

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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CAMBRIDGE INDUSTRIES USA, INC.,

Petitioner

v.

APPLIED OPTOELECTRONICS, INC.,

Patent Owners

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Case: IPR2025-00433

U.S. Patent No. 9,523,826

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**PETITION FOR *INTER PARTES* REVIEW**

**UNDER 35 U.S.C. §311-319 AND 37 C.F.R. §42.104**

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| <b>Exhibit</b> | <b>Short Name</b> | <b>Description</b>                                                                                                                                  |
|----------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Ex. 1001       | '826 Patent       | U.S. Patent No. 9,523,826                                                                                                                           |
| Ex. 1002       | '826 File History | File History of U.S. Patent No. U.S. Patent No. 9,523,826                                                                                           |
| Ex. 1003       | Kirk Declaration  | Declaration of Dr. Kirk                                                                                                                             |
| Ex. 1004       | Kirk CV           | <i>Curriculum Vitae</i> of Dr. Kirk                                                                                                                 |
| Ex. 1005       | Wu                | Chinese Patent No. CN201820017                                                                                                                      |
| Ex. 1006       | —                 | Wu English translation                                                                                                                              |
| Ex. 1007       | Mizue             | U.S. Patent No. 7,201,520                                                                                                                           |
| Ex. 1008       | Scheduling Order  | Scheduling Order dated August 7, 2024, in <i>Applied Optoelectronics, Inc. v. Cambridge Industries USA, Inc.</i> , No. 3:24-cv-01010-JD (N.D. Cal.) |

Cambridge Industries USA, Inc. (“Petitioner” or “Cambridge”) petitions for *Inter Partes* Review (“IPR”) under 35 U.S.C. §§311-319 and 37 C.F.R. §42 of Claims 1-7 (“the Challenged Claims”) of U.S. Patent No. 9,523,826 (the “’826 Patent”). Petitioner requests cancellation of the Challenged Claims.

**I. STANDING UNDER 37 C.F.R. §42.104(a)**

Petitioner certifies that the ’826 Patent is available for IPR, and that Petitioner is not barred or estopped from requesting IPR.

**II. PAYMENT OF FEES**

Petitioner authorizes Deposit Account No. 19-5029 to be charged for any fees.

**III. OVERVIEW OF CHALLENGES AND RELIEF REQUESTED**

Pursuant to 37 CFR §42.22(a)(1) and 37 CFR §42.104(b)(1)-(2), Petitioner requests cancellation of the Challenged Claims pursuant to the grounds below.

**Ground 1: Claims 1-7 are Unpatentable Under 35 U.S.C. §102 as Anticipated by Wu**

**Ground 2: Claims 1-7 are Unpatentable Under 35 U.S.C. §102 as Anticipated by Mizue**

**IV. BACKGROUND**

**A. Overview of the ’826 Patent**

The ’826 patent is generally directed pluggable optical transceiver module configured to be inserted into a slot in an optical communication system. Ex. 1001,

Abstract. Specifically, the '826 patent includes a main body and a sliding component where the main body has two side surfaces and two sliding slots, and the main body is configured to be inserted into the plugging slot. *Id.* The '826 Patent further discloses that the sliding component features a linkage arm and two extending arms that are connected to the linkage arm, with each extending arm having a second fastening part. *Id.* Additionally, the '826 patent discloses that the two extending arms are slidably positionable to a fastening position and a releasing position. *Id.*; Ex. 1003, ¶¶ 39, 46.

As demonstrated in this Petition, the '826 patent merely describes and claims a pluggable optical transceiver module with features and characteristics well-known to persons of skill in the art ("POSITA") of pluggable optical transceiver modules before the application for the '826 patent was filed. *See* Ex. 1005, FIGS. 1A, 1C, 6; Ex. 1006, Abstract, ¶¶ [0005, [0007], [0029]-[0031], [0033]-[0034], [0037]-[0038]; Ex. 1007, FIGS. 7-9, 7:4-67. Designs for pluggable optical transceiver modules that were easily installed and removed were known in the communications industry and are identical to alleged invention of the '826 patent. *Id.* The Board should thus institute review because there is a strong likelihood that Petitioner will prevail on at least one Challenged Claim.

## **B. Technical Background**

### ***1. Pluggable Optical Transceiver Modules***

An optical-to-electrical interface is where electrical and fiber cables are connected to one another via an optical transceiver module. To allow the electrical and fiber cables to communicate with one another, the optical transceiver module converts between optical and electrical signals. Ex. 1001, 5:21-6:23; Ex. 1003, ¶ 41.

For example, a transceiver module includes an optical transmitter and optical receiver. Ex. 1001, 5:21-6:23. The transmitter receives electrical signals and converts them to optical signals. *Id.* The receiver receives optical signals and converts them to electrical signals. The transmitter and receiver, which together form the transceiver, thus send signals back and forth across the electrical-to-optical interface, allowing communication between the electrical components and optical fibers. *Id.*; Ex. 1003, ¶ 42.

Traditionally, optical transceiver modules were unable to be freely interchanged between sockets in a communication network or architecture. But as optical networks garnered increased popularity, the market requirement to grow the capacity of network equipment required that the versatility and mobility of the components of network equipment improve. This requirement manifested itself in

a need to improve the versatile compatibility of the optical transceiver modules to be quickly interchangeable between sockets, which led to the creation of hot pluggable optical transceiver modules device. Ex. 1003, ¶ 43.

Pluggable optical transceiver modules are fiber optic modules that use fiber optic technology to transmit and receive data, converting the data from optical form to electronic form or from electronic form to optical form. Optical transceiver modules are typically components of a wired communication network. In particular, pluggable optical transceiver modules are components that are integrated into a modern high speed communication network when inserted into a corresponding socket, thereby facilitating an electrical-to-mechanical interface. Features to align and secure optical modules in the sockets to allow for a functional electrical-to-mechanical interface were well-known. Ex. 1003, ¶ 44.

A POSITA in 2013 would have been aware that the structural and functional features recited in claims 1-7 of the '826 Patent were well-known in the communications industry prior to the earliest effective filing date of the '826 Patent, October 2, 2013. Ex. 1003, ¶ 44.

### **C. '826 Patent Prosecution History, Ex. 1002.**

Patent Owner filed Application No. 14/504,500 (the “’500 Application”) on October 2, 2014, claiming priority to Taiwanese patent application 102135723, filed

October 2, 2013. Ex. 1001, cover.

Prosecution of the '826 Patent involved very few exchanges between the Patent Owner and the Patent Examiner. *See generally*, Ex. 1002. After completion of the filing formalities for the '500 Application, a Non-final Office action was mailed on March 31, 2016, rejecting application claims 1-4 and 9 as anticipated by U.S. Patent Application Publication US 2011/0081114 to Togami et. al ("Togami"). Ex. 1002, pp. 83–87. The application claims 5–8 also were rejected as obvious over Togami in view of U.S. Patent 7,201,520 ("Mizue"). Ex. 1002, pp. 88–90; Ex. 1003, ¶ 49.

49. In an Amendment filed August 1, 2016, Patent Owner canceled application claims 5 and 6 and amended application claims 1 and 9 to incorporate the limitations of as-filed application claims 5 and 6. Patent Owner further amended application independent claims 1 and 9 to clarify that the "elastic component is confined by the main body and the sliding component." Ex. 1002, 67–70. The Amendment also amended application claims 7 and 8 to depend from application claim 1, rather than canceled application claim 5. Ex. 1002, p. 68; Ex. 1003, ¶ 50.

50. A Notice of Allowance was mailed on August 12, 2016. The Notice of Allowance included a Notice of Allowability, which stated: "The prior art of record, which is the most relevant prior art known, does not disclose or render obvious the pluggable optical transceiver module defined in claim 1 or the pluggable optical

transceiver module defined in claim 9, wherein the elastic component is located in the limiting space and between the first limiting surface and the limited part and is covered by the extending arm such that the elastic component is confined by the main body and the sliding component in combination with all of the limitations of claim 1 or of claim 9, respectively.” Ex. 1002, p. 49 (emphasis in original); Ex. 1003, ¶ 51.

The Issue Fee was paid on November 14, 2016, and ’826 Patent issued on December 20, 2016. Ex. 1003, ¶ 52.

#### **D. Priority Date**

The ’826 Patent claims the benefit of Taiwanese Patent Application Number 102135723, with a filing date of October 2, 2013.

#### **E. Prior Decisions by District Courts and the Board**

The ’826 patent is currently asserted in two pending district court cases in the Northern District of California: *Applied Optoelectronics, Inc. v. Cambridge Industries USA, Inc.*, No. 3:24-cv-01010-JD and *Applied Optoelectronics, Inc. v. Accelight Technologies, Inc.*, No. 3:24-cv-09041. No dispositive judgments or claim construction orders have issued. A claim construction hearing is currently set for April 10, 2025. Ex. 1008, p. 2. The dispositive motion deadline is currently set for January 28, 2026. *Id.* Jury selection is scheduled for June 8, 2026. *Id.*, p. 1.

The ’826 Patent has not yet been the subject of prior decisions by the Board.

**F. Claim Construction (37 C.F.R. §42.104(b)(3))**

The claims are construed herein “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. §282(b).” 37 C.F.R. §42.100(b) (Nov. 13, 2018). Unless otherwise specified, the terms should receive their respective plain and ordinary meaning as understood by a person of ordinary skill in the art under *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005).

