UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

In the Matter of	
CERTAIN TONER CARTRIDGES AND COMPONENTS THEREOF	**Inv. No. 337-TA-1106**

ORDER NO. 38: *MARKMAN* ORDER AND ORDER ADDRESSING MOTIONS FOR SUMMARY DETERMINATION AND PREHEARING BRIEFS

(February 28, 2019)

A *Markman* hearing was held in this investigation on August 30, 2018. Counsel for Complainants Canon Inc., Canon U.S.A., and Canon Virginia, Inc. (collectively, "Canon"), counsel for Respondents Ninestar Corporation, Ninestar Image Tech Limited, Ninestar Technology Company, Ltd., Apex Microtech Ltd., and Static Control Components, Inc. (collectively, "Ninestar"), counsel for Respondents Print-Rite Holdings Ltd., Print-Rite N.A., Inc., Union Technology International (M.C.O.) Co. Ltd., Print-Rite Unicorn Image Products Co. Ltd., The Supplies Guys, Inc., and LD Products, Inc. (collectively, "Print-Rite"), counsel for Respondents Aster Graphics, Inc., Aster Graphics Co., Ltd, and Jiangxi Yibo E-tech Co., Ltd. (collectively, "Aster") (Ninestar, Print-Rite, and Aster, collectively, "Respondents") and counsel

for the Office of Unfair Import Investigations ("Staff") appeared at the hearing.[1] In advance of the hearing, Canon, Respondents, and Staff filed initial and rebuttal *Markman* briefs.[2]

On November 28, 2018, the parties filed a number of motions for summary determination. These motions are contingent on particular claim constructions being adopted. Canon's motion for summary determination sought a finding that the accused Type A-Type I products infringe, under its proposed constructions of the disputed terms (Motion Docket No. 1106-20). Ninestar's motion for summary determination sought a finding that the patents were invalid for failing to satisfy the written description requirement, if the claims were to encompass "coupling members that are capable of axial-only movement with respect to the photosensitive drum" (Motion Docket No. 1106-022). Ninestar Motion for Summary Determination at 1. Print-Rite filed a motion for summary determination that the Type C, Type D, and Type E accused products do not infringe the asserted patents (Motion Docket No. 1106-021), and Aster filed a motion for summary determination that the Type A and Type B accused products do not infringe the asserted patents (Motion Docket No. 1106-024).[3] Along with its motion for

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[1] After the hearing, Canon withdrew its allegations as to Print-Right Holdings Ltd. and Apex Microtech Ltd. and the investigation was terminated as to those respondents. Order No. 28 (Oct. 1, 2018) (terminating Apex Microtech Ltd.), *not reviewed by* Comm'n Notice (Oct. 25, 2018); Order No. 30 (Oct. 22, 2018) (terminating Print-Right Holdings Ltd.), *not reviewed by* Comm'n Notice (Nov. 20, 2018).

[2] Canon's initial and rebuttal briefs are referenced herein as "CIB" and "CRB," respectively; Respondents' initial and rebuttal briefs are referenced herein as "RIB" and "RRB," respectively; and Staff's initial and rebuttal briefs are referenced herein as "SIB" and "SRB," respectively. On August 31, 2018, Respondents filed a corrected initial brief. Unless otherwise noted, all references to Respondents' initial brief are to the corrected version.

[3] In some instances, Respondents categorize the accused products differently than Canon. *See, e.g.,* Print-Rite Memorandum in Support of Motion at 3 n. 4 (explaining that Print-Rite refers to the accused Type C, Type D, and Type E products as PR2 products). Although this order uses Canon's nomenclature to refer to the accused products, it makes no determination regarding whether Canon has correctly grouped the accused products.

summary determination of invalidity, Ninestar filed an unopposed motion for leave to file a motion for summary determination that the Type F, G, and H accused products do not infringe the asserted patents (Motion Docket No. 1106-023).[4] Respondents' motions for non-infringement were contingent on the asserted claims being construed to require a pivotable coupling member.

[4] Ninestar's motion for leave is hereby GRANTED.

Table of Contents

I. PROCEDURAL HISTORY

A. Current Investigation

This investigation was instituted to determine whether there is a violation of section 337 of the Tariff Act of 1930, as amended, in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain toner cartridges and components thereof by reason of infringement of U.S. Patent No. 9,746,826 ("the '826 patent"); U.S. Patent No. 9,836,021 ("the '021 patent"); U.S. Patent No. 9,841,729 ("the '729 patent"); U.S. Patent No. 9,857,764 ("the '764 patent"); U.S. Patent No. 9,857,765 ("the '765 patent"); U.S. Patent No. 9,869,960 ("the '960 patent"); U.S. Patent No. 9,874,846 ("the '846 patent"); U.S. Patent No. 9,841,727 ("the '727 patent"); and U.S. Patent No. 9,841,728 ("the '728 patent"). Notice of Institution at 1 (Mar. 26, 2018); 83 Fed. Reg. 13156-517 (Mar. 29, 2018).

In addition to the respondents who appeared at the *Markman* hearing, the following entities were identified as respondents in the Notice of Investigation and have been found to be in default: World Class Ink Supply, Inc.; EIS Office Solutions, Inc.; eReplacements, LLC; Garvey's Office Products, Inc.; Master Print Supplies, Inc. d/b/a HQ Products; Reliable Imaging Computer Products, Inc.; Zinyaw LLC d/b/a TonerPirate.com; Frontier Imaging Inc.; Hong Kong BoZe Co. Limited d/b/a Greensky; Apex Excel Limited d/b/a ShopAt247; Billiontree Technology USA Inc. d/b/a Toner Kingdom; Kuhlmann Enterprises, Inc.; Arlington Industries, Inc.; Arlington Industries, Inc. d/b/a Precision Roller; V4INK, Inc.; GPC Trading Co. Limited d/b/a GPC Image; ACM Technologies, Inc.; Print After Print, Inc. d/b/a OuterOfToner.com; Do It Wiser LLC d/b/a Image Toner; Global Cartridges; Kingway Image Co. Ltd. d/b/a Zhu Hai Kingway Image Co., Ltd.; Ourway Image Tech. Co., Ltd.; Ourway Image Co., Ltd.; Zhuhai Aowei Electronics Co., Ltd.; Acecom, Inc. - San Antonio d/b/a InkSell.com; Bluedog

Distribution Inc.; i8 International, Inc. d/b/a Ink4Work.com; Ink Technologies Printer Supplies, LLC; Linkyo Corp. d/b/a SuperMediaStore.com; CLT Computers, Inc. d/b/a Multiwave and MWave; Imaging Supplies Investors, LLC d/b/a SuppliesOutlet.com; SuppliesWholesalers.com; OnlineTechStores.com; Online Tech Stores, LLC d/b/a SuppliesOutlet.com; SuppliesWholesalers.com; OnlineTechStores.com; Print After Print, Inc. d/b/a OuterOfToner.com; Fairland, LLC d/b/a ProPrint; and 9010-8077 Quebec Inc. d/b/a Zeetoner. Notice of Investigation at 2-7; Order No. 11 (May 2, 2018), *not reviewed by* Comm'n Notice (corrected) (June 20, 2018); Order No. 12 (May 16, 2018), *not reviewed by* Comm'n Notice (June 5, 2018); Order No. 14 (May 30, 2018), *not reviewed by* Comm'n Notice (June 25, 2018); Order No. 15 (May 31, 2018), *not reviewed by* Comm'n Notice (June 25, 2018); Order No. 19 (July 11, 2018), *not reviewed by* Comm'n Notice (Aug. 6, 2018); Order No. 20 (July 26, 2018), *not reviewed by* Comm'n Notice (Aug. 15, 2018); Order No. 23 (Aug. 14, 2018), *not reviewed by* Comm'n Notice (Aug. 28, 2018); Order No. 25 (Sept. 5, 2018), *not reviewed by* Comm'n Notice (Sept. 25, 2018); Order No. 26 (Sept. 14, 2018), *not reviewed by* Comm'n Notice (Oct. 2, 2018). Ourway US Inc. was also identified as a respondent in the notice of investigation and has been ordered to show cause why it should not be found in default. Order No. 37 (Feb. 21, 2019).

Canon withdrew its allegations with respect to the '727 and '728 patents and withdrew its allegations with respect to certain claims of the '826, '021, '729, '764, '765, '960, and '846 patents, and the investigation was terminated as to those patents and claims. Order No. 18 (June 28, 2018), *not reviewed by* Comm'n Notice (July 23, 2018); Order No. 21 (July 26, 2018), *not reviewed by* Comm'n Notice (Aug. 15, 2018); Order No. 33 (Nov. 26, 2018), *not reviewed by* Comm'n Notice (Dec. 12, 2018). Canon continues to assert the following claims against Respondents:

Patent	Asserted Claims
'826 patent	Claims 1 and 6
'021 patent	Claims 1, 2, 4, 7, and 8
'729 patent	Claim 1
'764 patent	Claim 7
'765 patent	Claims 1, 3, 13, 16, and 19
'960 patent	Claims 1, 2, 4, 5, and 6
'846 patent	Claims 1 and 3

Complaint, ¶ 1.

In addition, Canon asserts that its domestic industry products practice the following claims:

Patent	Domestic Industry Claims
'826 patent	Claims 1 and 5
'021 patent	Claims 1 and 6
'729 patent	Claims 27 and 31
'764 patent	Claims 20 and 22
'765 patent	Claims 13 and 18
'960 patent	Claims 1 and 8
'846 patent	Claims 1 and 4

Id., ¶ 291.

B. The 918 Investigation

In *Certain Toner Cartridges and Components Thereof*, Inv. No. 337-TA-918 ("the 918 investigation"), Canon asserted three patents from the same family as the patents asserted in this investigation: U.S. Patent No. 8,280,278 ("the '278 patent"); U.S. Patent No. 8,630,564 ("the '564 patent"); and U.S. Patent No. 8,682,215 ("the '215 patent"). Complaint, ¶ 295. Some of the respondents in the current investigation were also respondents in the 918 investigation. Notice of Investigation (918 Investigation) at 2-6 (naming Ninestar Image Tech Limited, Ninestar Technology Company, Ltd., Print-Rite Holdings Ltd., Print-Rite N.A., Inc., Aster Graphics, Inc., and Aster Graphics Co., Ltd. as respondents). After a hearing, the presiding

administrative law judge issued a final initial determination finding that certain of the accused products infringed the '278, '564, and '215 patents. Final Initial Determination (981 Investigation) at 67 (June 8, 2015). The Commission adopted the administrative law judge's infringement findings. Comm'n Notice (918 Investigation) at 3 (June 24, 2015).

II. THE ASSERTED PATENTS

All seven asserted patents are closely related to each other, sharing a common specification and named inventors. Complaint, ¶ 99 ("The Asserted Patents are all part of the same patent family and disclose the same subject matter (*i.e.*, their specifications and drawings are the same), but claim different aspects of the inventions disclosed therein and claiming priority to the same ancestors."). In addition, the asserted patents share a common specification with the '278, '564, and '215 patents asserted in the 918 investigation and claim priority to the '278 patent. '826 patent at 1-2; '021 patent at 1-2; '729 patent at 1-2; '764 patent at 1-2; '765 patent at 1-2; '846 patent at 1-2; '960 patent at 1-2.[5] The applications that led to the asserted patents were filed on December 13, 2016 ('826, '021, '729, '764, and '765 patents) or on March 10, 2017 ('846 and '960 patents). *Id.* The asserted patents identify Takahito Ueno, Shigeo Miyabe, and Masanari Morioka as inventors. *Id.*

A. Specification

The asserted patents are directed to the "process cartridge" of a laser printer or other type of "electrophotographic image forming apparatus," '826 patent, col. 1:11-18. The process cartridge—commonly known as a "toner cartridge"—consists of a photosensitive drum and one or more "process means." *Id.*, col. 1:19:39, col. 1:46-50. The "process means" can be a

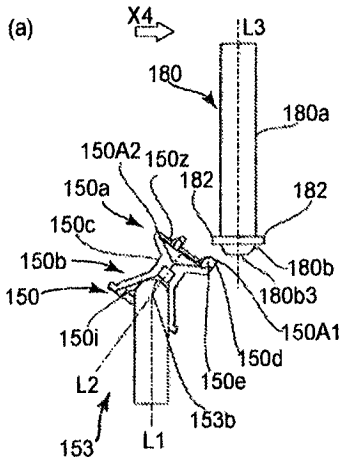
[5] Copies of the asserted patents are attached to the complaint as Exhibits 1 ('826 patent), 2 ('021 patent), 5 ('729 patent), 6 ('764 patent), 7 ('765 patent), 8 ('960 patent), and 9 ('846 patent).

