

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SENKO ADVANCED COMPONENTS
Petitioner

v.

US CONEC LTD.
Patent Owner

Case: IPR2024-00805
Patent No. 11,385,415

**PETITION FOR INTER PARTES REVIEW
OF U.S. PATENT NO. 11,385,415**

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EXHIBIT LIST

Exhibit No.	Description
1001	U.S. Patent No. 11,385,415
1002	Expert Declaration of Edward Lurie
1003	U.S. Patent No. 6,220,762 (“Kanai”)
1004	U.S. Patent No. 5,222,168 (“Saito”)
1005	U.S. Publication No. 2012/0057824 (“Katoh”)
1006	U.S. Patent No. 5,673,346 (“Iwano”)
1007	U.S. Patent No. 6,929,406 (“Amorim”)
1008	U.S. Patent No. 6,386,768 (“Yoon”)
1009	PCT Publication No. WO 2012/174227 (“Hodge”)
1010	U.S. Publication No. 2005/0135753 (“Eigenmann”)
1011	Provisional Application No. 61/789,499
1012	Prosecution History of U.S. Application No. 14/214,931
1013	Prosecution History of U.S. Application No. 15/855,750
1014	Prosecution History of U.S. Application No. 15/855,788
1015	Prosecution History of U.S. Application No. 16/214,317
1016	Prosecution History of U.S. Application No. 17/145,864
1017	Prosecution History of U.S. Application No. 17/857,300
1018	Prosecution History of U.S. Application No. 18/483,949

Exhibit No.	Description
1019	U.S. Patent No. 6,146,023
1020	U.S. Patent No. 6,371,659
1021	U.S. Patent No. 6,305,961
1022	U.S. Publication No. 2005/0111796
1023	U.S. Publication No. 2005/0281509
1024	English Translation of Japanese Patent No. 2573482
1025	Scheduling Order
1026	Claim Listing

Emphasis added throughout unless indicated otherwise.

I. INTRODUCTION

Senko Advanced Components, Inc. (“Petitioner” or “Senko”) requests *inter partes* review, seeking cancellation of claims 1-14 of U.S. Patent No. 11,385,415 (“the ‘415 Patent”; EX1001) assigned to US Conec Ltd. (“Patent Owner” or “US Conec”). Supporting this Petition is an expert declaration from Edward Lurie—an expert in the field of fiber optic connector design. EX1002: ¶¶1-6.

II. IDENTIFICATION OF CHALLENGE

A. Identification of Prior Art

The ‘415 Patent claims priority to Provisional Application No. 61/789,499, filed March 15, 2013.

The following documents constitute prior art under pre-AIA §102(b):

- U.S. Patent 6,220,762 (“Kanai”)
- U.S. Patent 5,222,168 (“Saito”)
- U.S. Publication No. 2012/0057824 (“Katoh”)
- U.S. Patent 5,673,346 (“Iwano”)
- U.S. Patent 6,386,768 (“Yoon”)
- U.S. Publication No. 2005/0135753 (“Eigenmann”)

The following document constitutes prior art under pre-AIA §102(a)&(e):

- WO 2012/174227 (“Hodge”)

Of the references only Katoh was cited during examination.

B. Statutory Grounds for Challenge

Petitioner advances these grounds of unpatentability. Claims 1, 8, and 12 are independent.

Ground	References	Basis	Claims Challenged
1	Iwano	§102	1-14
2	Eigenmann	§102	12-14
3	Kanai, Saito	§103	1, 4-10
4	Kanai, Saito, Shirakawa	§103	2, 3
5	Kanai, Saito, Yoon	§103	11-14
6	Hodge, Iwano	§103	1-5, 8-13
7	Hodge, Iwano, Kanai	§103	6, 7, 14

III. BACKGROUND OF THE ‘415 PATENT

A. Subject Matter of the ‘415 Patent

The ‘415 Patent pertains to “fiber optic connectors with fiber optic ferrules that are ganged together.” EX1001: 1:22-24, EX1002: ¶23-25. Such connectors were already well known in the art. EX1002: ¶¶26-27; EX1011: 16.

The figures below demonstrate the ‘415 Patent’s primary embodiment. The assembly (10) comprises an adapter (100) that mates with a fiber optic connector comprising a plug (200) ganging ferrules (12) held by ferrule holders (300). EX1001: 3:61-4:5; EX1002: ¶¶30-47.

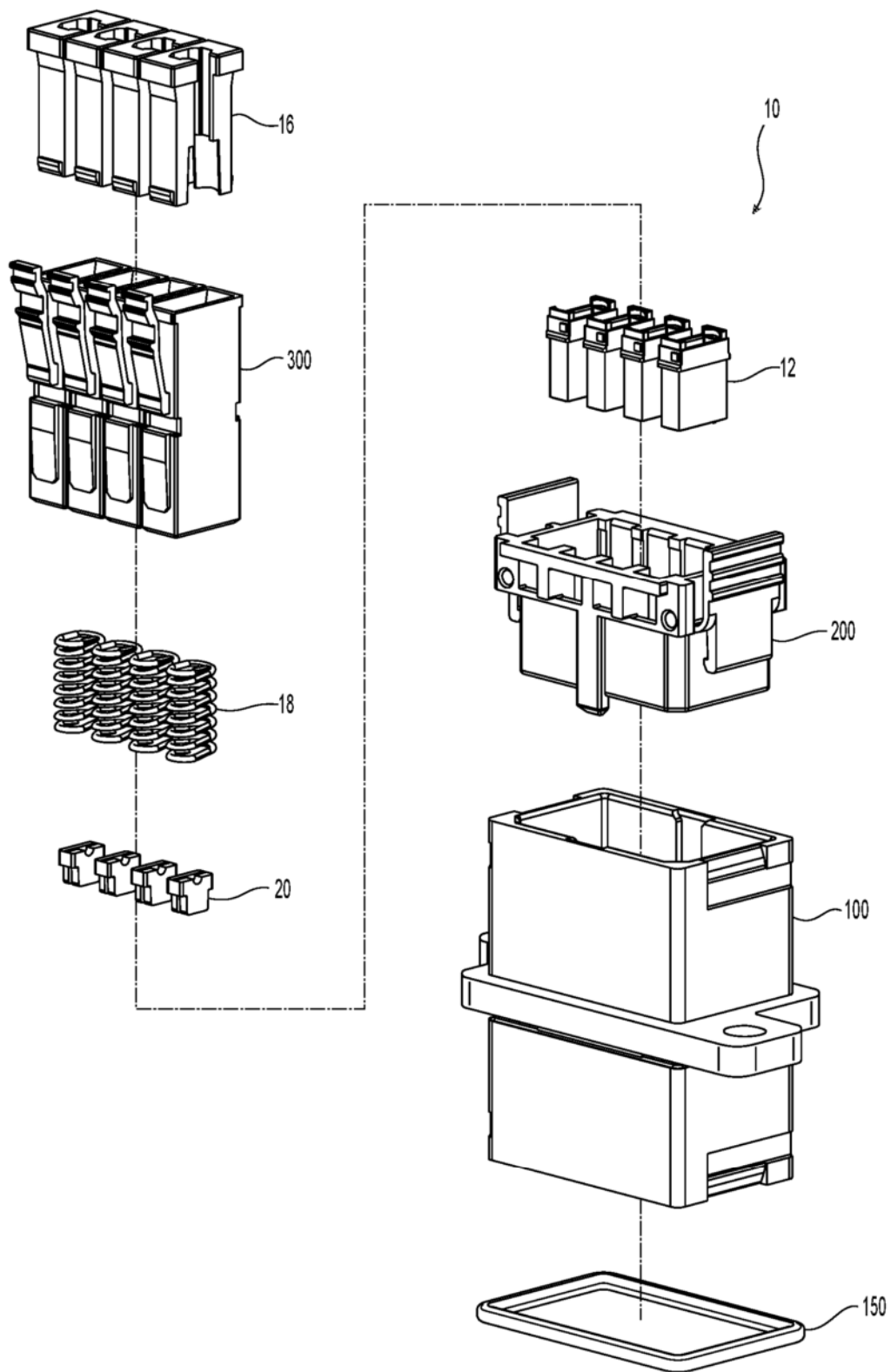


Fig. 2

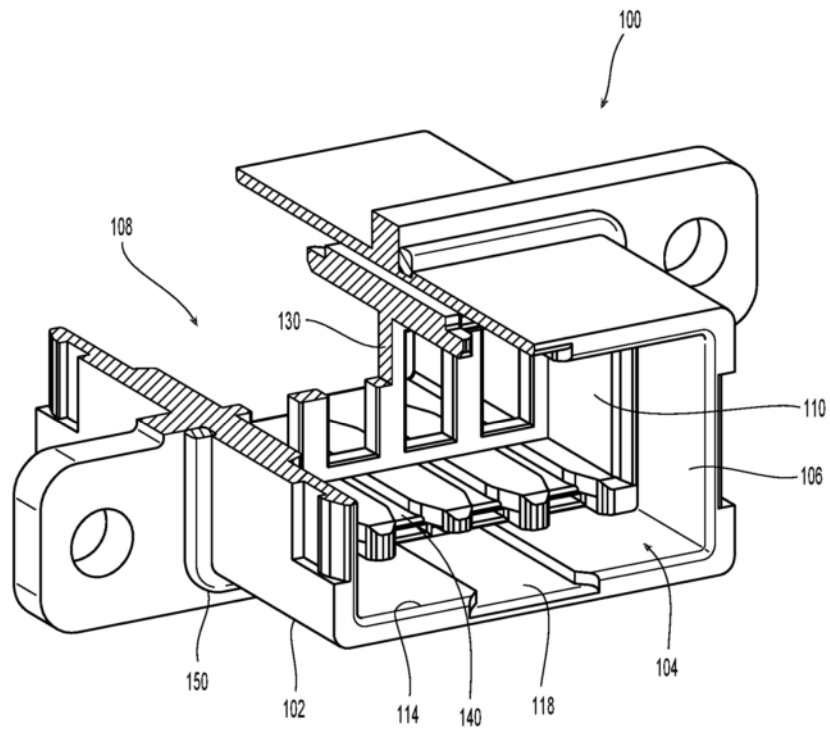


Fig. 3

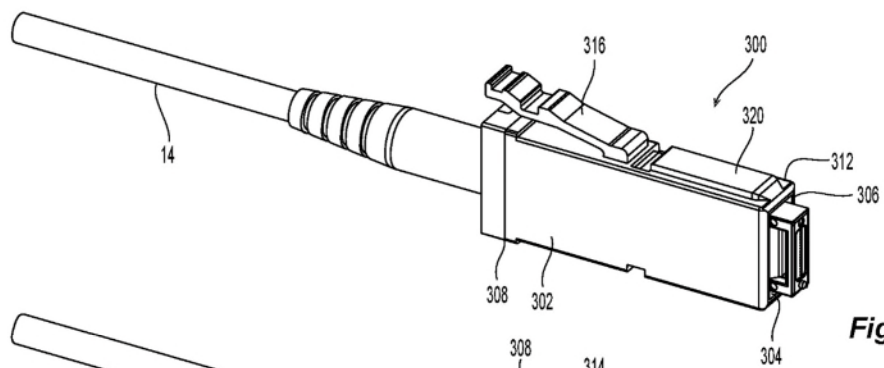


Fig. 5A

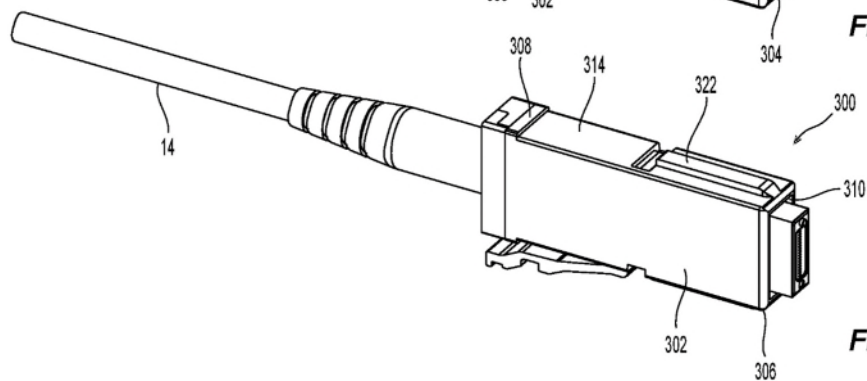


Fig. 5B

EX1001: Figs. 2, 3, 5A, 5B.

The adapter (100) comprises a main body (102) with an opening (104) into which ganged connectors are inserted through opposite sides (106, 108) to form an optical connection between the opposing ferrules (12). EX1001: 5:20-23, 5:58-6:7, Figs. 3 and 4; EX1002: ¶¶31-38, 45-46. Each side includes grooves (116, 118) for receiving corresponding projections of the plug (200). EX1001: 5:18-29; EX1002: ¶39. A center portion (110) of the main body, between the sides (106, 108), has grooves (140, 142) for receiving corresponding projections (320, 322) of each ferrule holder (300). EX1001: 5:30-57; EX1002: ¶¶40-41, 47.

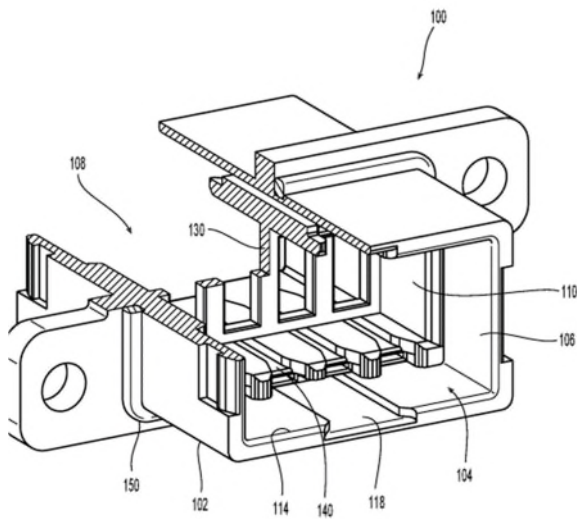


Fig. 3

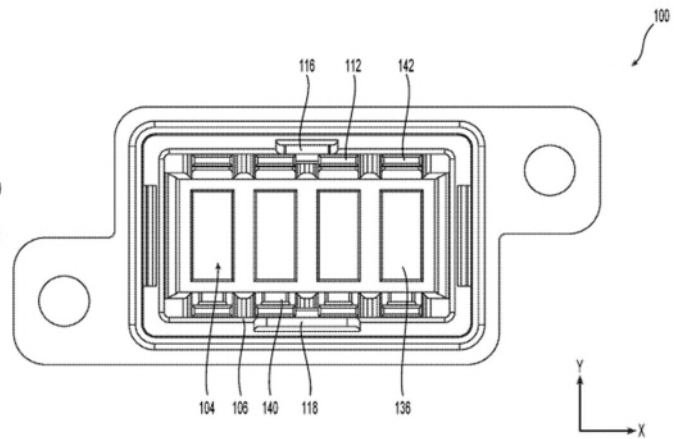


Fig. 4

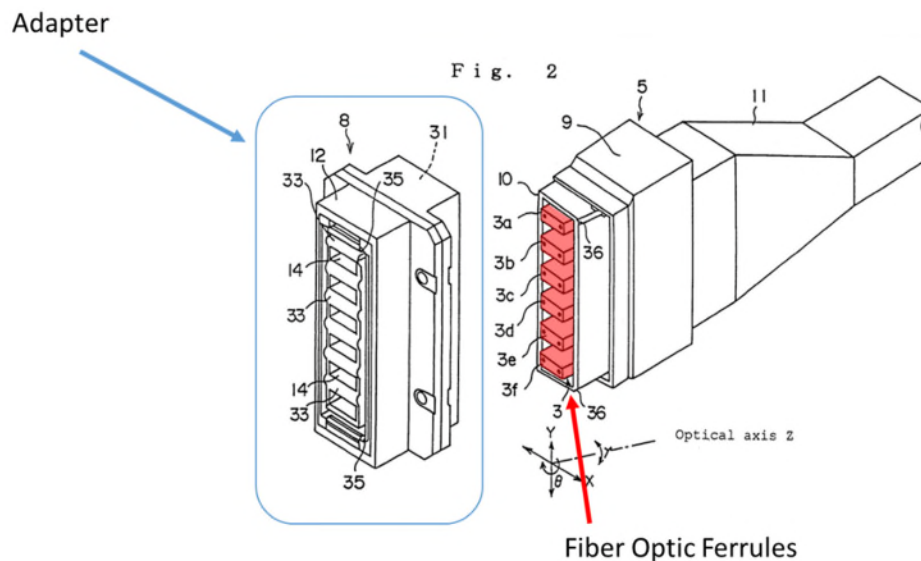
EX1001: Figs. 3, 4.

B. Background of the Art

The prior art references in this petition each pertain to fiber optic connection systems and are in the same field of endeavor with each other and with the '415 Patent. EX1002: ¶53.

1. Kanai

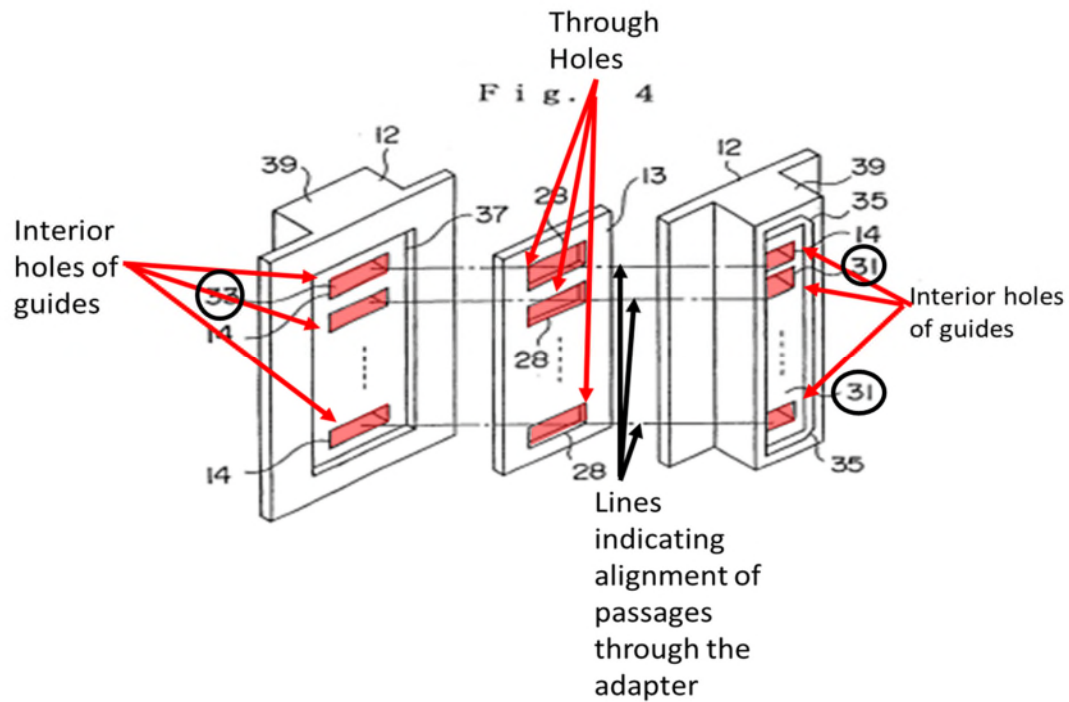
Kanai teaches optical connector plugs (5, 6) with optical connectors (3a-f, 4a-f) and corresponding adapter (8). EX1003: Abstract; EX1002: ¶¶54-55.



EX1003: Fig. 2 (annotated); EX1002: ¶54.

Kanai's adapter receives plugs from opposing sides. EX1003: 7:8-11; EX1002: ¶¶56-59. The adapter has aligned guides (31, 33) on both sides with corresponding interior openings and through holes that receive and align the optical connectors for making optical connection. EX1003: 8:26-26, 9:54-58; EX1002: ¶¶64-68. A metallic plate (13) in the interior of the adapter provides

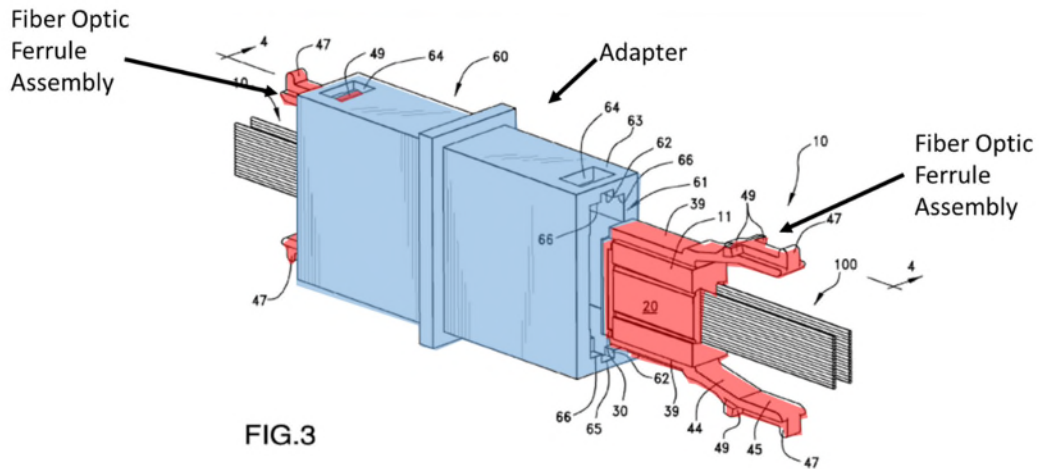
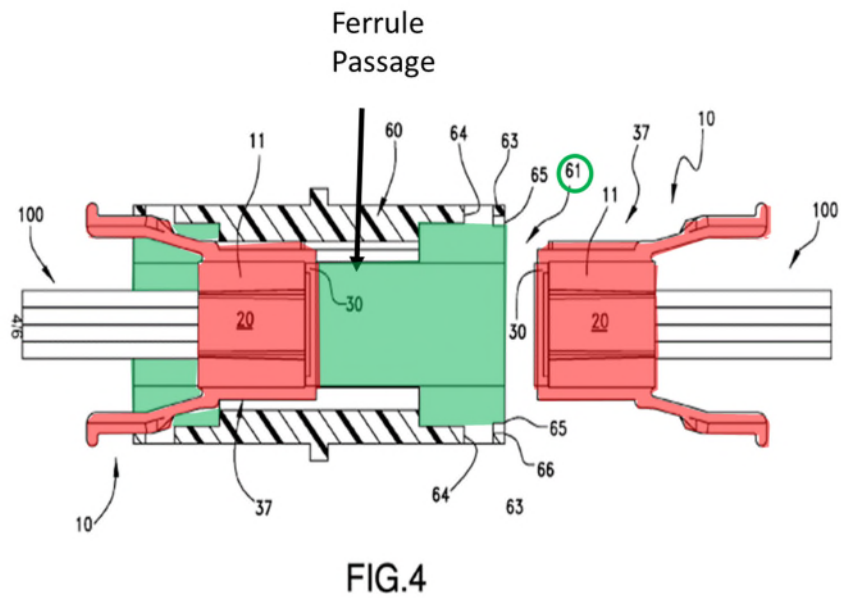
electromagnetic interference shielding. EX1003: 8:22-26, 11:40-50; EX1002: ¶¶60-61.



EX1003: Fig. 4 (annotated); EX1002: ¶64.