The claim terms of the ’826 Patent are mostly functional, e.g., “limiting space,” “first fastening part,” “linkage arm.” Such terms would not be recognized by a POSITA as having any plain and ordinary meaning, apart from the disclosure of the ’826 Patent. Ex. 1003, ¶ 52. However, Petitioner and its expert submit that the claim terms of the ’826 Patent can be understood when mapped to the disclosure provided in the specification of the ’826 Patent, as demonstrated below, and thus no special constructions are required. *Id.*

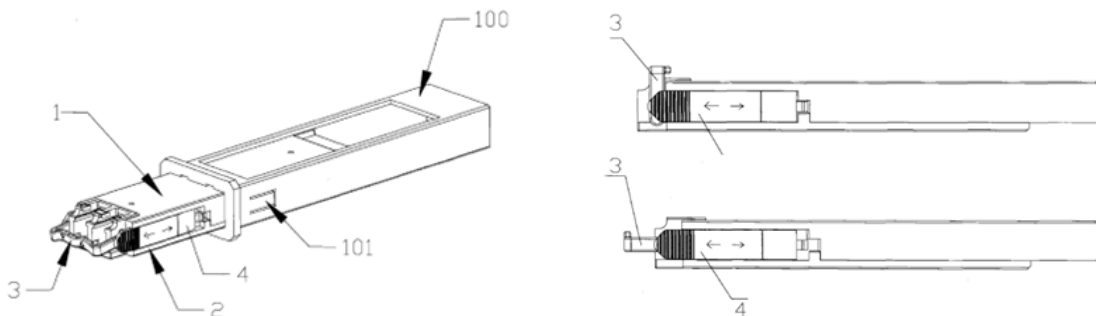
**V. PRIOR ART REFERENCES**

**A. China Patent No. CN201820017 (“Wu”), Ex. 1005, and Ex. 1006 (English translation)**

Wu is entitled “XFP optical transceiver integrated module,” and was filed on October 19, 2010, and published on May 4, 2011. Ex. 1006, Abstract. Wu qualifies as prior art under 35 U.S.C. §102(a)(1). Wu was not applied in a prior art rejection

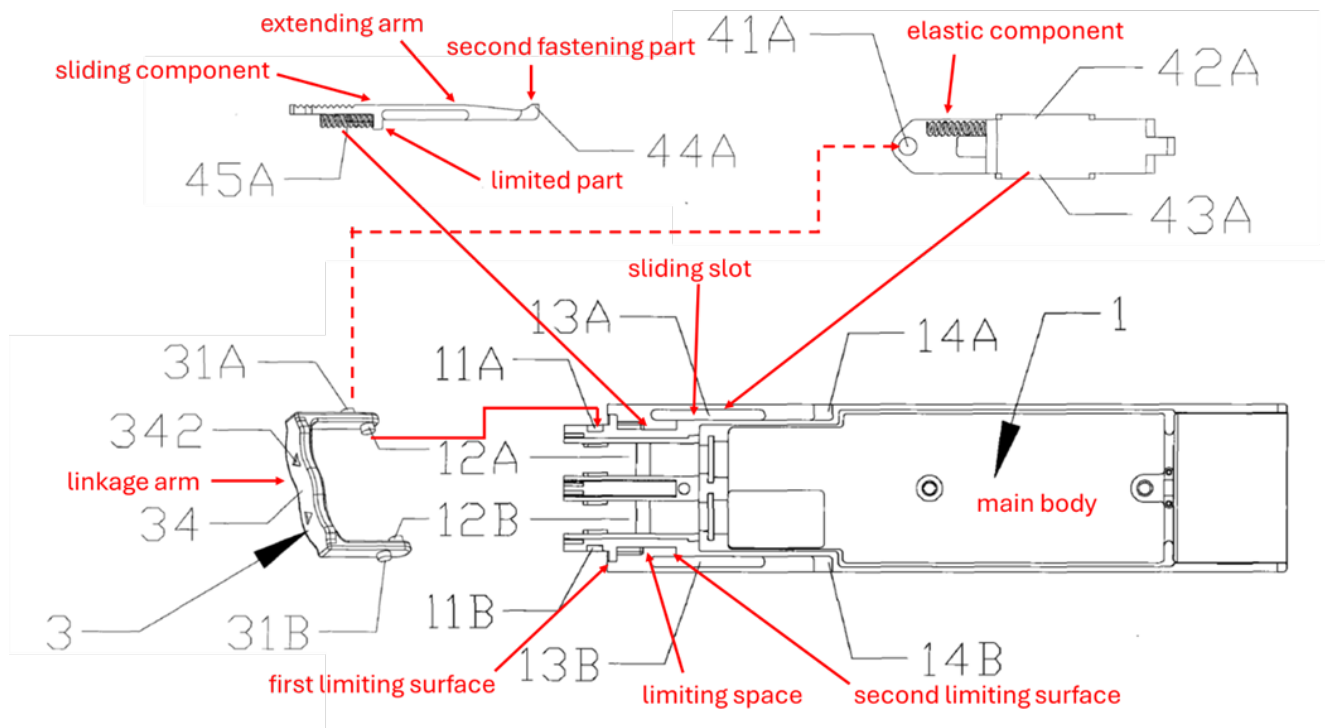
by the Patent Examiner during prosecution of the '826 Patent. Ex. 1003, ¶ 53.

Wu teaches a small form-factor, hot pluggable, integrated, optical transceiver module. Ex. 1006, Abstract. The module includes extending arms that slide in slots in either side of the module. The extending arms are joined to a rotatable handle, and each extending arm has a fastening part that engages a détente in a cage. Each of the extending arms is biased by a spring confined in a limiting space between the extending arm and two limit surfaces and is used to secure the module to the cage when the handle is operated. Ex. 1005, FIGS. 1-5; Ex. 1006, ¶¶ [0005], [0007], [0029]-[0031], [0033]-[0034], [0037]-[0038]. FIGS. 2, 8a and 8b of Ex. 1005 are reproduced below. Ex. 1003, ¶ 54.



Ex. 1005, FIGS. 2, 8a, 8b

An annotated composite of FIGS. 3, 5a, 5b and 6 is provided on the following page, illustrating how the features of the Claim 1 of the '826 Patent correspond to the disclosure of Wu. Ex. 1003, ¶ 55.



Ex. 1005, FIGS. 3, 5a, 5b, 6 (annotated composite)

## B. U.S. Patent No. 7,201,520 (“Mizue”), Ex. 1007

U.S. Patent No. 7,201,520 (“Mizue”), Exhibit 1007, was filed on May 27, 2004, and issued on April 10, 2007. I understand from counsel for CIG USA that the Mizue patent qualifies as prior art under at least 35 U.S.C. §102(a)(2). Mizue was cited and considered by the Examiner in a Non-Final Office action during prosecution of the ’826 Patent, but only as a secondary reference in combination with Togami. Ex. 1002, pp. 88–92. Ex. 1003, ¶ 56.

During prosecution of the ’826 Patent, the Patent Examiner cited to Mizue as disclosing “at least one limiting space (26p; see Figure 8) may be at each of the two

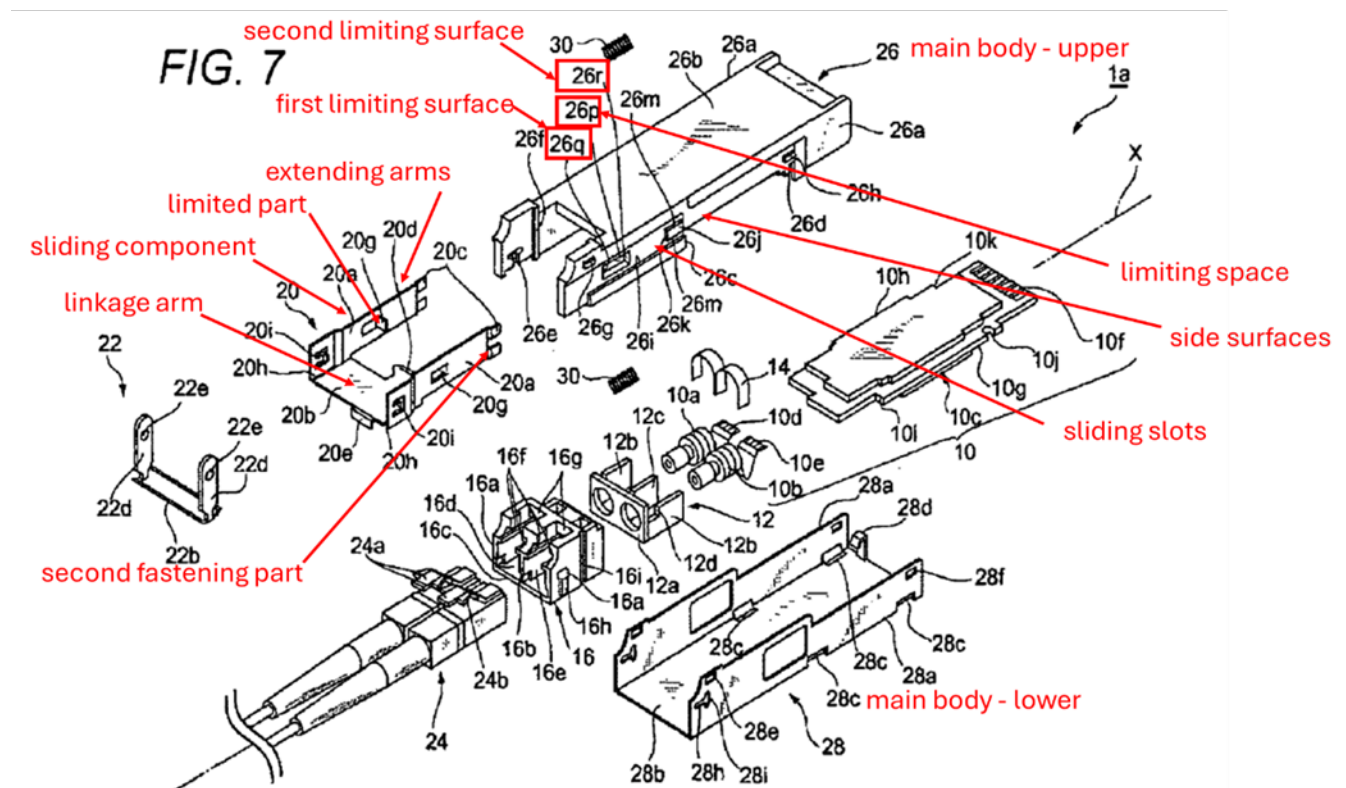
side surfaces of a main body (26; see Figures 7 and 8) within sliding slots that receive extending arms (20a) of a sliding component (20), wherein each extending arm (20a) has a limited part (20g) configured to move in the at least one limitation space (26p) in cooperation with a spring (30) to secure the sliding component (20) within the slots of the main body (26) and prevent unintentional disconnection of the transceiver module from the socket (see Figures 7 and 8, and column 7, lines 4- 62 of Mizue et al.” Ex. 1002, p, 88. As explained below, a POSITA would have understood that Mizue anticipates, the ’826 Patent. Ex. 1003, ¶ 57.

