, 2, 4, and 7–9 in View of Tanaka and Tesch

Petitioner argued in the Petition that claims 1, 2, 4, and 7–9 would have been obvious over the combination of Tanaka and Tesch. Pet. 29–49. In particular, Petitioner argued that Tanaka teaches a rotary switch comprising an operation ring to which different functions could be assigned. *Id.* at 33, 39 (citing Ex. 1004 ¶¶ 8, 19, Fig. 4; Ex. 1002 ¶¶ 121–122, 131). Petitioner also argued that Tesch teaches a state changing switch comprising two radially movable sliders to select between two states, clicking and non-clicking, with no effect on any functional settings. *Id.* at 39 (citing Ex. 1005, 1:36–40, 1:52–56, 2:32–59; Ex. 1002 ¶ 131); *see also id.* at 41 (citing Ex. 1002 ¶ 135). As stated *supra*, Petitioner acknowledges that, in this asserted combination, the state changing switch merely changes feel, but not function, and that argument is based on Patent Owner’s “litigation position that a [state changing] switch with no effect on the function of the ring infringes the claim.” Pet. Reply 7–8; *see also* Pet. 38–39, 41.

In Section (III)(2) of the Reply, Petitioner further argues that, if Patent Owner agrees the claims require that the position of the state changing

switch determines the function applied to the ring, then “the parties are in agreement about the scope of the claims and Petitioner’s [obviousness ground based on the combination of Tanaka and Tesch] should fail.” Pet. Reply 13. Petitioner also argues that this “now appears to be the case.” *Id.* On the other hand, Petitioner argues that, if Patent Owner “maintains its litigation position that the claims cover a state changing switch that has no effect on the function controlled by the ring, [the obviousness ground based on the combination of Tanaka and Tesch] is valid and [Patent Owner] has provided no rebuttal.” *Id.* at 13–14.

Although Patent Owner’s position on the impact of the state selection switch on the function of the ring is ambiguous (*see* PO Resp. 8–10, 12–13), we interpret Patent Owner’s arguments to acknowledge that the state changing switch at least “affects” the function assigned to the ring. In that regard, Patent Owner argues that the combination of Tanaka’s ring and Tesch’s mechanical switch does not disclose “a control process that selects function based on the state of the mechanical switch of Tesch.” *Id.* at 12. Patent Owner also argues that, although “the claimed state changing switch does not itself change function, the state[] selected by the switch affects a change of function.” *Id.* at 13. Thus, according to Patent Owner, the combination of Tanaka and Tesch fails to teach or render obvious “a rotating operation of the rotary switch causes a control corresponding to first and second functions respectively assigned to two states selected by the state changing switch,” as recited in claim 1, and similarly recited in claim 9. *Id.* at 13–14.

As discussed *supra*, the plain and ordinary meaning of the “rotating operation” limitation is that (1) rotation of the rotary switch “controls” the

first and second functions respectively assigned to two states by changing the value of the function and outputting the values, and (2) the state changing switch determines whether the first or second function is controlled by the rotary switch. As also discussed *supra*, Petitioner acknowledges that the state changing switch of Tesch does not change function, but merely changes feel. Pet. Reply 7–8. Because the state changing switch of Tesch does not determine the function controlled by the rotary ring of Tanaka, we agree with Petitioner and Patent Owner that the combination of Tanaka and Tesch fails to teach or suggest the “rotating operation” limitation of claims 1 and 9 and, therefore, fails to render claims 1 and 9, and dependent claims 2, 4, 7, and 8, obvious under 35 U.S.C. § 103.

C. Asserted Obviousness of Claims 1–4, 7, and 9 in View of Kawaji and Mikamo

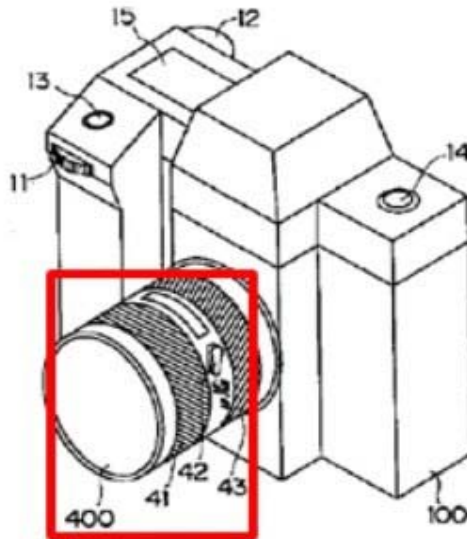
Petitioner contends claims 1–4, 7, and 9 would have been obvious over the combination of Kawaji and Mikamo. Pet. 49–67. Patent Owner argues that the combination of Kawaji and Mikamo does not teach or suggest the limitations “independently of a third function other than the first and second functions,” and “a rotating operation of the rotary switch causes a control corresponding to first and second functions respectively assigned two states selected by the state changing switch,” as recited in claim 1, and similarly recited in claim 9. PO Resp. 14–16. As outlined below, we conclude that Petitioner has shown by a preponderance of the evidence that claims 1–4, 7, and 9 would have been obvious over the combination of Kawaji and Mikamo.