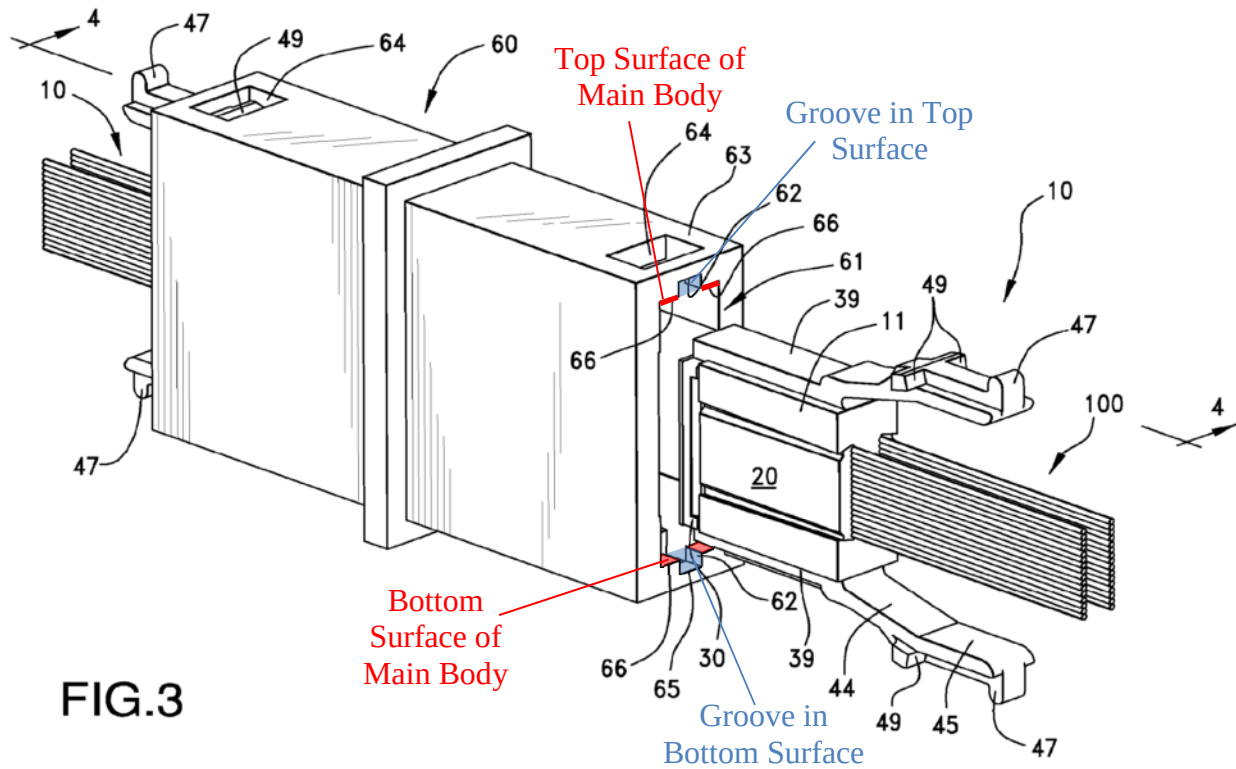
2. Hodge

Hodge teaches an adapter (60) that receives and connects ferrule assemblies (10) inserted from each side. EX1009: ¶[0041], Figs. 3 and 4; EX1002: ¶¶69-70.

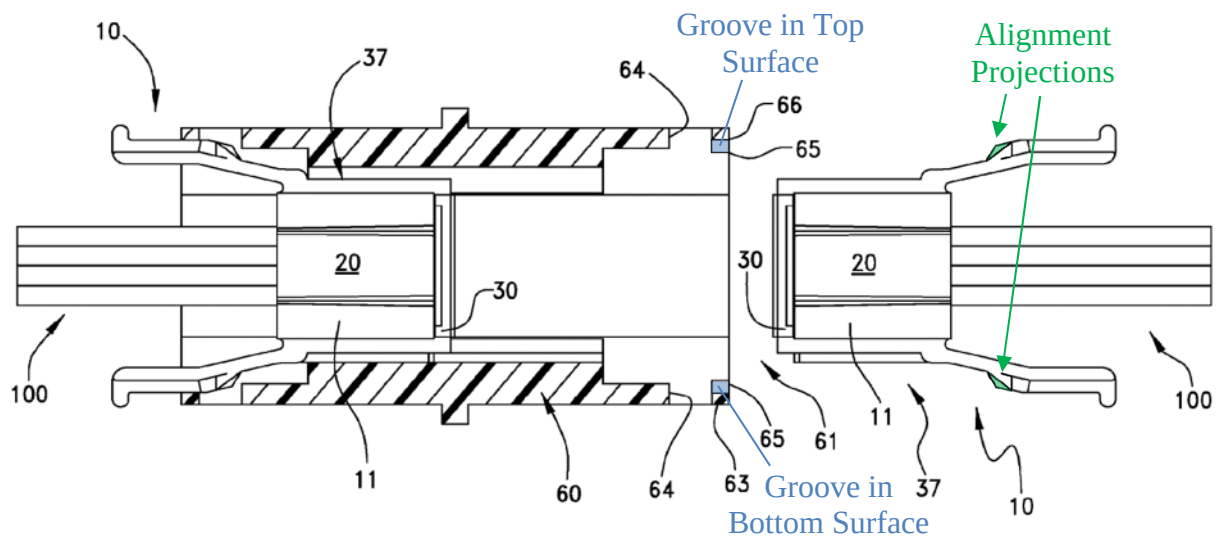


EX1009: Fig. 3, 4 (annotated); EX1002: ¶70.

Each ferrule assembly includes arm assemblies (37), each of which includes a forward section (39) and a latch arm (40) with a latch member (46) for securing the ferrule assembly to the adapter. EX1009: ¶¶[0029-0030]; EX1002: ¶¶71-73.



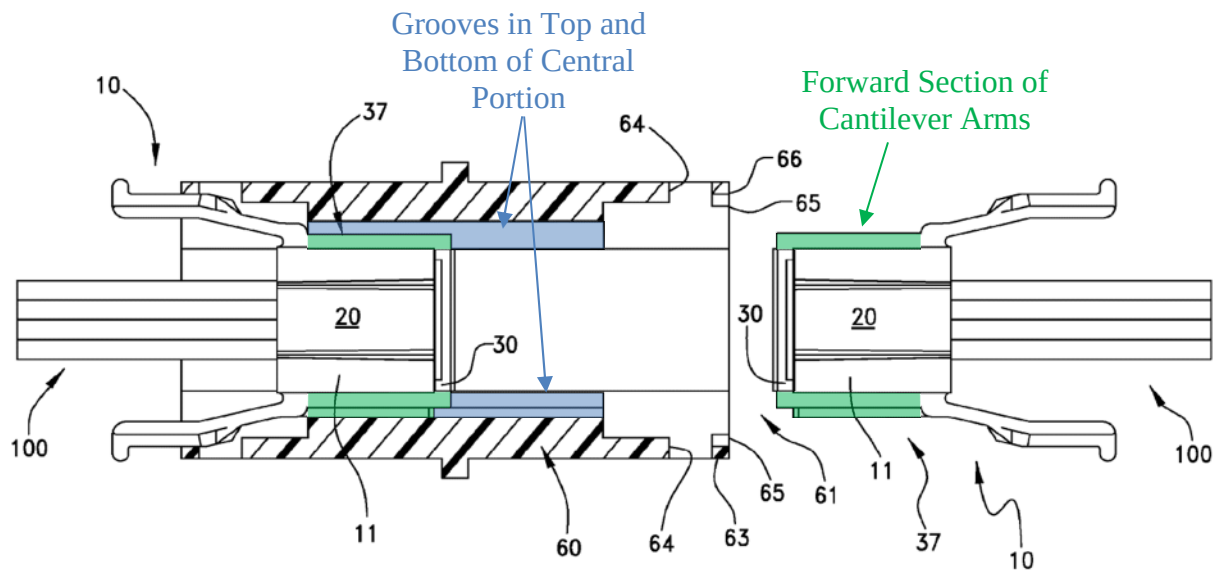
EX1009: Fig. 3 (annotated); EX1002: ¶74.



EX1009: Fig. 4 (annotated, flipped¹); EX1002: ¶74.

The adapter also has a narrowing center portion with a stepped-up bottom surface and a stepped-down top surface having lower and upper grooves, respectively, to receive the forward sections (39) of the cantilever arms (37).

EX1009: Fig. 4; EX1002: ¶75-76.

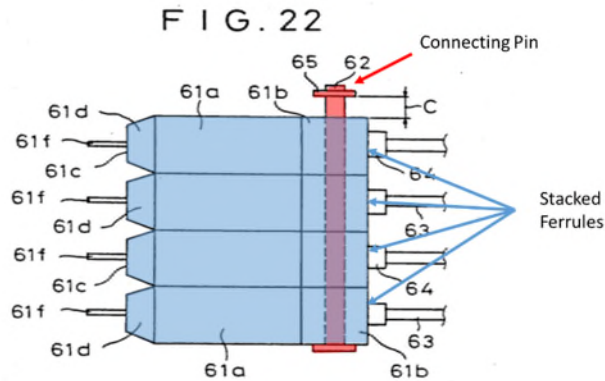


EX1009: Fig. 4 (annotated, flipped); EX1002: ¶76.

¹ The orientation of the connector and adapter in Figure 4 is upside down compared to Figure 3. Accordingly, some reproductions of Figure 4 have been flipped (with numbering edited to remain upright) as noted to provide consistency.

3. Saito

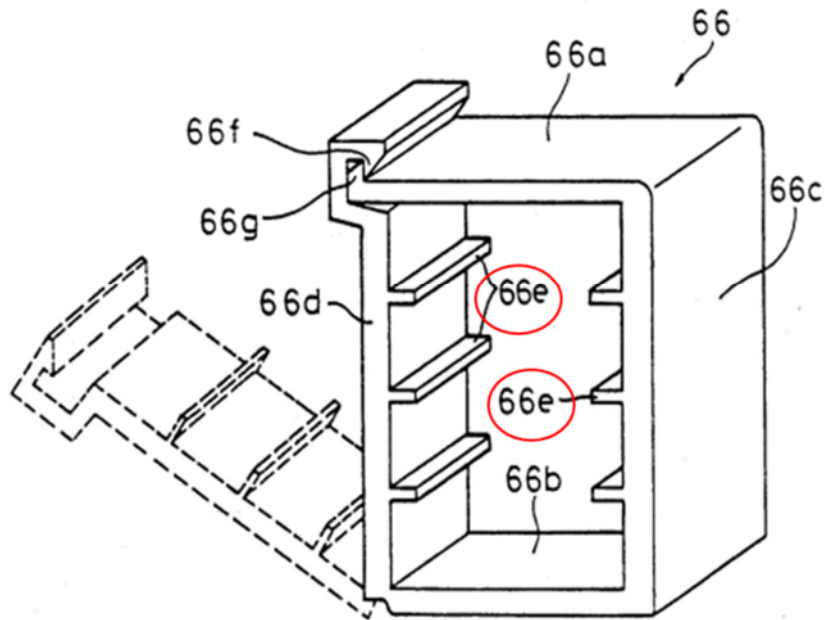
Saito pertains to an optical connector system with optical connector ferrules (61) stacked together and connected in a manner allowing them to float. EX1004: Abstract, 1:8-10, 9:43-48, 7:6-29; EX1002: ¶¶77-79.



EX1004: Fig. 22 (annotated); EX1002: ¶79.

Saito's corresponding adapter (66) includes internal "partitioning pieces" (66e) that create grooves for receiving and guiding the optical connectors inserted from each side into mating engagement. EX1004: 10:31-34, 10:41-45; EX1002: ¶80-81.

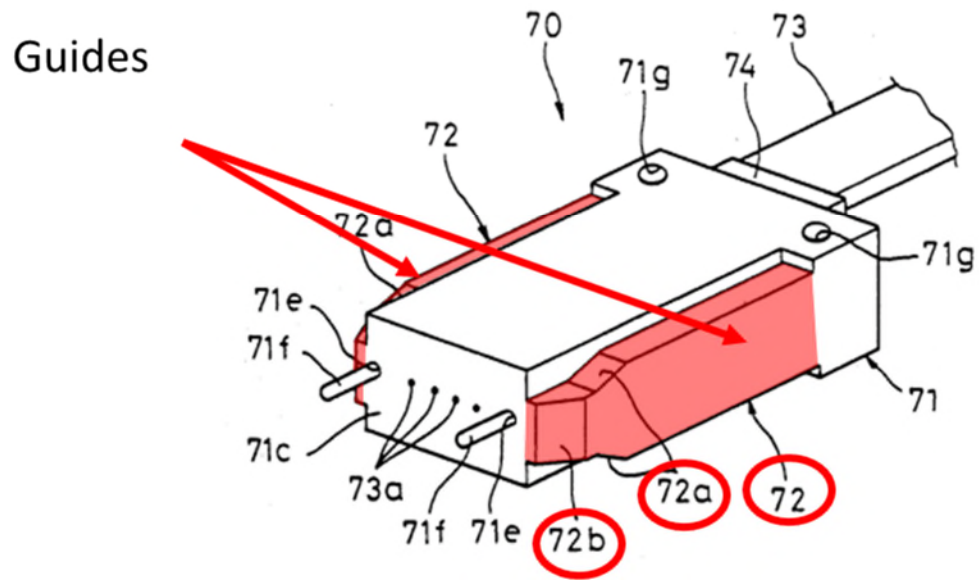
FIG. 23



EX1004: Fig. 23 (annotated); EX1002: ¶81.

In one embodiment, each ferrule includes guides (72) with tapered surfaces (72a, 72b) to position the ferrule vertically and widthwise to guide the ferrule into mating engagement with a corresponding ferrule when inserting the ferrule into the adapter (66). EX1004: 10:58–11:35, 11:56-64; EX1002: ¶¶82-85.

FIG. 28



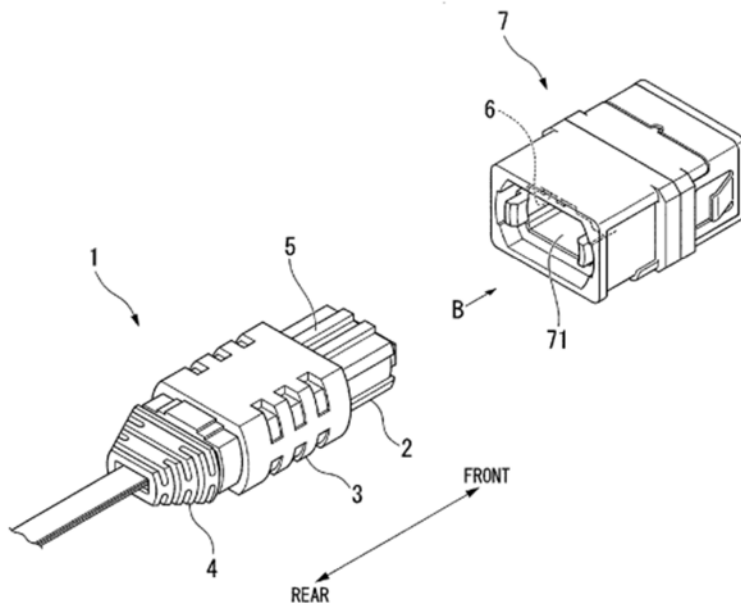
EX1004: Fig. 28 (annotated); EX1002: ¶84.

4. Katoh

Katoh teaches optical connectors (1) and a corresponding adapter (7).

EX1005: Abstract, Fig. 2; EX1002: ¶86.

FIG. 2



EX1005: Fig. 2.

The connector housing of Kato's optical connector (1) includes keys (51) that fit in corresponding keyway grooves (61) of the adapter (7). EX1005:

¶¶[0045]-[0046], Figs. 1-6; EX1002: ¶88. These keys and keyway grooves prevent erroneous insertion of the incorrect optical connectors into the connector adapter.

EX1002: ¶91.

FIG. 3

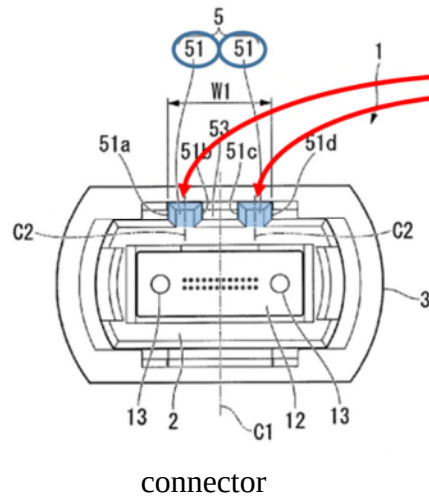
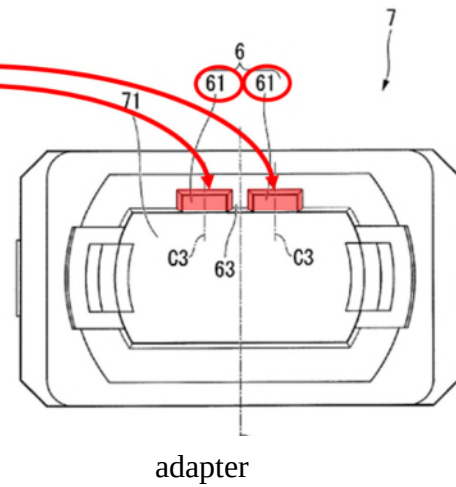


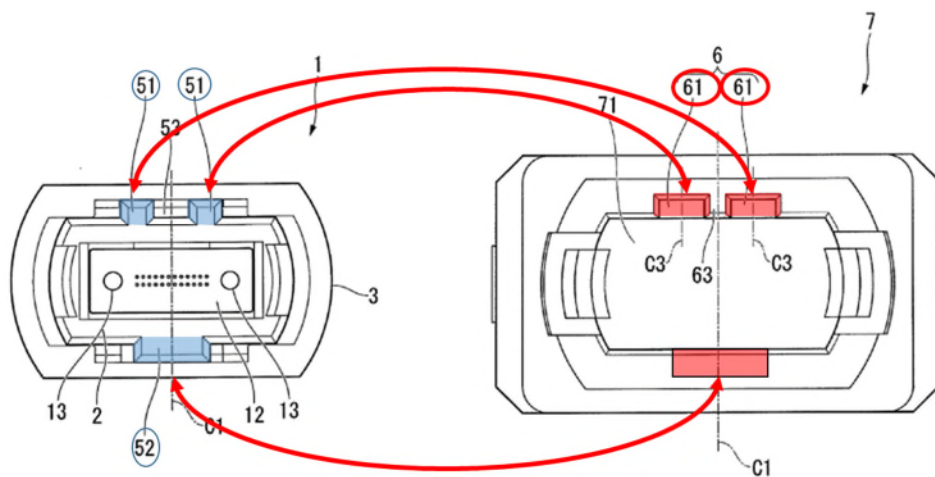
FIG. 5



EX1005: Figs 3 & 5 (annotated); EX1002: ¶88.

Katoh further teaches an additional key may be added on the opposite side of the plug from which the first keys 51 are formed. EX1005: ¶[0077]; EX1002: ¶89. The POSA would recognize that a keyway groove in the adapter would be necessary for receiving the additional key (52). EX1002: ¶90.

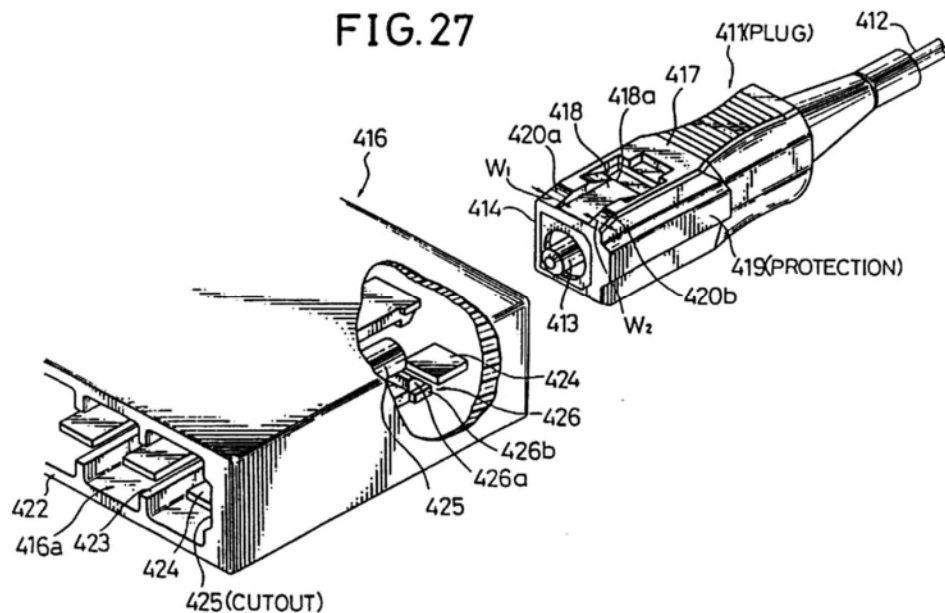
FIG. 9



EX1205: Figs. 9 (annotated), 5 (annotated and modified to demonstrate a keyway groove to receive key (52)); EX1002: ¶¶90.

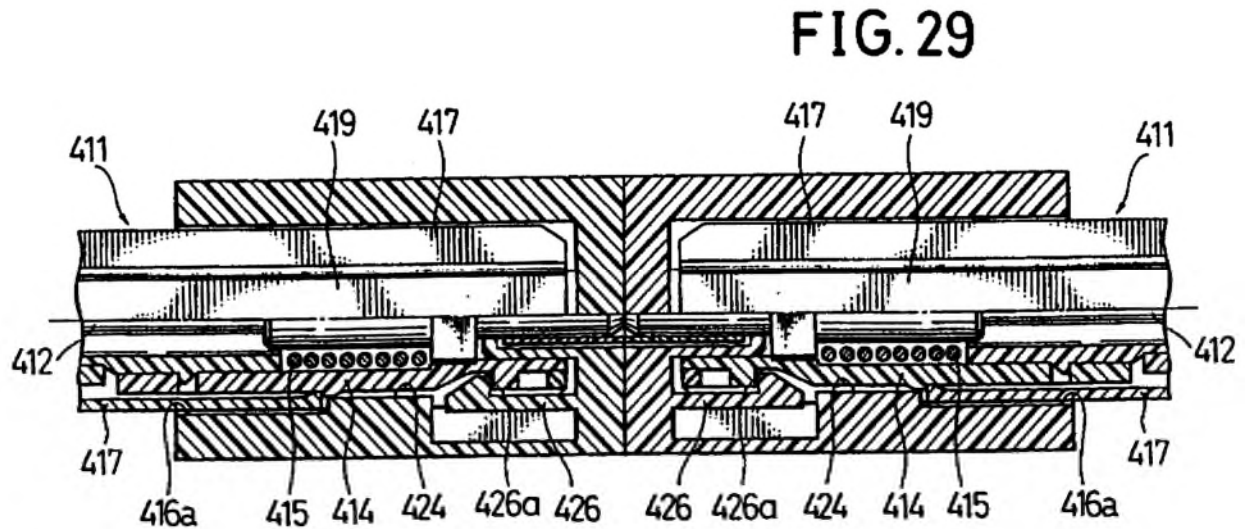
5. Iwano

Iwano teaches a “connector housing” (416)—i.e. an adapter—having opposing openings for receiving optical connectors (411) side-by-side, such that pairs of optical connectors inserted from opposite sides of the adapter mate with one another. EX1006: 30:12-15, Figs. 26(a) and 26(b) (identified as prior art), 27, 30 and 31(a); EX1002: ¶¶92-95.