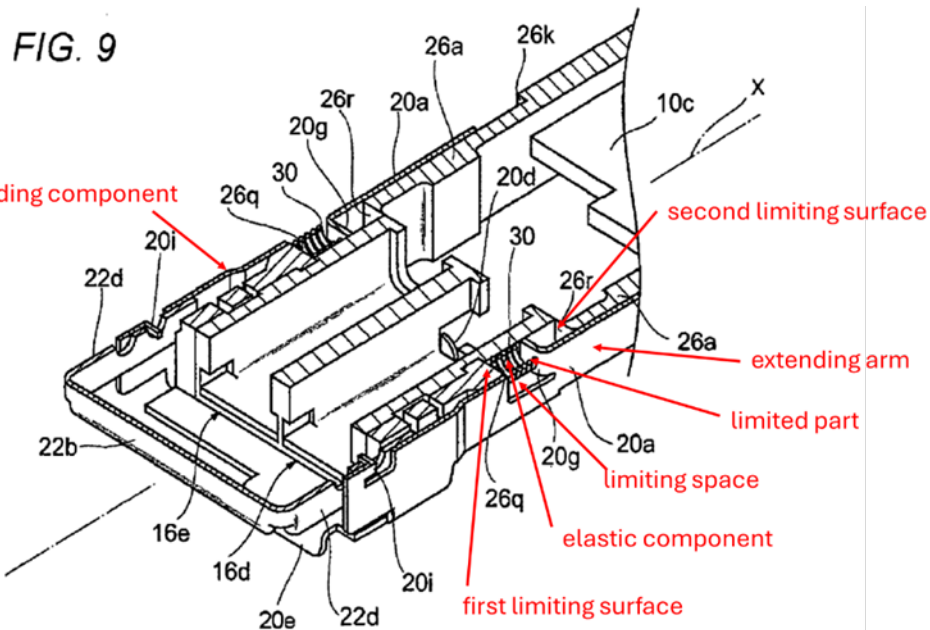
58. Mizue teaches an optical module that is designed to be plugged into a slot a cage mounted on a host board. Ex. 1007, Abstract. The optical module of Mizue includes an optical subassembly that includes an optical device, such as a semiconductor laser diode or a semiconductor photodiode, a housing, a receptable body, and an actuator. Ex. 1007, 1:41-44; Ex. 1003, ¶ 58.

59. Of relevance to the ’826 Patent, as illustrated on the following page, Mizue discloses in FIGS. 7-9 a pluggable optical module includes a main body having sliding slots on its side surfaces and a sliding component having two extending arms joined by a linkage arm, wherein each of the extending arms slide in the sliding slots and include fastening parts that engage the module cage. The main body defines a limiting space having first and second limiting spaces. Each extending arm includes

a limited part that extends into the limiting space and engages a spring disposed therein. The spring is confined in the limiting space by the outer housing of the module. The sliding component is connected to a bail for engaging and disengaging the module into a cage that includes a first fastening component. Ex. 1003, ¶ 59.

60. FIGS. 7 and 9 of Mizue are reproduced below with annotations showing correspondence to the claim terms used in the '826 Patent. *See* Ex. 1007, 3:19-4:36, 7:4-67; Ex. 1003, ¶ 59.





## VI. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art pertinent to the '826 Patent would have had at least a bachelor's degree in electrical engineering, computer engineering, or similar discipline and had approximately two years of experience with optical communications and networks. Additional graduate education might substitute for experience. A person with a different degree but with additional relevant experience could still qualify if the additional experience compensates for the different educational background. Such a POSITA would have had knowledge of design considerations known in the optical industry and would have been familiar with then-existing products and solutions and would have understood how to search available literature for relevant publications. Ex. 1003, ¶ 22.

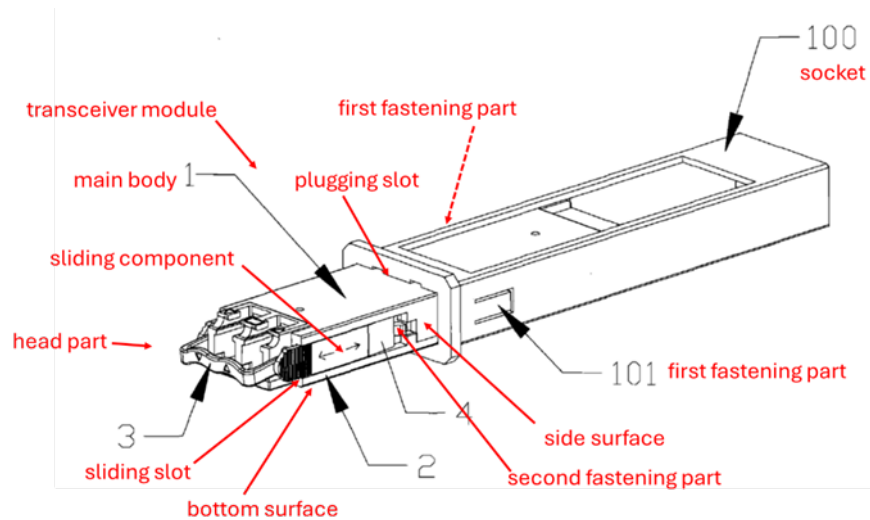
A POSITA in October 2013 would have been familiar with hot pluggable optical transceiver modules. The '826 Patent concerns itself with specific features that a pluggable optical module would have to be compatible with a socket, as well as features that fasten and secure the module in an aligned position with respect to a socket upon insertion of the module into the socket, and features to release the module from the fastened position within the socket. Thus, a POSITA in October 2013 would have been familiar with both hot pluggable optical transceiver modules as well as the features that align the module with a socket, and those that secure and release the module in relation to a socket. *Id.*, ¶¶ 23.

## **VII. THE CHALLENGED CLAIMS ARE UNPATENTABLE**

### **A. Ground 1: Claims 1-7 Are Unpatentable As Anticipated Under 35 U.S.C. §102 By Wu**

#### **Claim 1**

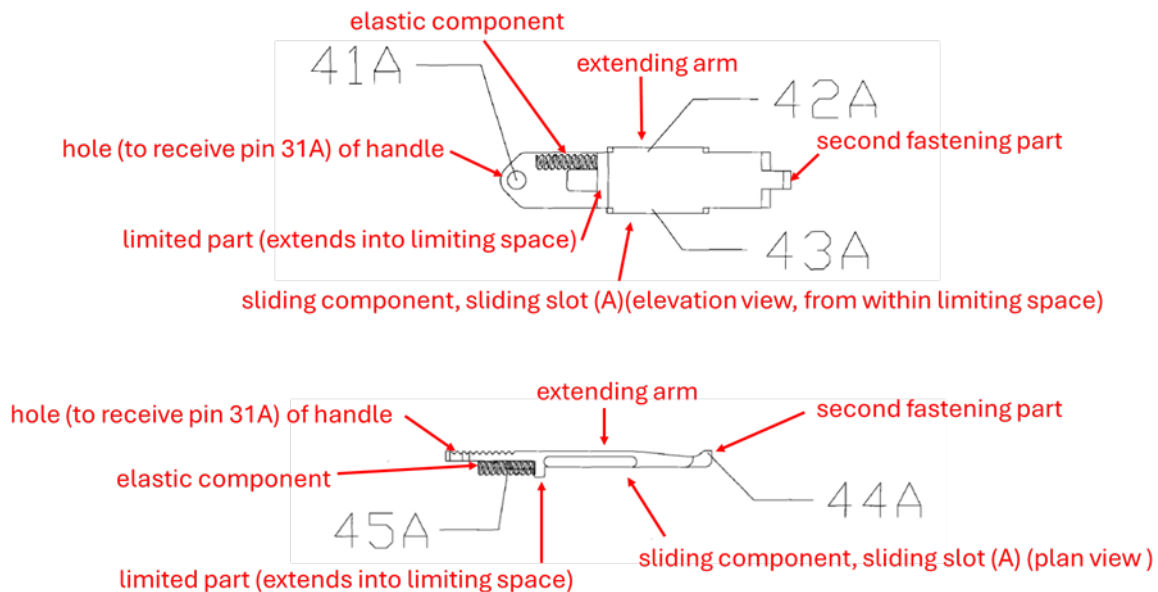
[1a] Wu discloses a pluggable optical transceiver module (1) configured to be inserted into a plugging slot of a socket (100). The socket (100) comprises two first fastening parts (101) located in the plugging slot that secure the module in the plugging slot. *See* Ex. 1005, FIGS. 1, 2 (annotated on following page); Ex. 1006, Abstract, ¶¶ [0005], [0029], [0037]-[0038]; Ex. 1003, ¶ 60.



Ex. 1005, FIG. 2 (annotated)

**[1b]** Wu discloses that the pluggable optical transceiver module (1) includes a main body configured to be inserted into the plugging slot as illustrated above. *See* Ex. 1005, Ex. 1005, FIGS. 1-3; Ex. 1006, ¶¶ [0005], [0029], [0038]-[0039]. The main body has two side surfaces that are opposite to each other, each having a respective sliding slot located thereon. *Id.* The main body also has two bottom surfaces that are parallel to the two side surfaces and a limiting space located on each of the two side surfaces. *See* Ex. 1005, FIG. 3 (annotated on following page); Ex. 1006, ¶¶ [0007], [0030]-[0031], [0033]; Ex. 1003, ¶ 61.