1. *Prior Art*

a. *Kawaji*

Kawaji discloses a digital camera that has a rotary switch called “command/focus ring 41.” Pet. 21 (citing Ex. 1007 ¶¶ 59–60). A color annotated version of Figure 5 of Kawaji is reproduced below.⁴

Fig. 5



The color annotated version of Figure 5 depicts an exterior perspective diagram showing Kawaji’s second embodiment. Ex. 1007 ¶ 58. Kawaji’s command/focus ring is indicated in red. See Pet. 21–22 (citing Ex. 1007 ¶¶ 59–60). A “conversion switch 42” switches between two states: (a) “AF-only mode” in which the command/focus ring has a clicking feel and controls a command function; and (b) “AF/MF mode” in which the

⁴ All colored annotations to the figures of Kawaji and Mikamo reproduced herein were made by Petitioner. See Pet. 22–23.

command/focus ring has a smooth feel and controls manual focus (“MF”).
Id. at 22 (citing Ex. 1007 ¶¶ 59–60).

Autofocus (“AF”) operates identically in both modes. *Id.* (citing Ex. 1007 ¶ 59). In AF-only mode, the command/focus ring controls command functions that have discrete values such as shutter speed, aperture, exposure compensation, focus area selection, and consecutive shooting speed. *Id.* at 22–23 (citing Ex. 1007 ¶¶ 47–53, 59, 67–68).

b. Mikamo

Mikamo discloses a video camera that has a rotary ring called “focus ring 3.” Pet. 23 (citing Ex. 1008 ¶ 22). A color annotated version of Figure 2 of Mikamo is reproduced below.

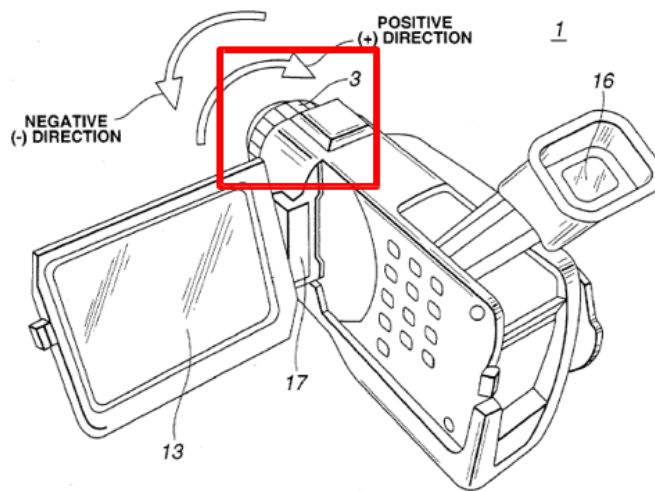


FIG.2

Figure 2 of Mikamo depicts a perspective view of a camera incorporated video tape recorder (“VTR”). Ex. 1008 ¶ 10. Mikamo’s rotary ring 3 (indicated in the red box) can switch between a “focus ring” and a “speed-changing ring.” *Id.* ¶ 37. In one state (“image pick-up mode”), the rotary ring controls focus or zoom when the video camera is filming (*e.g.*, it is in image pickup mode). *Id.* ¶¶ 36–37, 77. In another state (“video-

playback mode”), the rotary ring controls the speed of video playback (*e.g.*, normal speed, slow motion, or fast forward). *Id.* In video-playback mode, a clicking feel is produced when the rotary ring is rotated to change playback speed. *Id.*

The click-less smooth rotation of the ring in image pick-up mode allows continuous changes to control the focus or zoom functions. *Id.* ¶ 42. In video-playback mode, the ring controls discrete changes of the video playback speed (*e.g.*, x2, x5 and x10). *Id.* ¶¶ 42, 51–53, Table 1, Fig. 8. Rotation of the ring in the video-playback mode provides a clicking feel. *Id.* ¶ 42.

Figure 4 of Mikamo is reproduced below.

