2022-1292

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

IN RE CELLECT, LLC,

Appellant.

Appeal from the United States Patent and Trademark Office,
Patent Trial and Appeal Board in *Ex Parte* Reexamination Control No. 90/014,452.

BRIEF FOR APPELLEE, DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

THOMAS W. KRAUSE
Solicitor

AMY J. NELSON
Senior Counsel for Patent Policy
and Litigation

KAKOLI CAPRIHAN
BRIAN RACILLA
Associate Solicitors
Office of the Solicitor
U.S. Patent and Trademark Office
Mail Stop 8, P.O. Box 1450
Alexandria, Virginia 22313
(571) 272-9035

Attorneys for the Director of the United States Patent and Trademark Office

July 26, 2022

Representative Claim

1. A reduced area imaging device comprising:

an image sensor lying in a first plane and including an array of pixels for receiving images thereon, said image sensor further including circuitry means on said first plane and coupled to said array of pixels for timing and control of said array of pixels, said image sensor producing a pre-video signal;

a first circuit board lying in a second plane and communicating with said image sensor by at least one pre-video conductor inner-connecting said image sensor and said first circuit board, said first circuit board including circuitry means for converting said pre-video signal to a post-video signal for reception by a standard video device;

a power supply coupled with said image sensor for driving said array of pixels and said timing and control means, and electrically coupled to said first circuit board for driving said first circuit board; and

a time select switch electrically communicating with said first circuit board and remote from said first circuit board for selectively varying integration periods to produce an image of a desired brightness, said switch having a plurality of settings enabling selective control to produce the image of a desired brightness.

Appx35 (emphasis added).

Table of Contents

Table of Authorities

Page(s)

Cases

Statutes

Other Authorities

Statement of Related Cases

The Director is not aware of any other appeal in connection with the Patent Trial and Appeal Board ("Board") proceeding below that was previously before this or any other court. Beyond the cases identified in Cellect's opening brief (Br. at 1), the Director is also unaware of any other case pending in this or any other court that will directly affect, or be directly affected by, the Court's decision in this appeal.

I. Statement of the Issues

Representative claim 1 of Cellect's patent is directed to a reduced area imaging device comprising an image sensor, a first circuit board, a power supply, and a time select switch that is remote and electronically communicates with the first circuit board for selectively varying integration periods. Cellect owns another prior-issued patent and does not dispute that it also claims a reduced area imaging device comprising all of the components of claim 1 except the time select switch. Prior art reference Tomoyasu teaches an imaging device with a gain controlling knob (i.e., a time select switch) that is remote and selectively adjusts the time over which an image is integrated.

In an *ex parte* reexamination proceeding, the Board affirmed the Examiner's rejection of claim 1 as unpatentable for obviousness-type double patenting over Cellect's prior patent claim in combination with Tomoyasu. In affirming, the Board construed the limitation "time select switch" to not require particular integration control circuitry given the failure of the claim to recite circuitry, the non-limiting disclosure in the specification, and Cellect's choice not to argue that the limitation requires such circuitry during a parallel IPR proceeding involving the same patent.

The primary issue on appeal is whether the Board erred in construing the claim limitation "time select switch." The secondary issue on appeal is whether the Board's finding that Tomoyasu teaches a remote time select switch is supported by substantial evidence.

II. Statement of the Case

This appeal arises from the reexamination of claims 1-2 of U.S. Patent No. 6,982,740 ("the '740 patent") owned by Cellect.[1]

A. Cellect's '740 patent discloses an imaging device with a time select switch for varying integration periods.

Cellect's '740 patent describes imaging devices that are configured to be small (or having a reduced area), such as the imaging devices placed on the tip of an endoscopic surgical instrument. Appx54 at 1:19-23; Appx57 at 8:39-63. [2] The imaging device comprises an image sensor and associated circuitry. Appx55 at 4:65-5:14.

The '740 patent expressly states that "it will be clearly understood that the invention claimed herein is not specifically limited to an image sensor as disclosed in the U.S. Pat. No. 5,471,515, but *encompasses any image sensor which may be configured for use in conjunction with the other processing circuitry which makes up the imaging device of this invention*." Appx60 at 13:30-35 (emphasis added). The patent further acknowledges that there are several known image sensors in the prior art, including charged coupled devices (CCD), charge injection devices (CID), complementary metal oxide semiconductor (CMOS) imagers, and hybrid CCD/CMOS imagers (which combine the high-quality image processing of CCDs with standard CMOS circuitry, and where

[1] The '740 patent expired on January 3, 2018 due to non-payment of the maintenance fee. Appx1252.

[2] Citations to the joint appendix are denoted as "Appx__," and citations to Cellect's brief are denoted as "Br. at __."

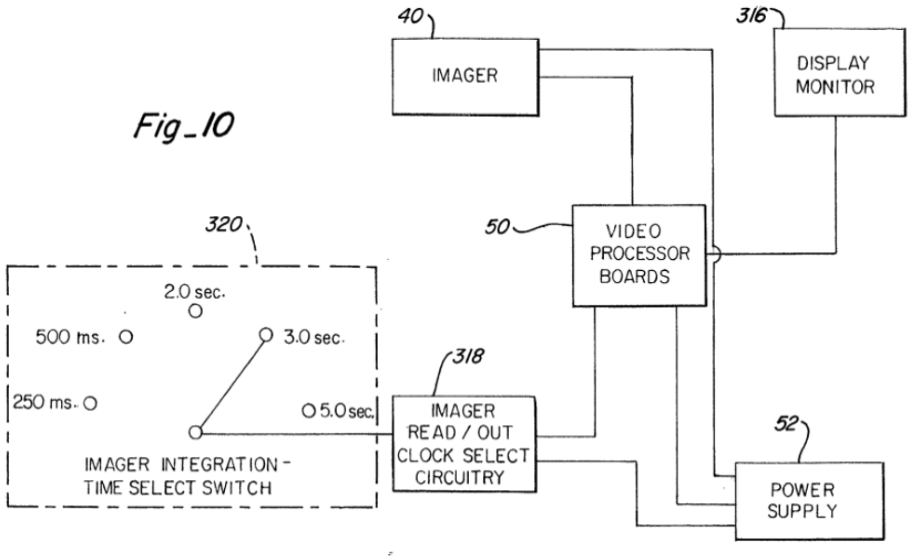
the CCD and CMOS components of the hybrid may reside on different regions of the same chip or wafer). Appx54 at 1:39-52; Appx60 at 13:24-35.