"developing means," "charging means," or "cleaning means." *Id.*, col. 1:19:39. The "process cartridge" can be mounted and removed by an end user. *Id.*, col. 1:40-45. In the mounted position, the cartridge's photosensitive drum's shaft and the printer's driver shaft are brought into engagement with each other by a "coupling member." *Id.*, col. 1:46-50. Once they are engaged, the printer's driver shaft can rotate the drum. *Id.*

In prior art systems, in order to disengage the drum shaft from the printer's drive shaft, so that the process cartridge can be removed, the drive shaft is moved horizontally (*i.e.*, axially) away from the process cartridge. *Id.*, col. 1:51- col. 2:5-19. Once the new cartridge is inserted the drive shaft is moved axially towards the process cartridge, bringing the drive shaft into engagement with the drum shaft. *Id.* These systems require that the printer have a mechanism for moving the drive shaft axially. *Id.*, col. 2:20-24. In contrast to these prior art systems, the specification describes various embodiments of a process cartridge that can be mounted and demounted without moving the printer's drive shaft axially. *Id.*, col. 2:43-49. The disclosed process cartridge has a "coupling member" that is located on the photosensitive drum's shaft. The coupling member pivots to engage or disengage from the printer's drive shaft in mounting and demounting operations.

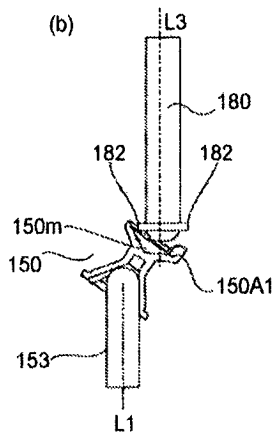
One example of how the process cartridge's coupling member comes into engagement with the printer's drive shaft during a mounting operation is shown in Figures 23(a)-(d). During a mounting operation, the process cartridge is moved in direction X4, which is substantially perpendicular to the axis of the printer's drive shaft 180. *Id.*, col. 26:9-17. As shown in Figure 22(a), prior to becoming in engaged with drive shaft 180, the process cartridge's coupling member 150 is inclined in relation to the drum shaft's axis (L1) so that the tip of the downstream

projection 150A1 on the end of coupling member 150 is closer to the photosensitive drum (not shown) than the tip of upstream projection 150A2.[6]

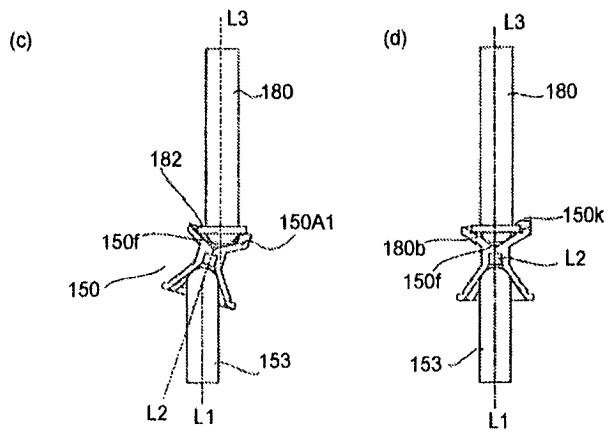


Id., Fig. 22(a), *see also, id.*, col. 26:59-63 ("In the pre-engagement angular position, the axis L2 (FIG. 22 a) of the coupling 150 inclines toward downstream with respect to the mounting direction X4 beforehand relative to the axis L1 (FIG. 22(a) of the drum shaft 153 (FIG. 21 a and FIG. 22(a)."). So inclined, the downstream projection passes by the end of drive shaft 180 allowing the upstream projection to come into contact with the drive shaft. *Id.*, col. 27:1-22.

[6] The terms "upstream" and "downstream" are used in reference to the direction that the process cartridge moves in mounting and demounting operations. A projection that is upstream during a mounting operation will be downstream during a demounting operation, or *vice versa*, because the direction in which the cartridge is moving changes.

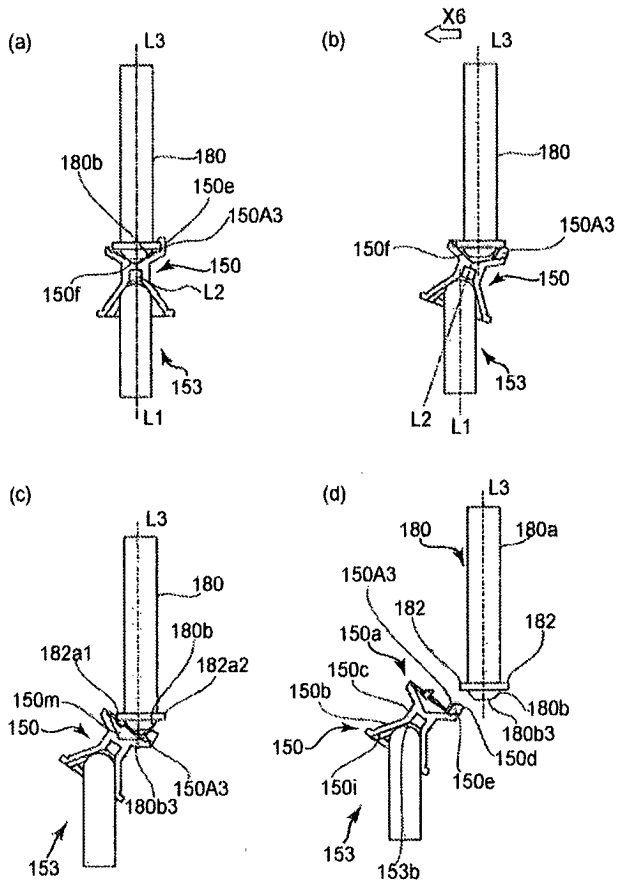


Id., Fig. 22(b). As the process cartridge continues to move in direction X4 during the mounting operation, contact between the drive shaft and the upstream projection causes the coupling member to pivot until its axis (axis L2) is brought into alignment with those of the drive shaft (axis L3) and the photosensitive drum's shaft (axis L1). *Id.*, col. 27:15-39.



Id., Figures 22(c) & (d).

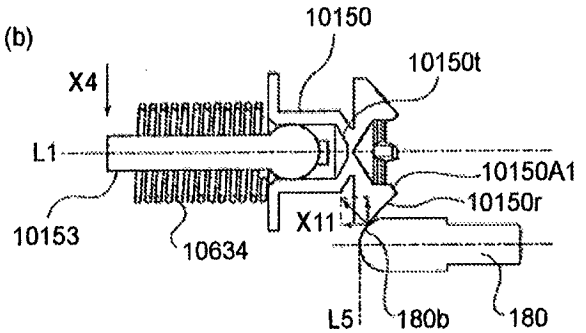
Figure 25 shows the disengagement process when the process cartridge is demounted.



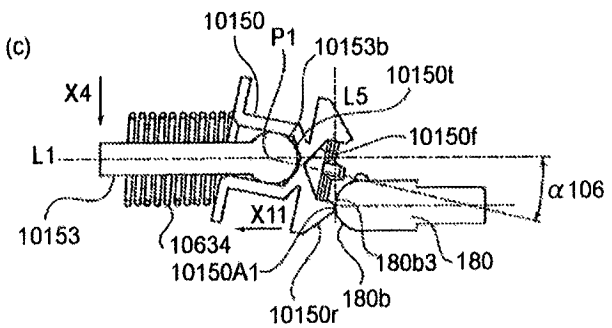
As shown in Figures 25(a)-(d), in order to demount the process cartridge, the process cartridge is pulled away from the printer in direction X6. '826 patent, col. 30:18-20. This movement results in downstream projection 150A3 of coupling member 150 coming into contact with drive shaft 180. *Id.*, col. 30:24-29; FIG. 22(A). This contact results in coupling member 150 inclining downstream with respect to the demounting direction. *Id.*, col. 30:24-29, Figs. 22(b) and (c). So inclined, the coupling member is able to pass by drive shaft 180. *Id.*, col. 30:45-47; Fig. 25(d).

The specification teaches that the degree that the coupling member needs to incline for mounting and demounting operations can be reduced by configuring the coupling member to move axially, *i.e.*, towards and away from the process cartridge. This is shown in Embodiment

No. 13. As shown in Figure 88(b), coupling member 10150 is connected to urging member 10634, which pushes coupling member 10150 towards the drive shaft. *Id.*, col. 62:55-59.



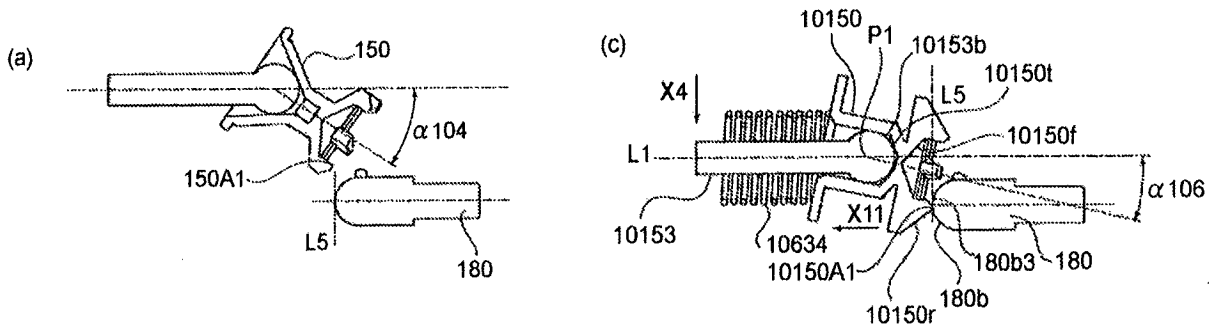
Pushing coupling member 10150 towards drive shaft 180 leaves a gap between coupling member 10150 and drum shaft 153 (highlighted). As the process cartridge is pushed in direction X4 during the mounting process, contact between driveshaft 180 and downstream projection 10150A1 of the coupling member results in the coupling member moving in two directions.



Id., Fig. 88(c). Compressing urging member 10634, coupling member moves in direction X11, so that the coupling member moves towards the tip of drum shaft 10153 closing the gap between coupling member 10150 and drum shaft 10153. *Id.*, col. 63:22-30. At the same time, coupling 10150 rotates so that it is inclined downstream. *Id.* With the coupling member so positioned, downstream projection 10150A1 of coupling member 10150 passes by the end of drive shaft

180. *Id.*, col. 62:30-32. When drive shaft 180 is substantially coaxial to drum shaft 10153 and no longer in contact with downstream projection 10150A1, urging member 10634 pushes coupling member 10150 towards drive shaft 180. *Id.*, col. 62:32-36.

By combining axial movement with pivoting movement, the angle that the coupling member needs to incline prior to engagement can be reduced, thereby reducing "the space required by the pivoting motion of the coupling 10150." *Id.*, col. 63:43-48. This is illustrated in Figures 88(a) (on the left) and 88(c) (on the right).



The coupling member shown in Figure 88(a) does not exhibit any axial movement, whereas the coupling member in Figure 88(c) combines pivoting with axial movement. As a result, coupling member 150 in Figure 88(a) requires a larger of angle of inclination (α 104) prior to engagement than is needed by coupling member 10150 in Figure 88(c) (α 106). *Id.*, col. 63:43-48.