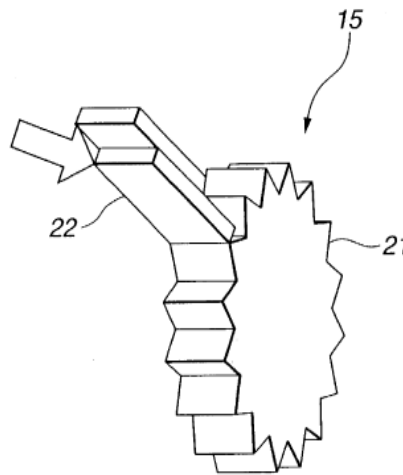


FIG.4

Figure 4 depicts an example of Mikamo’s ring-load circuit 15. Ex. 1008 ¶ 42. The clicking feel of the rotary ring is produced by ring gear 21 and tongue 22, as depicted in Fig. 4. *Id.* ¶ 42. Ring gear 21 is coupled

directly to the rotary ring and rotates in the same direction as the rotary ring.
Id.

2. *Principles of Law*

To prevail in challenging the claims of the '614 patent, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

35 U.S.C. § 103 of the AIA provides, in pertinent part, as follows: “[a] patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.”

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) if in evidence, objective evidence of nonobviousness (*i.e.*, secondary considerations). *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

A patent claim “is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). An obviousness determination requires finding “both ‘that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.’” *Intelligent Bio-Sys., Inc. v. Illumina*

Cambridge Ltd., 821 F.3d 1359, 1367– 68 (Fed. Cir. 2016) (citation omitted); see *KSR*, 550 U.S. at 418 (for an obviousness analysis, “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does”). A reason to combine or modify the prior art may be found explicitly or implicitly in market forces, design incentives, the “interrelated teachings of multiple patents,” “any need or problem known in the field of endeavor at the time of invention and addressed by the patent,” and “the background knowledge, creativity, and common sense of the person of ordinary skill.” *Perfect Web Techs., Inc. v. Info-USA, Inc.*, 587 F.3d 1324, 1329 (Fed. Cir. 2009) (quoting *KSR*, 550 U.S. at 418–21). Further, an assertion of obviousness “cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at 418 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)); *In re NuVasive, Inc.*, 842 F.3d 1376, 1383 (Fed. Cir. 2016) (a finding of a motivation to combine “must be supported by a ‘reasoned explanation’” (citation omitted)).

3. *Analysis Regarding Independent Claim 1*

First, Petitioner contends, and we agree, that Kawaji teaches a “digital camera,” as recited in the preamble (a). Pet. 50 (citing Ex. 1007 ¶ 1; Ex. 1002 ¶ 158). Second, Petitioner contends, and we agree, that Kawaji teaches a “rotary switch,” as recited in limitation (b), which is called the “command/focus ring 41.” See *id.* (citing Ex. 1007 ¶¶ 37, 62; Ex. 1002 ¶ 159).

Third, Petitioner contends that Kawaji teaches “a state changing switch,” called “conversion switch 42,” as recited in limitation (c). *See id.* (citing Ex. 1007, Fig. 5, ¶ 58; Ex. 1002 ¶ 160). Petitioner also contends that conversion switch 42 toggles between (a) AF-only mode in which “click stops [are] provided” and (b) AF/MF mode in which the command/focus ring “rotates smoothly with no clicking feel.” *See id.* at 50–51 (citing Ex. 1007 ¶ 60). When conversion switch 42 is in the AF-only mode, the command/focus ring becomes a command ring (*id.* at 51 (citing Ex. 1007 ¶¶ 59, 67–68)), controlling discrete command functions such as shutter speed, aperture, exposure compensation, and consecutive shooting speed (*id.* ¶¶ 47–53, 67–68). When conversion switch 42 is in the AF/MF mode, the command/focus ring becomes a manual focus ring. *Id.* ¶ 59.

Patent Owner argues that “Kawaji does not provide [an] enabling disclosure of the switching mechanism.” PO Resp. 14. Patent Owner also argues that, when Kawaji’s rotary ring is not operated in AF-only mode, “Kawaji does not clearly disclose whether a clicking feel is provided.” *Id.* at 14–15. We are not persuaded by these arguments. Beginning with Patent Owner’s argument regarding enablement of the switching mechanism of Kawaji, Patent Owner merely asserts that Kawaji does not provide an enabling disclosure for the “switching mechanism,” but does not provide substantive analysis to support its non-enabling argument. Nevertheless, Petitioner argues, and we agree, “it is black letter law that obviousness references do not need to be enabling.” Pet. Reply 10 (citing *Symbol Techs., Inc. v. Opticon, Inc.*, 935 F.2d 1569, 1578 (Fed. Cir. 1991)). Petitioner also argues, and we agree, it is also well settled that,

“‘[u]nder an obviousness analysis, a reference need not work to qualify as prior art; ‘it qualifies as prior art, regardless, for whatever is disclosed therein.’” *Id.* (citing *Geo. M. Martin Co. v. All. Mach. Sys. Int’l LLC*, 618 F.3d 1294, 1302 (Fed. Cir. 2010)).