The specification discloses that image sensors capture images and store them within the array of pixels found in the imaging device. Appx55 at 4:44-47. The "timing and control" circuitry controls the release of an image signal from the pixel array, and the "processing" circuitry is used to receive the image signal from the image sensor and ultimately place the image signal in a usable format. Appx55 at 4:57-64, Appx58 at 10:2-5. Such circuitry may be placed on the same circuit board or on many circuit boards. Appx57 at 7:10-19.

One way in which the invention purports to improve upon the prior art is by enhancing the brightness or intensity of images by selecting charge integration periods instead of using preset periods. Appx55 at 3:37-40; Appx56 at 5:27-33. Charge (or light) is collected in a pixel over time, known as an integration period, and then a read-out signal is produced. Appx56 at 5:52-53, 6:32-33. In CCD imagers, the charge is destroyed upon readout. *Id.* at 5:52-53. In CID imagers, the charge is not destroyed upon readout, allowing for real-time exposure monitoring. *Id.* at 5:61-63. But in either type of imager, more charge will accumulate during a longer integration period, which enhances the image as compared to shorter integration periods. *Id.* at 5:64-65.

Figure 10 below depicts a diagram of an imaging device with a time select switch. Appx58 at 10:37-57. An imager 40 is coupled to processing circuitry 50 and power supply 52. Appx63 at 19:39-42. An operator can manually select a desired

integration period via the time select switch 320 (e.g., 3 seconds is selected in Figure 10). *Id.* at 19:45-50.; Appx53 at Fig. 10. Time select switch 320 communicates to processing circuitry 50 via circuitry 318. Appx53 at Fig. 10. Circuitry 318 is added to communicate with one or more video processor boards 50 to incorporate variable charge integration capability. *Id.* at 19:42-45.



Appx53 at Fig. 10.

The specification also describes an embodiment using a CMOS-CID imager with time select switch controls and readout clock select circuitry. A "switch position" (i.e., the selected integration time) corresponds to a "user selected clock rate." Appx56 at 6:36-39. The "[r]eadout clock select circuitry creates a frequency which is fed into a series of CMOS divider circuits which divide the clock frequency down to a user selected clock rate." *Id.* at 6:33-36. In one configuration, the time select switch and circuitry are co-located at a control box. *Id.* at 6:46-50. In another configuration,

all of the circuitry is located within the endoscope and the "the switch could simply be mounted on the handle." *Id.* at 6:50-54. Thus, depending on the particular configuration chosen, the specification explains that the switch and readout clock select circuitry may be located together or separately.

Claim 1, which is representative[3] of Cellect's arguments in this appeal, recites:

> A reduced area imaging device comprising:
>
> an image sensor lying in a first plane and including an array of pixels for receiving images thereon, said image sensor further including circuitry means on said first plane and coupled to said array of pixels for timing and control of said array of pixels, said image sensor producing a pre-video signal;
>
> a first circuit board lying in a second plane and communicating with said image sensor by at least one pre-video conductor inner-connecting said image sensor and said first circuit board, said first circuit board including circuitry means for converting said pre-video signal to a post-video signal for reception by a standard video device;
>
> a power supply coupled with said image sensor for driving said array of pixels and said timing and control means, and electrically coupled to said first circuit board for driving said first circuit board; and
>
> *a time select switch electrically communicating with said first circuit board and remote from said first circuit board for selectively varying integration periods to produce an image of a desired brightness, said switch having a plurality of settings enabling selective control to produce the image of a desired brightness.*

Appx35 (emphasis added).

[3] The Board treated claim 1 as representative (Appx5), and on appeal Cellect does not separately argue the remaining pending dependent claim (claim 2). *See* Br. at 3, 6, 16.

B. Cellect already owns a patent that claims a similar imaging device.

Cellect also owns U.S. Patent No. 6,043,839 (the '839 patent).[4] Appx1751-1771. Like the '740 patent, the '839 patent is similarly directed to a small imaging device for use in medical instruments, such as an endoscope. Appx1751 at abstract. Claim 1 recites:

> A reduced area imaging device comprising:
>
> an imager sensor lying in a first plane and including an array of CMOS pixels for receiving images thereon, said image sensor further including circuitry means on said first plane and coupled to said array of CMOS pixels for timing and control of said array of CMOS pixels, said image sensor producing a pre-video signal;
>
> a pre-video conductor for transmitting said pre-video signal, said pre-video conductor having first and second ends, said first end communicating with said image sensor;
>
> a first circuit board lying in a second plane and longitudinally aligned with said image sensor, said first circuit board being connected to said pre-video conductor at said second end thereof, said first circuit board including circuitry means for converting said pre-video signal to a post-video signal for direct reception by a standard video device;
>
> a power supply electrically coupled with said image sensor for driving said array of pixels and said timing and control means, and electrically coupled to said first circuit board for driving said circuit board; and