III. CLAIMS AT ISSUE

A. '826 Patent

Canon is asserting claims 1 and 6 of the '826 patent against Respondents and is relying on claims 1 and 5 to satisfy the domestic industry requirement. Claims 1 and 6 are independent. Claim 1 recites:

> A process cartridge comprising:
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> a casing including an opening and an arc-shaped protrusion on an external portion of the casing adjacent to the opening;

a photosensitive drum having an axis L1, the photosensitive drum being rotatably supported in the casing to permit rotation about the axis L1; and

a coupling member having an axis L2, the coupling member having (i) a first end portion connected to the photosensitive drum, (ii) a second end portion including at least one projection that is open to the axis L2, and (iii) a connecting portion connecting the first end portion and the second end portion, wherein a maximum distance as measured from the axis L2, in a direction perpendicular to the axis L2, of at least part of the connecting portion is shorter than a distance between the at least one projection and the axis L2, and wherein at least part of the second end portion extends beyond the opening in the direction of the axis L1,

wherein the coupling member is movable between (i) a first position in which a tip of the at least one projection is a first distance away from the photosensitive drum as measured in the direction of the axis L1 and (ii) a second position in which the tip of the at least one projection is a second distance away from the photosensitive drum as measured in the direction of the axis L1, with the first distance being greater than the second distance, and

wherein the arc-shaped protrusion extends only partway around the coupling member.

'826 patent, col. 84:2-30. Claim 5 depends from claim 1 and requires that the coupling member be capable of moving from a position that is coaxial to the axis of the photosensitive drum to an inclined position, wherein the maximum angle of inclination is about 20 degrees to about 60 degrees. *Id.*, col. 84:45-53. Independent claim 6 requires that the casing have a protrusion adjacent to the coupling member and that the cartridge have a developing roller, but is otherwise similar in scope to claim 1. *Id.*, col. 84:54-col. 85:22.

B. '021 Patent

Canon is asserting claims 1, 2, 4, 7, and 8 of the '021 patent against Respondents and is relying on claims 1 and 6 to satisfy the domestic industry requirement. Claims 1 and 8 are independent. Claim 1 recites:

A process cartridge comprising:

a casing;

developer contained within the casing;

a photosensitive drum having an axis L1, the photosensitive drum being rotatably supported in the casing about the axis L1;

a developing roller having an axis L1′, the developing roller being configured to develop a latent image formed on the photosensitive drum with the developer, and the developing roller being rotatably supported in the casing to permit rotation about the axis L1′;

a drum flange provided at an end of the photosensitive drum, the drum flange being rotatable with the photosensitive drum about the axis L1, and a part of the drum flange being positioned within the photosensitive drum; and

a coupling member having an axis L2 and including (i) a first end portion at least a part of which is positioned within the drum flange, the first end portion being operatively connected to the photosensitive drum and the developing roller, (ii) a second end portion including (ii-i) a surface recessed in the second end portion and facing away from the first end portion and (ii-ii) at least one projection projecting from a surface adjacent to the recessed surface, and (iii) a connecting portion connecting the first end portion and the second end portion,

wherein the coupling member is movable between (i) a first position in which a tip of the at least one projection is a first distance away from the photosensitive drum as measured in the direction of the axis L1 and (ii) a second position in which the tip of the at least one projection is a second distance away from the photosensitive drum as measured in the direction of the axis L1, with the first distance being greater than the second distance, and

wherein a maximum distance as measured from the axis L2, in a direction perpendicular to the axis L2, of at least a part of the connecting portion is shorter than a distance between the at least one projection and the axis L2.

'021 patent, col. 84:2-42. Independent claim 8 does not require that the photosensitive drum have a drum flange and requires that the tip of the coupling member have "wing portions," but is otherwise similar in scope to claim 1. *Id.*, col. 85:13-43.

Claims 2, 4, 6, and 7 depend directly from claim 1. Claim 2 requires that "for at least part of the second end portion [of the coupling member], a maximum distance from the axis L2 to an outermost surface of the second end portion along a line perpendicular to the axis L2 increases as the distance along the axis L2 from the connecting portion increases." *Id.*, col. 84:43-48. Claim 4 requires the casing have "an opening and at least one protrusion on an external portion . . . adjacent to the opening." *Id.*, col. 84:55-57. Claim 6 requires that the coupling member be capable of moving from a position that is coaxial to the axis of the photosensitive drum to an inclined position, wherein the maximum angle of inclination is about 20 degrees to about 60 degrees. *Id.*, col. 84:65-col. 85:6. Claim 7 requires that the coupling member be "operatively connected to the photosensitive drum via the drum flange" and that the developing roller be operatively connected to the coupling member "via a gear on the drum flange." *Id.*, col. 85:8-12.

C. '729 Patent

Canon is asserting claim 1 of the '729 patent against Respondents and is relying on claims 27 and 31 to satisfy the domestic industry requirement. Claims 1 and 27 are independent. Claim 1 recites:

> A process cartridge comprising:
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> a casing;
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> developer contained within the casing;
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> a photosensitive drum having an axis L1, the photosensitive drum being rotatably supported in the casing to permit rotation about the axis L1;

> a developing roller having an axis L1′, the developing roller being configured to develop a latent image formed on the photosensitive drum with the developer, and the developing roller being rotatably supported in the casing to permit rotation about the axis L1′; and
>
> a coupling member having an axis L2, the coupling member including (i) a first end portion operatively connected to the photosensitive drum and the developing roller and (ii) a second end portion, the second end portion including at least one projection that is open to the axis L2 and an outer surface that faces away from the first end portion, wherein for at least part of the outer surface, a maximum distance from the axis L2 to the outer surface along a line perpendicular to the axis L2 decreases as the distance along the axis L2 from the first end portion increases, and
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> wherein the coupling member is movable between (i) a first position in which a tip of the at least one projection is a first distance away from the photosensitive drum as measured in the direction of the axis L1 and (ii) a second position in which the tip of the at least one projection is a second distance away from the photosensitive drum as measured in the direction of the axis L1, with the first distance being greater than the second distance.

'729 patent, col. 84:22-52.

Claim 27 requires that the photosensitive drum have a drum flange that contains and restrains a portion of the coupling member and that the coupling member be longer than it is thick. *Id.*, col. 87:56-col. 88:31. Otherwise claim 27 is similar in scope to claim 1. Claim 31 depends directly from claim 27 and requires that the coupling member be capable of moving from a position that is coaxial to the axis of the photosensitive drum to an inclined position, wherein the maximum angle of inclination is about 20 degrees to about 60 degrees. *Id.*, col. 88:49-57.

D. '764 Patent

Canon is asserting claim 7 of the '764 patent against Respondents and is relying on claims 20 and 22 to satisfy the domestic industry requirement. Claims 1, 7, and 20 are independent. Claim 1 recites:

> A drum unit usable in a process cartridge, the drum unit comprising:
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> a photosensitive drum having an axis L1; and
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> a coupling member having an axis L2, the coupling member including a first end portion operatively connected to the photosensitive drum and a second end portion, the second end portion including at least one projection that is open to the axis L2 and an outer surface that faces away from the first end portion, wherein, for at least part of the outer surface, a maximum distance from the axis L2 to the outer surface along a line perpendicular to the axis L2 decreases as the distance along the axis L2 from the first end portion increases,
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> wherein the coupling member is movable between (i) a first position in which a tip of the at least one projection is a first distance away from the photosensitive drum as measured in the direction of the axis L1 and (ii) a second position in which the tip of the at least one projection is a second distance away from the photosensitive drum as measured in the direction of the axis L1, wherein the first distance is greater than the second distance, and
>
> wherein the difference between the first distance and the second distance is equal to or greater than a length of the at least one projection as measured in a direction of the axis L2.

'764 patent, col. 34-56.

Claim 7 does not require that "the difference between the first distance and the second distance [be] equal to or greater than a length of the at least one projection as measured in a direction of the axis L2," but is otherwise the same in scope as claim 1. *Id.*, col. 85:16-42. Claim 20 requires that the photosensitive drum have a drum flange that contains and restrains a portion of the coupling member and that the coupling member be longer than it is thick. *Id.*, col.

86:55-col. 87:16. Otherwise claim 20 is similar in scope to claim 1. Claim 22 depends directly from claim 20 and requires that the coupling member be capable of moving from a position that is coaxial to the axis of the photosensitive drum to an inclined position, wherein the maximum angle of inclination is about 20 degrees to about 60 degrees. *Id.*, col. 87:22-30.

E. '765 Patent

Canon is asserting claims 1, 3, 13, 16, and 19 of the '765 patent against Respondents and is relying on claims 13 and 18 to satisfy the domestic industry requirement. Claims 1 and 13 are independent. Claim 1 recites:

> A process cartridge comprising:
>
> a casing;
>
> developer contained within the casing;
>
> a photosensitive drum having an axis L1, the photosensitive drum being rotatably supported in the casing to permit rotation about the axis L1;
>
> a developing roller having an axis L1′, the developing roller being configured to develop a latent image formed on the photosensitive drum with the developer, and the developing roller being rotatably supported in the casing to permit rotation about the axis L1′; and
>
> a coupling member having an axis L2 and including (i) a first end portion operatively connected to the photosensitive drum and the developing roller, (ii) a second end portion having an outermost surface, (iii) an axle portion connecting the first end portion and the second end portion to each other, and (iv) at least one projection extending from the second end portion,
>
> wherein, for at least part of the outermost surface of the second end portion, a maximum distance from the axis L2 to the outermost surface along a line perpendicular to the axis L2 increases as the distance along the axis L2 from the axle portion increases, and
>
> wherein the coupling member is movable between (i) a first position in which a tip of the at least one projection is a first distance away from the

> photosensitive drum as measured in the direction of the axis L1 and (ii) a second position in which the tip of the at least one projection is a second distance away from the photosensitive drum as measured in the direction of the axis L1, with the first distance being greater than the second distance.

'765 patent, col. 83:32-63. Claim 13 requires that the first end and second end of the coupling member be connected by an "axle portion," but is otherwise similar in scope to claim 1.

Claim 3 depends directly from claim 1 and requires that the coupling member be "operatively connected to the photosensitive drum via the drum flange" and that the developing roller be operatively connected to the coupling member "via a gear on the drum flange." *Id.*, col. 84:6-10. Claims 16, 18, and 19 depend directly from claim 13. Claim 16 requires that the casing have "an opening and at least one protrusion on an external portion . . . adjacent to the opening." *Id.*, col. 86:35-37. Claim 18 requires that the coupling member be capable of moving from a position that is coaxial to the axis of the photosensitive drum to an inclined position, wherein the maximum angle of inclination is about 20 degrees to about 60 degrees. *Id.*, col. 86:45-53. Claim 19 requires that the coupling member be "operatively connected to the photosensitive drum via the drum flange" and that the developing roller be operatively connected to the coupling member "via a gear on the drum flange." *Id.*, col. 84:54-58.

F. '960 Patent

Canon is asserting claims 1, 2, 4, 5, and 6 of the '960 patent against Respondents and is relying on claims 1 and 8 to satisfy the domestic industry requirement. Claim 1 is the sole independent claim. Claim 1 recites:

> A process cartridge comprising:
>
> a casing;
>
> developer contained within the casing;

a photosensitive drum having an axis L1, the photosensitive drum being rotatably supported in the casing about the axis L1;

a drum flange provided at an end of the photosensitive drum, the drum flange being rotatable with the photosensitive drum about the axis L1; and

a coupling member having an axis L2 and having (i) a first end at least a part of which is positioned within the drum flange, and (ii) a second end including at least one projection,

wherein the coupling member is movable between (i) a first position in which a tip of the at least one projection is a first distance away from the photosensitive drum as measured in the direction of the axis L1 and (ii) a second position in which the tip of the at least one projection is a second distance away from the photosensitive drum as measured in the direction of the axis L1, with the first distance being greater than the second distance,

wherein the coupling member includes a first part, a second part, and a third part, with the second part being between the first part and the third part in a direction of the axis L2, and

wherein, for each of the first part, the second part, and the third part, a maximum distance from the axis L2 to an outermost surface of the coupling member as measured along a line perpendicular to the axis L2 is (i) D1 in the first part of the coupling member, (ii) D2 in the second part of the coupling member, and (iii) D3 in the third part of the coupling member, with the distances D1 and D3 being greater than the distance D2.

'960 patent, col. 83:4-col. 84:6.