Turning to Patent Owner’s argument regarding whether Kawaji teaches a clicking feel when the rotary ring is **not operated** in AF-only mode, Petitioner argues that this argument is “inscrutable” because claim 1 only recites the feel of the rotary switch or ring while it rotates, rather than “when the rotary ring is **not** rotated.” *Id.* at 10–11 (citing Ex. 1001, 11:30–32). We agree with Petitioner that claim 1 only recites the feel of the rotary switch in the restricted and non-restricted states when there is “rotation of the rotary switch.” Ex. 1001, 11:30–32, 38–39. Accordingly, we are not persuaded by Patent Owner’s argument concerning Kawaji not clearly disclosing whether a clicking feel is provided when the rotary ring is not rotated because it is not commensurate with the scope of claim 1. *See In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (“[A]ppellant’s arguments fail from the outset because . . . they are not based on limitations appearing in the claims.”). Thus, for these reasons, we agree with Petitioner that Kawaji teaches a “state changing switch,” as recited in limitation (c).

Fourth, Petitioner contends that Mikamo teaches “a restricting member,” as recited in limitation (d), comprising tongue 22, which is

moved to contact ring gear 21 under the control of microprocessor 9.⁵ Pet. 53 (citing Ex. 1008, Figs. 4, 8; ¶¶ 42, 51). Petitioner also contends that, “[o]nce set in contact with the ring gear 21, the tongue 22 applies a load on the ring gear 21.” Ex. 1008 ¶ 42. Petitioner further contends that a person of ordinary skill would have been motivated to integrate Mikamo’s ring gear and tongue into Kawaji to provide the means for click-making indicated in Kawaji. Pet. 53–55 (citing Ex. 1002 ¶¶ 152–157). In particular, Dr. Plummer testifies that, although not showing a specific design, Kawaji expressly suggests that the “means for click-making . . . causes click stops to be provided, where rotation positions are provisionally fixed,” and this would have motivated a person of ordinary skill “to use a design like the ring gear and tongue disclosed in Mikamo, which uses such click stops.” Ex. 1002 ¶ 153. Petitioner further contends that combining the aforementioned features of Kawaji and Mikamo would have been obvious because it involves combining a simple mechanical structure to predictably provide the clicking means of Mikamo into Kawaji to provide the means for click-making indicated in Kawaji. Pet. 54–55 (citing Ex. 1002 ¶¶ 152–155). For these reasons, we agree with Petitioner.

⁵ As Petitioner argues, Kawaji discloses that the command/focus ring can be configured to provide a clicking and non-clicking feel, but does not disclose a specific click-making mechanism or restricting member. Pet. 52 (citing Ex. 1007 ¶ 60 (“means for click-making (not shown in the drawings)”). Petitioner also argues that “Kawaji’s disclosure contemplates that [persons of ordinary skill in the art] will be able to apply their established knowledge of the art to embody a click-making structure.” *Id.* (citing Ex. 1002 ¶ 152).

Fifth, Petitioner contends that Mikamo teaches

the rotary switch has a surface with a plurality of depressed portions or trough portions, and the restricting member engages with the depressed portion or the trough portion of the rotary switch in the case where a restricted state is set by the state changing switch so as to restrict rotation of the rotary switch, such that engagement and disengagement of the restricting member with the depressed portion or the trough portion of the rotary switch mechanically generate a clicking feel, as recited in limitation (e). *See id.* at 55–58 (citing Ex. 1008, Fig. 4, ¶ 42; Ex. 1002 ¶¶ 162–166). In that regard, Petitioner contends that Mikamo’s ring gear 21, which is directly coupled to Mikamo’s rotary ring (and forms part of Mikamo’s rotary ring switch), has a surface with a plurality of notches forming “a plurality of depressed portions or trough portions,” as claimed. Petitioner also contends that, as shown in Figure 4, Mikamo’s tongue 22 (the restricting member) engages with the surface notches (depressed portions or trough portions) of ring gear 21 to restrict rotation of the rotary switch. *Id.* at 57 (citing Ex. 1002 ¶ 166). Petitioner further contends that, when the rotary switch turns, the load applied by Mikamo’s tongue 22 on ring gear 21 causes engagement and disengagement of tongue 22 with surface notches of ring gear 21 to generate a clicking feel. *Id.* (citing Ex. 1008 ¶ 42). For the reasons set forth in the Petition, we agree.