Iwano’s Fig. 29 shows half the housing (416) receiving one of the optical connector plugs (411). EX1006: Fig. 29, 8:34-35; EX1002: ¶¶96. As Iwano’s connector housing connects optical connector plugs inserted from opposite sides, the structure (e.g., projections (424), partition walls (423), etc.) shown in Fig. 29

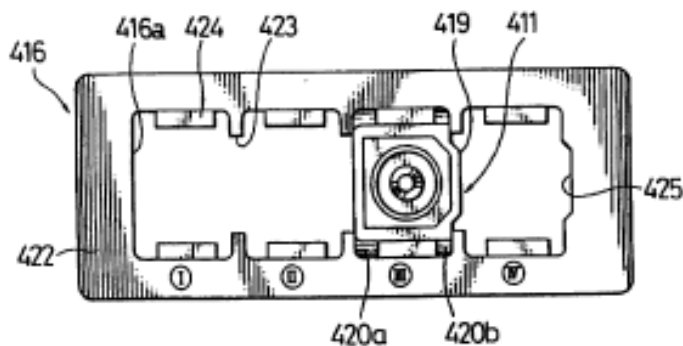
would also be present on the other half of Iwano's connector housing. EX1006: Figs. 27 and 31(a), 28:4-9, 29:40-44, 30:12-15, 31:14-17; EX1002: ¶97-103. By mirroring Fig. 29, a cross-section through Iwano's full connector housing (416) is shown.



EX1006: Fig. 29 (duplicated and mirrored to show the full connector housing);
EX1002: ¶98.

To achieve the highest density, the partitions are limited to partial walls or ribs (423). EX1006: 28:65-29:5; EX1002: ¶104.

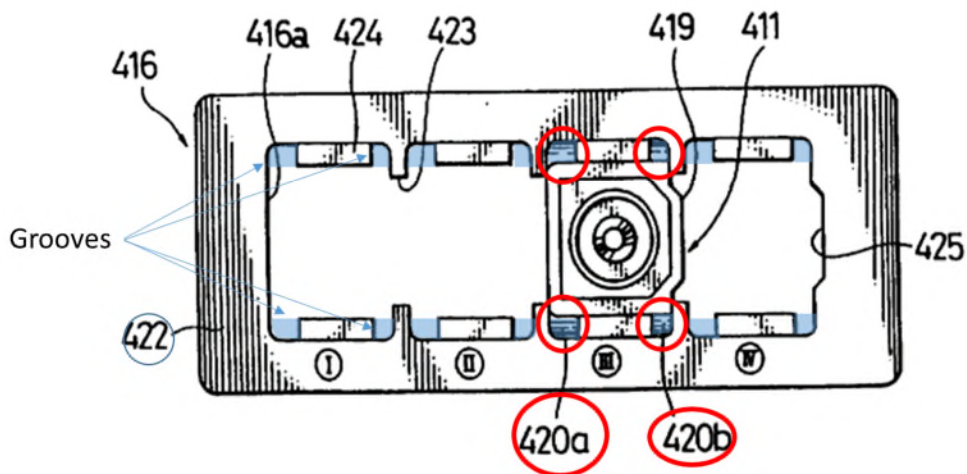
FIG. 31(a)



EX1006: Fig. 31(a).

Iwano's adapter includes grooves (blue) for receiving angled projections (420a, 420b) of the optical connectors. EX1006: Figs 26(a), 31(a); EX1002: ¶105.

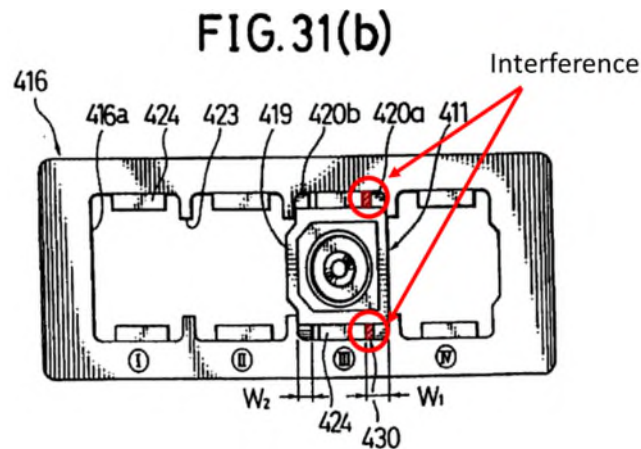
FIG. 31(a)



EX1006: Fig. 31(a) (annotated); EX1002: ¶105.

The widths of the grooves and the corresponding projections (420a, 420b) are different, limiting insertion of the optical connectors to only one orientation—

shown in Fig. 31(a)—and interfering with their insertion in the reverse orientation—
shown in Fig. 31(b). EX1006: 30:45-54; EX1002: ¶106.



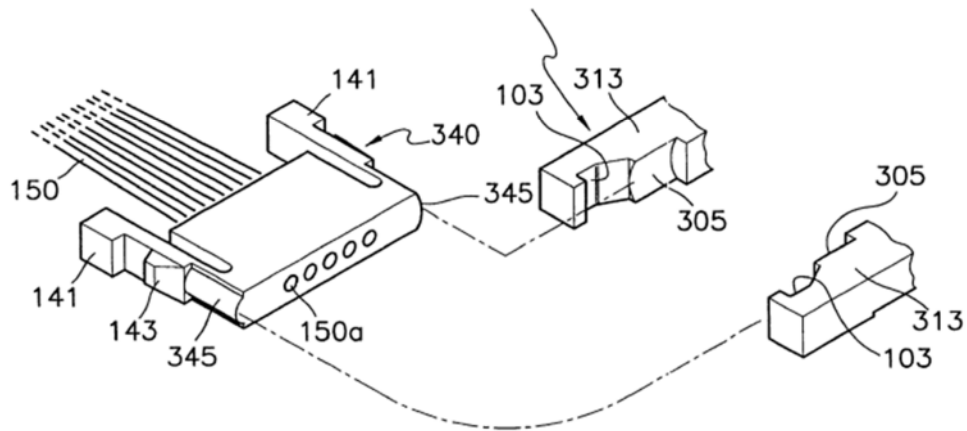
EX1006: Fig. 31(b) (annotated); EX1002: ¶106.

6. Yoon

Yoon teaches an optical connector module for coupling optical devices and optical fibers. EX1008: 1:14-25, Abstract; EX1002: ¶¶109-110.

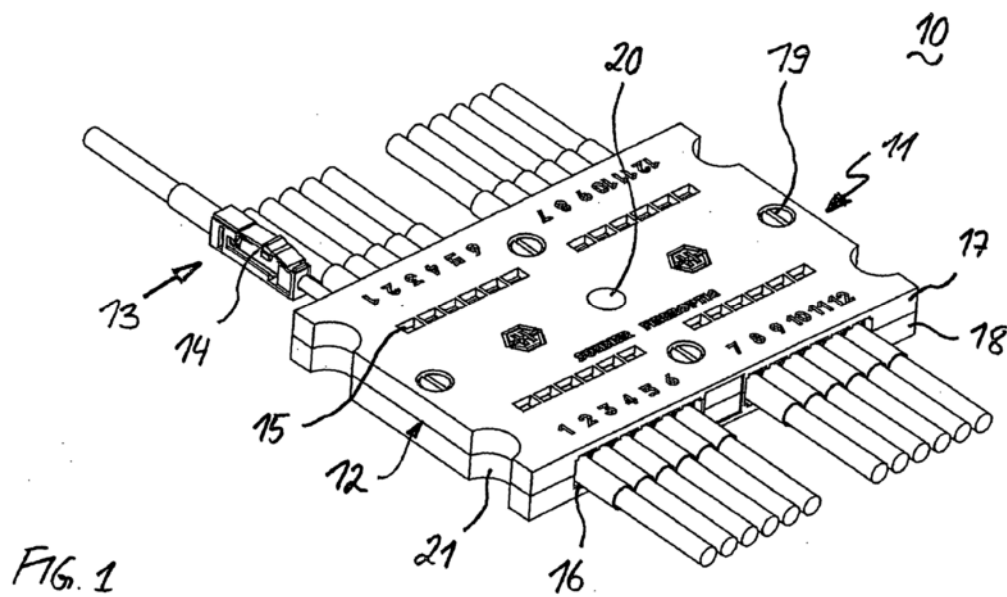
Included within Yoon are different embodiments of ferrules and holders, including the embodiment shown in Figure 6. In this embodiment, the body/adaptor (300) includes guide grooves (305) to receive corresponding guide portions (345) at the leading ends of the connector/ferrule (340), with each set of corresponding guide grooves and guide portions having “different curvatures” to ensure proper polarity. EX1008: 7:34-55; EX1002: ¶¶111-112.

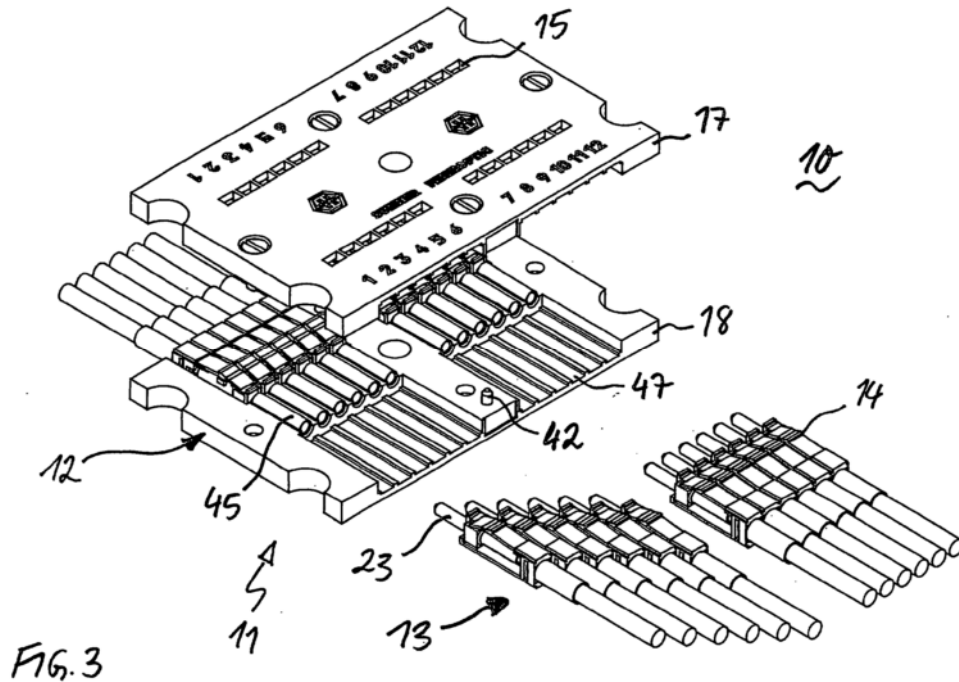
FIG. 6



7. Eigenmann

Eigenmann teaches an adapter (11) and optical plug-in connectors (13) which are inserted into the adapter from opposite sides. EX1010: Abstract; EX1002: ¶¶113-117.





EX1010: Figs. 1, 3.²

The adapter (11) has upper and lower parts (17,18) which each include guiding rails (46) that define insertion channels (47) for each plug-in connector (13). EX1010: Figs. 2 and 5, ¶[0031]; EX1002: ¶¶114-118.

² Eigemann includes two versions of Figs. 1-5. The figures referred to in this Petition are the first set of Figs. 1-5.

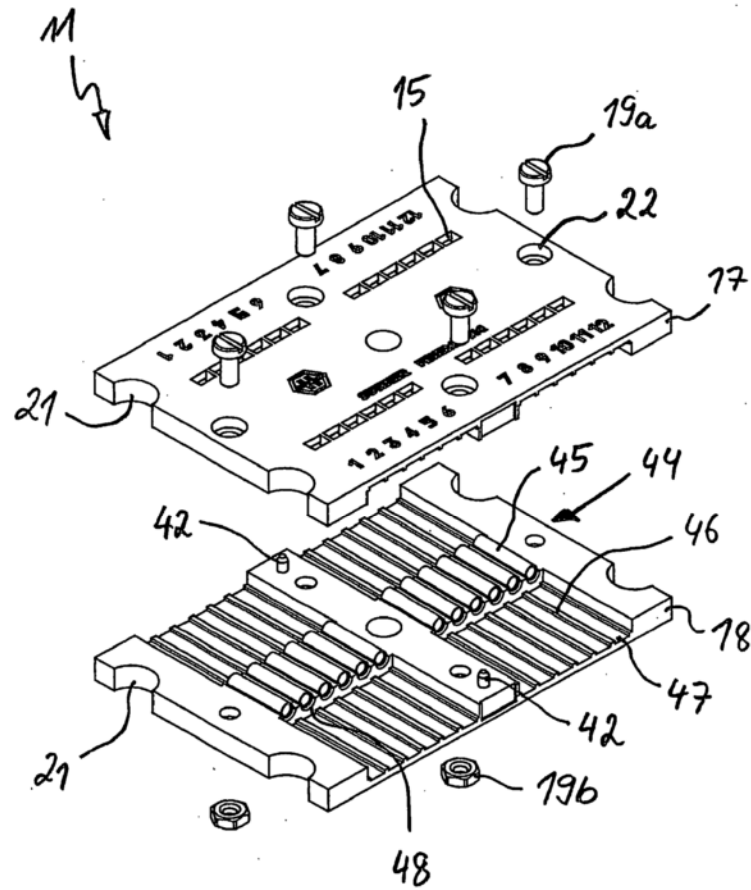
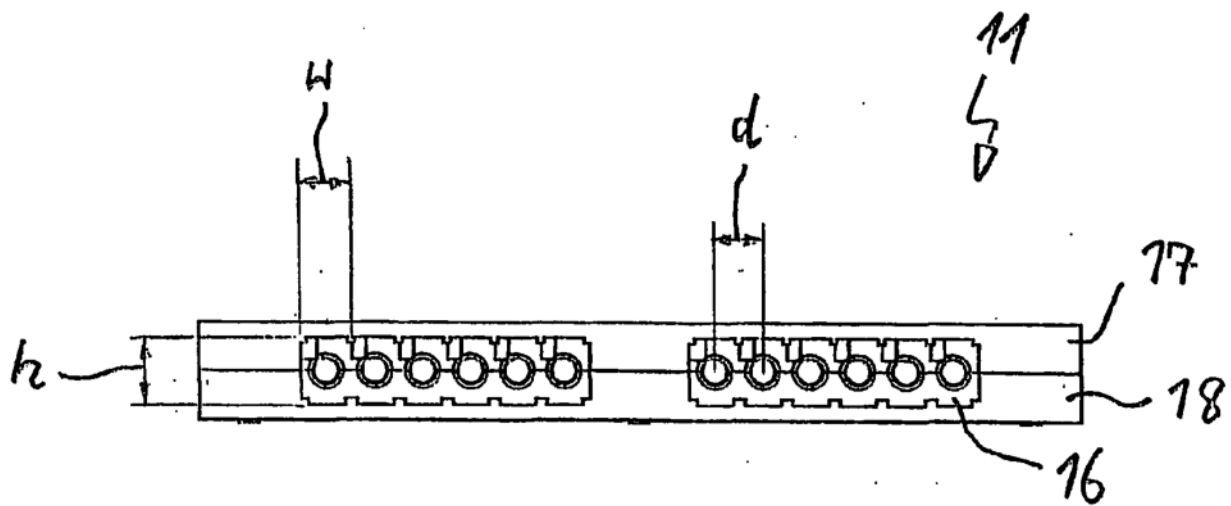


FIG. 2



EX1010: Figs. 2, 5.

C. Level of Ordinary Skill

The person having ordinary skill in the art (“POSA”) would have: (1) at least a bachelor’s degree in mechanical engineering, electrical engineering, physics, or a related field and three years of experience in fiber optics and fiber optic connectors; (2) a master’s degree in mechanical engineering, electrical engineering, physics, or a related field and at least one year of experience in fiber optics and fiber optic connectors; or (3) industry experience (at least three years) designing fiber optic connectors in lieu of a formal degree. EX1002: ¶21.

The level of ordinary skill is not determinative here, as those of less or more skill would also find the claims to be unpatentable. EX1002: ¶22.

IV. CLAIM CONSTRUCTION

In an IPR, the Board gives claim terms their ordinary meaning as understood by a POSA. 37 C.F.R. §42.100(b).

Petitioner has applied the plain and ordinary meaning of the claim terms, but reserves the right to rebut or demonstrate invalidity under any claim construction(s) raised by Patent Owner.

V. GROUND 1: Claims 1-14 are Anticipated by Iwano

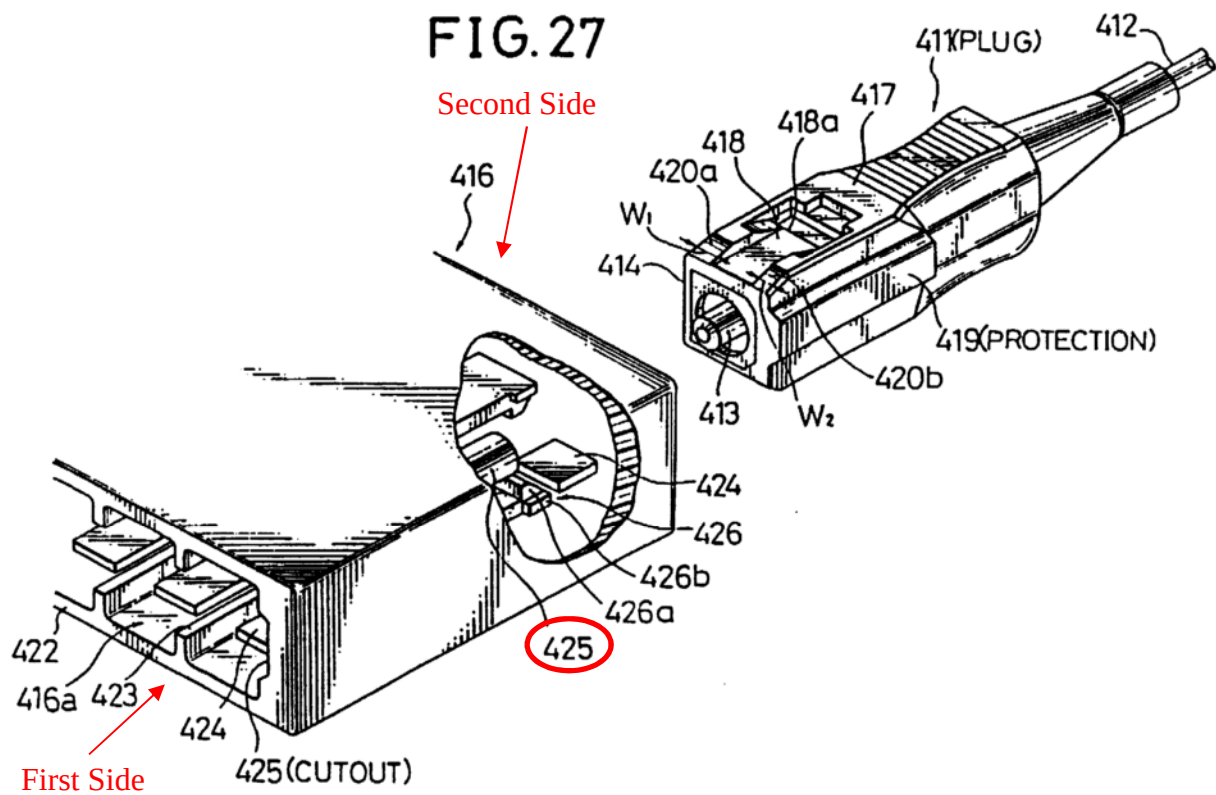
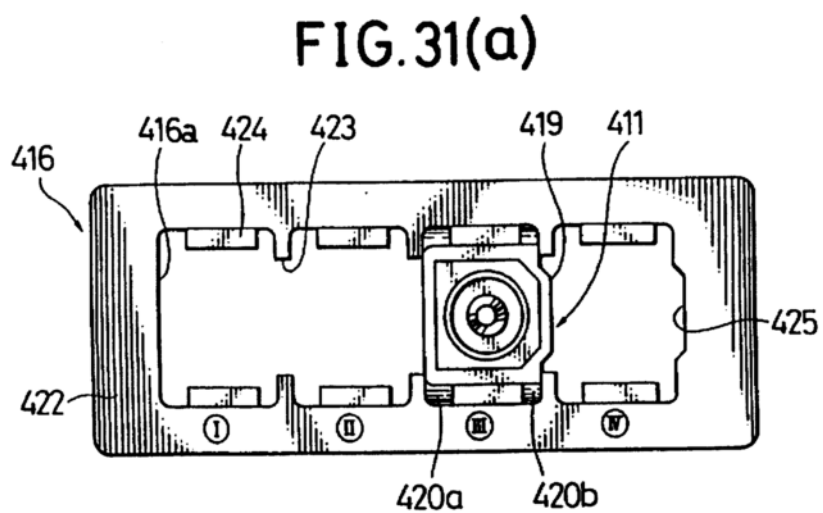
A. Independent Claim 1

1.P³⁴

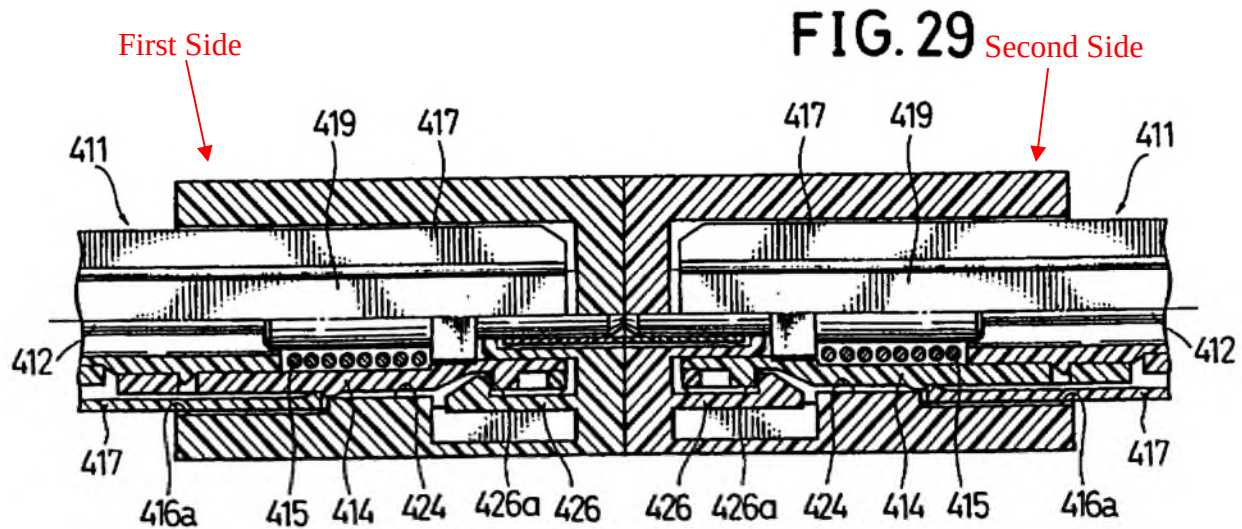
Iwano teaches an optical connector having a connector housing (416) for connecting and holding optical connector plugs (411) inserted from opposite first and second sides of the connector housing. EX1006: Figs. 27 and 31(a), 28:4-9, 29:40-44, 30:12-15, 30:21-39; 31:14-17; EX1002: ¶121. The optical connector plugs (411) include ferrules (413) which are inserted into cylindrical hollow alignment sleeves (425) of the connector housing (416) for aligning the ferrules of two opposing optical connector plugs. EX1006: Figs. 25 and 27, 28:4-9, 30:18-21; EX1002: ¶122.