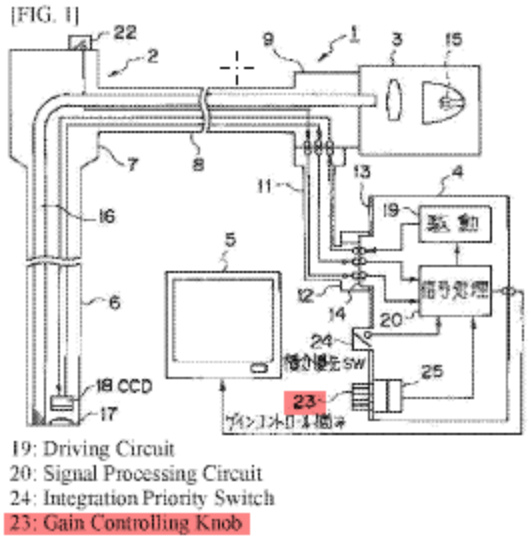
[4] The application that matured into the '839 patent was filed on October 20, 1998 and claimed priority to U.S. patent application 08/944,322 which was filed on October 6, 1997. Appx1252. Thus, the '839 patent expired on October 6, 2017, which is before Cellect's '740 patent expiration on January 3, 2018. *Id.*

> a non-removable lens integral with said imaging device for focusing images on said image sensor.

Appx1769 at claim 1.

C. Prior art reference Tomoyasu teaches an imaging device with a remote gain controlling knob (i.e., time select switch) that can vary integration periods.

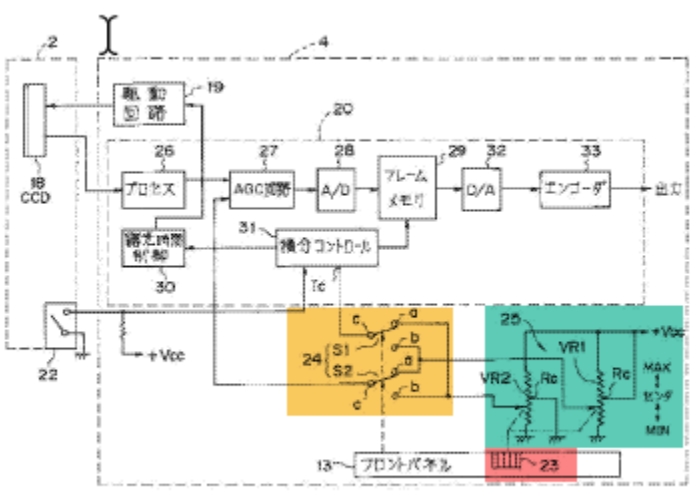
Tomoyasu teaches a camera controlling unit ("CCU") for an imaging sensor of an endoscopic instrument. Appx1774 at ¶ 9. Tomosayu further describes a time select switch in the form of a "gain controlling knob 23," which is able to change the time over which an image is integrated. Appx1775 at ¶ 17; Appx1795 at Fig. 1. As shown in Figure 1, the knob (23) is positioned on the front panel of the CCU, separate, for example, from the signal processing circuit (20) and the components of the endoscope (2), such as the imager (18 CCD). Appx1774 at ¶ 9; Appx1775 at ¶ 14.



Appx1783 at Fig. 1 (highlighting added). The imager outputs an image signal to signal processing circuit 20, which sends a signal to a monitor 5. Appx1775 at ¶ 14, 16.

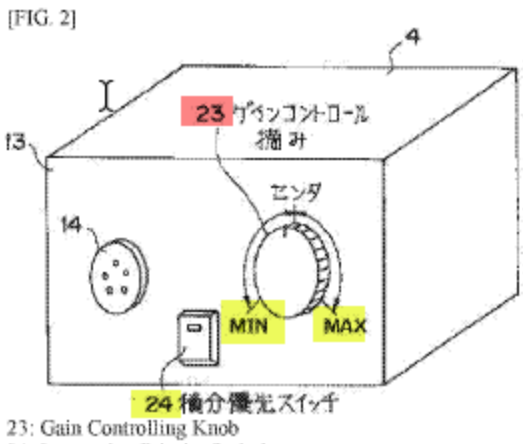
According to Tomoyasu, the "brightness" of the image captured by an imager depends on both the "integration time" (i.e., the exposure time) used to capture the image, and the "gain" used (i.e., the amount the electronic signal is multiplied by) when the image is processed. Appx1774 at ¶¶ 3-5; Appx1777 at ¶¶ 45-46. If the "brightness is inadequate" despite the gain being set to some fixed value, the "deficiency can be covered by the integrating function." Appx1777 at ¶ 45. Similarly, if the "brightness is inadequate" despite the integration time being set to some fixed value, the "deficiency can be covered by the . . . integrating function." *Id.* at ¶ 46. Further, the "mode for increasing sensitivity can be set depending on the preferences of the practitioner." *Id.* at ¶ 47.

Tomoyasu's gain controlling knob 23 adjusts the sensitivity through adjusting the integrating function by "changing the time over which the image is integrated, through changing the electronic charge accumulating time (the exposure time)." Appx1775 at ¶ 17. Gain controlling knob 23 is connected to support circuitry 25 ("sensitivity adjusting means 25"). *Id.*; *see also* Figure 3 below. Together, the "integration priority switch 24" and knob 23 adjust both the gain of a signal and the integration period. Appx1775 at ¶ 18.



Appx1783 at Fig. 3; Appx1795 at Fig. 3 (highlighting added).

Tomoyasu teaches that the gain controlling knob and integration priority switch 24 (shown in Figure 2 below) can be used to adjust the integration function in two ways: (1) if the integration priority switch 24 is pressed, turning the gain control between the "MIN" and "center" positions will vary the integration period, while holding the gain constant at a minimal level (Appx1777 at ¶¶ 40-41); and (2) if the integration priority switch is not pressed, turning the gain control between the "center" and "MAX" positions will vary the integration time, while holding the gain constant at a maximum value (Appx1776 at ¶¶ 3l-32). Whether or not the integration priority switch has been pressed, the gain controlling knob allows the user to selectively control the integration period of the device and produce an image of desired brightness. Appx1776 at ¶¶ 3l-32; Appx1777 at ¶¶ 40, 45-46.