Sixth, Petitioner contends that Kawaji teaches or suggests “a rotating operation of the rotary switch causes a control corresponding to first and second functions respectively assigned to two states selected by the state changing switch,” as recited in limitation (f). *See id.* at 58 (citing Ex. 1007 ¶¶ 47–53, 58–59, 61–62, 66–68; Ex. 1002 ¶ 169). In that regard, Petitioner contends that Kawaji’s state changing switch, “conversion

switch 42,” switches between two states: AF-only mode and AF/MF mode. *Id.* (citing Ex. 1007, ¶ 58; Ex.1002 ¶ 169). Petitioner also contends that rotation of Kawaji’s command/focus ring 41 controls a camera’s function (*id.* (citing Ex. 1007 ¶ 61)), and the function being controlled is selected between two functions based on the state of conversion switch 42 (*id.* (citing Ex. 1007 ¶¶ 66–67)). Petitioner further contends that, in AF-only mode, rotation of the rotary switch controls a command function (a first function), such as shutter speed, aperture, exposure compensation, focus area selection, and consecutive shooting speed, assigned to the AF-only mode. *Id.* ¶¶ 67–68, 47-53. Moreover, Petitioner contends that, in AF/MF mode, only focus (a second function) is assigned to the rotary switch and turning the switch adjusts focus. *Id.* ¶ 59. We agree for the reasons set forth in the Petition.

Seventh, Petitioner contends that Kawaji teaches or suggests “the state changing switch is configured to switch between two states, independently of a third function other than the first and second functions assigned to the respective states of the rotary switch, the two states including the restricted state and a non-restricted state,” as recited in limitation (g). *See id.* at 59–60 (citing Ex. 1002 ¶¶ 170–173; Ex. 1007 ¶¶ 29, 32, 45, 58–60). In that regard, Petitioner contends that using Kawaji’s conversion switch 42 to switch between the two states, “AF-only mode” and “AF/MF mode,” changes between the functions assigned to these respective states (*e.g.*, shutter speed and focus) free of and without affecting any other function and is, therefore, independent of a third function. *Id.* (citing Ex. 1002 ¶¶ 171–172; Ex. 1007 ¶ 59). Petitioner also contends that autofocus, and other functions, such as shutter releasing, zooming, power on/off, qualify as the claimed “third

function” and that they are unaffected by the switching of the state changing switch. *Id.* (citing Ex. 1002 ¶¶ 171–173; Ex. 1007 ¶¶ 29, 32, 45, 58, 59).

Patent Owner argues the combination of Kawaji and Mikamo does not teach or suggest “independently of a third function other than the first and second functions,” as claimed. PO Resp. 14. Patent Owner’s arguments concerning this issue are unclear because Patent Owner refers to how Kawaji’s AF function operates when the control ring is turned, rather than whether it is affected by the state changing switch. *Id.* at 14–15. As Petitioner notes, it appears that Patent Owner argues this limitation is not taught because Kawaji’s AF function is allegedly “linked” to Kawaji’s state changing switch. Pet. Reply 11 (citing PO Resp. 14–15). Patent Owner also argues that Kawaji discloses that, “when operating the control ring in AF/MF mode, AF is deactivated.” PO Resp. 15.

We are not persuaded by Patent Owner’s arguments. Patent Owner’s arguments include no citations to Kawaji, except for a single reference to paragraph 60, which merely describes that the command/focus ring 41, when in AF/MF mode, rotates smoothly with no click, and when in AF-only mode, click stops are provided so rotation positions are provisionally fixed. *Id.* at 14. In addition, as Petitioner argues, and we agree, Patent Owner has not rebutted the analysis in the Petition that “AF remains on regardless of the state of Kawaji’s state changing switch, *i.e.*, AF is independent of the state of the state changing switch.” See Pet. Reply 12; see also Pet. 59–60 (citing Ex. 1002 ¶¶ 170–173; Ex. 1007 ¶¶ 29, 32, 45, 58–60).