³ Petitioner's headings (1.P, 1.a.1, etc.) correspond to the claim limitations outlined in the Claim Listing (EX1026).

⁴ Senko does not concede that any of the '415 Patent's preambles are limiting.



EX1006: Figs. 27, 31(a) (annotated); EX1002: ¶121.



EX1006: Fig. 29 (duplicated and mirrored to show the full connector housing, annotated); EX1002: ¶121.

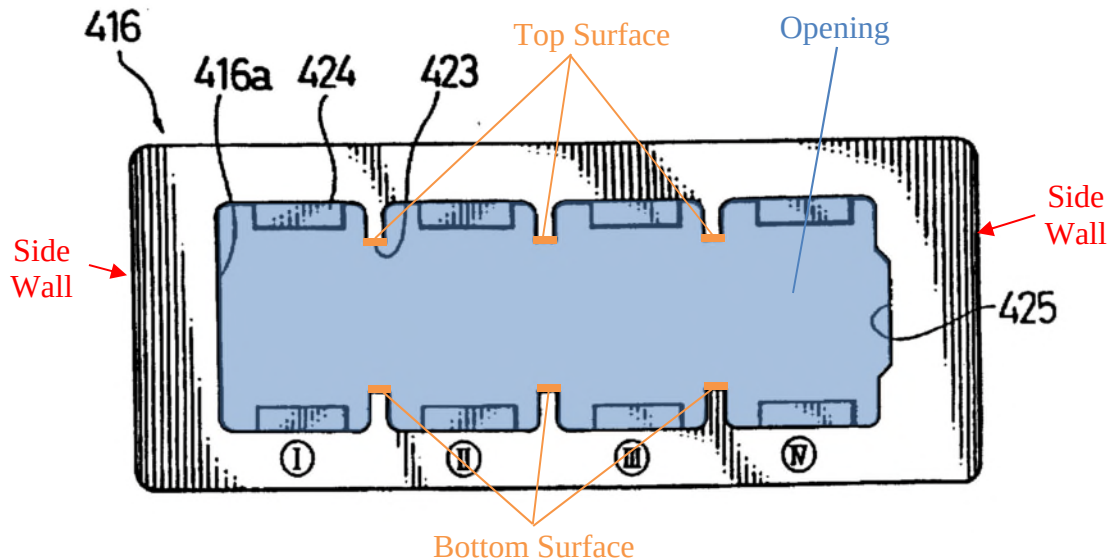
Iwano's connector housing (416) is an "adapter." EX1006: Fig. 25, 28:10-12; EX1002: ¶¶123-124.

Therefore, Iwano meets 1.P.

1.a.1

Iwano's connector housing (416) has a "housing body 422 formed with a plurality of insertion holes 416a into which optical connector plugs 411 are inserted." EX1006: 30:12-15; EX1002: ¶125. Since each insertion hole (416a) is continuous with the other insertion holes, a POSA understands that the plurality of insertion holes (416a) form a single opening. EX1006: Figs. 27 and 31(a), 29: 4-5; EX1002: ¶126-127. The housing body (422) includes two opposing side walls, a top surface, and a bottom surface that define the opening. EX1002: ¶128.

FIG.30



EX1006: Fig. 30 (annotated); EX1002: ¶128.

Therefore, Iwano meets 1.a.1.

1.a.2

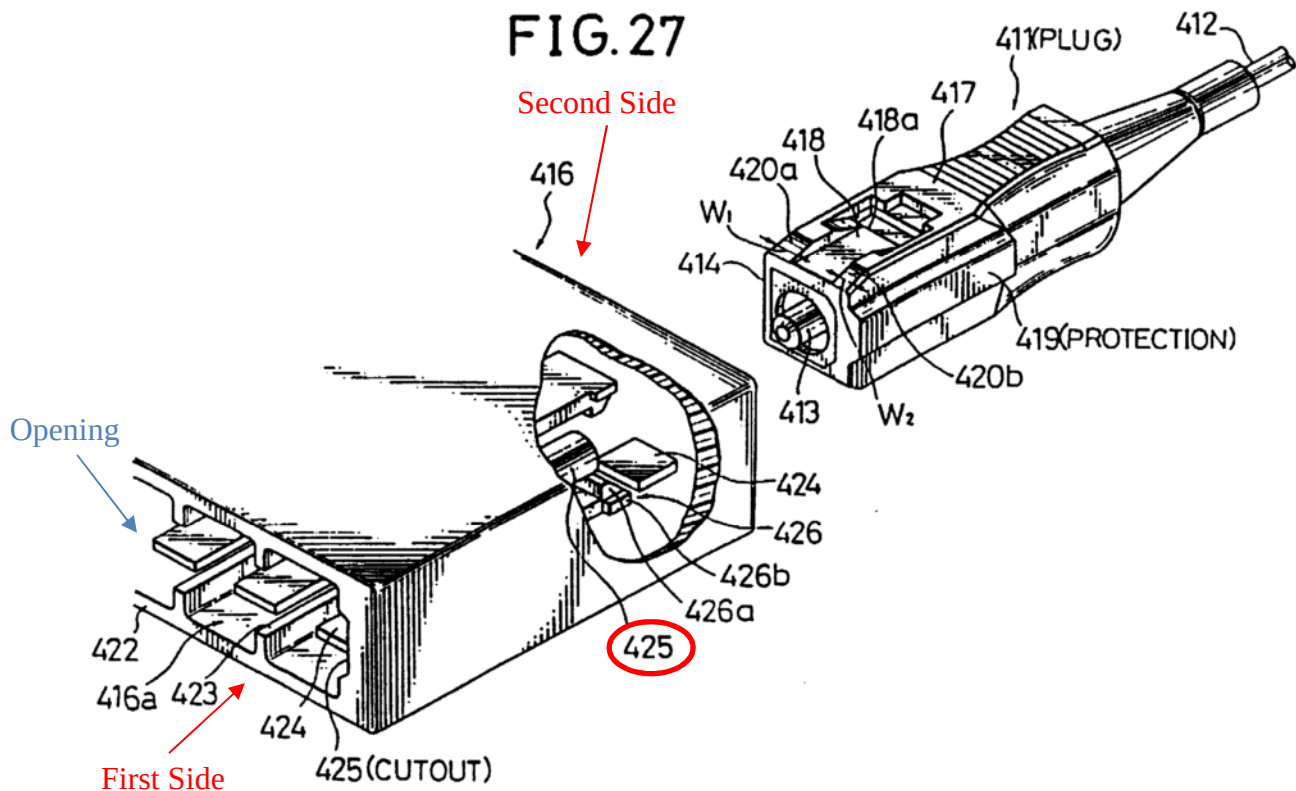
Iwano explains the “housing body 422 [is] formed with a plurality of insertion holes 416a into which optical connector plugs 411 are inserted.”

EX1006: 30:12-15; EX1002: ¶130. Iwano also explains the optical connector plugs (411) are inserted into the opposite sides of the connector housing (416).

EX1006: 28:4-14; EX1002: ¶131. Iwano’s opening includes the holes formed by the “cylindrical hollow alignments sleeves 425 into each of which the ferrule 413 of the optical connector plug 411 is inserted.” EX1006: 30:18-21; EX1002: ¶132.

Iwano explains the alignment sleeves (425) “are provided within the insertion holes 416a of the connector housing 416.” EX1006: 30:18-21; EX1002: ¶133.

Thus, a POSA understands that Iwano's opening extends between the first and second sides.



EX1006: Fig. 27 (annotated); EX1002: ¶134.

Therefore, Iwano meets 1.a.2.

1.a.3

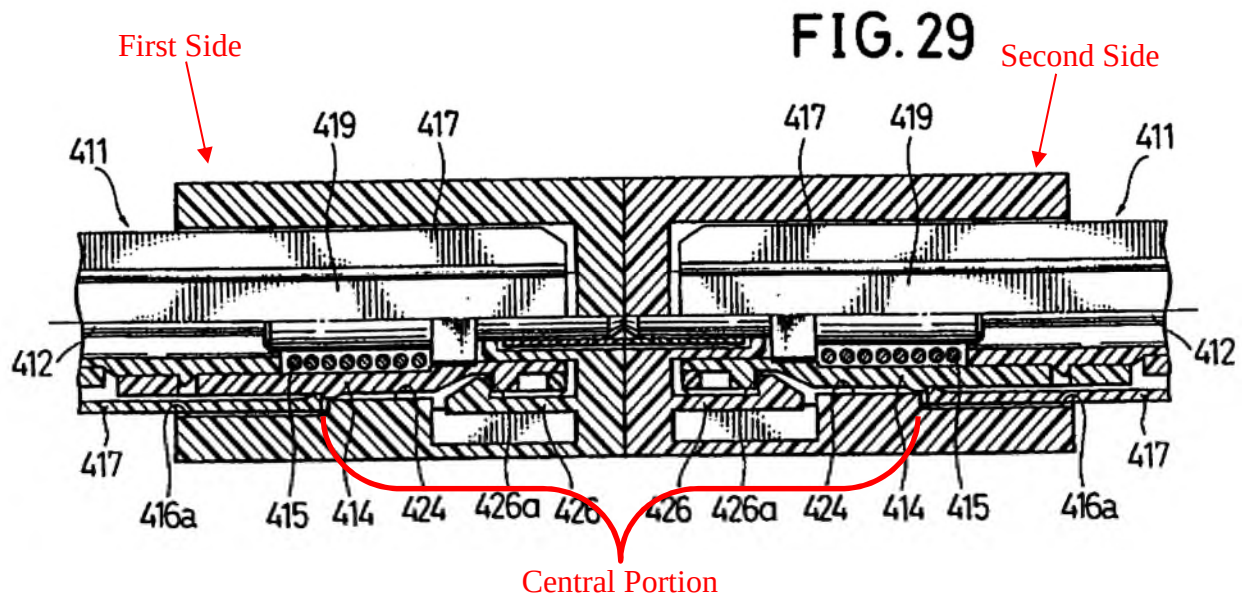
Iwano's connector housing (416) includes a central portion comprising the projections (424) between the first and second sides of the connector housing.

EX1002: ¶136. The “projections 424 [are] formed within the insertion holes 416a.”

EX1006: 30: 33-34; EX1002: ¶137. As shown in Figs. 27 and 29, one set of projections (424) is spaced inward from the first end of the opening and the other

set of projections is spaced inward from the opposite second end of the opening.

EX1006: Fig. 27, Fig. 29; EX1002: ¶138. The region between and including the projections (424) constitutes a central portion of Iwano's connector housing (416), as shown below:



EX1006: Fig. 29 (duplicated and mirrored to show the full connector housing, annotated); EX1002: ¶139.

grooves disposed in a second bottom surface of the central portion, as shown below:

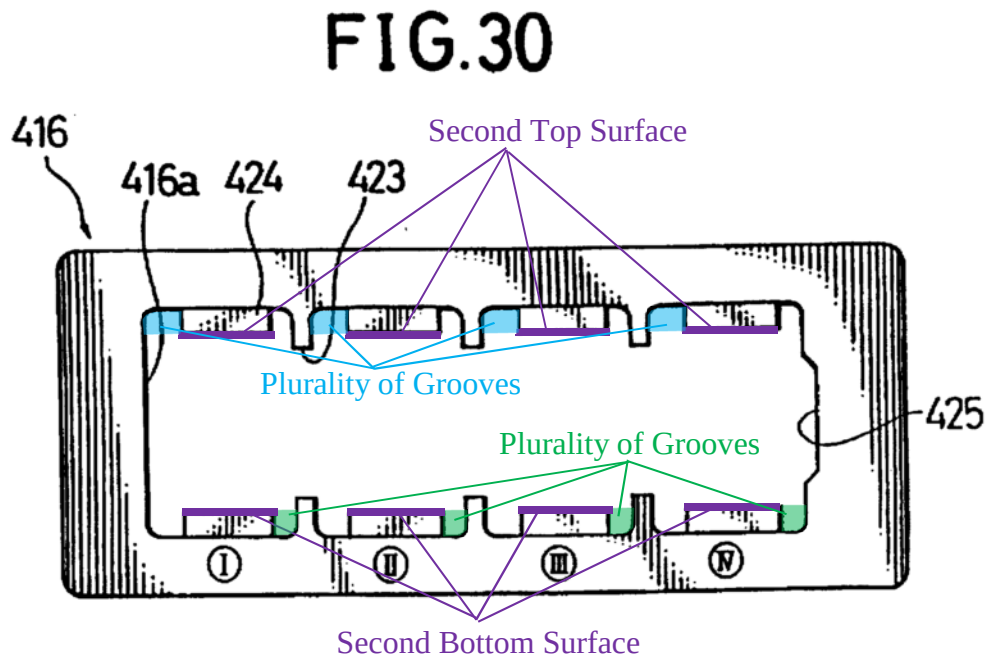
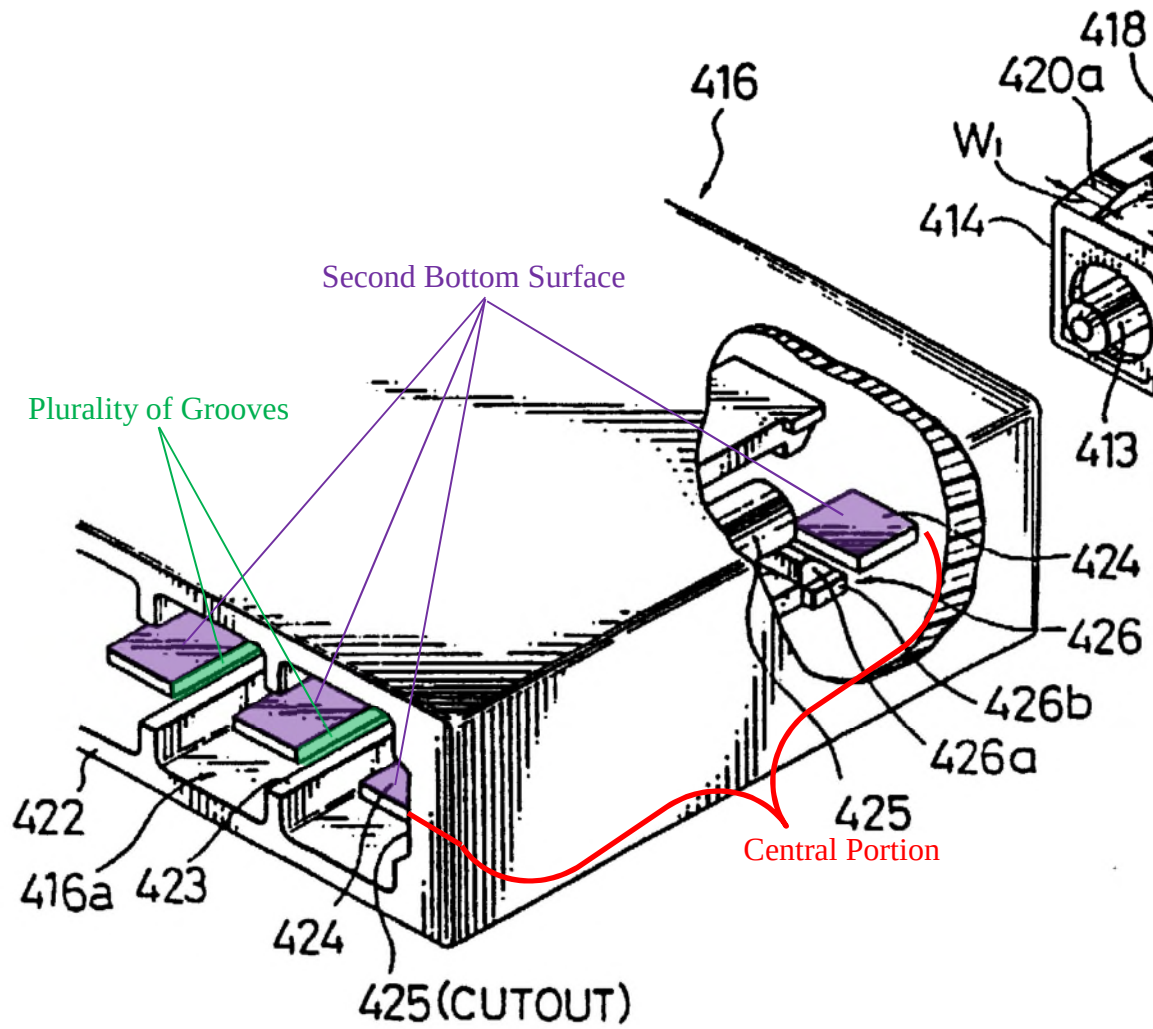


FIG. 27

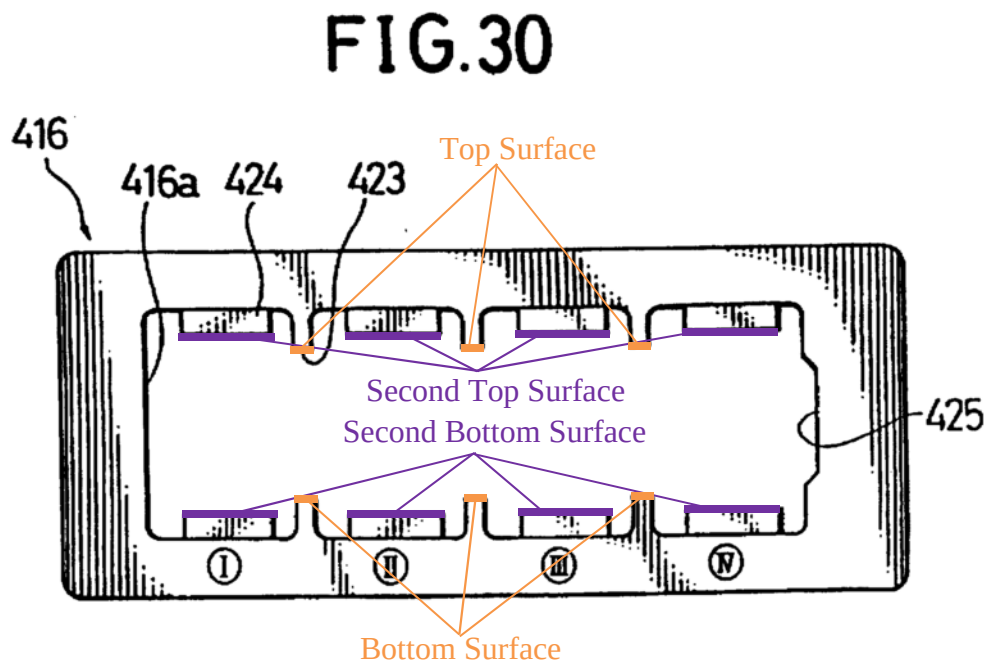


EX1006: Figs. 27 and 30 (annotated); EX1002: ¶142.

Therefore, Iwano meets 1.b.1.

1.b.2

As shown below, the second top surface and the second bottom surface formed by the projections (424) are different than the top surface and bottom surface in the housing body (422):



EX1006: Fig. 30 (annotated); EX1002: ¶144.

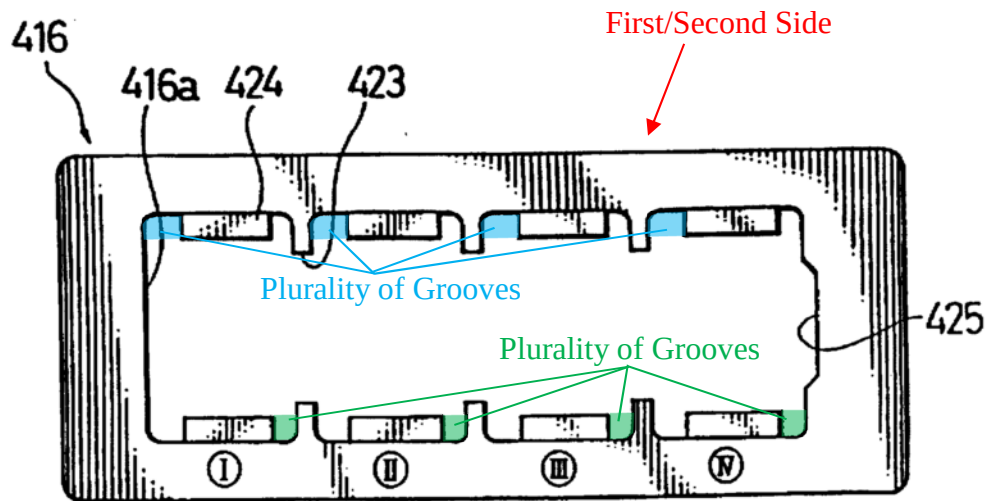
Therefore, Iwano meets 1.b.2.

1.b.3

Figs. 27 and 30 show the pluralities of grooves extend toward the center of the housing body (422). EX1006: Figs. 27 and 30; EX1002: ¶146. This allows the grooves to receive inclined projection portions (420a, 420b) of the optical connector plug (411) when the optical connector plug is inserted into the connector housing (416). EX1006: Fig. 31(a), 30:47-53; EX1002: ¶147. Thus, the grooves

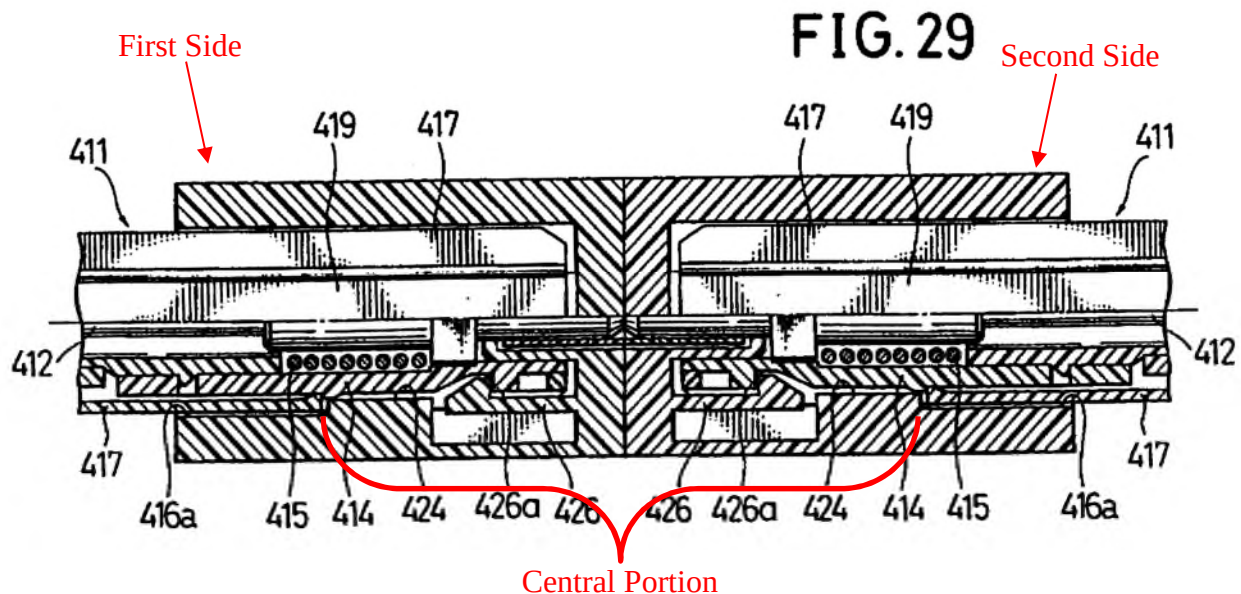
extend toward the center of the housing body (422) from a side of the connector housing (416). EX1002: ¶148.