Claims 2, 4, 5, 6, and 8 depend directly from claim 1. Claim 2 requires that a portion of the drum flange be positioned within the photosensitive drum. *Id.*, col. 84:7-9. Claim 4 requires that a "maximum distance from the axis L2 to an outermost surface of at least a part of the second end [of the coupling member] as measured along a line perpendicular to the axis L2 increase[] as the distance along the axis L2 from the first end increases." *Id.*, col. 84:14-18.

Claim 5 requires that the process cartridge have a developing roller that is rotatably mounted in the cartridge and operatively connected to the coupling member. *Id.*, col. 84:19-26. Claim 6 requires that the casing have "an opening and at least one protrusion on an external portion . . . adjacent to the opening." *Id.*, col. 84:27-29. Claim 8 requires that the coupling member be capable of moving from a position that is coaxial to the axis of the photosensitive drum to an inclined position, wherein the maximum angle of inclination is about 20 degrees to about 60 degrees. *Id.*, col. 84:37-45.

G. '846 Patent

Canon is asserting claims 1 and 3 of the '960 patent against Respondents and is relying on claims 1 and 4 to satisfy the domestic industry requirement. Claim 1 is the sole independent claim. Claim 1 recites:

> A drum unit usable in a process cartridge, the drum unit comprising:
>
> a photosensitive drum having an axis L1;
>
> a drum flange provided at an end of the photosensitive drum, a part of the drum flange being positioned within the photosensitive drum; and
>
> a coupling member having an axis L2 and having (i) a first end at least a part of which is positioned within the drum flange and (ii) a second end including at least one projection,
>
> wherein the coupling member is movable between (i) a first position in which a tip of the at least one projection is a first distance away from the photosensitive drum as measured in the direction of the axis L1 and (ii) a second position in which the tip of the at least one projection is a second distance away from the photosensitive drum as measured in the direction of the axis L1, with the first distance being greater than the second distance,
>
> wherein the coupling member includes a first part, a second part, and a third part, with the second part being between the first part and the third part in a direction of the axis L2, and

> wherein, for each of the first part, the second part, and third part, a maximum distance from the axis L2 to an outermost surface of the coupling member as measured along a line perpendicular to the axis L2 is (i) D1 in the first part of the coupling member, (ii) D2 in the second part of the coupling member, and (iii) D3 in the third part of the coupling member, with the distances D1 and D3 being greater than the distance D2.

'846 patent, col. 84:20-50.

Claims 3 and 4 depend directly from claim 1. Claim 3 requires that a "maximum distance from the axis L2 to an outermost surface of at least a part of the second end [of the coupling member] as measured along a line perpendicular to the axis L2 increase[] as the distance along the axis L2 from the first end increases." *Id.*, col. 84:54-58. Claim 4 requires that the coupling member be capable of moving from a position that is coaxial to the axis of the photosensitive drum to an inclined position, wherein the maximum angle of inclination is about 20 degrees to about 60 degrees. *Id.*, col. 84:58-67.

IV. LEVEL OF ORDINARY SKILL IN THE ART

Canon contends that a person of ordinary skill in the art "would have had a level of knowledge roughly equivalent to that of a person holding a bachelor's degree in mechanical engineering and would have had a general understanding of mechanical design principles." CIB at 14. Canon further contends that the "person [of ordinary skill] also would have had about two years of experience in design work related to toner cartridges for laser printers, or would have had persons with such experience available to work with him." *Id.* Respondents argue that a person of ordinary skill "would have had either (1) a Bachelors degree in Mechanical Engineering or an equivalent degree, and 1-2 years of experience in design work related to technology involving the transmission of forces between components to maintain a consistent velocity, or (2) at least a Masters degree in Mechanical Engineering or an equivalent degree, and

a general understanding of mechanical design principles." RIB at 6-7. Staff counters that a person of ordinary skill in the art "would have had a level of knowledge roughly equivalent to at least a Bachelor's degree in mechanical engineering and/or an equivalent degree, and at least 2 years' experience in the field of designing, replacing, or repairing detachable cartridges for printers or similar apparatus." SIB at 3.

Although the parties have articulated different definitions of ordinary skill, they acknowledge that "none of the claim construction disputes depend upon the specific articulation of the level of skill in the art, and that . . . addressing the differences between the parties' proposals is not necessary at this time." SIB at 4; *see also* CIB at 15; RIB at 7. Accordingly, this order does not address the appropriate level of ordinary skill.

V. LEGAL STANDARD

"The construction of claims is simply a way of elaborating the normally terse claim language[] in order to understand and explain, but not to change, the scope of the claims." *Embrex, Inc. v. Serv. Eng'g Corp.*, 216 F.3d 1343, 1347 (Fed. Cir. 2000) (alterations in original) (quoting *Scripps Clinic v. Genentech, Inc.*, 927 F.2d 1565, 1580 (Fed. Cir. 1991)). "[O]nly those [claim] terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy." *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

Claim construction focuses mainly on the intrinsic evidence, which consists of the claims themselves, the specification, and the prosecution history. *See generally Phillips v. AWH Corp.*, 415 F.3d 1303, 1313-17 (Fed. Cir. 2005) (*en banc*). The words of a claim "'are generally given their ordinary and customary meaning,'" which is "the meaning that the term would have to a person of ordinary skill in art" as of the date that the patent application was filed. *Id.* at 1312-13 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). A person

of ordinary skill in the art "is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.* In some cases, "the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges." *Id.* at 1314. Often, however, "determining the ordinary and customary meaning of the claim requires examination of terms that have a particular meaning in a field of art." *Id.* "[T]he court looks to 'those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean.'" *Id.* (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)). Those sources include "the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art." *Id.*

"It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Id.* at 1312 (quoting *Innova/Pure Water*, 381 F.3d. at 1115). "Quite apart from the written description and the prosecution history, the claims themselves provide substantial guidance as to the meaning of particular claim terms." *Id.* at 1314. For example, "the context in which a term is used in the asserted claim can be highly instructive," and "[o]ther claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term." *Id.*

"[T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Id.* at 1315 (quoting *Vitronics*, 90 F.3d at 1582). "The longstanding difficulty is the contrasting nature of the axioms that (a) a claim must be read in view of the specification and (b) a court may not

read a limitation into a claim from the specification." *Innova/Pure Water*, 381 F.3d at 1117.

In addition to the claims and the specification, the prosecution history should be examined if in evidence. "The prosecution history . . . consists of the complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent. Like the specification, the prosecution history provides evidence of how the PTO and the inventor understood the patent." *Id.* at 1317. "[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." *Id.*

If the intrinsic evidence does not establish the meaning of a claim, then extrinsic evidence may be considered. Extrinsic evidence "consists of all evidence external to the patent and the prosecution history, including inventor and expert testimony, dictionaries, and learned treatises." *Id.* at 1317. Extrinsic evidence is generally viewed "as less reliable than the patent and its prosecution history in determining how to read claim terms." *Id.* at 1318. "The court may receive extrinsic evidence to educate itself about the invention and the relevant technology, but the court may not use extrinsic evidence to arrive at a claim construction that is clearly at odds with the construction mandated by the intrinsic evidence." *Elkay Mfg. Co. v. Ebco Mfg. Co.*, 192 F.3d 973, 977 (Fed. Cir. 1999).

The court departs from the plain and ordinary meaning in only two instances. *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014). The first is when a patentee acts as its own lexicographer. *Id.* "To act as its own lexicographer, a patentee must 'clearly set forth a definition of the disputed claim term.'" *Thorner v. Sony Comput. Entm't Am.*, 669 F.3d 1362, 1365 (Fed. Cir. 2012) (*quoting CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366

(Fed. Cir. 2002)). The second is when the patentee disavows the full scope of the claim term. *Id.* Disavowal can be effectuated by language in the specification or the prosecution history. *See Phillips*, 415 F.3d at 1316–17. "In either case, the standard for disavowal is exacting, requiring clear and unequivocal evidence that the claimed invention includes or does not include a particular feature." *Poly-America, L.P. v. API Indus., Inc.*, 839 F.3d 1131, 1136 (Fed. Cir. 2017).

VI. CLAIM CONSTRUCTION

The parties have agreed to constructions for the following terms:

Claim Term	Agreed-Upon Construction
"as measured in the direction of the axis L1" (claims 1 and 6 of the '826 patent; claims 1 and 8 of the '021 patent; claims 1 and 27 of the '729 patent; claims 7 and 20 of the '764 patent; claims 1 and 13 of the '765 patent; claim 1 of the '960 patent; and claim 1 of the '846 patent)	"as measured along an imaginary extension of axis L1 or an imaginary line parallel thereto"
"when the coupling member takes the first position" (claim 6 of the '826 patent)	"when the coupling member is in the first position, wherein 'first position' has the same meaning that it has in term 1"

CIB at 14-15. The parties, however, dispute the constructions of the following five terms: (1) "wherein the coupling member is movable between (i) a first position in which a tip of the at least one projection is a first distance away from the photosensitive drum as measured in the direction of the axis L1 and (ii) a second position in which the tip of the at least one projection is a second distance away from the photosensitive drum as measured in the direction of the axis L1" ("'movable' limitation"); (2) "axis L2;" (3) "connected;" (4) "[a coupling member having/including] a first end [portion] at least a part of which is positioned within the drum flange;" and (5) "at least one projection that is open to the axis L2." The parties' disputes regarding these terms are addressed below.

A. "movable" limitation

Canon's Proposed Construction	Respondents' Proposed Construction	Staff's Proposed Construction
This term has its plain and ordinary meaning and no construction is necessary. The plain and ordinary meaning does not require the coupling member to pivot or incline when moving between the first and second positions. The plain and ordinary meaning also does not require the claimed "first position" to be "a substantially co-axial engaged position" and the claimed "second position" to be "an inclined pre-engagement position or disengagement position."	wherein the coupling member is pivotable between (i) a substantially co-axial engaged position in which a tip of the at least one projection is a first distance away from the photosensitive drum (as measured along L2 which is substantially in line with L1) and (ii) one of an inclined pre-engagement position or disengagement position in which the tip of the at least one projection is a second distance away from the photosensitive drum (as measured along imaginary extended L1 because L2 is no longer coaxial)	wherein the coupling member is movable between (i) a substantially co-axial engaged position in which a tip of the at least one projection is a first distance away from the photosensitive drum (*e.g.* measure along L2 which is substantially in line with L1) and (ii) one of an inclined pre-engagement position or disengagement position, in which a tip of the at least one projection is a second distance away from the photosensitive drum (*e.g.* measure along imaginary extended L1 because L2 no longer co-axial)

The asserted independent claims require a coupling member that is "movable" between "a first position in which a tip of the at least one projection is a first distance away from the photosensitive drum as measured in the direction of the axis L1" and "a second position in which the tip of the at least one projection is a second distance away from the photosensitive drum as measured in the direction of the axis L1." '826 patent, col. 84:20-28 (claim 1), col. 85:8-15 (claim 6); '021 patent, col. 84:29-37 (claim 1), col. 85:34-43 (claim 8); '729 patent, col. 84:44-52 (claim 1), col. 88:24-31 (claim 27); '764 patent, col. 85:30-38 (claim 7), col. 87:8-16 (claim 20); '765 patent, col. 83:50-54 (claim 1), col. 86:17-25 (claim 13); '960 patent, col. 83:53-61 (claim 1); '846 patent, col. 84:30-38 (claim 1). The "movable" limitation further requires that the "first distance" be greater than the "second distance." *Id.* Under the proposed constructions advanced by Respondents and Staff the "first position" is "a substantially co-axial engaged

position," and the second positon is "one of an inclined pre-engagement position or disengagement position." Respondents' proposed construction also replaces the word "movable" with "pivotable." While Staff's proposed construction retains the word "movable," Staff acknowledges that its proposed construction "inherently captures the notion of a pivoting coupling member." SIB at 44. Canon argues that the claim language is clear on its face and Respondents' and Staff's proposed constructions improperly import limitations from the preferred embodiments into the claim language.