Next, as Petitioner argues, contrary to Patent Owner’s argument (see PO Resp. 15), “Kawaji’s autofocus ***remains in operation*** in AF/MF mode and is, thus, unaffected by the state of the state changing switch. Pet. Reply

Ex. 12 (citing Ex. 1007 at ¶ 59 (Kawaji recites that, “[i]n the AF/MF mode, **even while the AF is in operation**, the focus can be manually adjusted immediately by turning the command/focus ring 41.”)). Finally, as Petitioner argues, Patent Owner’s arguments are directed to how Kawaji’s autofocus function operates when the control ring is turned in AF-only mode and AF/MF mode. *Id.* at 11 (citing PO Resp. 15). As Petitioner also argues, and we agree, this is irrelevant to the “independently” limitation because it “is directed to the effect of changing states **with the state changing switch**, not the effect of rotating the control ring on other functions.” *Id.* For these reasons, we agree that Kawaji teaches or suggests limitation (g).

Eighth, Petitioner contends that Kawaji teaches or suggests, “in the restricted state, the rotation of the rotary switch is restricted with the clicking feel, and a function of at least one of a shutter speed and an aperture as the first function with discrete output values is related to the rotating operation of the rotary switch,” as recited in limitation (h). Pet. 61 (citing Ex. 1007 ¶¶ 47–53, 59–60; Ex. 1002 ¶ 174). In that regard, Petitioner contends Kawaji’s AF-only mode is a restricted state because, “in AF-only mode, means for click-making (not shown in the drawings), operating in tandem with the conversion switch 42, causes click stops to be provided, where rotation positions are provisionally fixed at specified rotation angles.” *Id.* at 61 (citing Ex. 1007 ¶ 60; Ex. 1002 ¶ 174). Petitioner also contends Kawaji discloses, in the AF-only mode, the command/focus ring switches to a command ring, thus controlling command functions such as shutter speed or aperture. *Id.* (citing Ex. 1007 ¶¶ 47–53, 59). For the reasons set forth in the Petition, we agree.

Ninth, Petitioner contends that Kawaji teaches or suggests, “in the non-restricted state, the rotation of the rotary switch is not restricted and does not generate the clicking feel, and a function of at least one of focusing and a zoom magnification of a lens, as the second function with continuous output values, is related to the rotating operation of the rotary switch,” as recited in limitation (i). *Id.* at 61–62 (citing Ex. 1007 ¶¶ 59–60; Ex. 1002 ¶ 175). Specifically, Petitioner contends, and we agree, Kawaji’s AF/MF mode is a non-restricted state and, in AF/MF mode, the rotary switch does not generate a clicking feel and controls focus as the second function with continuous output values. *Id.*

Tenth, Petitioner contends that the combination of Mikamo’s mechanical restricting member, tongue 22, moving into contact with ring gear 21, and Kawaji’s conversion switch 42 (state changing switch), which can set AF-only mode (a restricted state), teaches or suggests “the restricting member comprises a mechanical structure that restricts rotation of the rotary switch in a case where the restricted state is set by the state changing switch,” as recited in limitation (j). *See id.* at 62 (citing Ex. 1002 ¶ 176; Ex. 1007 ¶ 61; Ex. 1008 ¶ 42). For the reasons set forth in the Petition, we agree.

In summary, based on the full record developed during trial, we determine Petitioner has established that the combination of Kawaji and Mikamo teaches all of the limitations of claim 1 and has articulated a sufficient motivation for combining the references, with a reasonable expectation of success in doing so. Accordingly, we determine Petitioner has demonstrated by a preponderance of the evidence that claim 1 would have been obvious over the combination of Kawaji and Mikamo.

4. *Analysis Regarding Claims 2–4, 7, and 9*

Petitioner further contends that dependent claims 2–4 and 7, and independent claim 9, would have been obvious in view of the combination of Kawaji and Mikamo. Pet. 62–67. Patent Owner’s Response does not contain arguments directed expressly to dependent claims 2–4, and 7 apart from those directed to independent claim 1 from which these claims depend. *See generally* PO Resp. 14–16. We have reviewed Petitioner’s contentions and determine Petitioner has shown by a preponderance of the evidence that the combination of Kawaji and Mikamo teaches or suggests the limitations of claims 2–4 and 7 and, therefore, would have rendered claims 2–4 and 7 obvious.

Regarding claim 9, Patent Owner relies on the same patentability arguments it makes with respect to claim 1. *Id.* at 14–15. Based on our analysis above of Petitioner’s contentions and supporting evidence regarding the limitations of claim 1, we determine Petitioner has demonstrated that the combination of Kawaji and Mikamo teaches or suggests the corresponding limitations of claim 9. Thus, we conclude Petitioner has shown by a preponderance of the evidence that claim 9 would have been obvious over the combination of Kawaji and Mikamo.