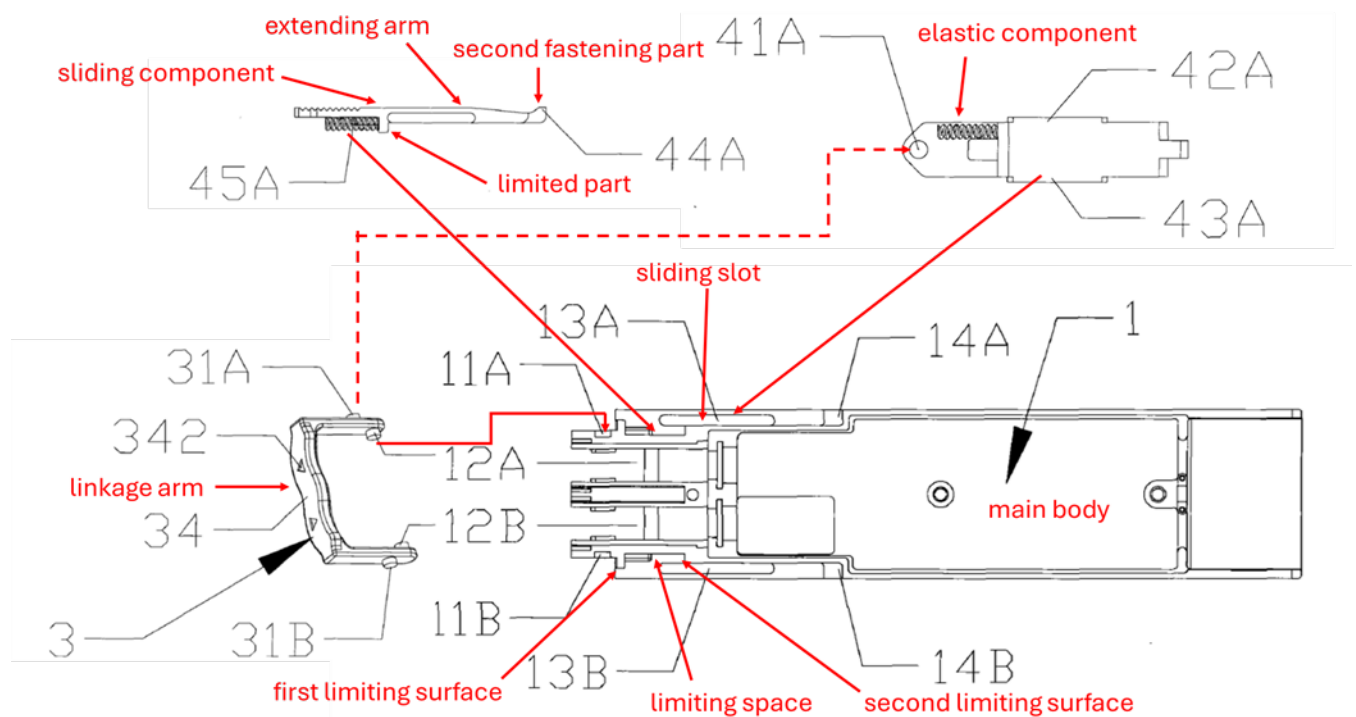
Ex. 1005, FIGS. 5a and 5b (annotated)

The two extending arms of Wu are slidably disposed in the sliding slots on either side of the main body (see FIG. 3, above) and have a fastening position and a releasing position. Ex. 1005, FIGS. 1 and 2; Ex. 1006, ¶¶ [0033]-[0034], [0037]-[0038]; Ex. 1003, ¶ 63. When the extending arms are located at the fastening position, the two second fastening parts are fastened to the two first fastening parts of the socket. *Id.* When two second fastening parts press the two first fastening parts, the two first fastening parts are farther away from each other than when the two extending arms are located at the releasing position. *Id.* Such operation of a pluggable module would have been well-known to a POSITA before the earliest effective filing date of the '826 Patent in October 2013. *Id.*

Further, a POSITA would have been understood, as indicated in the annotated versions of FIGS. 5a and 5b of Wu above, that the extending arm depicted in FIG. 5b is inserted in sliding slot (A) (see annotated version of FIG. 3 above), so that the elastic component and limited part are disposed in the limiting space. Ex. 1005, FIGS. 1-3, 5a, 5b; Ex. 1006, ¶¶ [0013], [0030]-[0031], [0033]; Ex. 1003, ¶ 64.

**[1d]** As discussed *supra*, Wu discloses a pluggable optical transceiver module (1) that includes an elastic component (45) disposed in a limiting space. See Ex. 1005, FIGS. 3, 5a, 5b; Ex. 1006, ¶¶ [0033], [0037]-[0038]; Ex. 1003, ¶ 65. Each of the limiting spaces is formed in the main body by a first limiting surface and a second limiting surface, wherein the first limiting surface is closer to a head part than the second limiting surface. *Id.*

As further illustrated in the annotated composite of FIGS. 3, 5a, 5b and 6 of Wu on the following page, the elastic component is located in the limiting space between the first limiting surface and the limited part and is covered by the extending arm (FIGS. 5a and 5b). Ex. 1005, FIGS. 5a, 5b; Ex. 1006 ¶¶ [0030], [0033]-[0034], [0037]-[0038]; Ex. 1003, ¶ 66. As required by the Claim 1 of the '826 Patent, the elastic component is confined by the main body and sliding component. *Id.*

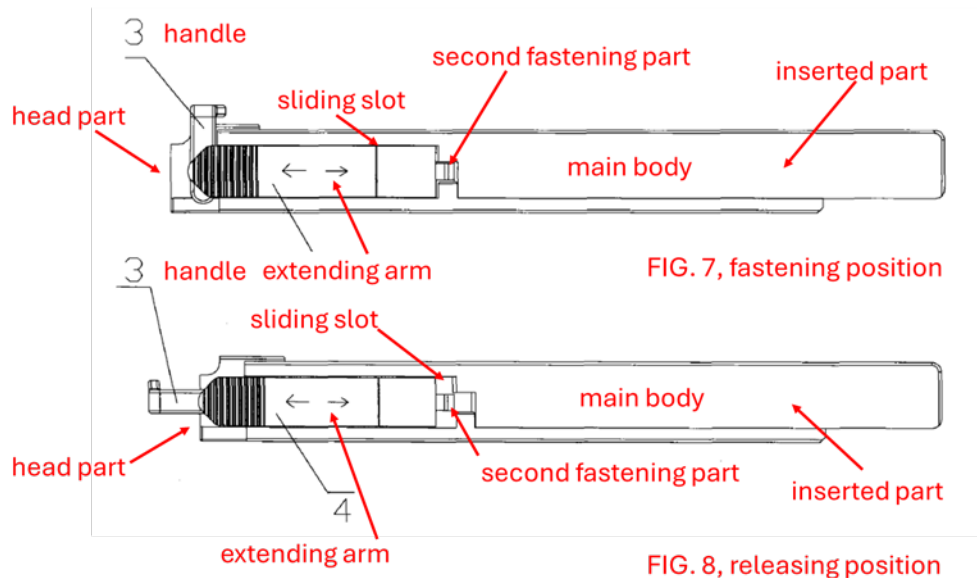


Ex. 1005, FIGS. 3, 5a, 5b, 6 (annotated composite)

## **Claim 2**

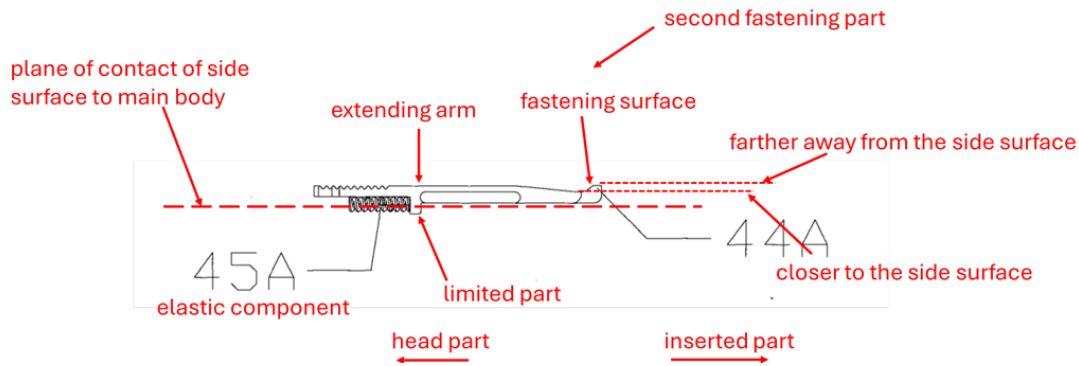
Wu discloses that the main body of Wu includes a head part connected to an inserted part, such that the inserted part is inserted in the socket. *See* Ex. 1005, FIGS. 1, 2; Ex. 1006, ¶¶ [0005], [0033], [0037]-[0038]; Ex. 1003, ¶ 67. The two side surfaces are located at two sides of the head part and the inserted part opposite to each other, respectively. *Id.* Both of the two sliding slots extend from the head part towards the inserted part, and the two extending arms (FIGS. 5a and 5b) are configured to slide relative to the two sliding slots (4) to move between the fastening position, wherein the extending arms are farther away from the head part, and the

releasing position, wherein the extending arms are closer to the head part. *See* Ex. 1005, FIGS. 7, 8 (annotated below); Ex. 1006, ¶¶ [0005], [0033], [0037]-[0039]; Ex. 1003, ¶¶ 67-68.



### **Claim 3**

Wu discloses each second fastening part has a fastening surface. *See* Ex. 1005, FIG. 1-3, 5(b); Ex. 1006, ¶¶ [0033], [0038]; Ex. 1003, ¶ 69. A distance between one side of the fastening surface, which is close to the side surface and the head part, is less than a distance between another side of the fastening surface, which is far away from the side surface and the head part. *Id.* These aspects of the second fastening part of Wu are illustrated in the annotated version of FIG. 5b of Wu, on the following page. Ex. 1003, ¶ 69.



Even if Patent Owner were to argue for a different interpretation of Claim 2, in that form follows function, any different configuration would represent a simple matter of choice regarding the design of second fastening part of Wu. Ex. 1003, ¶¶ 70-71.