Respondents and Staff offer two arguments in support of their proposed constructions. The first argument is that their proposed constructions reflect the plain and ordinary meaning of the terms "movable" (Respondents) and "first position" and "second position" (Respondents and Staff) in the context of the specification. The second argument is that the patentees limited the scope of the claims through disavowal or disclaimer. Respondents' and Staff's arguments are addressed below.

1. The plain and ordinary meaning of the terms "first position," "second position," and "movable" do not support Respondents' and Staff's proposed constructions.

a. "first position" and "second position"

The claims require a coupling member that is "movable" between two positions: a "first position" and a "second position." The only restriction that the claim language places on the first and second positions relates to the distance between the tip of a projection on the coupling member's end and the photosensitive drum. When the coupling member is in the "first position," the tip of the projection must be a "first distance" from the photosensitive drum and when the coupling member is in the second position, the tip of the projection must be a "second distance" from the photosensitive drum, wherein the "first distance" is greater than the "second distance." In contrast, Respondents' and Staff's proposed constructions seek to further limit the

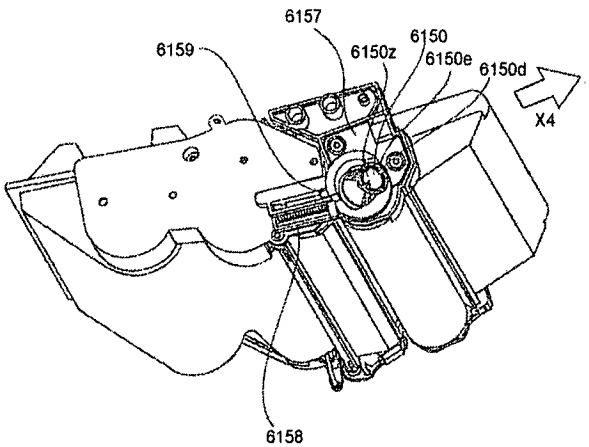
"first position" to an "engaged position" in which the coupling member's axis is "substantially co-axial" to the drum shaft's axis and the "second position" to a "pre-engagement position or disengagement position" in which the coupling member's axis is inclined with respect to the drum shaft's axis.

Respondents' and Staff's argument that their proposed constructions of "first position" and "second position" reflect the terms' plain and ordinary meaning in the context of the specification is unpersuasive. The terms do not even appear in the specification. Instead of using the term "first position" to refer to the engagement position, the specification uses the term "rotational force transmitting angular position." '826 patent, col. 16:39-44. Similarly, instead using of the term "second position" to refer to the "pre-engagement position" or the "disengagement position," the specification uses the terms "pre-engagement angular position" and "disengaging angular position." *Id.*

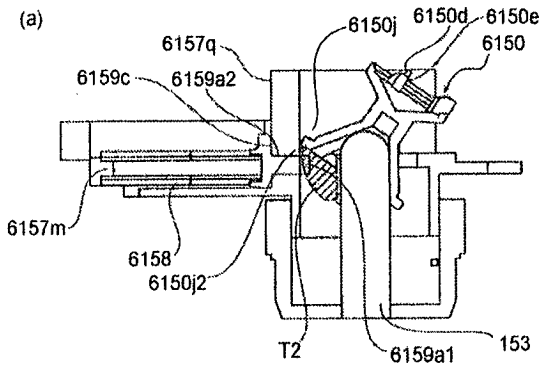
b. The plain and ordinary meaning of "movable" is not limited to "pivotable."

Respondents' proposed construction construes "movable" to mean "pivotable." This construction of "movable" does not reflect the term's plain and ordinary meaning. "When given its plain and ordinary meaning, "movable" only requires that the coupling member be capable of moving. Merriam-Webster's Collegiate Dictionary (9th ed. 1984) at 776 (defining "movable" as "capable of being moved"). This usage is consistent with the claim language. The claims require that the coupling member be movable between a "first position" and "second position," wherein the distance between the tip of a projection on the end of the coupling member and the drum is greater when the coupling member is in the first position. '826 patent, col. 84:20-28. The express claim language can be satisfied by a coupling member that moves coaxial to the drum shaft's axis, as well as by a coupling member that moves between a position coaxial to the drum shaft's axis and a position inclined with respect to the drum shaft's axis.

Nor does the specification suggest that "movable" carries a different plain and ordinary meaning. Consistent the term's plain and ordinary meaning, "movable" is used in the specification to refer to non-pivoting movement. In particular, the specification uses "movable" to describe locking member 6159 used in Embodiment No. 8. Embodiment No. 8 has a drum bearing member 6157, locking member 6159, and spring member 6158. '826 patent, col. 52:54-56.

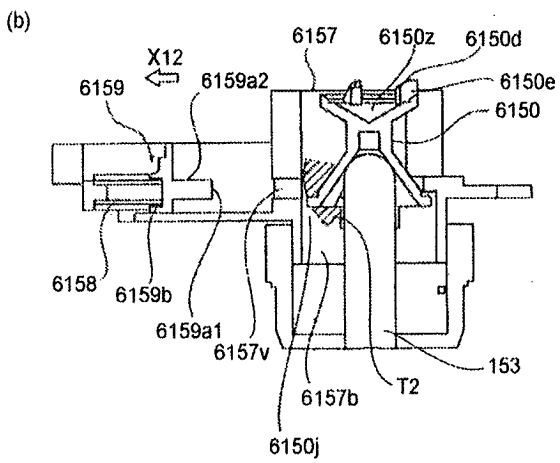


Id., Fig. 63. In order to lock the coupling member in an inclined position when the process cartridge is not mounted in the printer, spring member 6158 pushes locking member 6159 against drum flange member 6157. *Id.*, col. 53:15-18. Pressed against drum flange member 6157, locking member 6159 engages with an opening in drum flange member 6157 so that a portion 6159a1 of locking member 6159 projects into space portion 6157b of the drum flange member 6157. *Id.*, col. 52:59-53:19.



Id., Fig. 65(a). So engaged, the locking member prevents the coupling member from pivoting from its inclined position. *Id.*, col. 53:19-24.

As the process cartridge is inserted in the printer, locking member 6159 retracts in direction X12 so that it no longer projects into the space portion of drum flange member 6157. *Id.*, col. 53:60-64.



Id., Fig. 68b. With locking member 6159 no longer projecting into the space of drum flange 6157, coupling member 6150 is able to pivot and come into alignment with drum shaft 153. *Id.*, col. 53:64-67. According to the specification, locking member 6159 is "movable" in the mounting direction X4 so that it can engage with drum flange 6157 and "moves" in the direction

X12 in order to retract from drum flange 6157. *Id.*, col. 53:3-6, col. 53:22-24. As shown in Figures 64a-d, "movable" locking member 6159 does not pivot, but rather slides axially towards and away from the drum flange member 6157.

In contrast to its description of locking member 6159, the specification does not use the term "movable" to describe the coupling member's ability to move to or from an inclined position. Rather, the specification describes the coupling member using such words as "pivotable," "slantable," "inclinable," "revolvable," and "swingable." *See, e.g.*, '826 patent, col. 19:31-32 ("It has been mentioned that the axis L2 [of the coupling member] is slantable or inclinable in any direction relative to the axis L1 [of the photosensitive drum's shaft]."), col. 19:44-49 ("In this manner, the coupling 150 is revolvable or swingable over the full-circumference substantially relative to drum shaft (rotational force receiving member) 153. More particularly, the coupling 150 is pivotable over the full circumference thereof substantially relative to the drum shaft 153."), col. 28:33-35 ("In addition, as shown in FIG. 22, the gap is provided between the drum shaft 153 and the coupling 150, so that the coupling is swingable (revolvable, pivotable)."), col. 29:29-30 ("The coupling 150 is swingable (pivotable) relative to the photosensitive drum 107."). Similarly, the specification does not describe the coupling member as simply moving to or from an inclined position, but rather as "pivoting" or "swinging" to or from an inclined position. *See, e.g.*, '826 patent, col. 29:60-64 ("By this, the coupling can receive the force of the shaking direction (pivoting direction), and it can also be made to swing so that the axis L2 becomes substantially co-axial with the axis L3 (the pivoting)."); col 54:34-37 ("More particularly, the coupling 6150 is pivoted to the disengaging angular position from the rotational force transmitting angular position (swinging).").

2. The patentees disavowed claim scope.

Although "[t]he words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art when read in the context of the specification and prosecution history," there are two exceptions: lexicography and disavowal. *Thorner*, 669 F.3d at 1365 (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313-14 (Fed. Cir. 2005) (en banc)). Respondents and Staff do not argue that the patentees redefined claim terms to mean something other than their plain and ordinary meaning, as is required for lexicography, but argue that the patentees' disavowed claim scope. If a "patentee disavows the full scope of a claim term either in the specification or during prosecution," the disavowed feature is "'deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.'" *Id.* (quoting *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1341 (Fed. Cir. 2001)). Claim scope can be disavowed implicitly, as well as explicitly. *Trustees of Columbia Univ. in City of New York v. Symantec Corp.*, 811 F.3d 1359, 1363 (Fed. Cir. 2016) ("Our case law does not require explicit redefinition or disavowal."). Whether implicit or explicit, the disavowal must be clear and unmistakable. *Aventis Pharma S.A. v. Hospira, Inc.*, 675 F.3d 1324, 1330 (Fed. Cir. 2012) ("[T]o disavow claim scope, '[t]he patentee may demonstrate intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.'" (quoting *Thorner*, 669 F.3d at 1366).

The specification describes the "present invention" as having a coupling member that can pivot: "As has been described hereinbefore, in the present invention, the axis of the drum coupling member can take the different angular positions relative to the axis of the photosensitive drum." '826 patent, col. 83:43-47. Descriptions of the "present invention" have

been found to constitute disavowals of claim scope. For instance, the Federal Circuit has found disavowal where a patentee uses language "such as 'the present invention requires . . .' or 'the present invention is . . .' or 'all embodiments of the present invention are . . .'" to describe the disclosed invention. *Hill-Rom*, 755 F.3d at 1372 (citing *Regents of Univ. of Minn. v. AGA Med. Corp.*, 717 F.3d 929, 936 (Fed. Cir. 2013)); *Honeywell Int'l, Inc. v. ITT Indus., Inc.*, 452 F.3d 1312, 1316-19 (Fed. Cir. 2006); *SciMed*, 242 F.3d at 1343-44; *AstraZeneca AB v. Hanmi USA, Inc.*, 554 Fed. Appx. 912, 915 (Fed. Cir. 2013) (nonprecedential)). Statements clearly indicating that a feature is an important or necessary part of the "present invention" also have been found to constitute disclaimer. *Id.* ("We found disclaimer when the specification indicated that the invention operated by 'pushing (as opposed to pulling) forces,' and then characterized the 'pushing forces' as 'an important feature of the present invention.'") (quoting *SafeTCare Mfg., Inc. v. Tele–Made, Inc.*, 497 F.3d 1262, 1269–70 (Fed.Cir.2007)).[7]

[7] As Canon notes, the description of the "present invention" as containing a particular feature does not always constitute a clear statement of disavowal. For instance, in *Rambus Inc. v. Infineon Tech. AG*, the Federal Circuit found that two statements describing the "present invention" as having a multiplexed bus did not disclaim non-multiplexing buses. 318 F.3d 1081. 1094-95 (Fed. Cir. 2003). *Rambus*, however, is readily distinguishable from the instant case. In *Rambus*, the Federal Circuit noted that while the descriptions of the "present invention" "may suggest some limitation of 'bus' to multiplexing bus, the remainder of the specification and prosecution history shows that Rambus did not clearly disclaim or disavow claim scope in this case." *Id.* The Federal Circuit placed particular emphasis on the prosecution histories of the '898 application, the original application to which the asserted patents claimed priority, and the '580 patent, a grandparent to two of the asserted patents. *Id.* at 1095. One of the original claims of the '898 application did not require a multiplexing bus, whereas other original claims did. *Id.* In addition, during the prosecution of the '580 patent, the examiner issued a restriction requirement requiring the patentees to limit prosecution to one of two groups of claims: a multiplexing bus group and a "latency invention group." *Id.* According to the examiner, the latency invention group of claims did not require a multiplexing bus, whereas the multiplexing bus group of claims did. *Id.* In response to the restriction requirement, the patentees elected to limit prosecution to the latency invention group of clams. *Id.* With the prosecution limited to the latency invention group of claims, the '580 patent eventually issued with claims reciting a "bus." *Id.* Unlike *Rambus*, Canon has not pointed to anything in the prosecutions of the priority

Canon argues that the statement describing the "present invention" should be interpreted to mean that "the angular position of the coupling member axis can be different across the many disclosed embodiments," not that the coupling member of the disclosed invention is pivotable. CRB at 7-8. This argument is unpersuasive. The specification discloses 19 embodiments, and in the context of Embodiment No. 19 provides a clear description of the coupling members used in all of the embodiments. Teaching that the "couplings of the embodiments described above [*i.e.*, Embodiment Nos.1-18]" can be used in Embodiment No. 19, the specification describes the coupling members in the previously described embodiments accordingly:

> The coupling is pivoted from the pre-engagement angular position to the rotational force transmitting angular position in response to moving the cartridge B in the direction substantially perpendicular to the axis L1. . . .
>
> * * *
>
> When the process cartridge is dismounted from the main assembly of the electrophotographic image forming apparatus, the coupling member pivots from the rotational force transmitting angular position to the disengaging angular position . . . .