FIG.30



Iwano's connector housing (416) connects optical connector plugs (411) inserted into either side of the connector housing. EX1006: Figs. 27 and 31(a), 28:4-14, 30:12-15; EX1002: ¶149. As explained in Section III(B)(5), the structure (e.g., projections (424), partition walls (423), etc.) shown on one half of Iwano's

connector housing (see Figs. 27 and 30) is also present on the other half of Iwano's connector housing, as shown in modified Fig. 29 below. EX1002: ¶150. Thus, the grooves are present on both halves of Iwano's connector housing (416), and the grooves extend into the center of the housing body (422). EX1002: ¶¶151-152.



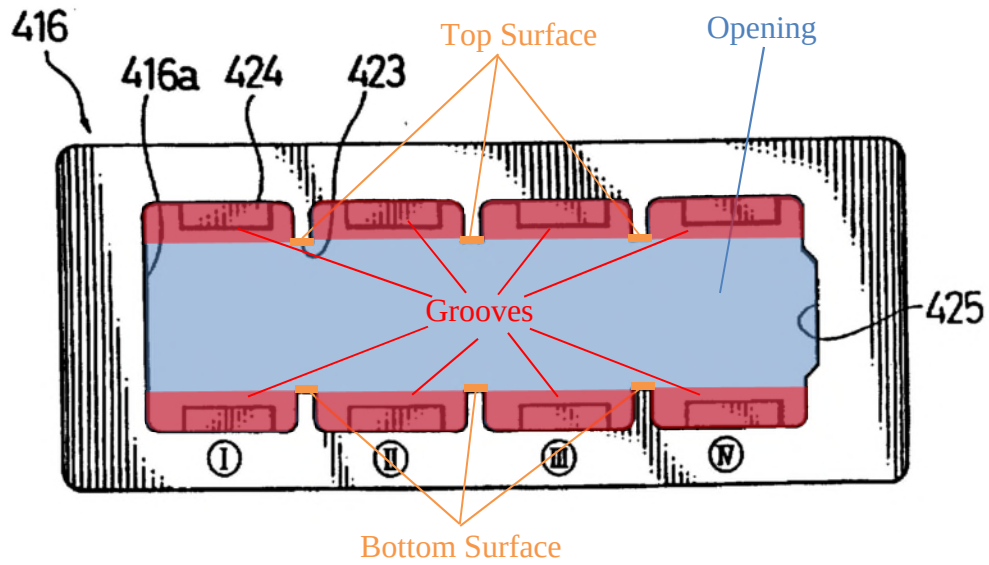
EX1006: Fig. 29 (duplicated and mirrored to show the full connector housing, annotated); EX1002: ¶152.

Therefore, Iwano meets 1.b.3.

B. Claim 2

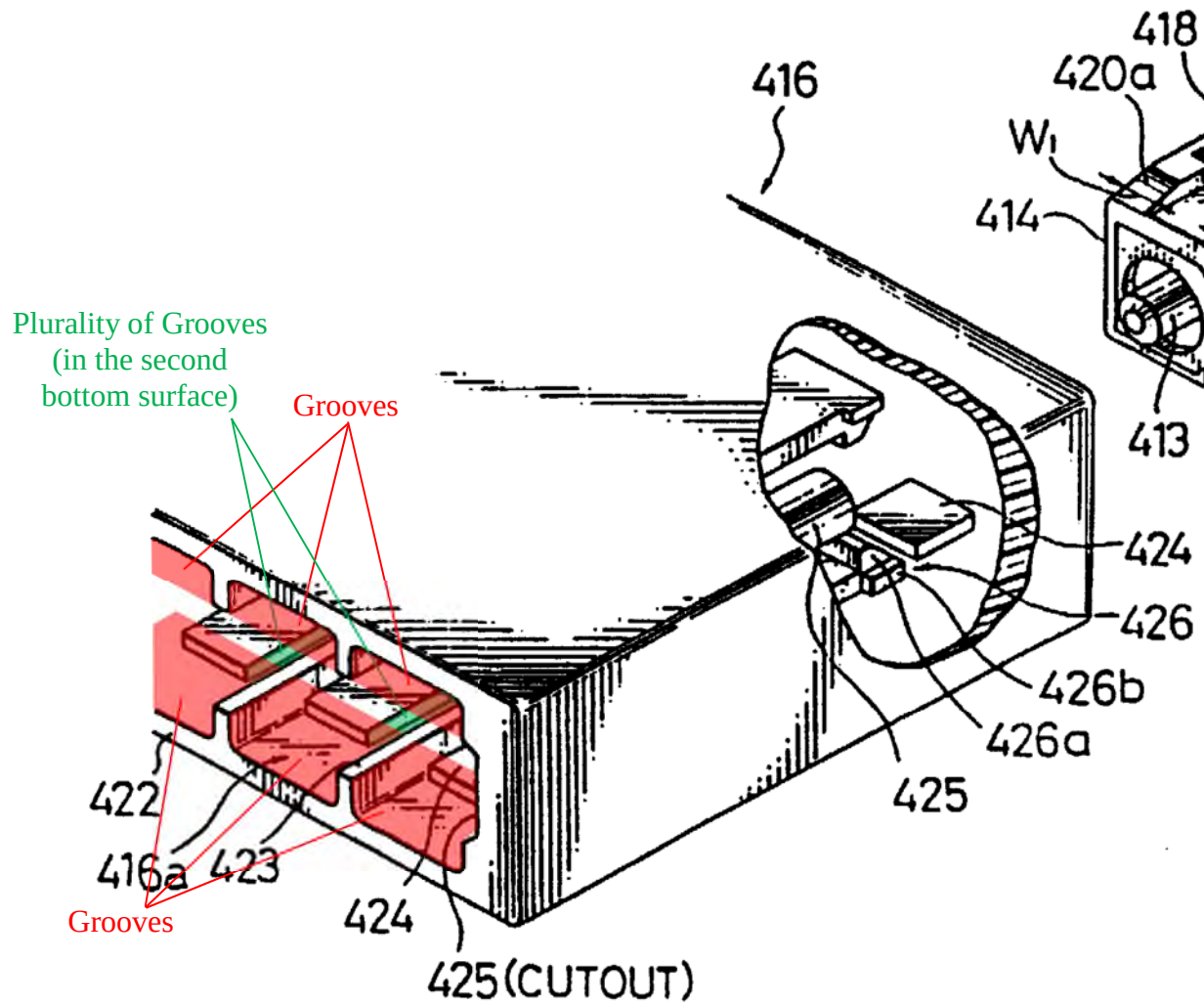
Iwano has grooves between adjacent partition walls (423) and between the side walls and partition walls in the top and bottom surfaces. EX1002: ¶154.

FIG.30



EX1006: Fig. 30 (annotated); EX1002: ¶154.

FIG. 27



EX1006: Fig. 27 (annotated); EX1002: ¶155.

Therefore, Iwano meets this claim.

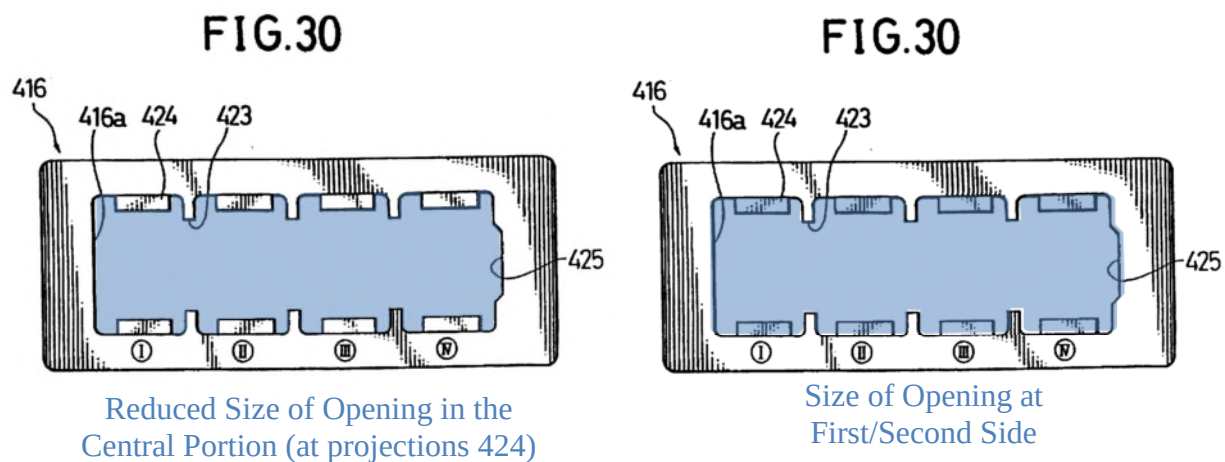
C. Claim 3

For reasons discussed in Section V(B), Iwano meets this claim.

D. Claim 4

The center portion of Iwano's housing body (422) has projections (424).

EX1006: Figs. 27 and 30, 30:12-17; EX1002: ¶158. The projections (424) extend into the opening. EX1006: Fig. 30; EX1002: ¶159. Thus, Iwano's projections (424) make the opening in the central portion of Iwano's housing body (422) smaller than the opening in the first and second sides. EX1002: ¶160.



EX1006: Fig. 30 (annotated); EX1002: ¶160.

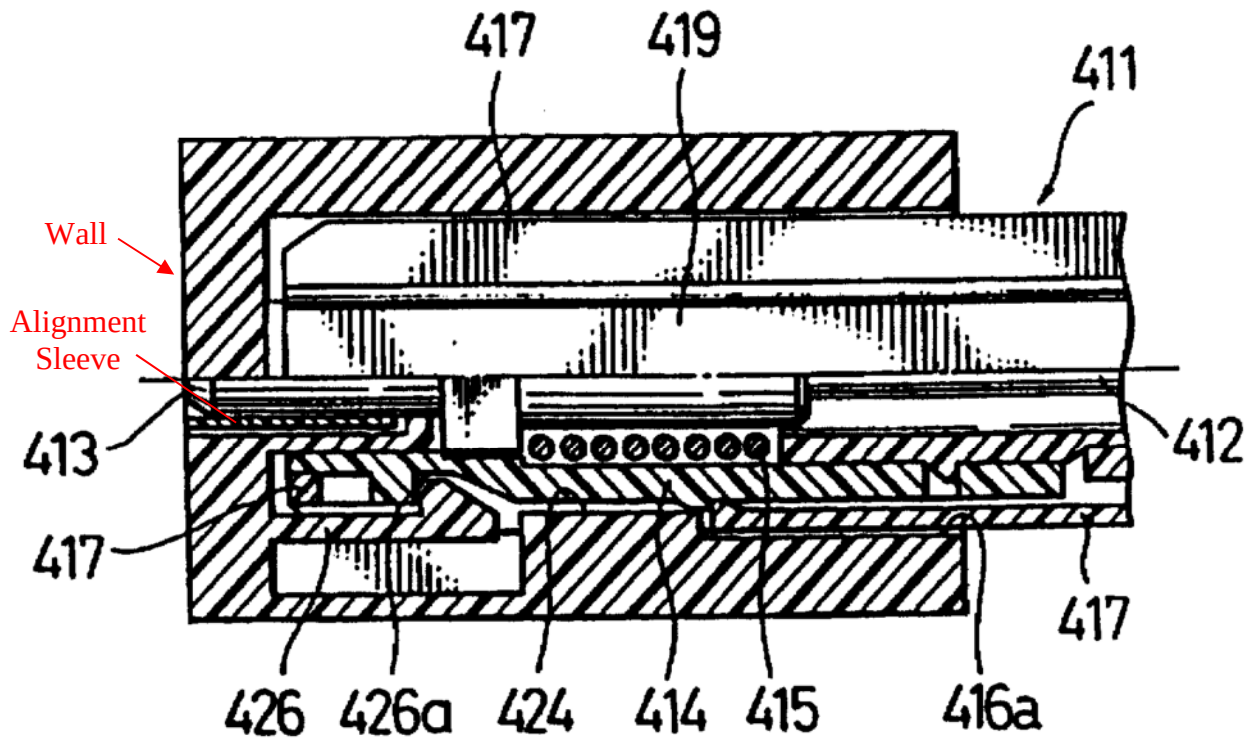
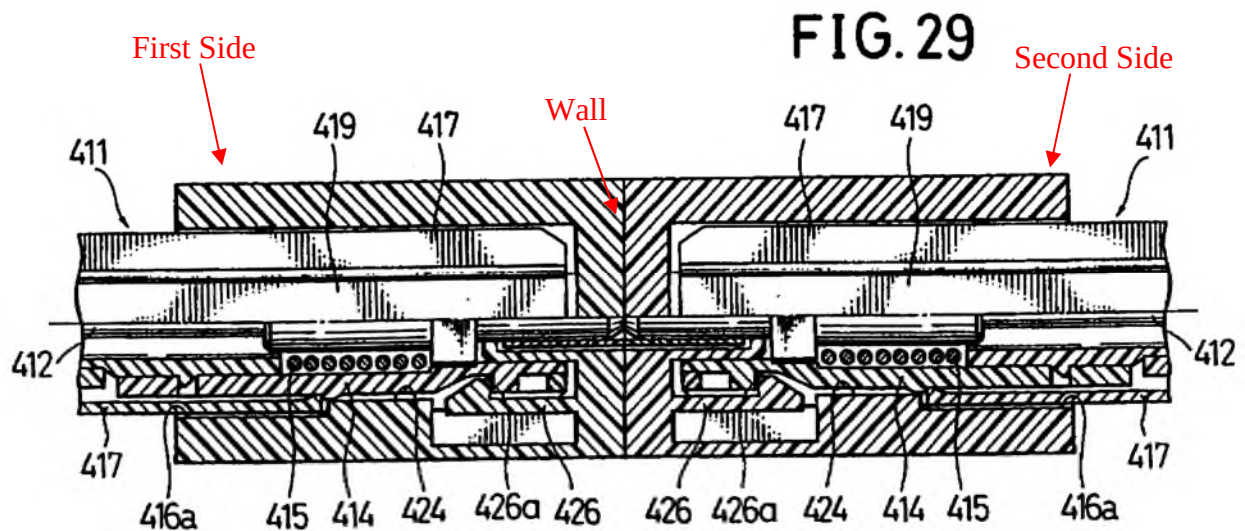
Alternatively or in addition, the Iwano's connector housing (416) includes a wall in the center of the housing body (422). EX1006: Fig. 29; EX1002: ¶161.

The wall includes the arms (426) and the hollow alignment sleeves (425).

EX1006: Fig. 29; EX1002: ¶161. The wall is disposed in the opening and extends between the top and bottom walls of the housing body (422) and between the side walls of the housing body. EX1006: Figs. 27, 29, 31(a); EX1002: ¶161. Thus, the

presence of the wall also makes the opening smaller in the center of the housing body (422) than on the first and second sides. EX1002: ¶161.

FIG. 29



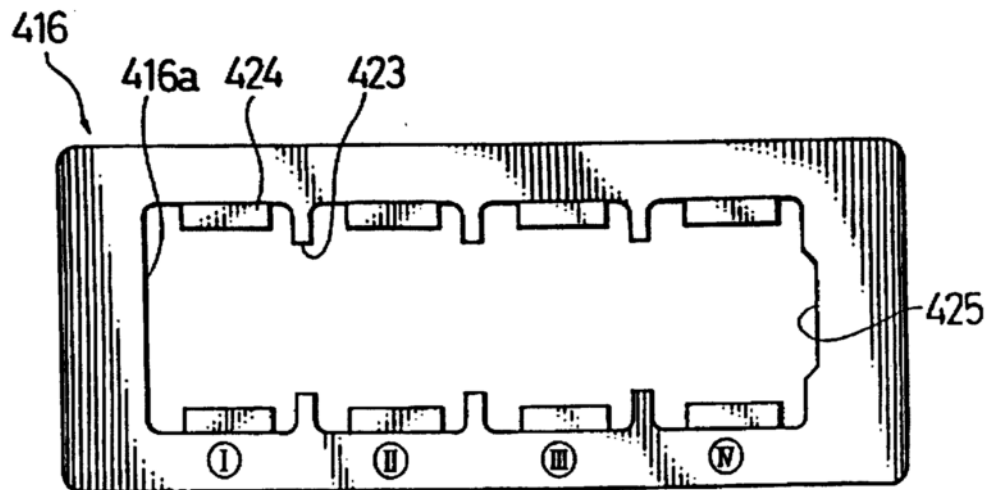
EX1006: Fig. 29 (duplicated and mirrored to show the full connector housing, annotated); EX1002: ¶161.

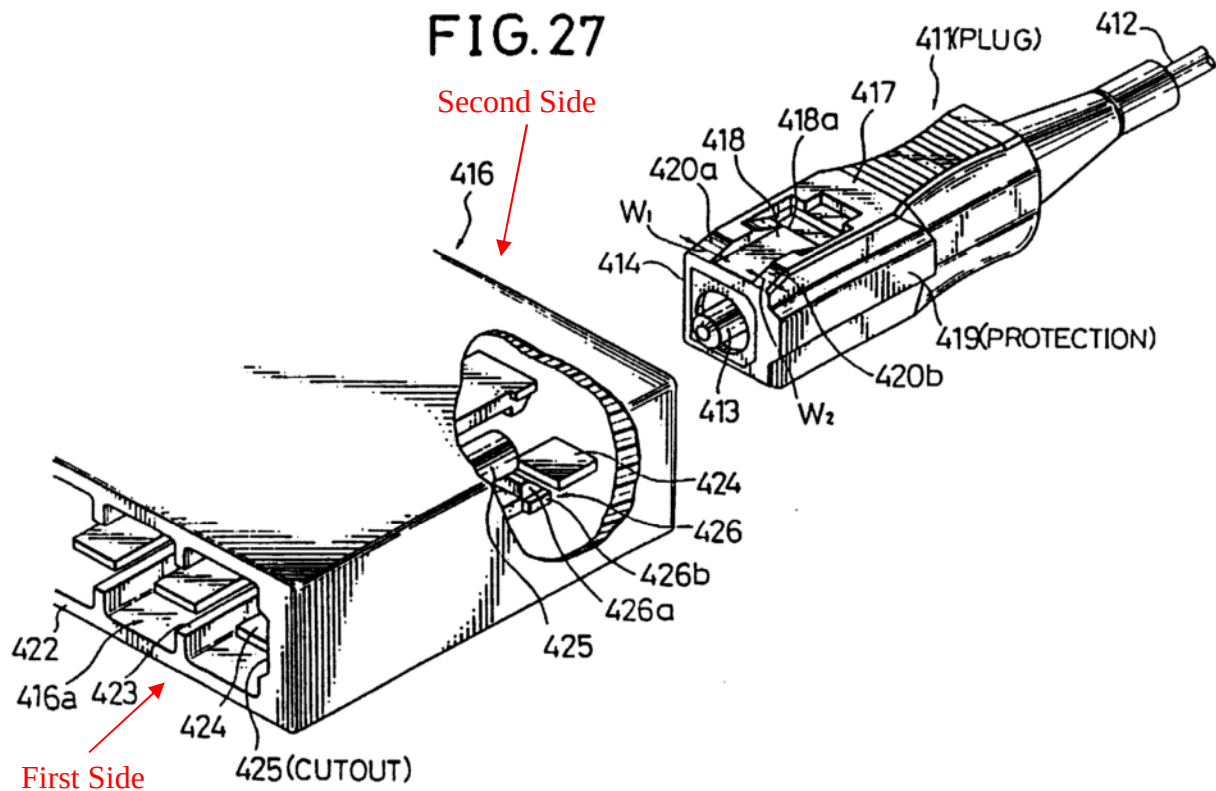
Therefore, Iwano meets this claim.

E. Claim 5

Iwano's connector housing (416) connects several pairs of optical connector plugs (411). EX1006: Figs. 27 and 30, 28:64-65, 29:40-44, 30:40-43; EX1002: ¶163. Each side of the connector housing (416) can receive a plurality of (e.g., four) optical connector plugs (411). EX1006: Fig. 30, 30:40-43; EX1002: ¶164. Each optical connector plug (411) has their own ferrule (413), for a total of four ferrules being received in each side of the connector housing (416). EX1006: Fig. 30, 30:40-43; EX1002: ¶164.

FIG.30





EX1006: Figs. 27 (annotated), 30; EX1002: ¶164.

Therefore, Iwano meets this claim.

F. Claim 6

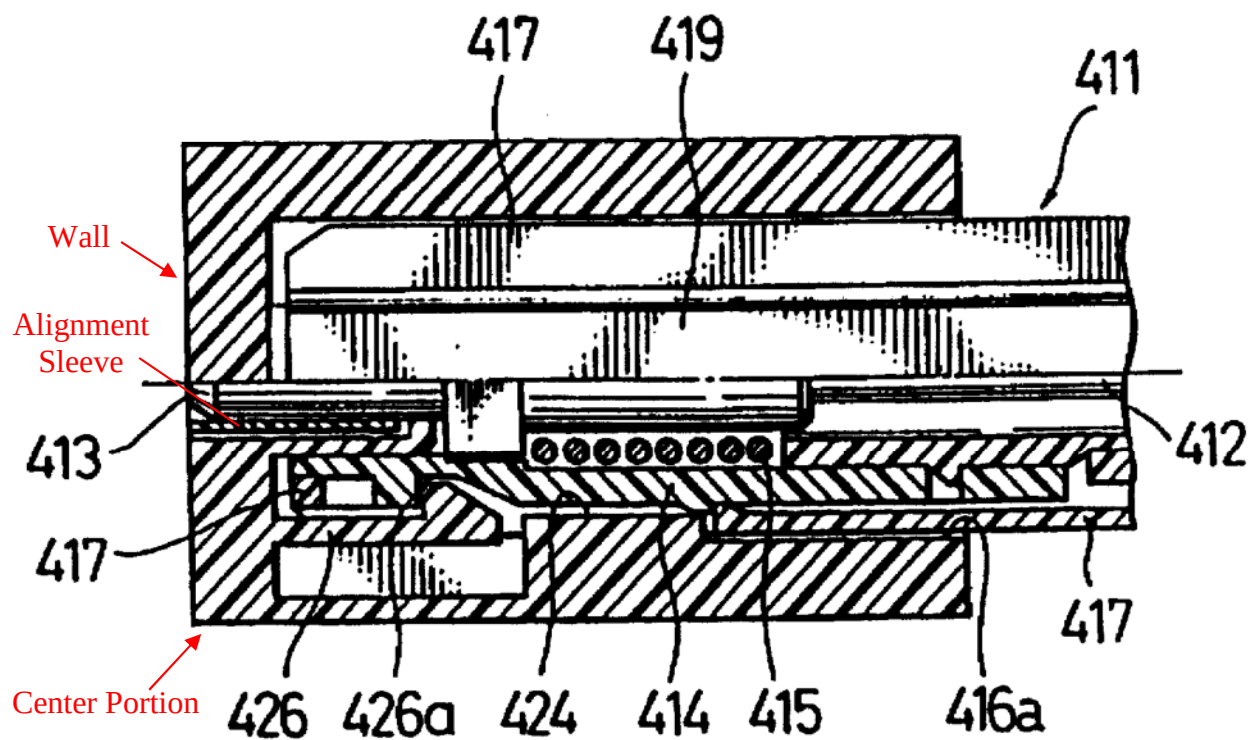
6.a

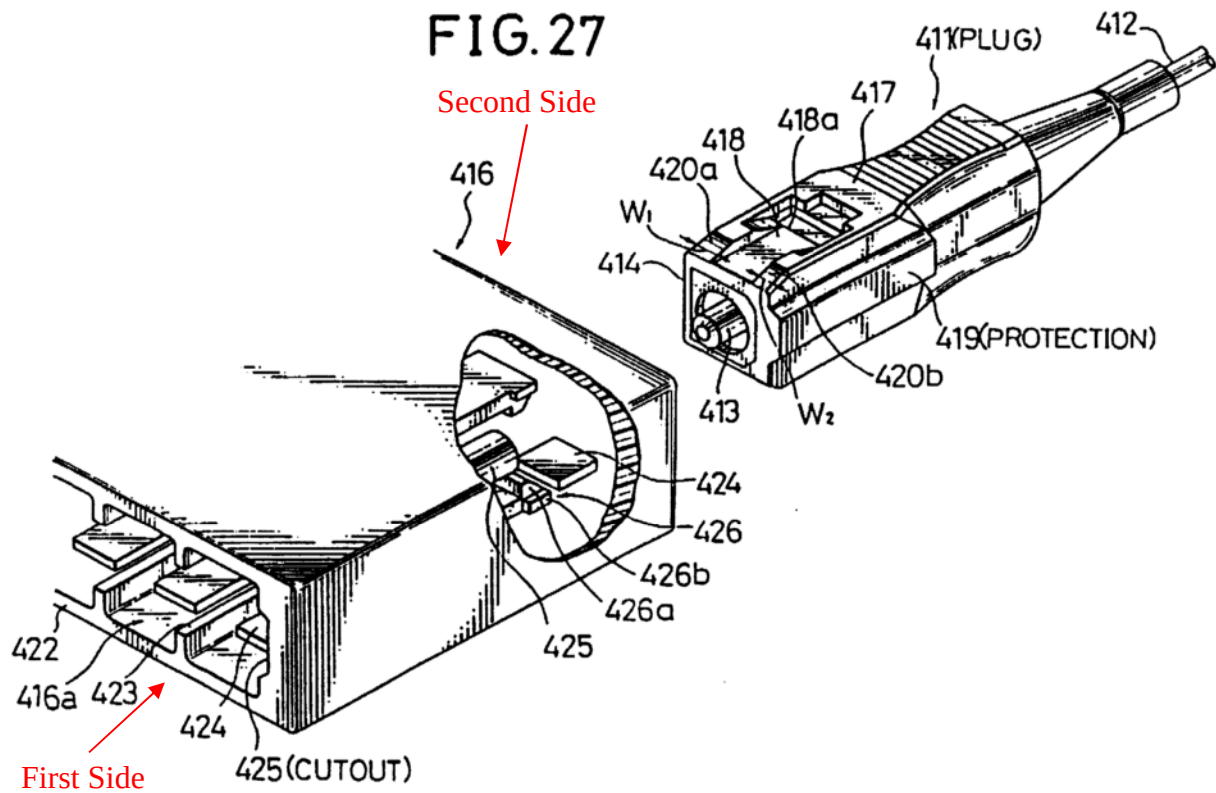
Iwano's connector housing (416) includes a wall disposed within and across the central portion of the housing body (422). EX1006: Fig. 29; EX1002: ¶166.