Appx1795 at Fig. 2 (highlighting added).

D. Reexamination and determination of unpatentability of Cellect's patent claims

1. The Examiner's rejection of Cellect's claims as unpatentable for obviousness-type double patenting over Cellect's prior patent claim and Tomoyasu.

In a final office action, the Examiner rejected claims 1-2[5] of the '740 patent as unpatentable on the grounds of obviousness-type double patenting over claim 1 of Cellect's '839 patent in view of Tomoyasu. Appx1137-1149. In particular, in comparing claim 1 of the '740 patent with claim 1 of Cellect's '839 patent, the Examiner identified only minor non-distinct differences (indicated with italicizing below), except that claim 1 of the '839 patent does not recite the time select switch

[5] The Examiner also rejected claim 13, which was pending at the time. Appx1146. Following the Examiner's first advisory action, Cellect cancelled claim 13. Appx2. Thus, only claims 1-2 remained pending before the Board. Appx2.

recited in the last limitation of claim 1 of the '740 patent (indicated with underlining below):

Claim 1 of the '740 Patent	Claim 1 of Cellect's '839 Patent
A reduced area imaging device comprising:	A reduced area imaging device comprising:
an image sensor lying in a first plane and including an array of pixels for receiving images thereon, said image sensor further including circuitry means on said first plane and coupled to said array of pixels for timing and control of said array of pixels, said image sensor producing a pre-video signal;	an imager sensor lying in a first plane and including an array of *CMOS* pixels for receiving images thereon, said image sensor further including circuitry means on said first plane and coupled to said array of *CMOS* pixels for timing and control of said array of *CMOS* pixels, said image sensor producing a pre-video signal;
a first circuit board lying in a second plane and *communicating* with said image *sensor by at least one* pre-video conductor *inner-connecting said image sensor and said first circuit board*,	a first circuit board lying in a second plane and *longitudinally aligned* with *said image sensor, said first circuit board being connected to said* pre-video conductor at said second end thereof,
said first circuit board including circuitry means for converting said pre-video signal to a post-video signal for reception by a standard video device;	said first circuit board including circuitry means for converting said pre-video signal to a post-video signal for *direct* reception by a standard video device;
a power supply coupled with said image sensor for driving said array of pixels and said timing and control means, and electrically coupled to said first circuit board for driving said first circuit board; and	a power supply electrically coupled with said image sensor for driving said array of pixels and said timing and control means, and electrically coupled to said first circuit board for driving said circuit board; and
a time select switch electrically communicating with said first circuit board and remote from said first circuit board for selectively varying integration	

periods to produce an image of a desired brightness, said switch having a plurality of settings enabling selective control to produce the image of a desired brightness.	a non-removable lens integral with said imaging device for focusing images on said image sensor.

Appx1147-1148. But the Examiner found that Tomoyasu expressly teaches a gain controlling knob (i.e., a time select switch) that "adjusts the sensitivity (i.e., the brightness of an image to be set 'depending on the preferences of a practitioner') of an imager through adjusting the 'integrating function' by 'changing the time over which the image is integrated, through changing the electronic charge accumulating time (the exposure time).'" Appx1149 citing Appx1774 at ¶¶ 3-5, Appx1775 at ¶ 17, Appx1777 at ¶¶ 45-47. The Examiner reasoned that "[i]t would have been obvious to a person of ordinary skill in the art to apply Tomoyasu's known teachings of a control [switch] that varies brightness by varying the integration period to the claims of the '839 patent's imaging devices in order to advantageously allow a user to control the overall sensitivity of the camera by manipulating the integration time of the imager," thus determining claim 1 of the '740 patent to be patentably indistinct over claim 1 of Cellect's '839 patent in view of Tomoyasu. Appx1149.

The Examiner was unpersuaded by Cellect's arguments to the contrary. Appx1138-1143. In particular, and as relevant to this appeal, the Examiner rejected Cellect's assertions that (1) the recited time select switch requires circuitry 318, and (2)

Tomoyasu does not teach a switch that varies integration periods to produce an image of desired brightness and that is remote from other circuitry.

First, observing that "circuitry 318 is not a claimed element" and that Cellect failed to point to support in the specification for its proffered narrower interpretation, the Examiner determined that the "time select switch" does not require circuitry. Appx1142. Instead, the Examiner determined that the '740 patent, much like Tomoyasu, discloses that the claimed "time select switch," is a switch that is used to relay the operator's desired selection of the integration period to a separate component (imager 40) that ultimately performs the desired act of varying the integration period and producing an image of a desired brightness. *Id.* Further, the Examiner observed that the claimed invention "encompasses any image sensor which may be configured for use in conjunction with other processing circuitry . . .," including, for instance CCD/CMOS hybrids. Appx1138-1139. And because claim 2 recites "said array of pixels includes an array of CMOS pixels," the Examiner found that claim 1 must be broadly interpreted to cover both CMOS pixels and another type of [imager] pixel. Appx1138.

Second, agreeing with Cellect's description of the prior art, the Examiner found that Tomoyasu teaches a time select switch, as it discloses a knob for increasing or decreasing the sensitivity/integration period, which in turn varies the brightness of the produced image. Appx1139 citing Appx1777 at ¶ 45; Appx1784 at Fig. 5. Acknowledging that the manner in which the integration period is adjusted/varied in

Tomoyasu differs from that described by Cellect, the Examiner observed that the difference is not specifically recited in claim 1 of the '740 patent, and thus does not "read away from the method taught in Tomoyasu." Appx1141. The Examiner also found that Tomoyasu's switch is just a switch and is separate from the circuitry, and therefore meets the "remote" limitation of claim 1. Appx1142-1143.