'826 patent, col 78:63-79:35; *see also id.*, col. 78:40-59. The specification's statement that, "in the present invention, the axis of the drum coupling member can take the different angular positions relative to the axis of the photosensitive drum" is a clear reference to the disclosed coupling members, which can pivot between different angular positions. '826 patent, col. 83:43-47.

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applications that would support finding that the patentees' description of the "present invention" was not a disavowal of claim scope. *Id.* With regard to the specification in *Rambus*, the Federal Circuit found that, other than the two descriptions of the "present invention," the specification used the term "bus" consistent with its plain and ordinary meaning, a meaning which encompassed both non-multiplexing buses and multiplexing buses. *Id.* In contrast, in the instant case, every coupling member disclosed in the specification is a pivotable coupling member.

In support of its interpretation of the specification's description of the "present invention," Canon argues that "[i]n some embodiments (*e.g.*, Embodiment 1) the angular position of the coupling member axis is different than it is in other embodiments (*e.g.*, Embodiment 13). CRB at 7-8 (citing '765 patent at 62:41-63:24, FIG. 88(a), (c)). Canon's argument is based on an inaccurate description of the disclosed embodiments. Each of the coupling members disclosed in the specification is capable of moving between different angular positions: a rotational force transmitting angular position, a pre-engagement angular position, and a disengaging angular position. *See, e.g.*, '826 patent, col. 78:63-79:35. Although the specification teaches that different embodiments of the coupling member can have different pre-engagement angular positions or different disengagement angular positions, all of the embodiments have the same engaged position ("rotational transmitting angular position"). In the engaged position, the coupling member's axis is substantially coaxial to the drum shaft's axis. *See, e.g.,* '826 patent, col. 80:12-14 ("When the coupling is in the rotational force transmitting angular position, the axis L2 and the axis Ll are substantially coaxial."). Therefore, if the patentees intended to describe the "present invention" as having coupling members with different pre-engagement angular positions and disengagement angular positions, they would not have described the couplings as having "different angular positions," but as having "different inclined angular positions."

Canon also argues that the use of the word "can" in the description of the "present invention" indicates that the coupling members' ability to pivot between different angular positions is an optional feature rather than a mandatory feature. CRB at 8. Although Canon is correct that in certain contexts the word "can" indicates that a feature is optional, in the context of these patents it is clear that the phrase "can take the different angular positions relative to the

axis of the photosensitive drum" refers to coupling member's ability to pivot, not that the ability to pivot is an optional feature. In particular, after describing 19 embodiments, each of which employs a coupling member that can pivot to different angular positions, in a section entitled "Other Embodiments," the specification discusses other ways of potentially implementing the claimed invention. In this section, the specification describes possible variations to the disclosed embodiments that would fall within the confines of the invention. Such variations include cartridges that have mounting and demounting paths that do not "extend[] in slanted or non-slanted up-down direction relative to the drive shaft" of the printer and cartridges capable of printing in color. *Id.*, col. 80:31-49. With regard to the coupling member, the specification not only does not teach that a non-pivoting coupling member can be used in the cartridge, it expressly states that the cartridge's coupling member has to be capable of pivoting: "[I]n the present invention, the axis of the drum coupling member can take the different angular positions relative to the axis of the photosensitive drum." *Id.*, col. 83:43-47.

Canon further argues that the weight given to the specification's description of the "present invention" should be discounted because the description does not appear in the "Summary of the Invention" section of the specification. Tr. at 27:20-28:2. Canon has not pointed to any legal support for this argument. If anything, the description's location in the specification gives it greater weight, not less. As discussed above, the description of the present invention is recited immediately after the specification's detailed disclosure of 19 embodiments, each of which has a pivotable coupling member that allows the process cartridge to be mounted and demounted from the printer. That the description of the "present invention" occurs immediately after the descriptions of the 19 embodiments, in a section entitled "Other

Embodiments," emphasizes that the description is not a description of a particular embodiment, but of the invention as a whole.

Interpreting the specification as disavowing non-pivoting coupling members is consistent with the statements of Canon's own expert in the 918 investigation concerning the patentees' invention. As discussed above, *supra* § II(B), three of the patents asserted by Canon in the 918 investigation—the '278, '564, and '215 patents—have the same specification as the patents asserted in this investigation. Moreover, all of the asserted patents in this investigation claim priority to the '278 patent. In his rebuttal expert report in the 918 investigation, Canon's expert describes the patentees' invention as a pivotable coupling member located on the process cartridge:

> The Canon inventors were looking for a way to engage a cartridge with a printer drive shaft in a direction perpendicular to the drive shaft's axis of rotation, without having to provide a mechanism in the printer for moving the printer drive shaft toward the cartridge when the printer cover is opened and closed, or, in the case of color printers, when a cartridge in a carousel is rotated into position. ***Their solution was a coupling member that is maximally inclined just prior to engagement with the printer drive shaft, and that pivots to be coaxial with the drive shaft as the coupling member and drive shaft become fully engaged.*** To my knowledge, and based on my review of the prior art, no one before Canon had used a pivotable coupling on a cartridge to engage a printer drive shaft . . . .

918 investigation, Rebuttal Report of Dr. Lux (Nov. 7, 2014), ¶ 5 (emphasis added).

Canon argues that its expert's statements from the 918 investigation are not relevant because the claims at issue in the 918 investigation explicitly required a coupling member that pivots, whereas the independent claims at issue in this investigation do not. Tr. at 32:17-33:4. Canon's expert, however, is not discussing a particular claim, but rather is describing what was actually invented, as described in the specification. *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 323

F.3d 956, 975 (Fed. Cir. 2002) ("The description of the invention has always been the foundation of the patent specification. It sets forth what has been invented, and sets boundaries of what can be claimed.") (Newman, concurring). Extending a patent "monopoly beyond the invention disclosed" is an "impermissible result." *Medicines Co. v. Mylan, Inc.*, 853 F.3d 1296, 1305 (Fed. Cir. 2017) (quoting *General Elec. Co. v. Wabash Appliance Corp.*, 304 U.S. 364, 371 (1938)) (internal quotation marks omitted).

3. Respondent's and Staff's proposed constructions are unduly narrow.

Although I find that the patentees disavowed non-pivoting coupling members, Respondents' and Staff's proposed constructions are unduly narrow because they require the "first position" to be the "substantially co-axial engaged position" and the "second position" to be "one of an inclined pre-engagement position or disengagement position." These requirements are inconsistent with the dependent claims and the prosecution histories of the '021, '729, and '765 patents.

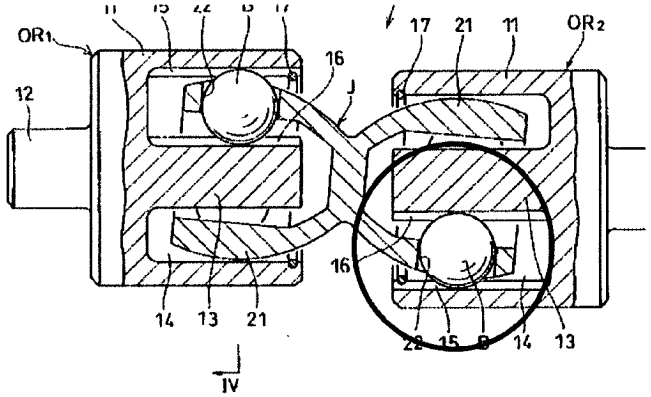
Under Respondents' and Staff's proposed constructions, the coupling member is required to be able to move between a position where its axis is coaxial to that of the drum shaft and a position where the coupling member's axis is inclined with respect to the drum shaft's axis. These very limitations, however, are recited in dependent claims, not the independent claims. The dependent claims require that the coupling member be "movable between (i) a position in which the axis L2 of the coupling member is coaxial with the axis L1 of the photosensitive drum and (ii) an inclined position in which the axis L2 of the coupling member is inclined with respect to the axis L1 of the photosensitive drum." '826 patent, col. 84:45-53 (claim 5); *see also* '021 patent, col. 84:6-col. 85:6 (claim 6); '729 patent, col. 85:14-22 (claim 7), col. 88:49-58 (claim 31); '764 patent, col. 85:58-67 (claim 12), col. 88:22-30 (claim 22); '765 patent, col. 86:45-53 (claim 18); '960 patent, col. 37-45 (claim 8); '846 patent, col. 84:59-67 (claim 4). The

limitations in the dependent claims are rendered superfluous by the Respondents' and Staff's proposed construction, which is a disfavored result. *See Merck & Co., Inc. v. Teva Pharm. USA, Inc.*, 395 F.3d 1364 (Fed. Cir. 2005) ("A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.").

Furthermore, the prosecution histories of the '021, '729, and '765 patents shows that the "first position" can be the position in which the coupling member is inclined with respect to the drum's axis and the "second position" can be the position in which the coupling member's axis is co-axial to the drum shaft's axis. During the prosecutions of the patents, the examiner rejected pending claims as being anticipated by Japanese Patent Application 2006-163232 to Ohashi *et al.* ("Ohashi"). Among the rejected application claims were claims that would eventually mature into claims asserted in this investigation. Ex. 8 at CAN0003937-38 (rejecting application claim 184, which eventually issued as claim 1 of the '021 patent), CAN0003939-40 (rejecting application claim 191, which eventually issued as claim 8 of the '021 patent), and CAN0003941-42 (rejecting application claim 199, which eventually issued as claim 18 of the '021 patent); Ex. 9 at CAN0008855-56 (rejecting application claim 184, which eventually issued as claim 1 of the '729 patent) and CAN0008856-57 (rejecting application claim 198, which eventually issued as claim 18 of the '729 patent); Ex. 10 at CAN0012273-74 (rejecting application claim 184, which eventually issued as claim 1 of the '765 patent), CAN0012275-76 (rejecting application claim 186, which eventually issued as claim 4 of the '765 patent), and CAN0012277-78 (rejecting application claim 194, which eventually issued as claim 13 of the '765 patent).[8]

[8] Relevant portions of the prosecution histories of the '021, '729, and '765 patents are attached to Canon's initial brief as exhibits 8, 9, and 10, respectively.

The examiner rejected application claims containing the "movable" limitation finding that the limitation was disclosed by joint J in Figure 3 of Ohashi.



CIB, Ex. 8 at CAN004101 (annotated). To determine whether Ohashi satisfied the "first position" and "second position" requirements, the examiner relied on the ball-shaped projection B circled in red as the "at least one projection." Because the distance between the end of projection B and the photosensitive drum is greater when joint J is inclined with respect to the drum shaft's axis than it is when joint J is co-axial to the drum shaft's axis, *id.* at CAN003938; CIB, Ex. 9 at CAN0008855-56; CIB, Ex. 10 at CAN0012274, the examiner could not find that the coupling member was in the "first position" when its axis was co-axial to that of the drum shaft. Instead, the examiner found that joint J was in the "first position" when its axis was inclined with respect to the drum shaft's axis and was in the "second position" when its axis was co-axial to the drum shaft's axis. CIB, Ex. 8 at CAN003938; CIB, Ex. 9 at CAN0008855-56 (same); CIB, Ex. 10 at CAN0012274 (same).