The wall includes the arms (426) and the alignment sleeves (425). EX1006: Fig. 29; EX1002: ¶167. The wall is disposed between the first and second sides.

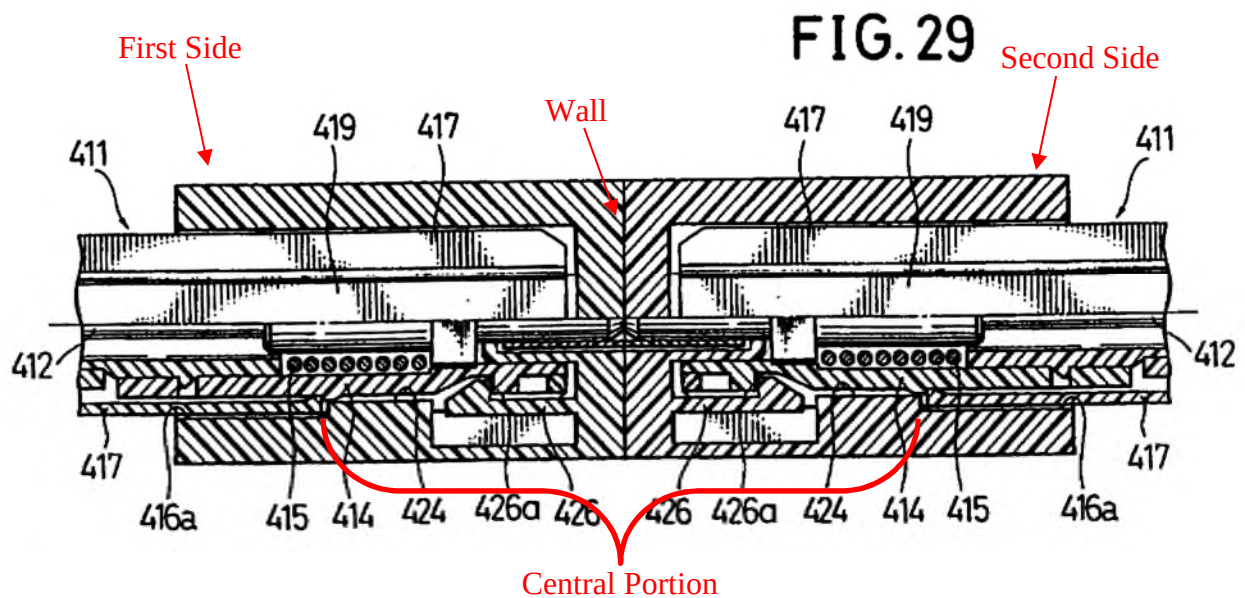
EX1006: Figs. 27, 29; EX1002: ¶168.

FIG. 29





EX1006: Figs. 27 and 29 (annotated); EX1002: ¶168.



EX1006: Fig. 29 (duplicated and mirrored to show the full connector housing, annotated); EX1002: ¶168.

Therefore, Iwano meets 6.a.

6.b

Iwano's wall includes a plurality of cylindrical alignment sleeves (425), one for each pair of optical connector plugs (411) coupled by the connector housing (416). EX1006: Figs. 27, 29; EX1002: ¶170. Each alignment sleeve (425) is "hollow." EX1006: Fig. 29, 30:18; EX1002: ¶171]

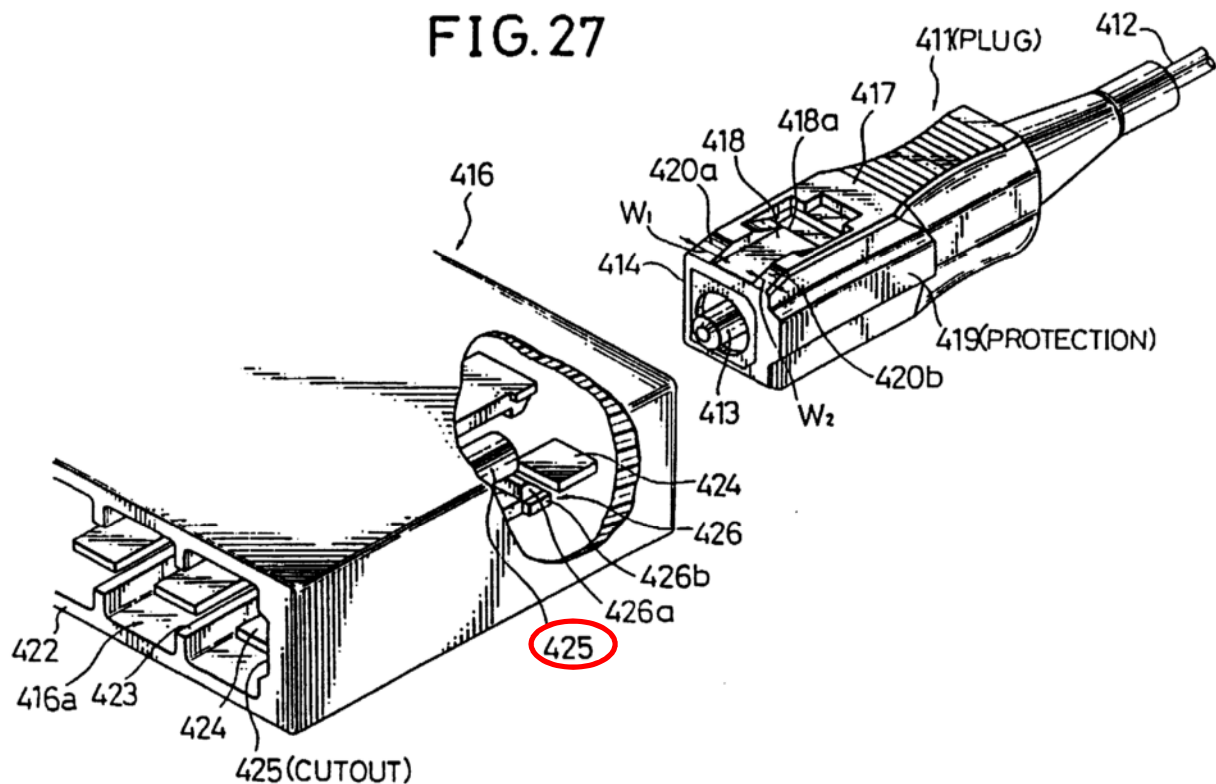
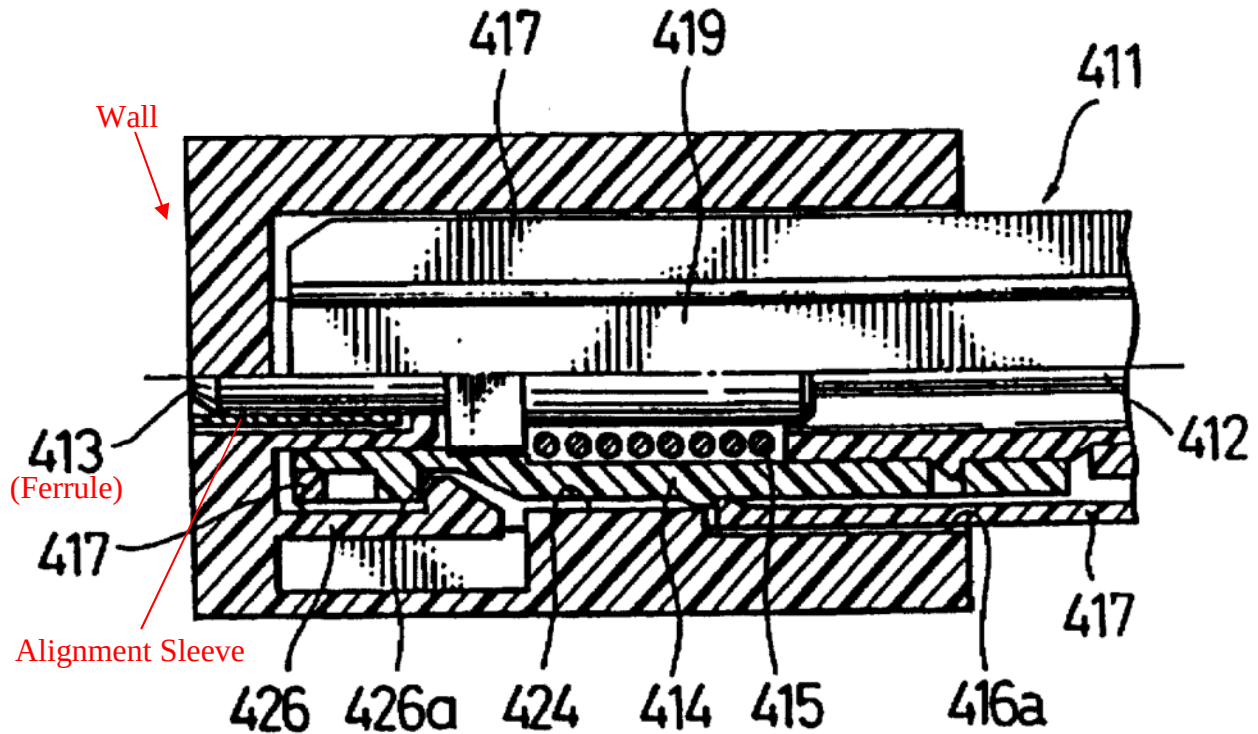
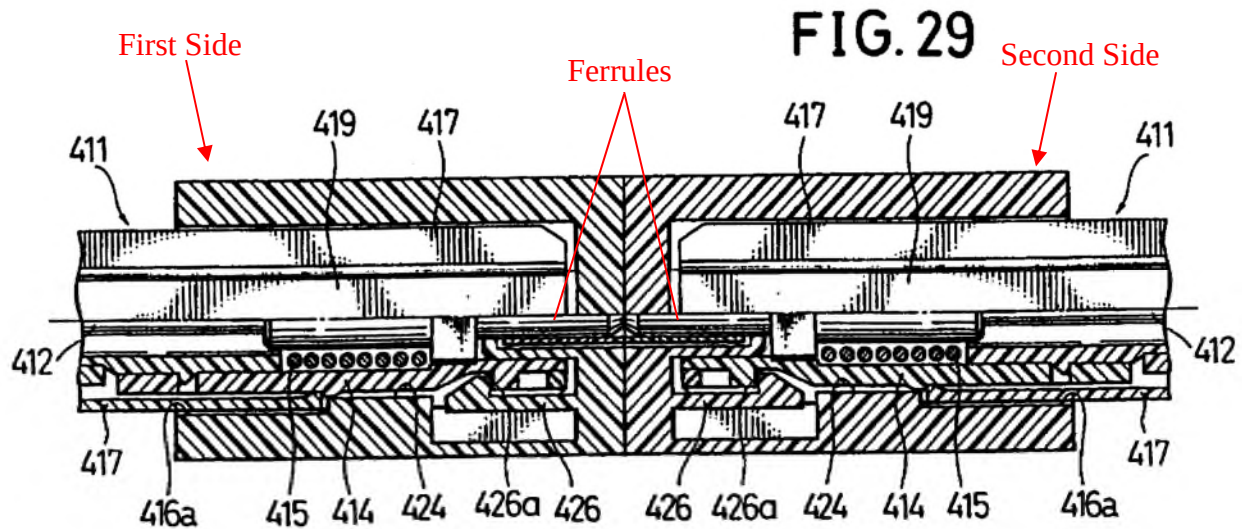


FIG. 29



EX1006: Figs. 27 and 29 (annotated); EX1002: ¶171.

As seen in Fig. 29, the ferrules (413) pass into the wall. Iwano explains “cylindrical hollow alignment sleeves 425 into each of which the ferrule 413 of the optical connector plug 411 is inserted are provided within the insertion holes 416a of the connector housing 416.” EX1006: 30:18-21; EX1002: ¶177. And as shown in Fig. 29 and modified Fig. 29 below, the alignment sleeves (425) allow at least a portion of the ferrules (413) inserted from the first and second sides to pass therethrough. EX1002: ¶¶172-73.



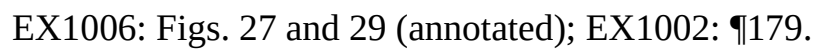
EX1006: Fig. 29 (duplicated and mirrored to show the full connector housing, annotated); EX1002: ¶172.

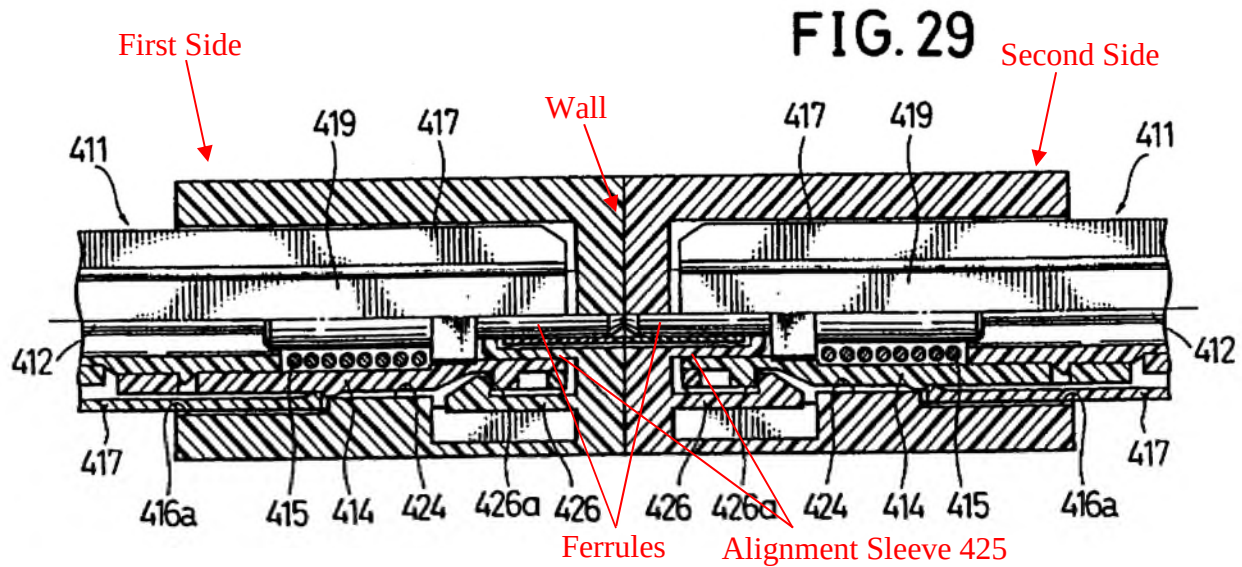
Each passage in Iwano’s wall includes the space defined by one of the “hollow” alignment sleeves (425). EX1002: ¶174.

Therefore, Iwano meets 6.b.

G. Claim 7

Iwano’s connector housing (416) is for connecting several pairs of optical connector plugs (411). EX1006: Figs. 27 and 30, 28:64-65, 29:40-44, 30:40-43; EX1002: ¶176. Thus, the connector housing (416) includes an alignment sleeve (425) for each pair of optical connector plugs (411) coupled together by the connector housing (416). EX1006: 30:18-21; EX1002: ¶178. Thus, the alignment sleeves (425) are part of the plurality of passages. EX1002: ¶180.

[illegible]



EX1006: Fig. 29 (duplicated and mirrored to show the full connector housing, annotated); EX1002: ¶179.

As mentioned in Section V(F)(6.b), each passage in Iwano's wall includes the space defined by one of the "hollow" alignment sleeves (425). EX1002: ¶174.

Therefore, Iwano meets this claim.

H. Independent Claim 8

8.P

As discussed in Section V(A)(1.P), Iwano discloses a connector housing (416) for connecting optical connector plugs (411). EX1006: Figs. 27 and 31(a), 30:12-15, 31:14-17; EX1002: ¶182.

Each optical connector plug (411) includes a ferrule with a single fiber.

EX1006: Fig: 27, 28:4-9, 28:15-17, 29:57-63; EX1002: ¶¶183-186. However, the

preamble’s recitation of “a multi-fiber ferrule”⁵ is not limiting because Claim 8 (and dependent claims 9-11) recites a structurally complete invention that is agnostic as to whether the connector has multi-fiber ferrules and only recites a “multi-fiber ferrule” in identifying an intended use of the claimed adapter.

Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002) (“a preamble is not limiting where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.”) (internal quotations omitted).

Notably, Claims 8-11 are directed to the adapter alone, not the entire fiber optic system including the adapter and the fiber optic connectors. EX1001: Claim 8; EX1002: ¶186. The bodies of Claims 8-11 fully delineate the structure of the adapter, not the structure of the fiber optic connectors. EX1001: Claim 8 EX1002: ¶186. In fact, “multi-fiber ferrule” is never recited in the body of any of Claim 8-

⁵ While Senko is only addressing whether or not the phrase “multi-fiber ferrule” is limiting, Senko neither asserts, nor concedes that the phrase “for fiber optic connectors” recited in Claim 8’s preamble is limiting. *TomTom, Inc. v. Adolph*, 790 F.3d 1315, 1322-24 (Fed. Cir. 2015) (explaining one portion of a preamble may be found limiting without rendering other portions of the same preamble as limiting)

11, and thus cannot be argued to be essential structure or to give life, meaning, or vitality to the claims. EX1001: claims 8-11; EX1002: ¶186]; *Catalina Mktg.*, 289 F.3d at 808 (“a preamble limits the invention if it recites essential structure ... or if it is necessary to give life, meaning, and vitality to the claim”) (internal quotations omitted). Claim 8’s “with a multi-fiber ferrule” is merely an intended use of the claimed adapter.

Because the phrase “multi-fiber ferrule” is not limiting and Iwano’s connector housing (416) connects optical connector plugs (411), Iwano meets 8.P. EX1002: ¶¶187-188.

8.a.1

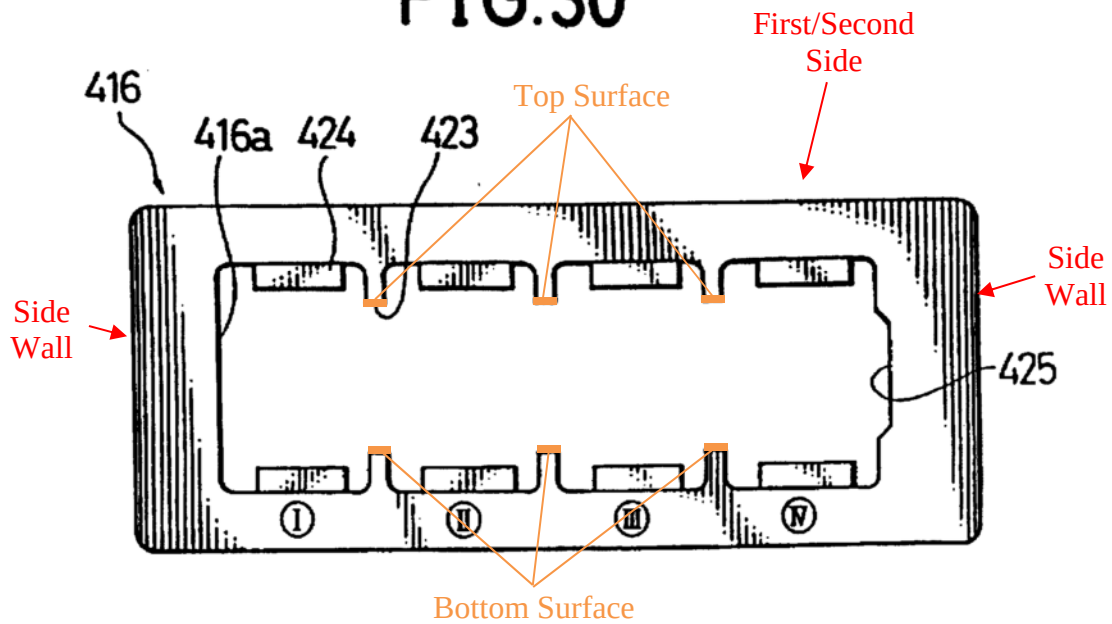
As discussed in Section V(A)(1.a.1)&(1.a.2), Iwano’s connector housing (416) has an opening extending between first and second sides of the connector housing. EX1002: ¶¶135, 189-197.

Therefore, Iwano meets 8.a.1.