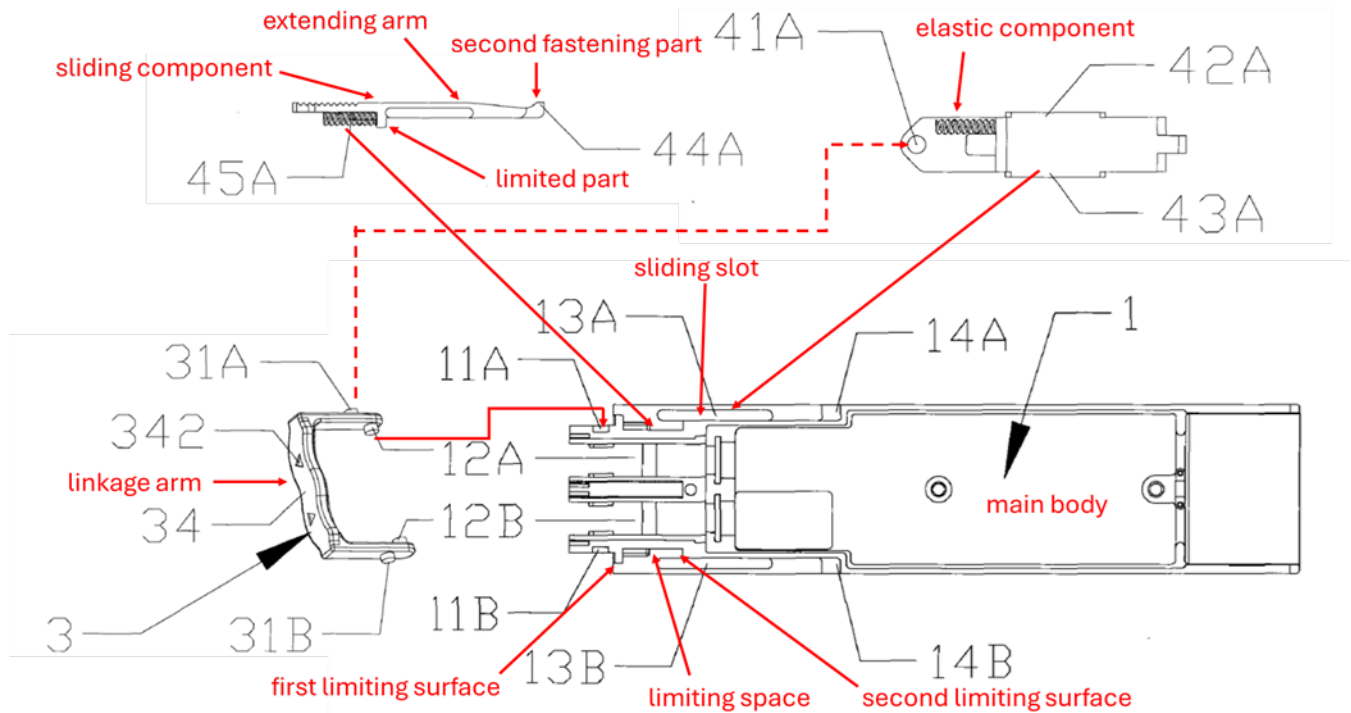
#### **Claim 4**

A POSITA would have understood that Wu discloses that its head part includes slots into which optical fiber receptacles are disposed to receive an optical fiber. *See* Ex. 1005, FIGS. 1-3; Ex. 1006, ¶¶ [0030]-[0031]; Ex. 1003, ¶¶ 72-73.

#### **Claim 5**

As discussed *supra*, Wu discloses that the pluggable optical transceiver module (1) includes two elastic components (45), with each elastic component disposed in a corresponding limiting space defined by respective first and second limiting surfaces. *See* Ex. 1005, FIGS. 3, 5b; Ex. 1006, ¶¶ [0013], [0033], [0037]-[0038]; Ex. 1003, ¶ 74. The two first limiting surfaces are closer to the head part than the two second limiting

surfaces, and each elastic component is disposed between the first limiting surface and the limited part. Ex. 1003, ¶ 75.



### **Claim 6**

Wu discloses the pluggable optical transceiver module includes a pull handle pivoted on the linkage arm of the sliding component. Ex. 1006, ¶¶ [0034]-[0035], [0037]-[0038]; Ex. 1003, ¶ 76. As identified for element [1c] of Claim 1, *supra*, , the linkage arm comprises the handle that links the two extending arms to form the claimed sliding member. Each extending arm includes a finger grip disposed near the head part, which may be grasped to remove the optical module from the socket, thus defining a “pull handle.” Ex. 1003, ¶ 76. Thus, as required by Claim 6, the pull handle

of Wu is pivoted (on pins 32A of the handle 34) on the linkage arm of the sliding member. *See* Ex. 1005, FIG. 1, 2, 6; Ex. 1006, ¶¶ [0034]-[0035], [0037]-[0038]; Ex. 1003, ¶¶ 76-77.

### **Claim 7**

**[7a]** The preamble of Claim 7 of the '826 Patent is similar to the preamble of Claim 1 but omits the socket having first fastening parts. Wu anticipates the limitations of element [7a] for the same reasons as described above for Claim [1a]. Ex. 1003, ¶ 78.

**[7b]** Claim element [7b] requires the limitations of claim element [1b] of Claim 1, while further requiring the limitations of Claim 5. Accordingly, Wu discloses all of the limitations of claim element [7b] for the reasons explained above for claim element [1b] and Claim 5. Ex. 1003, ¶ 79.

**[7c]** Claim element [7c] requires the limitations of claim element [1c] of Claim 1, while further requiring the limitations of Claim 3. Thus, Wu discloses all of the limitations of claim element [7c] for the reasons explained above for claim element [1c] and Claim 3. Ex. 1003, ¶ 80.

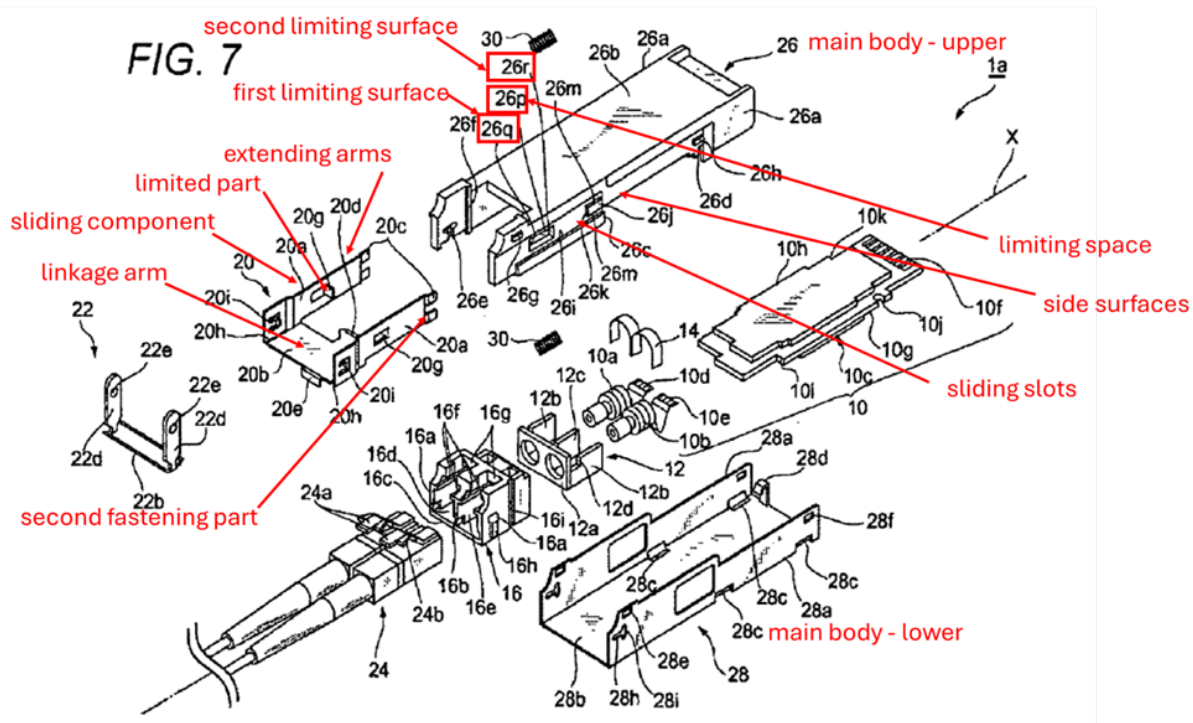
**[7d]** Claim element [7d] corresponds to claim element [1d] of Claim 1. Wu therefore discloses all of the limitations of claim element [7d] for the reasons explained above for claim element [1d]. Ex. 1003, ¶ 81.

**B. Ground 2: Claims 1-7 Are Anticipated Under 35 U.S.C. §102 by Mizue.**

**Claim 1**

[1a] Mizue discloses a pluggable optical transceiver module (1) configured to be inserted into a plugging slot of a socket that includes two first fastening parts located in the plugging slot. *See* FIGS. 1, 2, 1:34-58; Ex. 1003, ¶ 84.

[1b] Mizue discloses, in the embodiment of FIGS. 7-9, that the pluggable optical transceiver module includes a main body having two side surfaces that are opposite to each other and two sliding slots located at the two side surfaces, respectively. *See* Ex. 1007, FIGS. 7 and 9 (below with annotations); Ex. 1003, ¶ 85.



Ex. 1007, FIG. 7 (annotated)

**FIG. 9**

FIG. 9 is a perspective view of a sliding component assembly. The assembly includes a base (10c) with a first limiting surface (20a) and a second limiting surface (20d). A sliding component (20e) is mounted on the base, featuring a limited part (20g) and an extending arm (20i). The limited part (20g) is connected to the base by an elastic component (20h). The extending arm (20i) is connected to the base by a sliding component (20j). The assembly is shown in a partially assembled state, with the sliding component (20e) being moved along the base (10c).

Ex. 1007, FIG. 9 (annotated)

*See also*, Ex. 1007, 5:11-65, 7:4-67. The main body has two bottom surfaces (corresponding to bottom wall 28b) parallel to the side surfaces of the upper body (26), which together with the sidewalls (26a) of upper body (26) form two sliding slots, one on either side of the upper body (grooves 26i). *Id.*, 5:34-45. The main body is designed to be inserted into the plugging slot. *Id.* In addition, each side surface of the upper body includes a limiting space (26p) with an elastic component disposed therein (spring 30). *Id.*, 7:27:37; Ex. 1003, ¶ 85.



the two second fastening parts press the two first fastening parts, respectively, to make the two first fastening parts be farther away from each other when the two extending arms are located at the releasing position. *See* Ex. 1007, FIGS. 5a (fastened) and 5b (released)(below), 7:27-37; Ex. 1003, ¶ 87.