Accordingly, Respondents' and Staff's proposed constructions requiring the "first position" to be the "substantially co-axial engaged position" and the "second position" to be "one of an inclined pre-engagement position or disengagement position" must be rejected. The patentees' disavowal only requires that the first position and second position be different angular positions. '826 patent, col. 83:43-47 ("[I]n the present invention, the axis of the drum coupling

member can take the different angular positions relative to the axis of the photosensitive drum."). Accordingly, I find that the term "wherein the coupling member is movable between (i) a first position in which a tip of the at least one projection is a first distance away from the photosensitive drum as measured in the direction of the axis L1 and (ii) a second position in which the tip of the at least one projection is a second distance away from the photosensitive drum as measured in the direction of the axis L1" requires a coupling member that is "movable between (i) a first ***angular*** position in which a tip of the at least one projection is a first distance away from the photosensitive drum as measured in the direction of the axis L1 and (ii) a second ***angular*** position in which the tip of the at least one projection is a second distance away from the photosensitive drum as measured in the direction of the axis L1." This construction is consistent with the scope of the patentees' disavowal, as well as the language of the dependent claims and prosecution histories of the '021, '729, and '765 patents.

B. "axis L2"

Canon's Proposed Construction	Respondents' Proposed Construction	Staff's Proposed Construction
This term has its plain and ordinary meaning and no construction is necessary. The plain and ordinary meaning does not require axis L2 to be inclinable relative to axis L1. Alternatively: an imaginary line about which the coupling member is rotatable	axis along the center of the coupling member that inclines in relation to L1 during pre-engagement and disengagement	axis along center of the coupling member that inclines in relation to L1 during pre-engagement and disengagement

The asserted independent claims require that the coupling member have an "axis L2." '826 patent, col. 84:9-19 (claim 1), col. 84:63-col. 85:7 (claim 6); '021 patent, col. 84:18-28 (claim 1), col. 85:24-30 (claim 8); '729 patent, col. 84:34-44 (claim 1), col. 88:6-17 (claim

27); '764 patent, col. 85: 19-29 (claim 7), col. 86:61-col. 87:2 (claim 20); '765 patent, col. 83:43-49 (claim 1), col. 86:6-12 (claim 13); '960 patent, col. 83:49-52 (claim 1); '846 patent, col. 84:26-29 (claim 1).[9] The claims do not expressly place any requirements on "axis L2" other than that it be the axis of the coupling member. The term "L2" is used in the claims to distinguish the axis of the coupling member from the drum's axis (axis L1). *See, e.g.*, RIB at 16 ("The "asserted claims plainly distinguish between axis L1 and axis L2: L1 is the axis of a photosensitive drum, while L2 is the axis of the coupling member.").

In contrast to the clear claim language, Respondents' and Staff's proposed constructions require axis L2 to "incline[] in relation to [axis] L1 during pre-engagement and disengagement." In support of their construction, Respondents advance the same disavowal argument that they advanced with respect to the "movable" limitation: all of the disclosed embodiments use a pivoting coupling member and the patentees described the "present invention" as having a pivotable coupling member. Although I found that the claims require a pivotable coupling member as a result of the patentees' disavowal of claim scope, this disavowal is captured in my construction of the first term and does not need to be added to the construction of "axis L2."

In support of its construction, Staff argues that the patentees acted as their own lexicographers and defined the axis L2 to be the axis that inclines relative to the photosensitive drum's axis (axis L1). According to Staff, the patentees so defined axis L2 in this section of the specification:

> The axis Ll is an axis of rotation of the photosensitive drum.

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[9] The term "axis L2" also appears in certain of the asserted dependent claims. '826 patent, col. 84:45-53 (claim 5); '021 patent, col. 84:6-col. 85:6 (claim 6); '729 patent, col. 85:14-22 (claim 7), col. 88:49-58 (claim 31); '764 patent, col. 85:58-67 (claim 12), col. 88:22-30 (claim 22); '765 patent, col. 86:45-53 (claim 18); '960 patent, col. 37-45 (claim 8); '846 patent, col. 84:59-67 (claim 4).

> The axis L2 is an axis of rotation of the coupling.
>
> The axis L3 is an axis of rotation of the driving shaft.
>
> The whirling motion is not a motion with which the coupling itself rotates about the axis L2, but the inclined axis L2 rotates about the axis Ll of the photosensitive drum, although the whirling here does not preclude the rotation of the coupling per se about the axis L2 of the coupling 150.

'826 patent, col. 82:20-28.

The portion of the specification relied upon by Staff expressly defines "axis L2" as "an axis of rotation of the coupling." This definition is fully consistent with the express claim language and does not require axis L2 to incline during pre-engagement or disengagement operations. Staff argues that "axis L2" is further defined in the description of the "whirling motion:" "The whirling motion is not a motion with which the coupling itself rotates about the axis L2, but the inclined axis L2 rotates about the axis Ll of the photosensitive drum . . . ." *Id.*, col. 82:24-28. The claims, however, do not require that the coupling member be capable of performing a "whirling motion." The description of the "whirling motion" does not mention the coupling member's pre-engagement position or disengagement position, and there is no indication that the "whirling motion" has any relationship to the coupling member's pre-engagement position or disengagement position.

Accordingly, I reject Respondents' and Staff's proposed constructions and find, consistent with the claim language and the specification, that "axis L2" means "an axis of rotation of the coupling [member]." '826 patent, col. 82:22.

C. "connected"

Canon's Proposed Construction	Respondents' Proposed Construction	Staff's Proposed Construction
This term has its plain and ordinary meaning and no construction is necessary. The plain and ordinary meaning does not require the coupling member to be connected to the photosensitive drum in a manner that allows the coupling member to incline relative to the drum.	connected [to the drum] in a manner that enables the claimed movement between co-axial and inclined positions	Plain and ordinary meaning, which here is "connected in a manner that enables the claimed movement between co-axial and inclined positions."

The asserted independent claims of the '826 patent require that the coupling member's "first end portion [be] connected to the photosensitive drum." '826 patent, col. 84:9-11 (claim 1); *see also id.*, col. 84:63-65 (claim 6). The asserted independent claims of the '021, '729, and '765 patents and claim 7 of the 764 patent require that the coupling member be "operatively connected" either to the photosensitive drum ('729 patent, '764 patent) or to both the photosensitive drum and the developing roller ('021 patent." '021 patent, col. 84:18-22 (claim 1), col. 85:24-26 (claim 8); '729 patent, col. 84:34-36 (claim 1), col. 88:6-11 (claim 27); '764 patent, col. 85: 19-21 (claim 7); '765 patent, col. 83:43-45 (claim 1); col. 84:22-24 (claim 4), col. 86:6-9 (claim 13). Both Canon and Staff argue that the term "connected" has a plain and ordinary meaning and that no construction is necessary. CIB at 24-26; SIB at 47 n. 16. Respondents argue that the term "connected" should be interpreted to mean "connected [to the drum] in a manner that enables the claimed movement between co-axial and inclined positions."

In support of their construction, Respondents argue that "[a] connection that allows the coupling to incline between the first and second positions is required in order to accomplish the pivoting motion that is at the heart of Canon's alleged invention which, as described, is a

coupling member that is pivotable." CIB at 19. In other words, because the claims require a pivoting coupling member, the connection between the coupling member and the photosensitive drum must allow the coupling member to pivot. As discussed above, the "movable" limitation—in view of the patentees' disavowal of claim scope—requires a coupling member that can move between a first angular position and a second angular position, *i.e.*, to pivot between two positions. A connection that does not allow the coupling member to move between a first angular position and a second angular position would result in an apparatus that does not satisfy the "movable" limitation. It therefore would be inappropriate to import the requirement of a pivotable coupling member into the word "connected." SIB at 47 n. 16 ("While the Respondents and Staff agree as to this terminology, the Staff is of the view that this terminology reflects the plain and ordinary meaning of the term in the context of the claim, which including Staff's proposed construction for Disputed Term 1. Thus, the Staff does not believe that the word 'connected' requires a construction."). Moreover, in their initial brief, Respondents acknowledge that "connected" only requires that the coupling member be "joined, either directly or indirectly, to a photosensitive drum." RIB at 20.

Based on the foregoing, I find that the term "connected" does not need to be construed and that it should be given its plain and ordinary meaning.

D. "[a coupling member having/including] a first end [portion] at least a part of which is positioned within the drum flange"

Canon's Proposed Construction	Respondents' Proposed Construction	Staff's Proposed Construction
This term has its plain and ordinary meaning and no construction is necessary. The reference to "axis L2" in Respondents' and Staff's proposed constructions is not appropriate.	[a coupling member having/including] a first end [portion] where at least a part of the first end portion of the coupling member, which has an axis L2 (as defined above), is positioned within the drum flange	plain and ordinary meaning (*e.g.* [a coupling member having/including] a first end [portion] where at least a part of the first end portion of the coupling member, which has an axis L2 (as defined above), is positioned within the drum flange)

Claim 1 of the '021 patent, claim 27 of the '729 patent, claim 20 of the '764 patent, claim 1 of the '960 patent, and claim 1 of the '846 patent require that "at least a part of" the coupling member's "first end" or "first end portion " be "positioned within the drum flange." '021 patent, col. 84:18-20 (claim 1); '729 patent, col. 88:6-8 (claim 27); '764 patent, col. 86:61-63 (claim 20); '960 patent, col. 83:49-51 (claim 1); '846 patent, col. 84:26-28 (claim 1). On its face, the meaning of this claim language is clear and its meaning is "readily apparent even to lay judges:" a portion of the first end of the coupling member has to be within the drum flange. *Phillips*, 415 F.3d at 1314. The parties' dispute, however, does not relate to the identified claim language but relates to the claim language "a coupling member having an axis L2." '021 patent, col. 84:18-20 (claim 1); '729 patent, col. 88:6-8 (claim 27); '764 patent, col. 86:61-63 (claim 20); '960 patent, col. 83:49-51 (claim 1); '846 patent, col. 84:26-28 (claim 1). According to Respondents and Staff, "axis L2 is an imaginary line that runs through the entire coupling member, including the first end." RRB at 22; *see also* SIB at 48 ("Complainant's proposal of a generic plain and ordinary meaning, in which the first end portion of the coupling member does not also have the coupling member's axis L2, is not supported by the specification and introduces ambiguity.").

At issue is whether the claim language reads on "a multipiece coupling member with multiple axes." Tr. at 99:1-7 (Respondents' counsel). The claims clearly state that the coupling member has "axis L2." As discussed above, axis L2 is "an axis of rotation of the coupling member." *Supra*, VI(B). Whether one of ordinary skill in the art would consider "a multipiece coupling member with multiple axes" to have an axis of rotation satisfying the claim limitation is a question of infringement, not claim construction. *PPG Indus. v. Guardian Indus. Corp.*, 156 F.3d 1351, 1354-55 (Fed. Cir. 1998) (holding that courts cannot "under the rubric of claim construction . . . give a claim whatever additional precision or specificity is necessary to facilitate a comparison between the claim and the accused product," but must instead "define[] the claim with whatever specificity and precision is warranted by the language of the claim and the evidence bearing on the proper construction").

Based on the foregoing, I find that the term "[a coupling member having/including] a first end [portion] at least a part of which is positioned within the drum flange" does not need to be construed and should be given its plain and ordinary meaning.