8.a.2

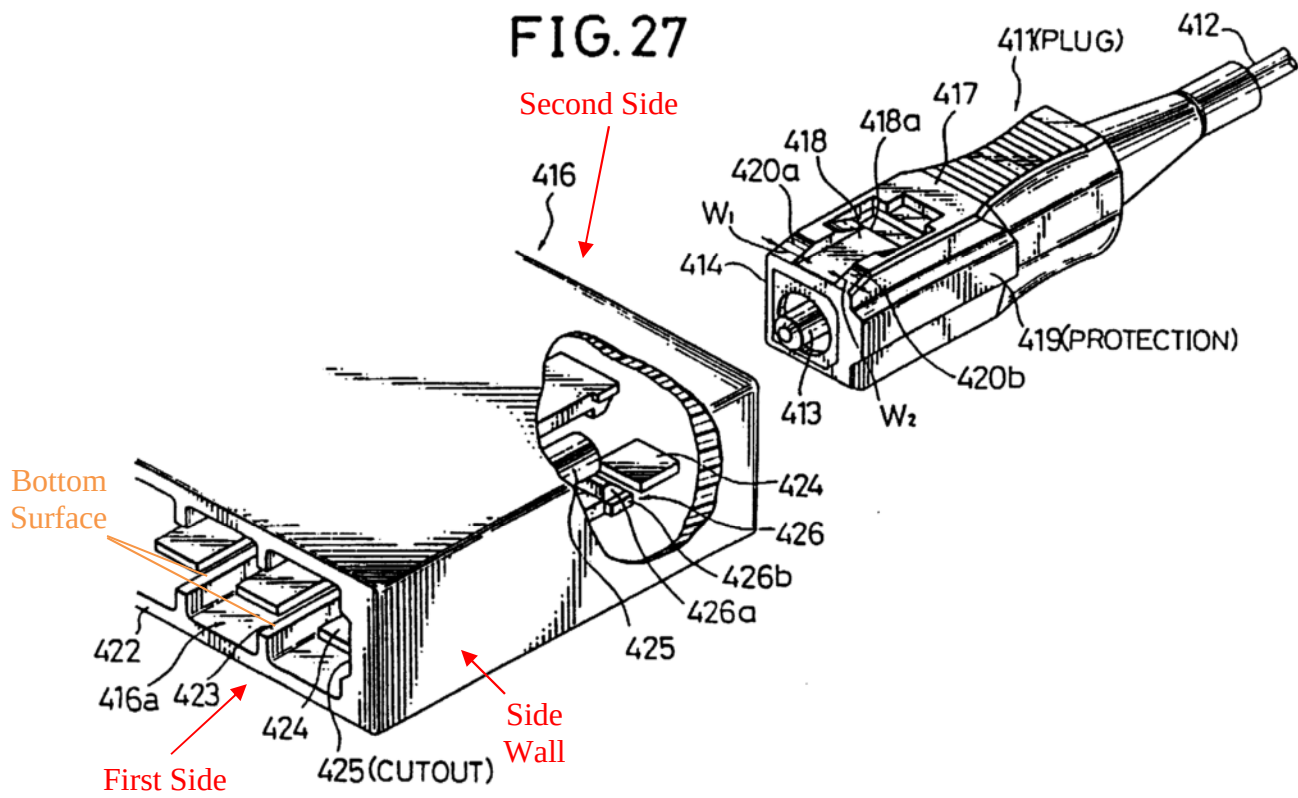
Each of the first and second sides of Iwano’s connector housing (416) are respectively defined by two opposing side walls, a top surface, and a bottom surface, as shown below:

FIG.30



EX1006: Fig. 30 (annotated); EX1002: ¶198.

FIG.27

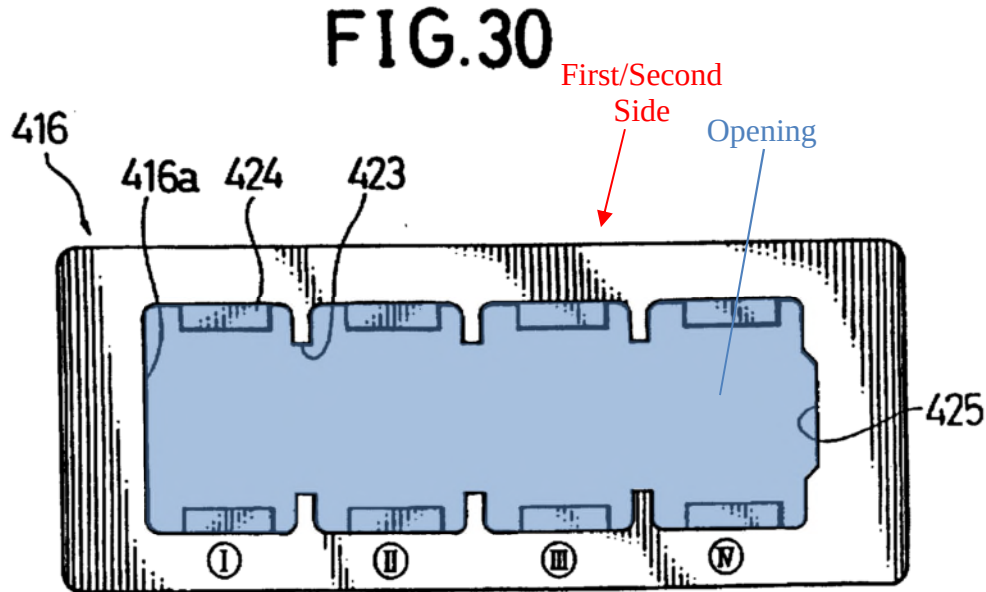


EX1006: Fig. 27 (annotated); EX1002: ¶198.

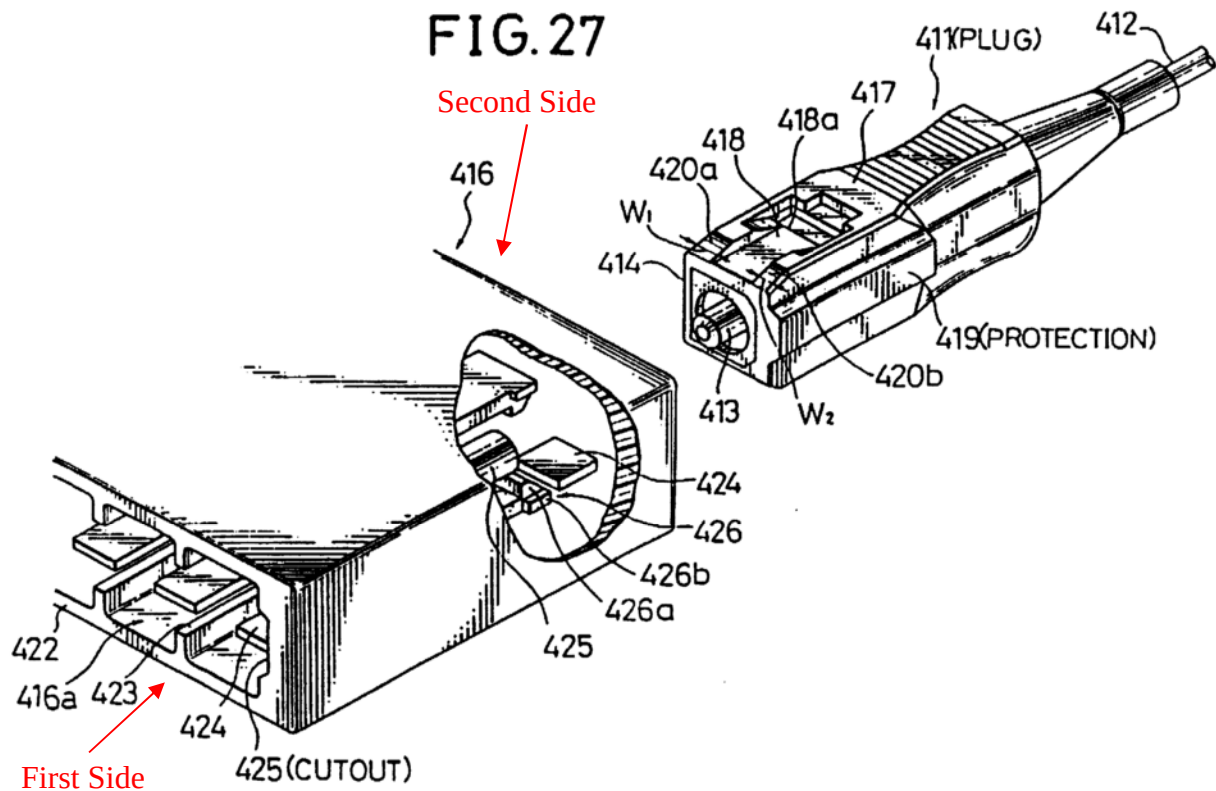
Therefore, Iwano meets 8.a.2.

8.a.3

Iwano's opening receives several pairs of optical connector plugs (411) from each side. EX1006: Figs. 27 and 30, 28:61-65, 29:44-45, 30:12-15, 30:40-43; EX1002: ¶200. As illustrated, the opening of the connector housing (416) can receive a plurality of (e.g., four) optical connector plugs (411) from the first side and the second side. EX1006: Fig. 30, 30:40-43; EX1002: ¶200.



EX1006: Fig. 30 (annotated); EX1002: ¶200.



EX1006: Figs. 27 and 30 (annotated); EX1002: ¶200.

Therefore, Iwano meets 8.a.3.

8.b

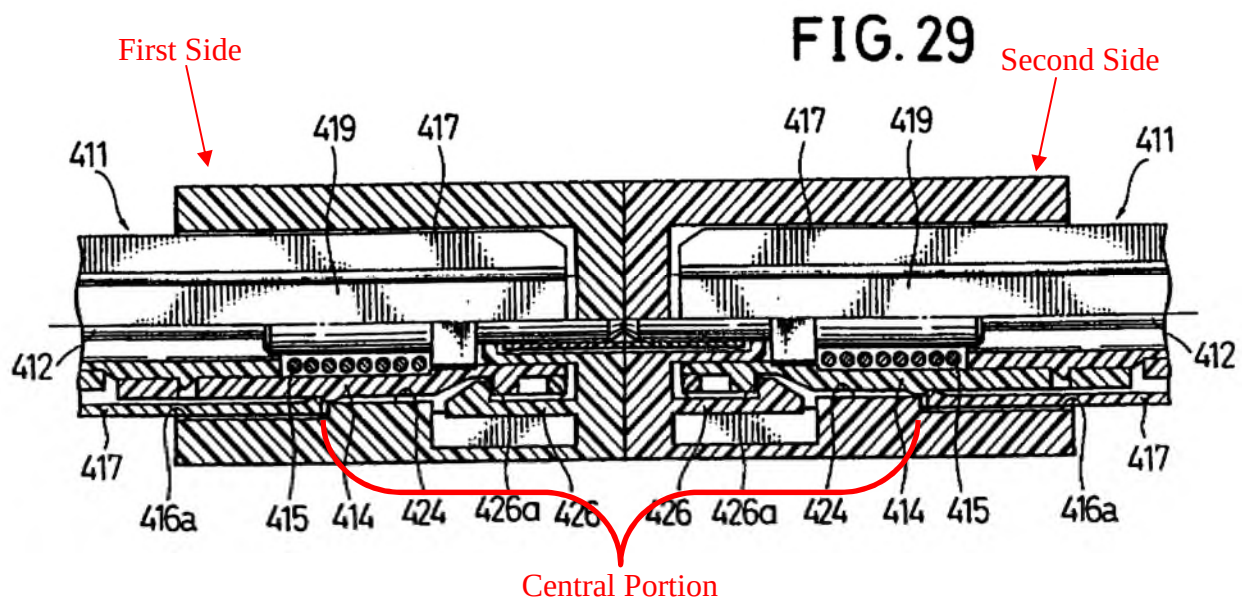
As discussed in Section V(H)(8.a.3), Iwano's opening can receive a plurality of (e.g., four) optical connector plugs (411) from the second side. EX1002: ¶202. The optical connector plugs (411) inserted from the second side mate with the optical connectors inserted from the first side. EX1006: 28:4-9, 28:12-14, 29:40-44, 31:14-17; EX1002: ¶203. For each pair of optical connector plugs (411), one inserted from the first side and one inserted from the second side, the ferrules (413) of the two optical connector plugs are inserted into the cylindrical hollow

alignment sleeves (425) for mating and forming an optical connection. EX1006: Figs. 25 and 27, 28:4-9, 30:18-21; EX1002: ¶204.

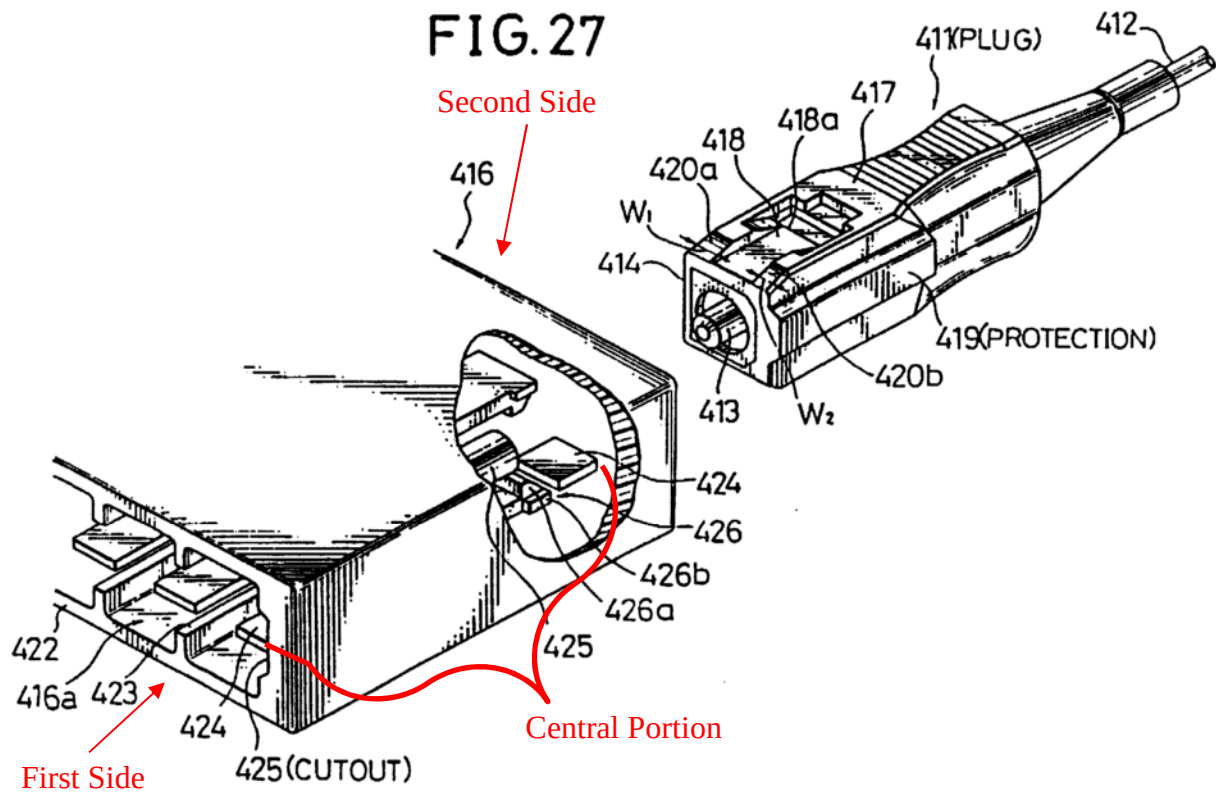
Therefore, Iwano meets 8.b.

8.c.1

As discussed in Section V(A)(1.a.3), Iwano's connector housing (416) includes a central portion. EX1002: ¶206. The central portion is between the first and second sides. EX1002: ¶¶206-209.



EX1006: Fig. 29 (duplicated and mirrored to show the full connector housing, annotated); EX1002: ¶209.



EX1006: Fig. 27 (annotated); EX1002: ¶209.

Therefore, Iwano meets 8.c.1.

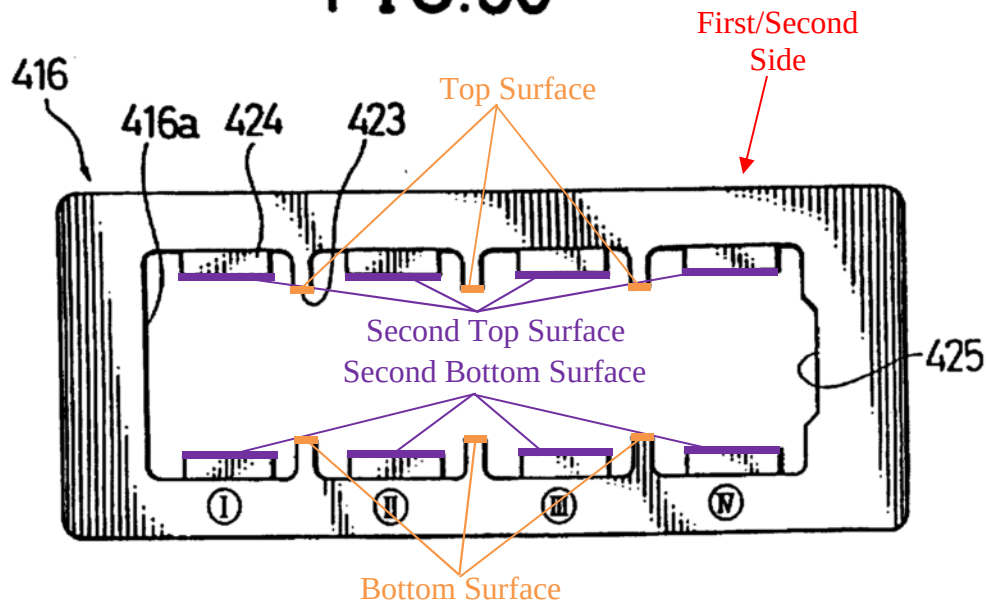
8.c.2

For reasons discussed in Section V(A)(1.b.1), Iwano meets 8.c.2.

8.c.3

As shown below, the second top surface and the second bottom surface formed by the projections (424) are different than the respective top surface and bottom surface of the first and second sides:

FIG.30



EX1006: Fig. 30 (annotated); EX1002: ¶214.

Therefore, Iwano meets 8.c.3.

8.c.4

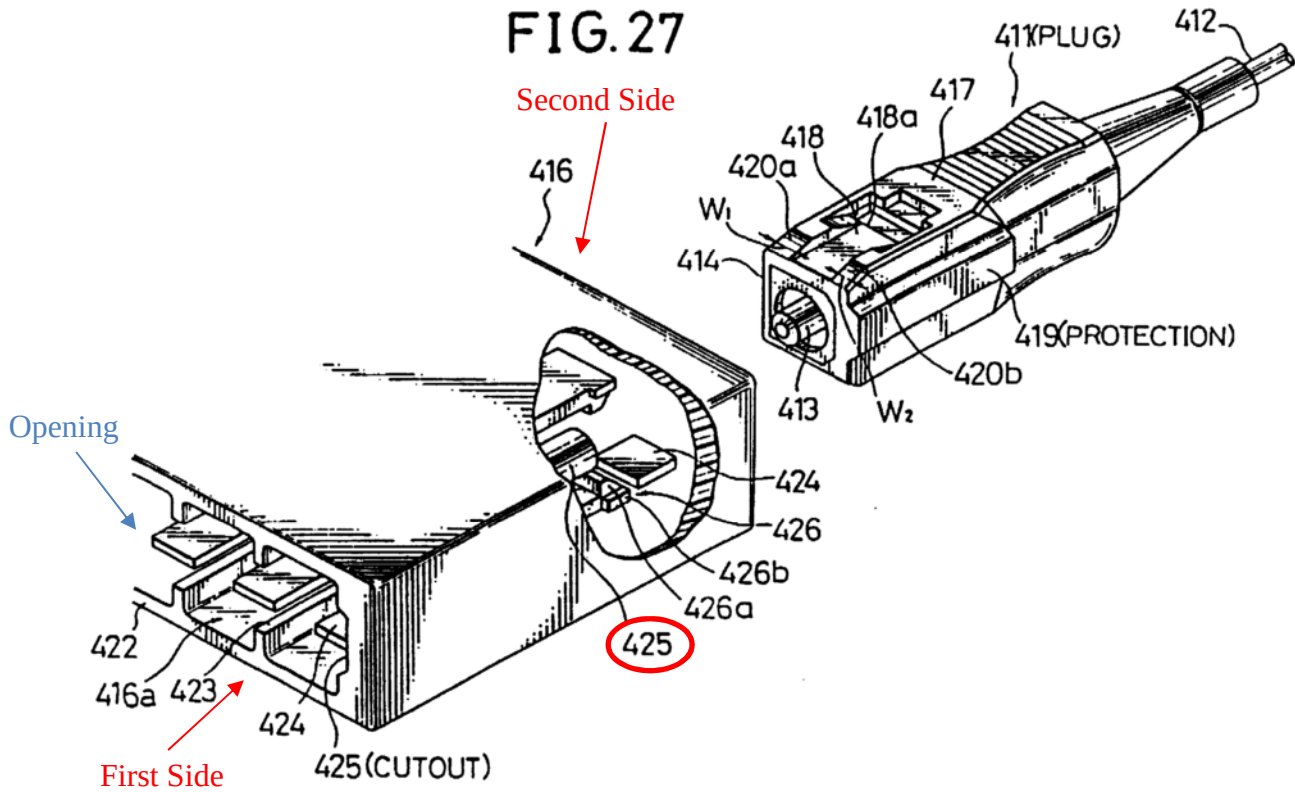
For reasons discussed in Section V(A)(1.b.3), Iwano meets 8.c.4.

I. Claim 9

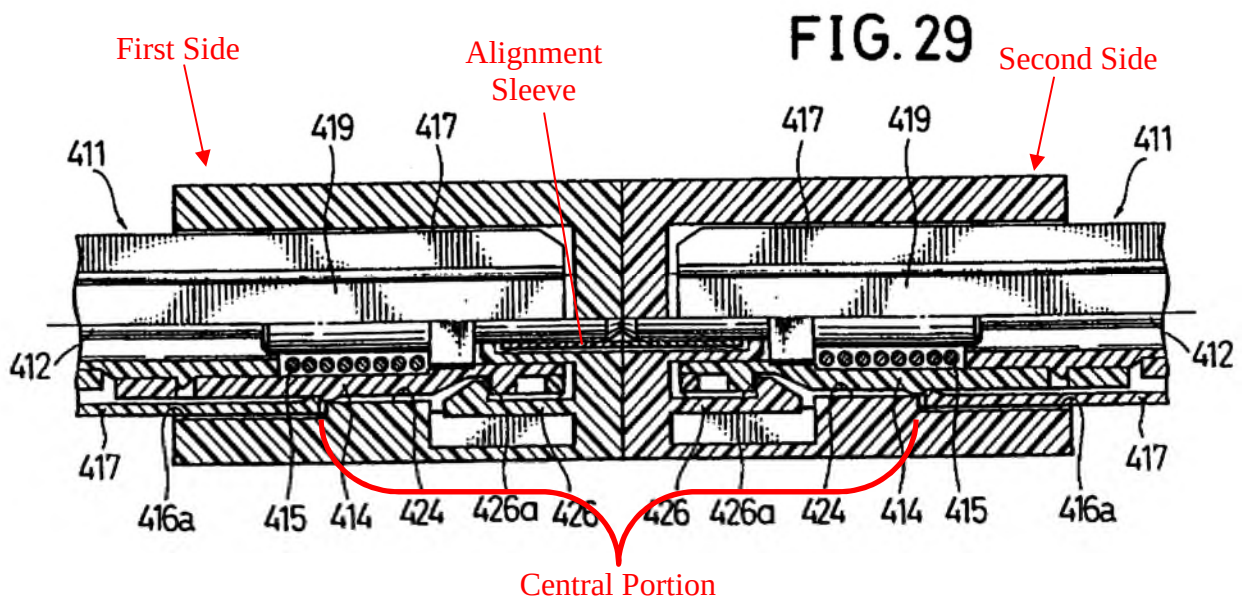
9.a

Iwano explains the “housing body 422 formed with a plurality of insertion holes 416a into which optical connector plugs 411 are inserted.” EX1006: 30:12-15; EX1002: ¶224. Iwano’s opening includes the holes formed by the cylindrical hollow alignments sleeves (425) in the central portion of the connector housing. EX1006: 30:18-21, Figs. 27 and 29; EX1002: ¶225. The alignment sleeves (425) “are provided within the insertion holes 416a of the connector housing 416.” EX1006: 30:18-21; EX1002: ¶226. Thus, the first and second sides of the opening

the central portion. EX1002: ¶227.