Subsequently, Cellect filed a series of two responses after final office action, arguing that the Examiner wrongly determined that the claims do not require a time select switch with remote functionality in circuitry 318. Appx1168-1170; Appx1196. In the first advisory action addressing Cellect's first after final response, the Examiner understood Cellect to be arguing that the "time select switch" claim limitation is governed by 35 U.S.C. § 112(f)[6], as a step for performing a specified function, and thus should be construed to include corresponding structure (e.g., circuitry 318). Appx1183; Appx1209. Further, the Examiner understood that Cellect had made such a claim construction argument in a parallel inter partes review ("IPR") proceeding regarding the same patent. Appx1209. However, in a second advisory action following Cellect's second response, and upon a further review of the record, the Examiner recognized that Cellect had not asserted that the "time select switch" be construed under § 112 and had not argued as such in the parallel IPR proceeding. Appx1209-

[6] The Examiner referred to 35 U.S.C. § 112, sixth paragraph. In 2011, Congress changed § 112, sixth paragraph to § 112(f). *See* Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, § 4(c)(1)(A), 125 Stat. 284, 296 (2011).

1210; Appx1246. Moreover, Cellect had not even asserted that "time select switch" requires circuitry 318 in the IPR, creating an inconsistency between the USPTO proceedings. Appx1210. Accordingly, the Examiner reverted back to its prior position taken in the final office action and concluded that circuitry 318 is not required for the claimed time select switch and maintained the rejection of the pending claims. *Id.* The Examiner reiterated its responses to Cellect's arguments and maintained its rejections in the Examiner Answer. Appx1242-1253.

2. The Board affirmed the Examiner's rejection of all pending claims.

Largely adopting the Examiner's findings in the final office action (Appx1136-1153) and the Examiner's Answer (Appx1242-1253), the Board affirmed the Examiner's rejection of representative claim 1 of the '740 patent as unpatentable on the grounds of obviousness-type double patenting over claim 1 of Cellect's '839 patent in view of Tomoyasu. Appx5-24, 28. As Cellect did not contest that its prior patent claims a reduced area imaging device comprising all of the limitations of representative claim 1 except the time select switch, the Board focused on Cellect's assertions regarding the switch limitation and Tomoyasu's teachings, but found them unpersuasive.

In particular, the Board was not persuaded by Cellect's assertion that claim 1 must be read as requiring that the time select switch include circuitry 318. Appx23-24. Reviewing the disclosure in the specification, the Board determined that the function

of the switch is selecting the desired integration period, which does not require circuitry. Appx23 citing Appx63 at 19:45-47. Further, the Board was not persuaded that Figure 10 in the '740 patent demonstrates that the switch itself requires circuitry, observing that there is an electrical communication line shown from the center of the time select switch 320 to a first circuit board via circuitry 318. Appx23. As claim 1 recites the time select switch functions of "electronically communicating" and "selectively varying integration period", the Board determined that that the switch itself performs both functions based on these disclosures. Appx23. The Board further noted that circuitry 318 is described in the specification as communicating with the video processor boards, yet such functionality is not required by the language of claim 1. Appx23 citing Appx63 at 19:43-45. And the Board found that, even if circuitry 318 were required by the claim, such basic communication signal conditioning circuitry would have been within the knowledge of one skilled in the art given its limited functionality. Appx23-24.

Relatedly, the Board also found Cellect's contentions contrasting the operation of a CCD sensor to a CMOS or CID sensor to be irrelevant to claim construction as claim 1 is not directed to a particular sensor and the switch limitation merely recites "selectively varying integration periods to produce an image of desired brightness," which places no imager restrictions on the claim. Appx15. In addition, the Board rejected Cellect's request that it reinstate the Examiner's claim construction in the first

advisory action determining circuitry 318 for the "time select switch," as beyond the scope of the Board's authority. Appx17.

The Board also rejected Cellect's argument that Tomoyasu does not teach a remote time select switch as claimed. Appx18-24. First, the Board was not persuaded by Cellect's contention that certain allegedly required circuitry for the switch (automatic gain control circuitry, exposure time control circuit 30, and integration control circuit 31) was located on the first circuit board, and thus, not remote. The Board found these assertions to not be commensurate in scope with the claim language, which does not recite circuitry in the time select switch limitation. Appx21-22. Though claim 1 also does not preclude the use of an AGC circuit, the Board found that even if the claim were construed to require varying the integration period independent of the AGC circuit, such would have been obvious in view of Tomoyasu's teachings. Appx22 citing Appx1774 at ¶¶ 3-5. As to the integration control circuitry, the Board found that Cellect had conflated the claimed function of "selectively varying integration periods" with the function of performing the actual integration, and that while claim 1 requires the first function, it does not require the second. Appx22. Finally, the Board rejected Cellect's argument that Figure 3 of Tomoyasu shows that Tomoyasu's knob is on the first circuit board, and thus not remote. Appx24. As the Board found, Figure 3 shows that the knob is placed on the front panel and the depicted supporting circuitry (25) is remote from the signal processing circuit (20). *Id.* citing Appx1783 at Fig. 3.

The Board thus determined that the evidence of record supports the Examiner's conclusion of unpatentability and affirmed the Examiner's rejection of representative claim 1.[7] Appx27.