FIG. 5A

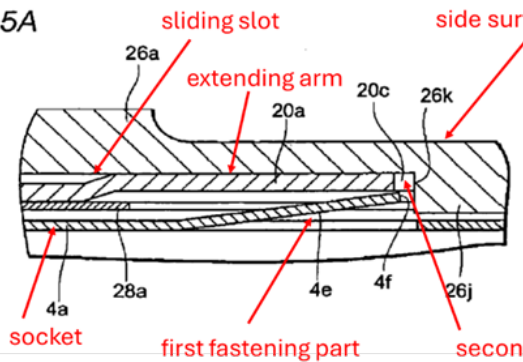
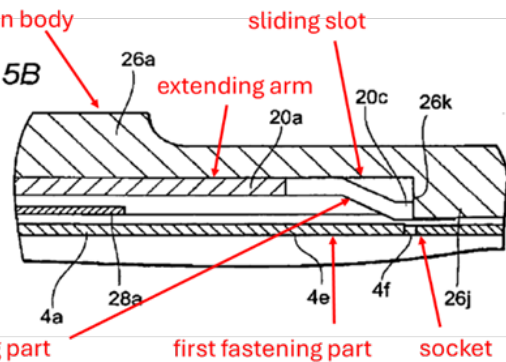
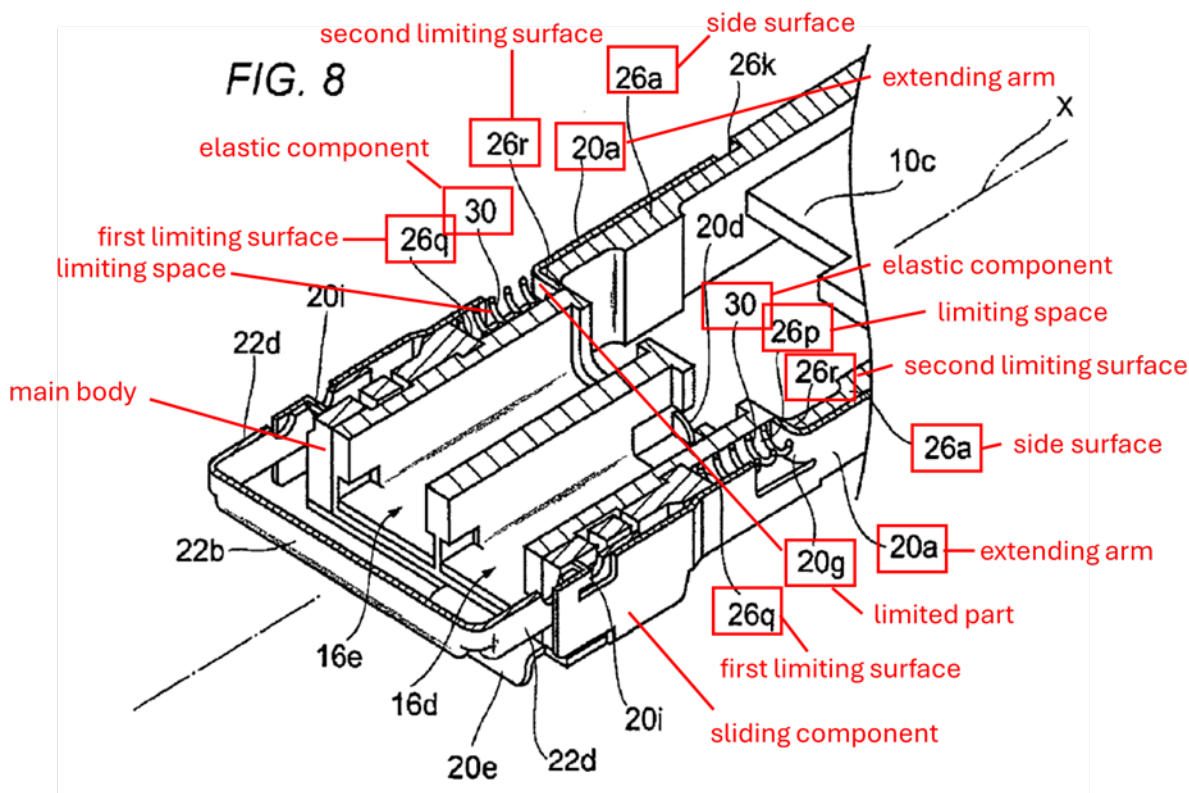


FIG. 5B



Ex. 1007, FIGS 5A and 5B (annotated)

Mizue discloses that each extending arm (20a) has a limited part (20g) that extends into the limiting space (groove 26p). *See* Ex. 1007, FIGS. 7-9, 7: 27-37 (“The actuator 20 further provides another flange 20g in the arm 20a. The other flange 20g is cut from the arm 20a and bent inward such that the surface of the other flange 20g extends along a direction intersecting the axis X. On the other hand, the side wall 26a of the upper body 26 further provides another groove 26p into which the other flange 20g of the actuator is inserted. ... A spring 30 is inserted between the other flange 20g and one of the inner surface 26q of the groove 26p.”); *see also* Ex. 1007, FIG. 8 (annotated, following page). Ex. 1003, ¶ 88.



Ex. 1007, FIG. 8 (annotated).

[1d] Mizue discloses the pluggable transceiver module includes an elastic component (spring 30). *See* Ex. 1007, FIGS. 8, 9, 7: 27-37. The main body has a first limiting surface (26q) and a second limiting surface (26r) forming the limiting space (26p), wherein the first limiting surface (26q) is closer to the head part than the second limiting space (26r). *Id.* The elastic component (spring 30) is located in the limiting space (26p) between the first limiting space (26q) and the limited part (20g). Ex. 1007, FIGS. 8, 9, 7: 33-35 (“upper body 26 further provides another groove 26p into which the other flange 20g of the actuator is inserted. The other groove 26p has a pair of

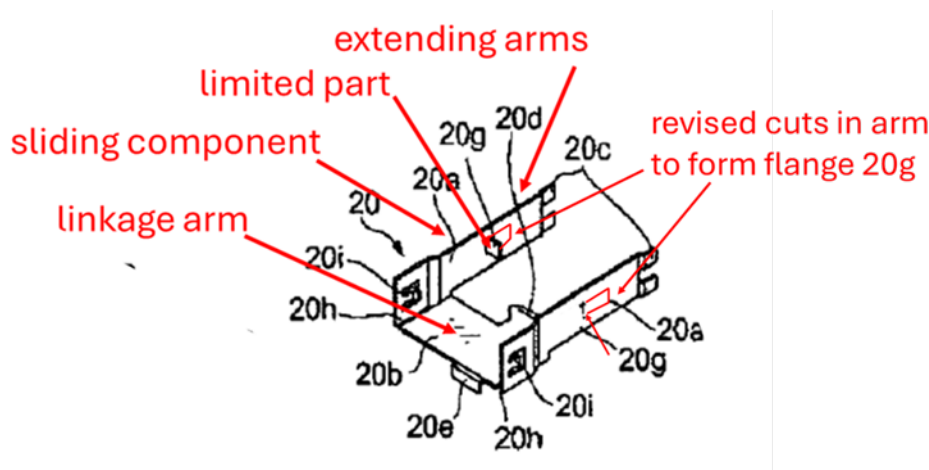
inner surfaces 26q and 26r, both extending in the direction intersecting the axis X. A spring 30 is inserted between the other flange 20g and one of the inner surface 26q of the groove 26p.”) Ex. 1003, ¶ 89.

Mizue discloses that elastic component (spring 30) is at least partially covered by the extending arm (arm 20a) such that the elastic component is confined by the main body (26a) and the sliding component. Ex. 1003, ¶ 90. It is apparent from the relative lengths of the spring 30 and the opening in arm 20a created to form the limited part (flange 20g) that the spring in Mizue could not exit the limiting space (26p) through that opening. *See* Ex. 1007, FIG. 8; Ex. 1003, ¶ 90. Accordingly, a POSITA would have understood that the elastic component of Mizue is confined in the limiting space (26p) by arm (20a) *Id.* Moreover, as can be seen in FIG. 3 of Mizue, the lower portion of the main body covers the sliding component, further preventing loss of the elastic component. Ex. 1007, FIGS. 3, 7; Ex. 1003, ¶ 90.

During prosecution of the '826 Patent, Patent Owner argued, at page 6 of the Reply to Office action submitted March 31, 2016, that “the spring 30 is exposed and not covered by the arm 20a. *See* Mizue, FIG. 9. As such, the proposed combination would not result in an elastic component being ‘covered by the extending arm such that the elastic component is confined by the main body and the sliding component,’ as recited in amended independent claims 1 and 9.” Ex. 1002, p. 71. As noted above,

however, FIGS. 8 and 9 of Mizue show that the spring is much longer than the opening formed in arm 20a to create the limited part (flange 20g). Ex. 1003, ¶ 91.

Further, it would have involved no inventive faculty for a POSITA to cure the alleged “defect” in Mizue identified by Patent Owner, as a simple matter of design choice, by directing the U-shaped cut in the wall of arm 20a away from the head part, i.e., in the direction of the inserted part, as indicated in the annotated excerpt from FIG. 7 of Mizue below. Ex. 1003, ¶ 92.