D. *Asserted Obviousness of Claims 5 and 8 in View of Kawaji, Mikamo, and Ishigaki*

Petitioner contends claims 5 and 8 would have been obvious over the combination of Kawaji, Mikamo, and Ishigaki. Pet. 67–74. Patent Owner’s Response does not contain arguments directed expressly to dependent claims 5 and 8 apart from those directed to independent claim 1 from which these claims depend. *See generally* PO Resp. 10–16. We have reviewed Petitioner’s contentions and determine Petitioner has shown by a

preponderance of the evidence that the combination of Kawaji, Mikamo, and Ishigaki teaches or suggests the limitations of claims 5 and 8 of the '614 patent. Pet. 67–74. For example, claim 5 depends from claim 1 and further recites “wherein the state changing switch enables switching from an operation setting screen.” Ex. 1001, 12:1–3. Petitioner contends, and we agree, that Ishigaki teaches state switching between a restricted and non-restricted state “from a display or touch screen, *i.e.*[,] an operation setting screen.” See Pet. 67, 70 (citing Ex. 1009 ¶¶ 185 (“[C]lick[ing] feel of the [rotary dial] may also be switched in response to operation of the touch panel.”), 153; Ex. 1002 ¶ 191).

Claim 8 depends from claim 1 and recites a “selector switch disposed . . . on a surface of the digital camera; a fixed portion disposed inside the digital camera . . . [and] configured to move the restricting member in a direction to engage with the depressed portion . . . in conjunction with a switching operation . . . and a spring that is pressed by the fixed portion such that the restricting member engages with the depressed portion . . . in the restricted state.” Ex. 1001, 12:14–24. As discussed *supra*, Petitioner contends that Kawaji teaches or suggests conversion switch 42 is disposed on a surface of the digital camera. Pet. 71 (citing Ex. 1007, Fig. 5 (switch 42); Ex. 1002 ¶¶ 193–194). Focusing on Figure 3 of Ishigaki, which is shown below, Petitioner contends that Ishigaki uses a similar click-making means as Mikamo to generate a clicking feel. *Id.* at 69 (citing Ex. 1002 ¶ 189; Ex. 1008 ¶ 42; Ex. 1009 ¶ 82).

FIG. 3

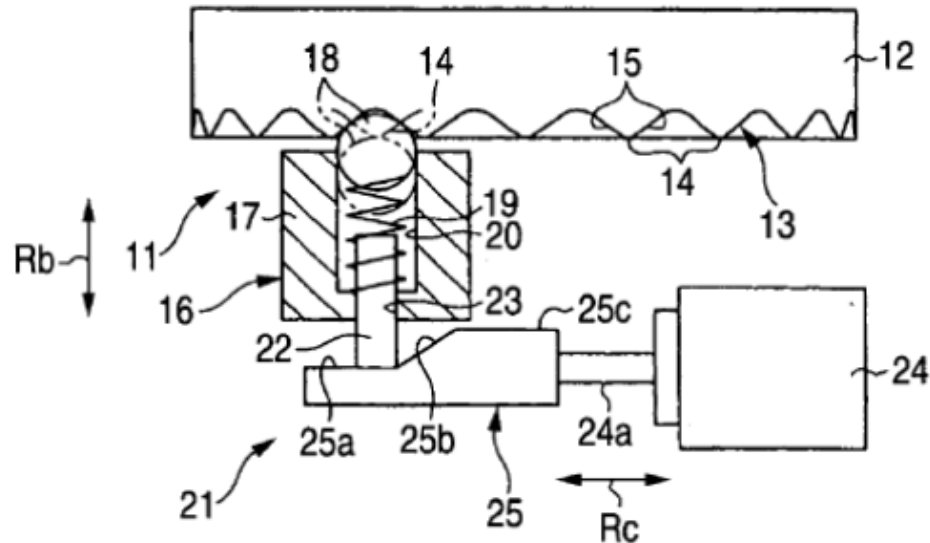


Figure 3 of Ishigaki is a partially-cutaway side view showing an operation restriction mechanism. Ex. 1009 ¶ 54. Petitioner contends that Ishigaki's rotary switch (called a "dial knob") has a disc-shaped member 12, whose bottom surface has concave/convex pattern 13 (*i.e.*, depressed portion or trough portion) and spring 19 that biases a restricting member, detent piece 18, to press against concave/convex pattern 13. Pet. 68, 73 (citing Ex. 1009 ¶¶ 81–82, Fig. 3; Ex. 1002 ¶ 198). Petitioner further contends that, at the other end of Ishigaki's spring 19, this spring is firmly attached to and pressed against a fixed portion called the "stopper 22," so that detent piece 18 ultimately engages with concave/convex pattern 13. *Id.* (citing Ex. 1009, Fig. 3 (spring 19 and stopper 22), ¶ 85; Ex. 1002 ¶ 198). For the reasons set forth in the Petition, we agree.