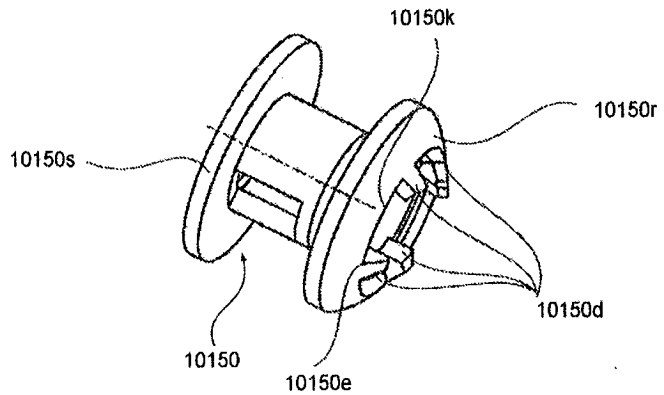
E. "at least one projection that is open to the axis L2"

Canon's Proposed Construction	Respondents' Proposed Construction	Staff's Proposed Construction
This term has its plain and ordinary meaning and no construction is necessary. The plain and ordinary meaning does not require that an inner surface of the projection be a uniform distance from L2 and extend parallel to L2. Alternatively: no portion of the coupling member lies between the at least one projection and the axis L2	at least one projection that has an inner surface that is a uniform distance from L2 and extends parallel to L2	At least one projection that has an inner surface that is a uniform distance from L2 and extends parallel to L2

Claims 1 and 6 of the '826 patent, claim 1 of the '729 patent, claim 7 of the '764 patent, and claim 13 of the '765 patent require the coupling member's second end have "at least one projection that is open to the axis L2." '826 patent, col. 84:10-12 (claim 1), col. 85:55-67 (claim 6);'729 patent, col. 84:36-38 (claim 1); '764 patent, col. 85:22-24 (claim 7); '765 patent, col. 86:9-10 (claim 13). Canon argues that the term does not need to be construed, but if it is, it should be construed to mean "no portion of the coupling member lies between the at least one projection and the axis L2." Respondents and Staff argue that the term requires "at least one projection that has an inner surface that is a uniform distance from L2 and extends parallel to L2."

There is no support in the claim for construing the term to require that the inner surface of the "at least one projection" be "a uniform distance from L2 and extend[] parallel to L2." While Staff asserts that a person of ordinary skill in the art would understand the term "at least one projection that is open to the axis L2" "to mean that the projection has an inner surface that is a uniform distance from L2 that extends parallel to L2," it cites no evidence in support of its

assertion. SIB at 50. Respondents argue that their proposed construction is supported by "the specification's depiction and description of the claimed projections." RIB at 25. In support of this assertion, Respondents point to Figure 86, which depicts the coupling member 10150 in Embodiment No. 13.



According to Respondents, projection 1015d on the bottom right "visually exhibits a shape where the inner surface is a uniform distance from axis L2 and extends parallel to axis L2." RIB at 25-26. Respondents' argument suffers from two flaws, either of which is fatal.

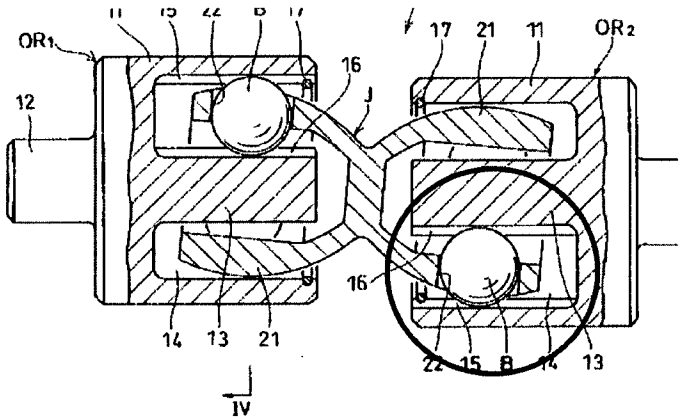
First, Respondents' argument depends on ascertaining the precise relationship between the inner surface of the projection 10150d and axis L2 from a patent figure. There is no indication from the figure or the specification that the patent figure is drawn to scale and, in such cases, "patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue." *Source Vagabond Sys. Ltd. V. Hydrapak, Inc.*, 753 F.3d 1291, 1300 (Fed. Cir. 2014) (quoting *Hockerson-Halberstadt, Inc. v. Avia Group Int'l, Inc.*, 222 F.3d 951, 956 (Fed. Cir. 2000)) (internal quotation marks omitted); *see also Nystrom v. Trex Co.*, 424 F.3d 1136, 1149 (Fed. Cir. 2005) ("The district court erred in not properly applying the principles set forth in our prior

precedents that arguments based on drawings not explicitly made to scale in issued patents are unavailing. *Hockerson-Halberstadt* indicated our disfavor in reading precise proportions into patent drawings which do not expressly provide such proportions . . . ."); *Hockerson-Halberstadt, Inc. v. Avia Grp. Int'l, Inc.*, 222 F.3d 951, 956 (Fed. Cir. 2000). Accordingly, there is no basis for finding that projection 1015d on the bottom right of Figure 86 is intended to represent a structure having an "inner surface [that] is a uniform distance from axis L2 and extends parallel to axis L2." RIB at 25-26. .

Second, even if Respondents' interpretation of Figure 86 were correct, limitations from preferred embodiments cannot be imported into the claim language. *See, e.g., Phillips*, 415 F.3d at 1323 (noting that it is improper to read limitations from embodiments into claims "because section 112 of the Patent Act requires that the claims themselves set forth the limits of the patent grant" and "because persons of ordinary skill in the art rarely would confine their definitions of terms to the exact representations depicted in the embodiments"). There is no indication that the patentees intended to limit the "projection that is open to the axis L2" to one of the projections disclosed in Figure 86. Tr. at 111:18-21 (counsel for Respondents) (admitting that "this isn't whether there was disavowal, whether there was a redefinition here"). Although Respondents argue that the specification teaches that the shape of the projections and the shape of the inner surface of the projections are important in determining whether rotational force is correctly transmitted from the drive shaft to the drum shaft, the specification does not teach that it is important that the distance between the inner surface of the projection and axis L2 be uniform and that the inner surface of the projection extend parallel to axis L2. RIB at 26.

Respondents' and Staff's proposed construction is also contradicted by the prosecution history of the '729 patent. As discussed above, during the prosecution of the '729 patent, the

examiner rejected pending claims as being anticipated by Ohashi. Some of the rejected claims contained the disputed claim term. The examiner found that ball B shown on the right-hand side of Figure 3 of Ohashi was a projection "open to the axis L2."



CIB, Ex. 9 at CAN008855 (rejecting application claim 184, which eventually issued as claim 1) ("the second end portion (at OR_2) including at least one projection (arm 21 and ball B) that is open to the axis L2 (arm 21 and ball B of joint J are open to the axis of joint J)"); *see also id.* at CAN0008856 (rejecting application claim 198, which eventually issued as claim 18). Respondents and Staff do not contest that ball B's inner surface is not a uniform distance from the axis of the coupling member and does not extend parallel to the axis of coupling member. See, e,g., RRB at 24-25; SRB at 1-26.[10]

[10] Staff does not address the issue at all and Respondents do not directly address the issue but instead point out that the examiner also identified arm 21 as a projection that is open to the axis of joint J. RRB at 24-25. According to Respondents, arm 21 in Figure 3 of Ohashi is consistent with their proposed construction because it has an inner surface that is a uniform distance from joint J's axis and extends parallel to joint J's axis. As discussed above, absent some indication that the drawing is to scale, a patent drawing cannot be relied on to define the precise proportions of an element. *See, e.g., Source Vagabond,* 753 F.3d at 1300; *Nystrom*, 424 F.3d at 1149; *Hockerson-Halberstadt*, 222 F.3d 951 at 956. Moreover, the examiner's identification of arm 21 as a projection open to the axis of joint J does not negate her identification of ball B as a projection open to the axis of joint J.

In contrast to Respondents' and Staff's proposed constructions, Canon's alternative construction—"no portion of the coupling member lies between the at least one projection and the axis L2"—reflects the claim term's scope and is consistent with the prosecution history. This is implicitly acknowledged by Staff. In support of its proposed construction, Staff admits that "the limitation requires the projection have an inner surface facing the center of the coupling member, such as the structure of battlements on a castle turret." SIB at 50. Such a structure is captured by Canon's proposed construction. The only argument raised by Respondents against Canon's proposed construction is that it is "meaningless" because "[o]f course no part of the coupling can lie between the projection and the axis in any embodiment; otherwise, the coupling would be unable to engage with a printer drive shaft." RRB at 23.[11] This argument is not persuasive. As acknowledged by Respondents' counsel during the *Markman* hearing, it is possible to implement a coupling member that does not satisfy the limitation under Canon's proposed construction. Tr. at 113:6-8 ("Now, maybe there's an example of a driveshaft with a hole in it that can come and interact with this coupling that had some weird pitchfork design.").

Based on the foregoing, I find that term "at least one projection that is open to the axis L2" means that "no portion of the coupling member lies between the at least one projection and the axis L2."

VII. CONCLUSION

A. Claim Constructions

For the reasons discussed above, I construe the disputed terms as follows:

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[11] In their initial brief, Respondents argued that Canon's construction was inconsistent with the prosecution history of the '826 patent. RIB at 27-28. Respondents appear to have abandoned this argument as they do not refer to it in their rebuttal brief and did not raise it at the *Markman* hearing. Tr. at 111:17-113:19; RRB at 23-25.

The term "wherein the coupling member is movable between (i) a first position in which a tip of the at least one projection is a first distance away from the photosensitive drum as measured in the direction of the axis L1 and (ii) a second position in which the tip of the at least one projection is a second distance away from the photosensitive drum as measured in the direction of the axis L1" recited in claims 1 and 6 of the '826 patent, claims 1 and 8 of the '021 patent, claims 1 and 27 of the '729 patent, claims 7 and 20 of the '764 patent, claims 1 and 13 of the '765 patent, claim 1 of the '960 patent, and claim 1 of the '846 patent requires a coupling member that is "movable between (i) a first ***angular*** position in which a tip of the at least one projection is a first distance away from the photosensitive drum as measured in the direction of the axis L1 and (ii) a second ***angular*** position in which the tip of the at least one projection is a second distance away from the photosensitive drum as measured in the direction of the axis L1."

The term "axis L2" recited in claims 1, 5, and 6 of the '826 patent, claims 1, 6, and 8 of the '021 patent, claims 1, 7, 27, and 31 of the '729 patent, claims 7, 12, 20, and of the '764 patent, 1, 13, and 18 of the '765 patent, claims 1 and 8 of the '960 patent, and claims 1 and 4 of the '846 patent means "an axis of rotation of the coupling member."

I find that the term "connected" recited in claims 1 and 6 of the '826 patent, claims 1 and 8 of the '021 patent, claim 7 of the '764 patent, and claims 1, 4, and 13 of the '765 patent does not need to be construed and should be given its plain and ordinary meaning.

The term "[a coupling member having/including] a first end [portion] at least a part of which is positioned within the drum flange" recited in claim 1 of the '021 patent, claim 27 of the '729 patent, claim 20 of the '764 patent, claim 1 of the '960 patent, and claim 1 of the '846 patent does not need to be construed and should be given its plain and ordinary meaning.

The term "at least one projection that is open to the axis L2" recited in claims 1 and 6 of the '826 patent, claim 1 of the '729 patent, claim 7 of the '764 patent, and claim 13 of the '765 patent means that "no portion of the coupling member lies between the at least one projection and the axis L2."

Hereafter, discovery and briefing in this Investigation shall be governed by the construction of the claim terms in this Order.

B. Motions for Summary Determination and Prehearing Briefs

The parties shall meet and confer concerning the effect of the adopted constructions on the pending motions for summary determination and the hearing in this investigation. No later than March 8, 2019, the parties shall file a joint submission (1) identifying each motion for summary determination that has been rendered moot by the adopted claim constructions and (2) for each motion that a party contends is still viable, indicating whether the motion is ripe for adjudication or whether any party contends that supplemental briefing is necessary to address the adopted claim constructions. Any such supplemental briefing shall be filed no later than March 15, 2019. In addition, the deadline for the private parties to file pre-hearing statements and briefs is hereby extended to March 15, 2019, and these submissions shall reflect the adopted claim constructions.

SO ORDERED.

Dee Lord
Administrative Law Judge

CERTAIN TONER CARTRIDGES AND COMPONENTS THEREOF **Inv. No. 337-TA-1106**

PUBLIC CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **ORDER** has been served by hand upon the Commission Investigative Attorney, **Monisha Deka, Esq.**, and the following parties as indicated, on **2/28/2019**

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