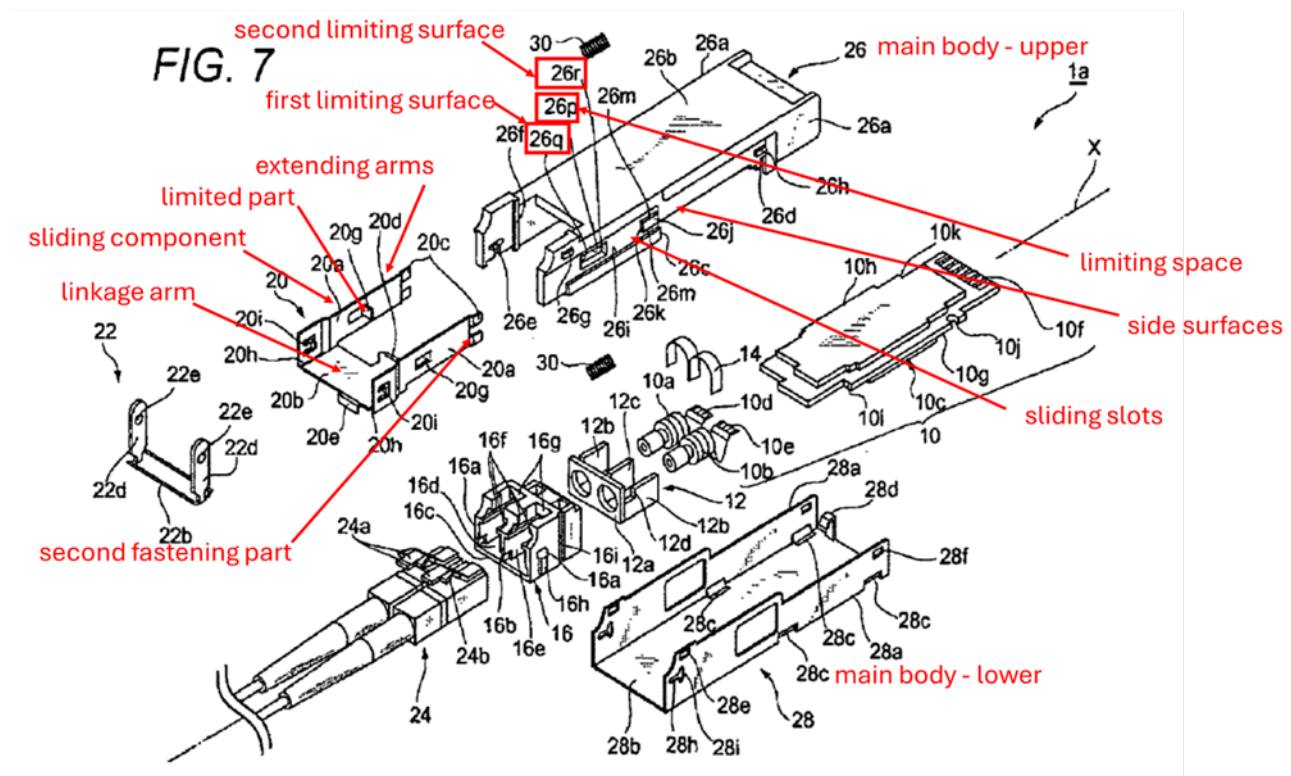


Ex. 1007, FIG. 7 (excerpt, showing alteration)

Such a modification of Mizue, which would have been well within the skill of a POSITA had he or she any concern about dislocation of the spring 30, would have resulted in the arm 20a covering the limited space and completely confining the elastic component. *Id.*

## Claim 2

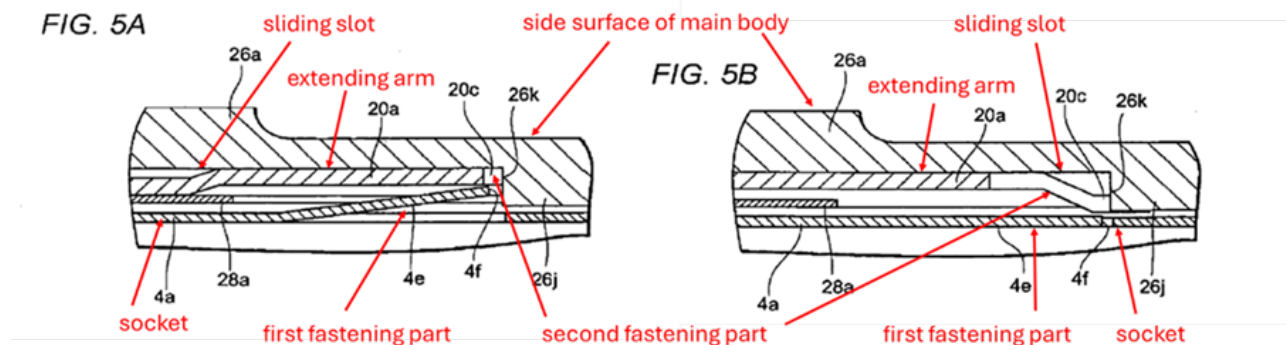
Mizue discloses that the main body includes a head part and an inserted part connected to each other, such that the inserted part is configured to be inserted into the socket. *See* Ex. 1007, FIGS. 1, 2, 3:19-24; Ex. 1003, ¶ 93. The two side surfaces are located at two sides of the head part and the inserted part opposite to each other, respectively, as shown in FIG. 7. *Id.*



releasing position, which is closer to the head part. *See* Ex. 1007, FIGS. 5A, 5B, 7, 5:46-65; Ex. 1003, ¶¶ 94-95.

### **Claim 3**

Mizue discloses each second fastening part has a fastening surface. *See* Ex. 1007, FIGS. 5A, 5B, 5:66-6:10, 7:38-47; Ex. 1003, ¶ 96. A distance between one side of the fastening surface, which is close to the side surface and the head part, is less than a distance between another side of the fastening surface, which is far away from the side surface and the head part. *Id.*, FIGS. 5A, 5B; Ex. 1003, ¶¶ 96 -97.



### **Claim 4**

A POSITA would have understood that Mizue discloses that its head part has slots into which optical fiber receptacles are disposed to receive an optical fiber. *See* Ex. 1007, FIGS. 4, 7, 4:24-41; Ex. 1003, ¶¶ 98-99.

### **Claim 5**

As discussed *supra*, Mizue discloses that the pluggable optical transceiver

module includes two elastic components, with each elastic component disposed in a corresponding limiting space defined by respective first and second limiting surfaces. *See* Ex. 1007, FIGS. 7-9, 7:14-37; Ex. 1003, ¶ 100. The two first limiting surfaces are closer to the head part than the two second limiting surfaces, and each elastic component is disposed between the first limiting surface and the limited part. *Id.*

### **Claim 6**

Mizue discloses the pluggable optical transceiver module includes a pull handle (bail 22) pivoted on the linkage arm (20b) of the sliding component (actuator 20). *See* Ex. 1007, FIG. 7, 7:4-13, 7:20-54; Ex. 1003, ¶¶ 102-103.

### **Claim 7**

[7a] The preamble of Claim 7 of the '826 Patent is similar to the preamble of Claim 1 but omits the socket having first fastening parts. Mizue anticipates the limitations of element [7a] for the same reasons as described above for Claim [1a], *supra*. Ex. 1003, ¶ 104.

[7b] Claim element [7b] requires the limitations of claim element [1b] of Claim 1, while further requiring the limitations of Claim 5. Accordingly, Mizue discloses all of the limitations of claim element [7b] for the reasons explained above for claim element [1b] and Claim 5. Ex. 1003, ¶ 105.

[7c] Claim element [7c] requires the limitations of claim element [1c] of

Claim 1, while further requiring the limitations of Claim 3. Mizue therefore discloses all of the limitations of claim element [7c] for the reasons explained above for claim element [1c] and Claim 3. Ex. 1003, ¶ 106.

**[7d]** Claim element [7d] corresponds to claim element [1d] of Claim 1. Thus, Mizue discloses all of the limitations of claim element [7d] for the reasons explained above for claim element [1d]. Ex. 1003, ¶ 107.

## **VIII. DISCRETIONARY ISSUES**

### **A. The Petition Does Not Present The Same References Addressed In Prosecution**

The Board should not deny institution under §325(d). Under *Advanced Bionics*, the Board uses a two-part framework in determining whether to exercise its discretion under §325(d). *Advanced Bionics, LLC v. MED-EL Elektromedizinische*. IPR2019-01469, Paper 6 (PTAB Feb, 13, 2020).

The Board has held that the first prong of *Advanced Bionics* is not met where “neither [the combination references] nor similar prior art was before the examiner... the prosecution history does not include any overlapping arguments directed to this prior art.” *Godbersen-Smith Constr. Co. v. Guntert & Zimmerman Const. Div., Inc.* No. IPR2021-00050, Paper 24 (PTAB. May 7, 2021), at 19–21. And in such a case, the Board “need not address part two of the analysis.” *Id.* at 21.

Although Mizue was cited in an obviousness combination in which Togami was the principal reference during prosecution of the '826 Patent, Mizue was not cited alone as anticipatory. In addition, there is a strong argument that Patent Owner mischaracterized the disclosure of Mizue by alleging that the spring was not covered by the extending arm or confined within the limiting space by the extending arm. As discussed, *supra*, a POSITA would have understood that the Patent Owner's alleged defect in the design of Mizue was unfounded. Moreover, the Patent Examiner did not consider that only a minor alteration of Mizue, which required no inventive faculty and would have been apparent to a POSITA, would have remedied the Patent Owner's concern. Ex. 1003, ¶¶ 91-92.

Thus, the combination of references used in this petition cannot be cumulative of the art and/or arguments raised during prosecution as there are material differences between the grounds herein and what was previously presented. *Tianma Microelectronics Co., v. Japan Display Inc.*, IPR2021-01058, Paper 16 at 31 (PTAB Jan. 5, 2022). Because the first prong is not met, the Board need not move to the second prong. *Id.* at 21; *Oticon Med. AB v. Cochlear Ltd.*, IPR2019-00975, Paper 15 at 20 (PTAB Oct. 16, 2019).

**B. The Board Should Not Deny Institution Under *Fintiv***

The claims of the '826 Patent have never been tested in view of the most

relevant prior art. In view of these strong challenges and the nascent nature of the current district court proceedings, institution should not be discretionarily denied under §314(a). *See NHK Spring Co. v. Intrix-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 19-20 (PTAB Sept. 12, 2018) (precedential); *Apple v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 13-14 (PTAB Mar. 20, 2020) (precedential).

**Factor 1**—potential stay of the district court litigation—is neutral because no party has requested a stay. *VMWare, Inc. v. Intellectual Ventures I LLC*, IPR2020-00470, Paper 13 (PTAB Aug. 18, 2020), at 17 (finding in the absence of a stay motion that this factor “does not weigh for or against discretionary denial”).

**Factor 2**— district court trial date and the Board’s statutory deadline— should be considered neutral. The trial date set for this case according to the Court’s Scheduling Order, Ex. 1013, is June 8, 2026. *See* Ex. 1013, p. 2. The current trial date therefore does not support denial. *See Dish Network v. Broadband iTV*, IPR2020- 01280, Paper 17 at 16 (PTAB Feb. 4, 2021)(check cite).

Further, Petitions for *inter partes* reviews simultaneously are being filed against at other patents asserted in the pending District Court litigation. An institution decision is expected no later than mid-June 2025. Should the Board institute review on these patents, the likelihood that a stay is granted in the District Court proceeding will increase dramatically. Thus, this factor does not support discretionary denial.