In addition, Petitioner contends that a person of ordinary skill in the art would have been motivated to combine Ishigaki with Kawaji and

Mikamo in a manner that would have rendered obvious the subject matter of claims 5 and 8 of the '614 patent. *Id.* at 68–70, 74 (citing Ex. 1002 ¶¶ 187–188, 196–197, 200). In that regard, Petitioner contends that a person of ordinary skill in the art would have been motivated to look for structural arrangements to mount and move the restricting member within the camera, which are taught by Ishigaki. *Id.* at 74. Petitioner also contends that, “[g]iven the simple mechanical nature of these structures[,] a [person of ordinary skill in the art] would have been able to readily and predictably combine the structures” in the manner required by claims 5 and 8. *Id.* (citing Ex. 1002 ¶ 201). We agree for the reasons set forth in the Petition.

Based on the full record developed during trial, we determine Petitioner has established that the combination of Kawaji, Mikamo, and Ishigaki teaches the limitations of claims 5 and 8 and has articulated a sufficient motivation for combining the references, with a reasonable expectation of success in doing so. Accordingly, we determine Petitioner as demonstrated by a preponderance of the evidence that claims 5 and 8 would have been obvious over the combination of Kawaji, Mikamo, and Ishigaki.

E. Asserted Obviousness of Claim 6 in View of Kawaji, Mikamo, and Nakao

Petitioner contends claim 6 would have been obvious over the combination of Kawaji, Mikamo, and Nakao. Pet. 75–77. Patent Owner’s Response does not contain arguments directed expressly to dependent claim 6 apart from those directed to independent claim 1 from which claim 6 depends. *See generally* PO Resp. 10–16. As discussed below, we have reviewed Petitioner’s contentions and determine Petitioner has shown by a

preponderance of the evidence that the combination of Kawaji, Mikamo, and Nakao teaches or suggests claim 6 of the '614 patent. Pet. 75–77.

Claim 6 depends from claim 1 and further recites “wherein the state changing switch is configured to perform switching by an operation of pressing the rotary switch into a chassis side or pulling the rotary switch.” Ex. 1001, 12:4–7. Petitioner contends that Nakao’s aperture ring 10 is capable of sliding back (see Ex. 1011, Fig. 2) and forth (see Ex. 1011, Fig. 1) with respect to the chassis, where the sliding operation switches the feel between clicking and non-clicking. Pet. 75 (citing Ex. 1011 Figs. 1, 2; 2, 6; Ex. 1002 ¶ 203). Petitioner also contends that a person of ordinary skill in the art would have been motivated to implement a sliding switch in lieu of Kawaji’s conversion switch 42 “because, *inter alia*, sliding the rotary switch back and forth enables a firmer grip on the lens than toggling the conversion switch with a finger.” *Id.* at 76 (citing Ex. 1002 ¶ 204); *see also, id.* at 77 (citing Ex. 1002 ¶ 205). For the reasons set forth in the Petition, we agree.

Based on the full record developed during trial, Petitioner has established that the combination of Kawaji, Mikamo, and Nakao teaches the limitation of claim 6 and has articulated a sufficient motivation for combining the references, with a reasonable expectation of success in doing so. Accordingly, we determine the argument and evidence presented by Petitioner demonstrates by a preponderance of the evidence that claim 6 would have been obvious over the combination of Kawaji, Mikamo, and Nakao.

III. CONCLUSION

Petitioner has demonstrated by a preponderance of the evidence that claims 1–4, 7, and 9 of the '614 patent are unpatentable under 35 U.S.C. § 103 as obvious in view of the combination of Kawaji and Mikamo. Petitioner also has demonstrated by a preponderance of the evidence that claims 5 and 8 are unpatentable under 35 U.S.C. § 103 as obvious in view of the combination of Kawaji, Mikamo, and Ishigaki. Petitioner has further demonstrated by a preponderance of the evidence that claim 6 is unpatentable under 35 U.S.C. § 103 as obvious in view of the combination of Kawaji, Mikamo, and Nakao. Petitioner, however, has not shown by a preponderance of the evidence that claims 1, 2, 4, and 7–9 are unpatentable under 35 U.S.C. § 103 as obvious in view of Tanka and Tesch.

IV. ORDER

Accordingly, it is

ORDERED that claims 1–9 of the '614 patent have been shown to be unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2018-00499
Patent 9,264,614 B2

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