III. Summary of the Argument

The Board correctly construed the term "time select switch" in representative claim 1 of the '740 patent as not requiring circuitry 318. Cellect's proffered construction improperly imports an unrecited limitation from the specification and should be rejected by this Court. The language of claim 1 and the non-limiting disclosure in the patent demonstrate that the time select switch is just that, a switch, and is not required to include circuitry 318, as posited by Cellect. Moreover, in a parallel proceeding before the USPTO, Cellect took a contrary position and chose not to assert that the time select switch must include specific circuitry. The Board rightly declined to allow Cellect to take an inconsistent position in this reexamination proceeding.

Given its proper construction of "time select switch," the Board rightly found claim 1 to be unpatentable for obviousness-type double patenting over claim 1 of Cellect's '839 patent in view of Tomoyasu. There is no dispute that claim 1 of the '839 patent is directed to a reduced area imaging device that recites all of the limitations of the claims-at-issue except the time select switch. The Board properly found that

[7] The Board also addressed additional arguments raised by Cellect which were not preserved on appeal. Thus, the Director does not discuss them.

Tomoyasu teaches a gain controlling knob, or a switch, that is remote from a first circuit board and permits one to selectively vary integration periods, and that it would have been obvious to a person of ordinary skill in the art to apply Tomoyasu's known teachings of a control [switch] that varies brightness by varying the integration period to the imaging device recited in claim 1 of the '839 patent in order to advantageously allow a user to control the overall sensitivity of the camera by manipulating the integration time of the imager. In any event, the Board also found that under Tomoyasu's proffered claim construction Tomoyasu would render adding the time select switch to the claim of the '839 patent obvious, as the functionality associated with circuitry 318 would have been known to one of skill in the art and the sensitivity adjusting means varies the integration period. The Board's underlying factual findings are supported by substantial evidence and its ultimate conclusion of obviousness-type double patenting is correct as a matter of law.

IV. Argument

A. Standard of review

Cellect bears the burden of showing that the Board committed reversible error. *In re Watts*, 354 F.3d 1362, 1369 (Fed. Cir. 2004). The Board's actions may not be set aside unless they are "arbitrary, capricious, an abuse of discretion, unsupported by substantial evidence, or otherwise not in accordance with law." *In re Sullivan*, 362 F.3d 1324, 1326 (Fed. Cir. 2004); 5 U.S.C. § 706(2)(A).

The claims of an expired patent are construed using a district court-type claim construction standard. *See In re Rambus, Inc.*, 694 F.3d 42, 46 (Fed. Cir. 2013). Under that standard, claim terms are given their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art at the time of the invention in light of the language of the claims, the specification, and the prosecution history of record. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313-17 (Fed. Cir. 2005) (en banc). Claim construction is a question of law that may involve underlying factual inquiries. *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015). This Court reviews the Board's claim construction based solely on intrinsic evidence de novo, and reviews subsidiary factual findings regarding extrinsic evidence for substantial evidence. *In re CSB-Sys. Int'l, Inc.*, 832 F.3d 1335, 1340 (Fed. Cir. 2016).

The ultimate conclusion of obviousness type double patenting is a question of law that this Court reviews de novo. *In re Emert*, 124 F.3d 1458, 1460 (Fed. Cir. 1997). The Board's underlying factual findings are reviewed for substantial evidence. *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000). Substantial evidence is "such relevant evidence as a reasonable mind might accept as adequate to support" the conclusion reached. *Consolidated Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938). "[W]here two different, inconsistent conclusions may reasonably be drawn from the evidence in record, an agency's decision to favor one conclusion over the other is the epitome of a decision that must be sustained upon review for substantial evidence." *In re Jolley*, 308 F.3d 1317, 1329 (Fed. Cir. 2002).

B. The Board correctly construed "time select switch" to not require unrecited circuitry

Cellect argues that the term "time select switch" must be construed to include the readout clock select circuitry 318. In view of the record evidence, the Board did not err when it declined to import an additional limitation from the specification into the claim and instead construed the term to not require such circuitry.

1. Cellect has not shown that a "time select switch . . . for selectively varying integration periods to produce an image of a desired brightness" requires specific circuitry

Cellect first argues that the claim term "time select switch," requires circuitry 318 to be able to function as claimed. Br. at 22. "In construing claims, the analytical focus must begin and remain centered on the language of the claims themselves, for it is that language that the patentee chose to use to particularly point out and distinctly claim the subject matter which the patentee regards as his invention." *Interactive Gift Express, Inc. v. Compuserve, Inc.,* 256 F.3d 1323, 1331 (Fed. Cir. 2001) (citations omitted).

First, and foremost, the plain language of claim 1 does not recite that the time select switch requires any circuitry. Appx22. To be sure, Cellect understood how to claim circuitry. For example, claim 1 recites an "image sensor further including circuitry means . . . for timing and control of said array of pixels." Appx35 at claim 1. But, Cellect chose not to use such language when claiming the "time select switch" in claim 1. *See Takeda Pharm. Co. Ltd. v. Zydus Pharms. USA, Inc.*, 743 F.3d 1359, 1365

(Fed. Cir. 2014) (refusing to limit claim when inventors knew to include those limitations "when they so desired.").

Second, Cellect has failed to demonstrate that the alleged "six aspects" of the claim (Br. at 23) mandate that the "time select switch" of claim 1 requires this unrecited circuitry. As explained by the Board, the switch is just that, a switch, which allows a user to manually select the time and, thus, vary an integration period (rather than relying on a preselected integration period). Appx14; Appx23. The switch then electronically relays the information regarding the user's selection to the first circuit board. Appx23. No circuitry is required for these functions. *Id.* As further noted by the Board, Cellect also improperly conflates the claimed function of "selectively varying integration periods" with the act of performing the actual integration based on what the user has selected. Appx22. While claim 1 requires the first function, it does not require the second. *Id.* The Board thus correctly determined the language of claim 1 to not require such circuitry. *Id.*

2. The Board's construction is consistent with the specification

Cellect next points to particular embodiments in the specification, such as an imaging device using a CMOS-CID imager, the circuitry in Figure 10, and other associated circuitry for performing the variation of integration periods, as supporting its importation of an additional element (circuitry 318) into the time select switch. Br. at 24-27. But nothing from the specification redefines the "time select switch" to

require specific circuitry. *GE Lighting Sols, LLC v AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) ("The standards for finding lexicography and disavowal are exacting. To act as its own lexicographer, a patentee must 'clearly set forth a definition of the disputed claim term,' and 'clearly express an intent to define the term.' Similarly, disavowal requires that 'the specification [or prosecution history] make[] clear that the invention does not include a particular feature.'") (citation omitted); *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004) (improper to import limitations even from sole embodiment).