**Factor 3**—investment in the district court proceedings—weighs heavily against discretionary denial. The associated district court case is still in the very early stages of litigation: discovery is still in the preliminary stages, the Defendant only recently exchanged its invalidity contentions, and Claim Construction is not scheduled until April 10, 2025. Ex. 1008, p. 2. Moreover, it is unlikely that a claim construction order will issue prior to the PTAB’s projected institution decision date. Accordingly, the district court will not invest significant resources or issue substantive orders related to the challenged patent prior to the issuance of an institution decision. *See Fintiv*, IPR2020-00019, Paper 11 at 9-12. Regardless, Petitioner diligently prepared this Petition and filed well in advance of the statutory deadline, which weighs against denying institution.

**Factor 4**—overlap in the parallel proceedings—favors institution. Instituting trial will allow issues to be narrowed in the district court because, if instituted, Petitioner stipulates that it will not pursue invalidity against the asserted claims in the district court using the specific combination of prior art references set forth in the grounds presented in this Petition for purposes of establishing obviousness. *See Sand Revolution II LLC v. Continental Intermodal Group-Trucking LLC*, IPR2019-01393, Paper 24 at 11-12 (PTAB June 16, 2020) (holding a similar stipulation weighs against discretionary denial). Given the lack of overlap between the proceedings, this factor

weighs against the Board exercising discretion to deny.

**Factor 5**—overlapping parties—is neutral as it is “far from an unusual circumstance that a petitioner in *inter partes* review and a defendant in a parallel district court proceeding are the same.” *Sand*, No. IPR2019-01393, Paper 24, at 12-13.

**Factor 6**—other considerations—weighs against discretionary denial. As explained, the merits of the Petition are strong, and the Challenged Claims are invalid. For example, none of the specific grounds asserted herein were previously considered by either the Office or the district courts. *Cf. Comcast Cable Comm’n’s, LLC v. Rovi Guides, Inc.*, IPR2019-00231, Paper 14 at 11 (PTAB May 20, 2019) (obviousness challenges not “previously considered by the Office or any court” weigh in favor of not denying institution). Accordingly, the Board should decline to exercise its discretion under *Fintiv* and institute trial.

### **C. The Board Should Not Deny Institution Under *General Plastic***

The *General Plastic* factors, set forth in *Gen. Plastic Indus. Co., Ltd. v. Canon Kabushiki Kaisha*, Case IPR2016-01360 (PTAB Nov. 14, 2016) (Paper 12) do not apply because this is the first and only *inter partes* review (“IPR”) petition filed by Petitioner with respect to the ’826 Patent.

## **IX. CONCLUSION**

Petitioner respectfully requests cancellation of the Challenged Claims.

## **X. MANDATORY NOTICES UNDER 37 C.F.R. §42.8**

### **A. Real Party in Interest (37 C.F.R. §42.8(b)(1))**

The real parties-in-interest are Cambridge Industries USA, Inc, which is a named defendant in the associated district court proceeding, and its parent corporation, CIG Shanghai, Co. Ltd.

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

Pursuant to 37 C.F.R. §42.8(b)(2), Petitioner is aware of the following pending lawsuits or related matters involving the '826 Patent:

- *Applied Optoelectronics, Inc. v. Cambridge Industries USA, Inc.* 5:24-cv-01010 (N.D. Cal. filed Feb. 20, 2024);
- *Applied Optoelectronics, Inc. v. Accelight Technologies, Inc.*, No. 3:24-cv-09041 (N.D. Cal. filed Dec. 13, 2024)

**C. Designation of Counsel (37 C.F.R. §42.8(b)(3))**

Petitioner provides the following designation of counsel.

| Lead Counsel                                                                                                                                                                                                                                | Backup Counsel                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nicola A. Pisano<br>Reg. No. 34,408<br>EVERSHEDS SUTHERLAND (US)<br>LLP<br>12255 Camino Real, Suite 100<br>San Diego, California 92130-2071<br>Phone: (858) 252-2952<br>Fax: (858) 252-6503<br>Email: nicolapisano@eversheds-sutherland.com | Regis Worley<br>Reg. No. 58,430<br>EVERSHEDS SUTHERLAND (US)<br>LLP<br>12255 Camino Real, Suite 100<br>San Diego, California 92130-2071<br>Phone: (858) 252-2952<br>Fax: (858) 252-6503<br>Email: regisworley@eversheds-sutherland.com |

Pursuant to 37 C.F.R. §42.8(b)(4), counsel agrees to service by mail as detailed above, and to electronic service by email at the following addresses:

[nicolapisano@eversheds-sutherland.com](mailto:nicolapisano@eversheds-sutherland.com); [regisworley@eversheds-sutherland.com](mailto:regisworley@eversheds-sutherland.com).

Pursuant to 37 C.F.R §42.10(b), a Power of Attorney executed by Petitioner accompanies this Petition.

**D. Service Information (37 C.F.R. §42.8(b)(4))**

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

Petitioner consents to electronic service directed to  
nicolapisano@eversheds-sutherland.com and; regisworley@eversheds-  
sutherland.com.

Date: January 17, 2025

By: /Nicola A. Pisano/

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## **CLAIMS APPENDIX**

| <b>Claim</b> | <b>Recitation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [1a]         | A pluggable optical transceiver module, for being inserted into a plugging slot of a socket, the socket comprising two first fastening parts located in the plugging slot, the pluggable optical transceiver module comprising:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| [1b]         | a main body having two side surfaces that are opposite to each other and two sliding slots located at the two side surfaces, respectively, wherein the main body is configured to be inserted into the plugging slot, wherein the main body has at least one limiting space and two bottom surfaces forming the two sliding slots, respectively, the two bottom surfaces are parallel to the two side surfaces, the at least one limiting space is located at one of the two side surfaces;                                                                                                                                                                                                                                                                                                                                                                                           |
| [1c]         | a sliding component comprising a linkage arm and two extending arms, wherein the two extending arms are connected to two ends of the linkage arm, respectively, each extending arm has a second fastening part, the main body is between the two extending arms, the two extending arms are slidably disposed on the two sliding slots to have a fastening position and a releasing position, the two first fastening parts are fastened to the two second fastening parts when the two extending arms are located at the fastening position, and the two second fastening parts press the two first fastening parts, respectively, to make the two first fastening parts be farther away from each other when the two extending arms are located at the releasing position, wherein each extending arm has a limited part configured to move in the at least one limiting space; and |
| [1d]         | an elastic component, wherein the main body has a first limiting surface and a second limiting surface forming the limiting space, the first limiting surface is closer to the head part than the second limiting surface, and the elastic component is located in the limiting space and between the first limiting surface and the limited part and is covered by the extending arm such that the elastic component is confined by the main body and the sliding component.                                                                                                                                                                                                                                                                                                                                                                                                         |

## **CLAIMS APPENDIX**

| <b>Claim</b> | <b>Recitation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [2]          | The pluggable optical transceiver module according to claim 1, wherein the main body comprises a head part and an inserted part connected to each other, the inserted part is configured to be inserted into the socket, the two side surfaces are located at two sides of the head part and the inserted part opposite to each other, respectively, wherein both the two sliding slots extend from the head part towards the inserted part, and the two extending arms are able to slide relative to the two sliding slots to have the fastening position which is farther away from the head part and the releasing position which is closer to the head part. |
| [3]          | The pluggable optical transceiver module according to claim 2, wherein each second fastening part has a fastening surface, and a distance between one side of the fastening surface which is close to the side surface and the head part is less than a distance between another side of the fastening surface which is far away from the side surface and the head part.                                                                                                                                                                                                                                                                                        |
| [4]          | The pluggable optical transceiver module according to claim 2, wherein the head part has at least one optical fiber terminal.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| [5]          | The pluggable optical transceiver module according to claim 1, further comprising two elastic components, wherein the number of the at least one limiting surface is two the main body has two first limiting surfaces and two second limiting surfaces forming the two limiting spaces together, respectively, the two first limiting surfaces are closer to the head part than the two second limiting surfaces, the two elastic components are located in the two limiting spaces, respectively, and each elastic component is between the first limiting surface and the limited part.                                                                       |
| [6]          | The pluggable optical transceiver module according to claim 1, wherein the pluggable optical transceiver module further comprises a pull handle pivoted on the linkage arm of the sliding component.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| Claim | Recitation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [7a]  | A pluggable optical transceiver module, comprising:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| [7b]  | a main body having a head part and an inserted part that are connected to each other, wherein the main body further comprises opposite two side surfaces and two sliding slots which are located at two sides of the head part and the inserted part opposite to each other, respectively, the two sliding slots are located at the two side surfaces, and the two sliding slots extend from the head part to the inserted part, respectively, wherein the main body has at least one limiting space and two bottom surfaces forming the two sliding slots, respectively, the two bottom surfaces are parallel to the two side surfaces, the at least one limiting space is located at one of the two side surfaces; |
| [7c]  | a sliding component comprising a linkage arm and two extending arms, wherein the linkage arm is connected between the two extending arms, each extending arm has a second fastening part, the main body is between the two extending arms, the two extending arms are able to slide relative to the two sliding slots to have a fastening position which is farther away from the head part and a releasing position which is closer to the head part, wherein each extending arm has a limited part configured to move in the at least one limiting space; and                                                                                                                                                      |
| [7d]  | an elastic component, wherein the main body has a first limiting surface and a second limiting surface forming the limiting space, the first limiting surface is closer to the head part than the second limiting surface, and the elastic component is located in the limiting space and between the first limiting surface and the limited part and is covered by the extending arm such that the elastic component is confined by the main body and the sliding component.                                                                                                                                                                                                                                        |

**CERTIFICATION UNDER 37 C.F.R. §42.24**

Petitioner certifies that the word count in this Petition is 6742 words, as counted by the word-processing program (Microsoft Word for Office 365) used to generate this Petition, where such word count excludes the table of contents, table of authorities, mandatory notices, certificate of service, appendix of exhibits, and this certificate of word count. This Petition is in compliance with the 14,000-word limit set in 37 C.F.R. §42.24(a)(1)(i).

Date: January 17, 2025

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### **CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. §§42.6(e), 42.105, the undersigned hereby certifies that true and correct copies of the above-captioned PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. 9,523,826, all associated exhibits, and Petitioner's Power of Attorney were served in their entireties on January 17, 2025, upon the Patent Owner at the correspondence address of record for the subject patent as listed on the USPTO's Patent Center via Priority Mail Express®:

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