As the Board found, the specification describes the sole function of the time select switch as selecting the desired integration period, which does not require circuitry 318. Appx23 citing Appx63 at 19:45-47. The Board also found that the switch electrically communicates with the first circuit board (i.e., video processor board) via the electrical connection depicted in Figure 10, by the line extending between the time select switch and the board (while passing through intervening circuitry 318). Appx23. Such a finding comports with this Court's jurisprudence on the issue. *See e.g., MEMS Tech. Berhad v. Int'l Trade Comm'n*, No. 10–1018, 447 F. App'x 142, 151–52 (Fed. Cir. June 3, 2011) (nonprecential) (holding that nothing in the specification describes electrically coupling as direct or suggests that the claim term should have an interpretation other than its plain meaning which permits indirect passage of electrical signals via intervening circuitry). Thus, the Board explained that the specification discloses that time select switch 320 both selects among varying

integration periods and electrically communicates with the first circuit board without requiring circuitry 318. Appx23. Further, in reviewing the specification of the '740 patent, the Board observed that the claimed invention is broadly drawn to include any known type of imager, and thus reliance on particular CMOS (or other) embodiments is misplaced. Appx12-Appx14. These broad teachings in the '740 patent undermine Cellect's argument and precludes Cellect's proffered narrow claim construction. *See Continental Circuits LLC v. Intel Corp.*, 915 F.3d 788, 798 (Fed. Cir. 2019) (explaining that examples that "appear[] within the context of disclosures of the preferred embodiment, are not clear and unmistakable limiting statements.") (citing *Thorner v. Sony Computer Ent. Am. LLC*, 669 F.3d 1362, 1366 (Fed. Cir. 2012)).

3. Cellect misrepresents the record in asserting it made consistent claim construction arguments before the USPTO

Cellect's inconsistent assertions in a parallel USPTO proceeding concerning the same patent also support the Board's construction of "time select switch." Indeed, Cellect mischaracterizes the record in asserting that it has consistently maintained the argument that the "time select switch" must include circuitry across all USPTO proceedings. Br. at 27-28. As its own brief demonstrates, in a parallel IPR proceeding, Cellect only proposed a construction of "time select switch" to include a "*feature* for selectively varying integration periods to produce an image of desired brightness," which is different than specifically asserting that circuitry 318 is a required component. Br. at 27 citing Appx1209-1210 (emphasis added). Cellect also falsely

suggests that the Examiner found that Cellect had made such arguments regarding circuitry in the IPR itself, when in fact the Examiner was merely summarizing Cellect's assertions in the present proceeding. *Compare* Br. at 28 *with* Appx1247-1249. In arguing that the "time select switch" requires circuitry 318, Cellect created an inconsistency between the USPTO proceedings, and thus, the Examiner reverted back to its prior position taken in the final office action and concluded that such circuitry is not required for the claimed time select switch and maintained the rejection of the pending claims. Appx1242-1253.

The Board here correctly considered the broad language of Cellect's claim, Cellect's non-limiting specification, and Cellect's arguments in a parallel proceeding, to determine that the recited "time select switch" does not require unrecited circuitry.

C. Substantial evidence supports the Board's determination that representative claim 1 is unpatentable

Beyond the claim construction argument, Cellect only disputes whether Tomoyasu teaches a time select switch remote from the first circuit board. Indeed, Cellect does not contest that claim 1 of the '839 patent recites the other limitations of representative claim 1 of the '740 patent. But the Board's findings that Tomoyasu discloses a switch that reads on the claimed "time select switch," as properly construed, are supported by substantial evidence. In particular, Tomoyasu expressly teaches a gain controlling knob (i.e., a time select switch) that "adjusts the sensitivity (i.e., the brightness of an image to be set 'depending on the preferences of a

practitioner') of an imager through adjusting the 'integrating function' by 'changing the time over which the image is integrated, through changing the electronic charge accumulating time (the exposure time).'" Appx1149 citing Appx1774 at ¶¶ 3-5, Appx1775 at ¶ 17, Appx1777 at ¶¶ 45-47. And Figures 1, 2, and 3 in Tomoyasu show that the knob is placed on the front panel of the CCU, remote, for example, from the signal processing circuit (20). Appx24 citing Appx1783 at Figs. 1-3; Appx1775 at ¶¶ 16-17.

In the alternative, the Board also made findings addressing Cellect's assertion that the time select switch requires supporting circuitry for varying the integration period, observing that (1) adding basic communication signal conditioning circuitry, such as circuitry 318, would have been known to a skilled artisan, and (2) Tomoyasu discloses "in addition to knob 23, … supporting circuitry for varying the integration periods at item 25 ('sensitivity adjusting means' para. 17), [and] Figure 1 of Tomoyasu shows the supporting circuitry at item 25 is attached to the knob 23," which are in turn attached "on the front panel 13." Appx23-24 citing Appx1783 at Figs. 1-3; Appx1775 at ¶¶ 16-17. Thus, under either claim construction, Tomoyasu teaches a "time select switch," and Cellect's argument is without avail.

Cellect argues that the time select switch in Tomoyasu is not remote because the purported necessary circuitry to perform the function of the switch (AGC circuit (27), exposure time control circuit (30), and integration control circuit (31)) are located with the video processor/first circuit board. Br. at 31-32. But as the Board

explained, no specific circuitry is claimed and the switch's only function is to permit a user to selectively vary the integration period (the time of integration) and electronically communicate as such (to the first circuit board), neither of which require such circuitry. Appx22-23. Cellect's conflation of the claimed function of "selectively varying integration periods" with the act of performing the actual integration, infects its argument. Appx22. And although claim 1 does not require specific circuitry for the switch, the Board also found it does not preclude the use of an AGC circuit to vary the actual integration period. Appx22. But in any event, the Board also found that Tomoyasu teaches that when viewing a still image it would be obvious to vary the integration period independent of the AGC circuit. Appx22 citing Appx1774 at ¶¶ 3-5.

The additional arguments that Cellect raises: (1) that the knob only varies voltage levels, and (2) that the sensitivity adjustment means is merely a variable resistor that adjusts voltage have been forfeited, as Cellect failed to make these particular arguments to the Examiner and the Board. Br. at 30. For this Court to consider Cellect's arguments for the first time on appeal, would allow Cellect to improperly circumvent the Examiner's and Board's review of those arguments. In particular, the Examiner did not have an opportunity to consider and provide a response to any argument by Cellect that the knob in Tomoyasu varies only voltage and not integration periods—a response that would have informed the Board in its

review of the Examiner's rejection of the claims.[8] "Simple fairness to those who are engaged in the tasks of administration, and to litigants, requires as a general rule that courts should not topple over administrative decisions unless the administrative body not only has erred but has erred against objection made at the time appropriate under its practice." *United States v. L.A. Tucker Truck Lines*, 344 U.S. 33, 37 (1952). No circumstances exist that excuse Cellect's failure to raise these arguments during the proceedings below and the Court should not exercise its discretion to review them now. *In re Google Tech. Holdings LLC*, 980 F.3d 858, 862 (Fed. Cir. 2020).

Nevertheless, substantial evidence supports the Board's determination that Tomoyasu teaches a switch that permits a user to vary the integration period and that the switch is remote from the processing circuitry.

D. Cellect waived its argument that the Board raised a new ground of rejection by failing to seek rehearing before the Board

Finally, Cellect asserts that the Board's finding that actually varying the integration period independent of the AGC circuit would have been obvious in light of Tomoyasu, constitutes a new ground of rejection of claim 1. Br. at 34-35. However, Cellect waived its right to challenge the Board's decision before this Court on the basis of a purported new ground of rejection by failing to timely seek rehearing before

[8] It is unclear how Cellect's assertion that these components allegedly only vary voltage even impacts the Board's analysis, when Tomoyasu discloses that the change in voltage is what permits the user to vary the integration. *See e.g.*, Appx1777 at ¶¶ 41-43.

the Board. *See* 37 C.F.R. § 41.50(c) ("Any request to seek review of a [Board] panel's failure to designate a new ground of rejection in its decision must be raised by filing a request for rehearing . . . Failure of appellant to timely file such a request for rehearing will constitute a waiver of any arguments that a decision contains an undesignated new ground of rejection.") *See also In re Hill-Rom Servs., Inc.*, No. 15-1305, 634 F. App'x 786, 794 (Fed. Cir. Dec. 2, 2015) (nonprecedential) (under 37 C.F.R. § 41.50(c), failing to file a petition for rehearing waives a "new ground of rejection" claim on appeal); *In re Chapman*, No. 19-1895, 811 F. App'x 647, 649 (Fed. Cir. 2020) (nonprecedential) ("Chapman's argument that the Board relied on a different ground of rejection than the examiner is also waived because Chapman failed to raise it below." (citing 37 C.F.R. § 41.50(c))). As this Court explained in *Hill-Rom*, it is "far more efficient" to proceed with the USPTO's rule requiring that "new ground of rejection" claims be raised in a request for rehearing, than to have the case proceed to judicial review and then have the new issue decided without input from the Board. *Id.*

V. Conclusion

Relying on the broad language of the claims, the non-limiting disclosure of Cellect's patent, and Cellect's inconsistent claim construction arguments in a parallel IPR proceeding regarding the same patent, the Board correctly construed "time select switch," under the *Phillips* standard, as not requiring particular circuitry. And because substantial evidence supports the Board's underlying factual findings and its ultimate conclusion of obviousness-type double patenting is correct as a matter of law, this

Court should affirm the Board's decision that claims 1-2 of the '740 patent are unpatentable.

Dated: July 26, 2022

Respectfully submitted,

/s/ Kakoli Caprihan

THOMAS W. KRAUSE
Solicitor

AMY J. NELSON
Senior Counsel for Patent Policy and Litigation

KAKOLI CAPRIHAN
BRIAN RACILLA
Associate Solicitors

Office of the Solicitor
U.S. Patent and Trademark Office
Mail Stop 8, P.O. Box 1450
Alexandria, Virginia 22313
(571) 272-9035

Attorneys for the Director of the United States Patent and Trademark Office

CERTIFICATE OF COMPLIANCE

I hereby certify pursuant to Fed. R. App. Proc. 32(a)(7) that the foregoing BRIEF FOR APPELLEE, DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE complies with the type-volume limitation required by the Court's rule. The total number of words in the foregoing brief, excluding the table of contents and the table of authorities, is 7,136 as calculated using the Word® software program.

/s/ Kakoli Caprihan
Kakoli Caprihan
Associate Solicitor
Office of the Solicitor
U.S. Patent and Trademark Office
Mail Stop 8, P.O. Box 1450
Alexandria, Virginia 22313
(571) 272-9035