EX1006: Fig. 27 (annotated); EX1002: ¶227.



EX1006: Fig. 29 (duplicated and mirrored to show the full connector housing, annotated); EX1002: ¶227.

Therefore, Iwano meets 9.a.

9.b

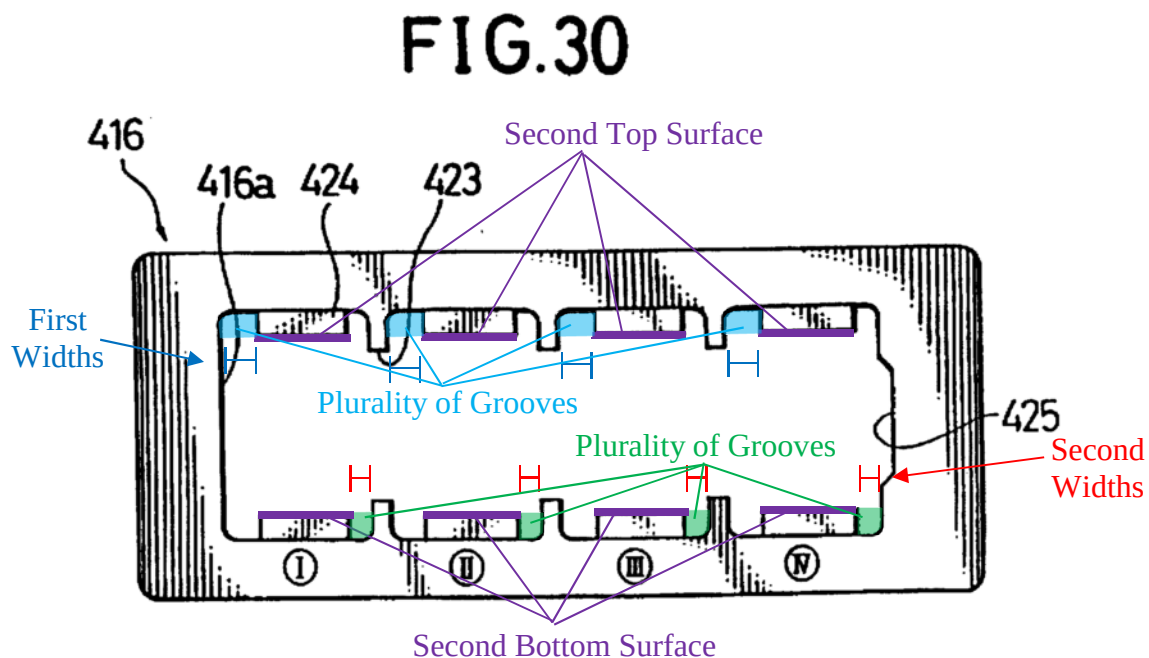
For reasons discussed in Section V(D), Iwano meets 9.b.

J. Claim 10

For reasons discussed in Section V(E), Iwano meets this claim.

K. Claim 11

As explained in Section V(A)(1.b.1), Iwano's connector housing (416) has a plurality of grooves disposed in the second top surface of the central portion and a plurality of grooves disposed in the second bottom surface of the central portion, as shown below:



EX1006: Fig. 30 (annotated); EX1002: ¶237.

A set of the grooves in the top surface of the central portion have a first width, while a set of the grooves in the bottom surface of the central portion have a second width. EX1006: Fig. 30 (annotated) and 31(a)&(b); EX1002: ¶238. As illustrated and described, the first and second widths are different. EX1006: Fig. 30 (annotated) and 31(a)&(b), 30:1-5, 30:44-54; EX1002: ¶239.

Iwano explains the indicated first and second widths are different “to prevent the optical connector plug 411 from being inserted into the connector housing 416 erroneously.” EX1006: 30:55-57; EX1002: ¶240. The different width of these grooves of Iwano’s connector housing (416) corresponds to the projection portions (420a, 420b) of the optical connector plug (411) having different widths. EX1006: 30:15-17; EX1002: ¶241. The different widths of the grooves of Iwano’s connector housing (416) match the different widths of the projection portions (420a, 420b) of the optical connector plug (411). EX1006: Figs. 31(a)&(b), 30:44-54; EX1002: ¶242. Iwano explains “the **width W1** of one inclined projection portion 420a **is wider than that W2** of the other inclined projection portion 420b.” EX1006: 30:1-5, 30:44-54; EX1002: ¶243.

FIG.28(a)

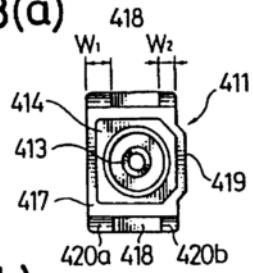


FIG.28(b)

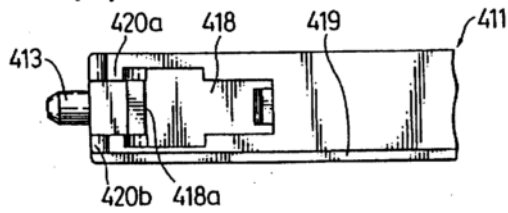
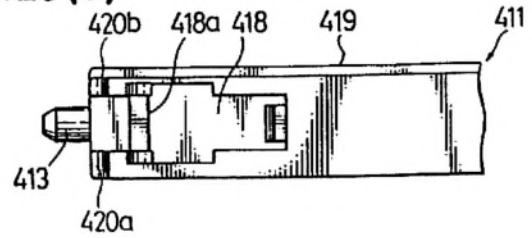


FIG.28(d)



EX1006: Figs. 28(a), (b), and (d).

FIG.31(a)

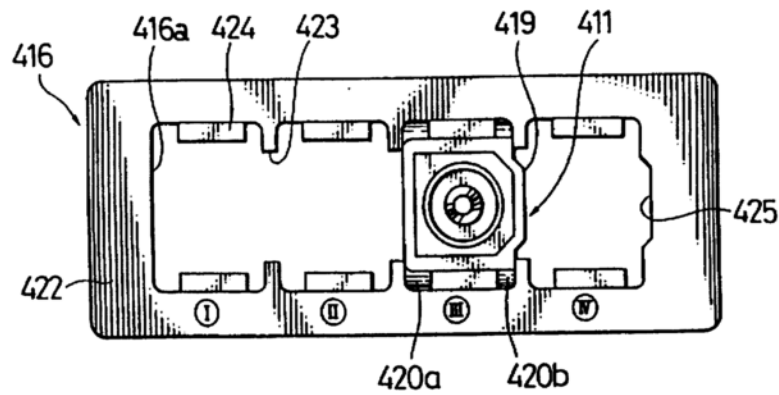
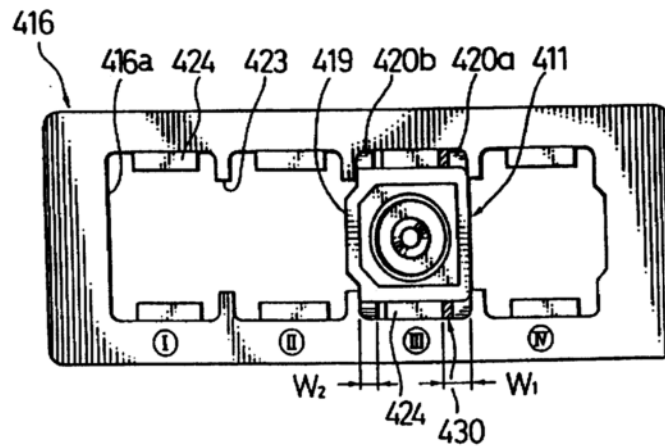


FIG.31(b)



EX1006: Figs. 31(a)&(b).

Therefore, Iwano meets this claim.

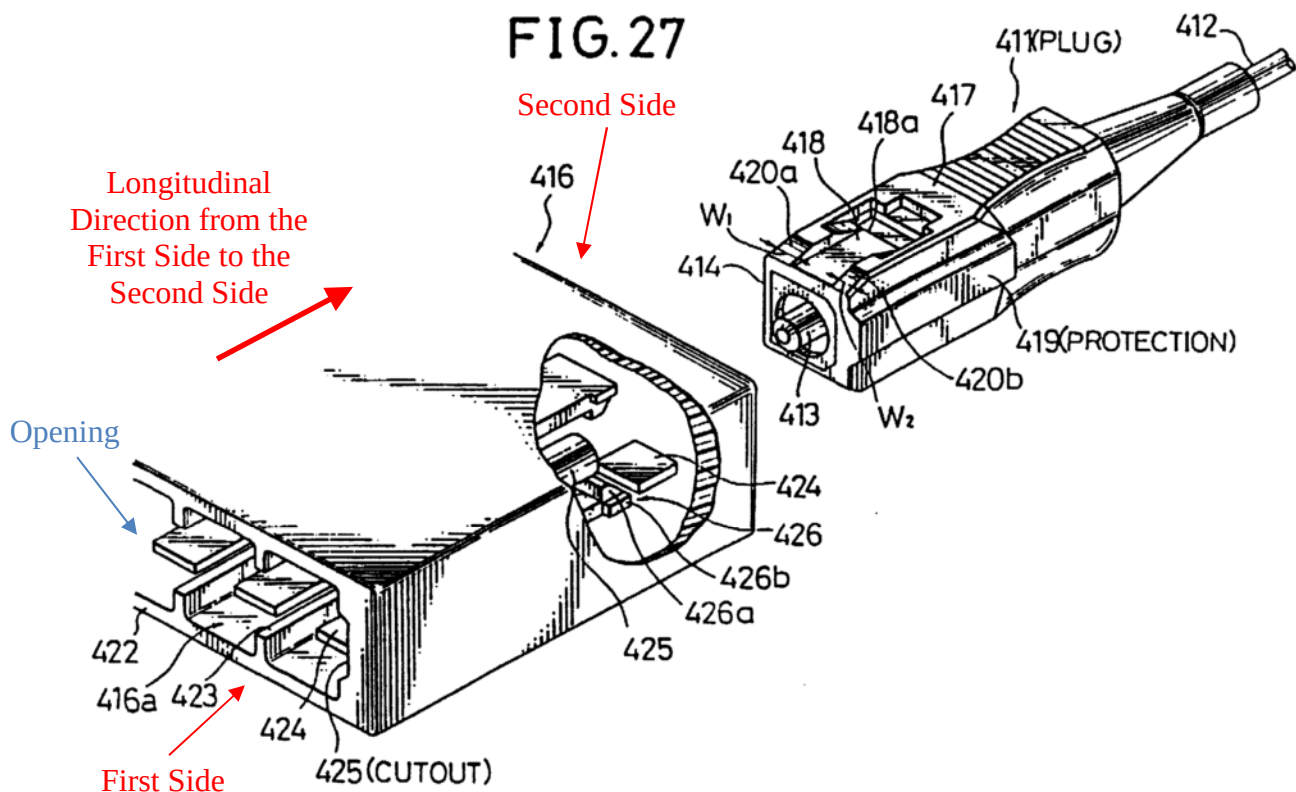
L. Independent Claim 12

12.P

For reasons discussed in Section V(A)(1.P), Iwano meets 12.P.

12.a.1

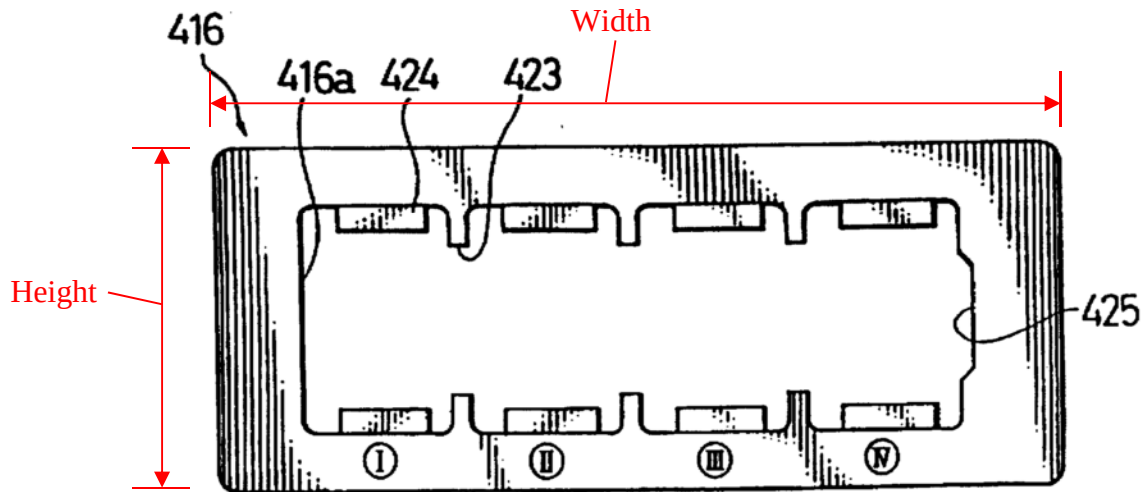
As discussed in Section V(A)(1.a.1)&(1.a.2), Iwano has a housing body (422) with an opening extending between the first and second sides. EX1002: ¶250, 252-254. As shown below, the opening extends longitudinally from the first side to the second side:



EX1006: Fig. 27 (annotated); EX1002: ¶255.

The housing body (422) has a width and a height. EX1002: ¶251.

FIG.30



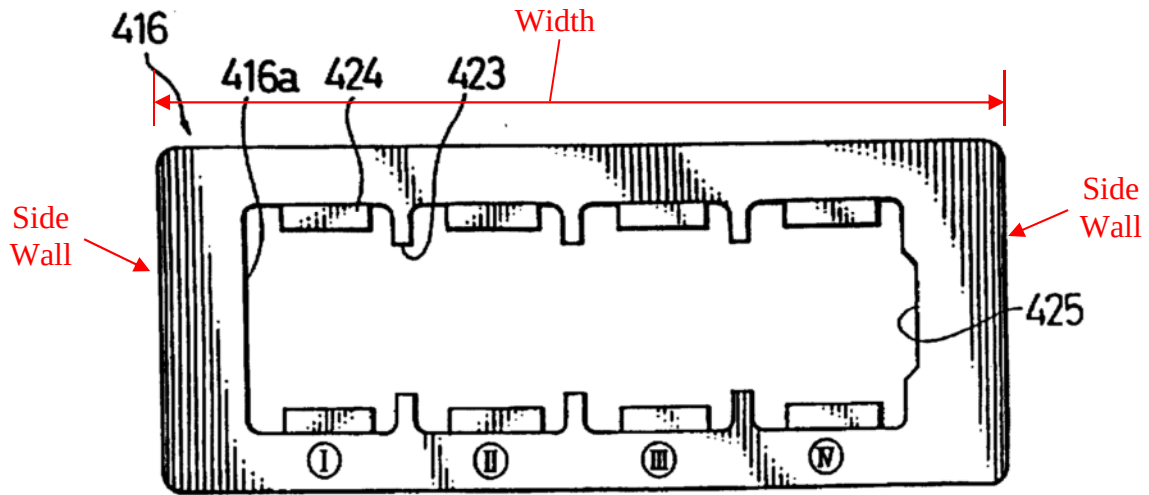
EX1006: Fig. 30 (annotated); EX1002: ¶251.

Therefore, Iwano meets 12.a.1.

12.a.2

Iwano's housing body (422) includes two opposing side walls spaced apart along the width. EX1002: ¶257.

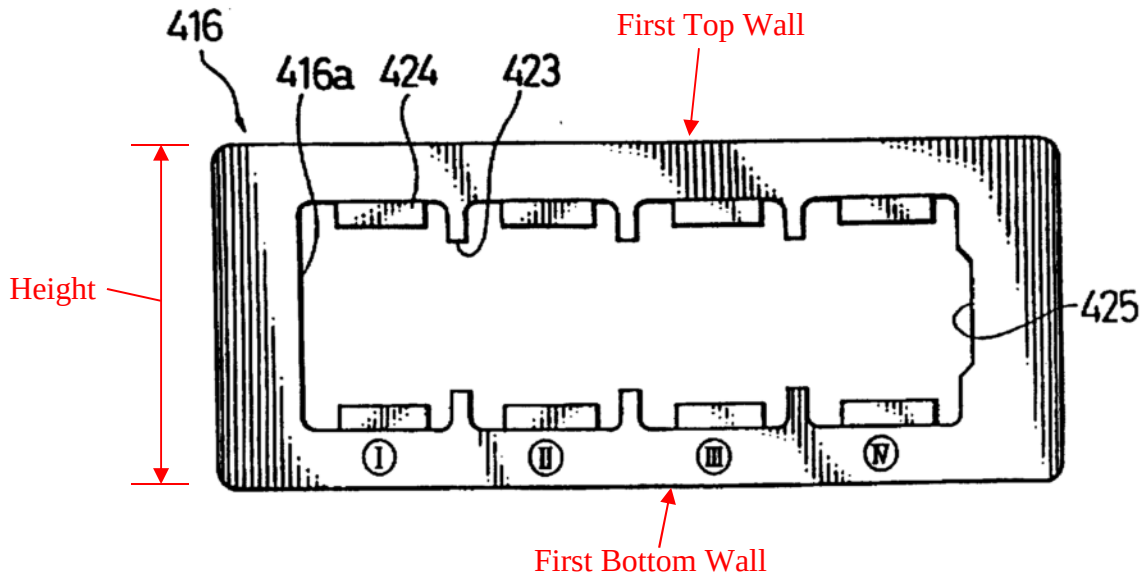
FIG.30



EX1006: Fig. 30 (annotated); EX1002: ¶257.

Iwano's housing body (422) includes a first top wall and a first bottom wall spaced apart along the height. EX1002: ¶258.

FIG.30

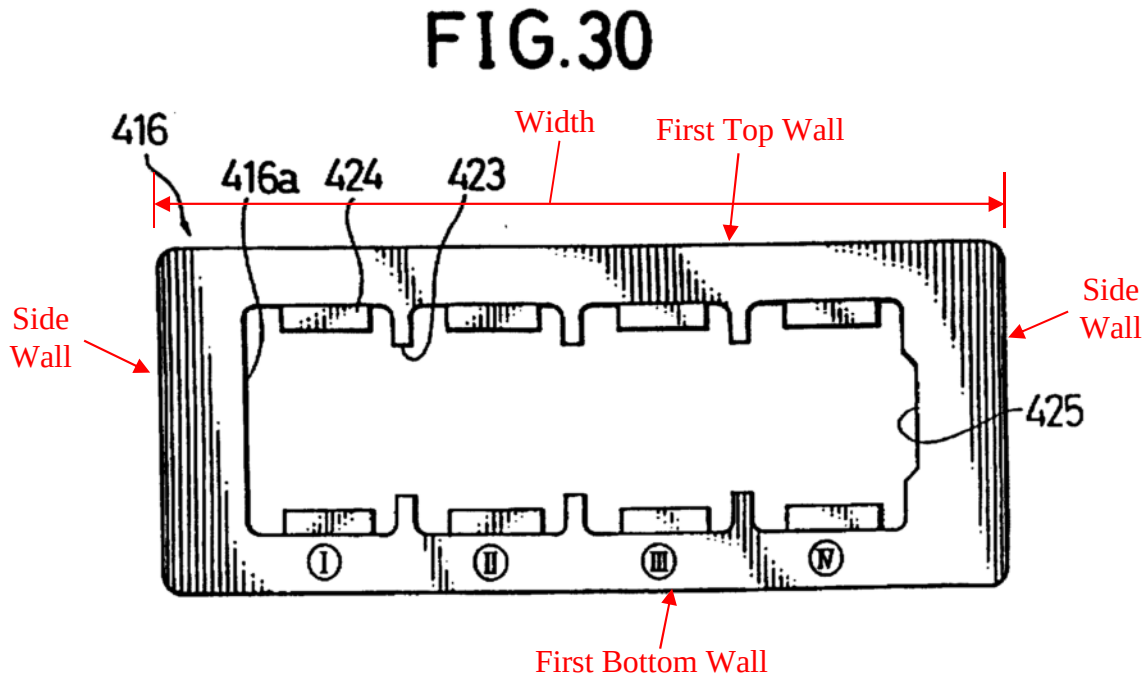


EX1006: Fig. 30 (annotated); EX1002: ¶258.

Therefore, Iwano meets 12.a.2.

12.a.3

Iwano's first top and bottom walls each extends widthwise between the two opposite side walls. EX1002: ¶260.



EX1006: Fig. 30 (annotated); EX1002: ¶260.

Therefore, Iwano meets 12.a.3.

12.b

As discussed in Section V(A)(1.b.1), Iwano's connector housing (416) includes grooves. EX1002: ¶262. Each of the first top and bottom walls includes projections (424) and partition walls (423) which form the grooves therebetween. EX1006: Figs. 27, 29, and 30; EX1002: ¶263-265. As shown below, the first top

wall has first internal grooves spaced apart along the width, and the first bottom wall has second internal grooves spaced apart along the width:

FIG.30

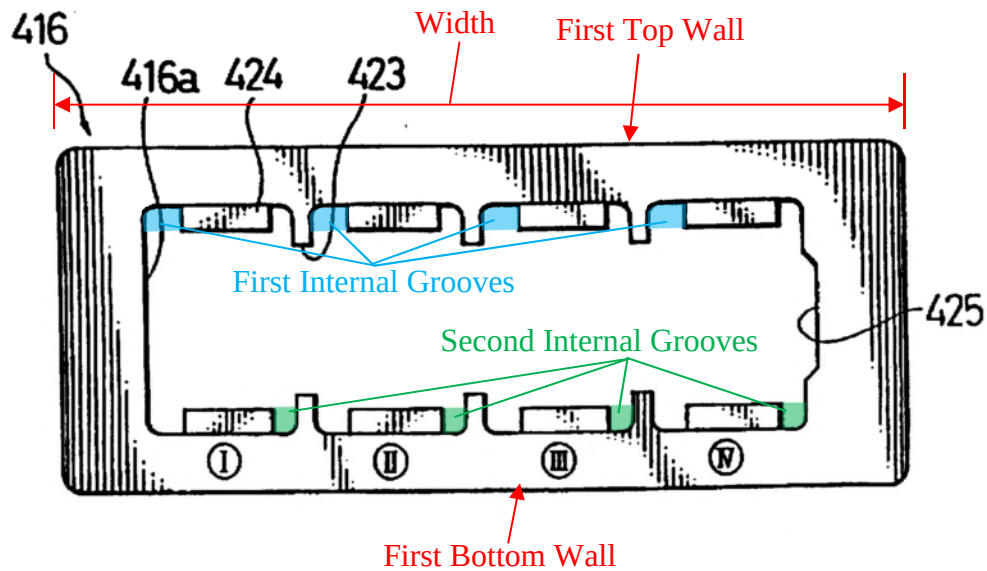
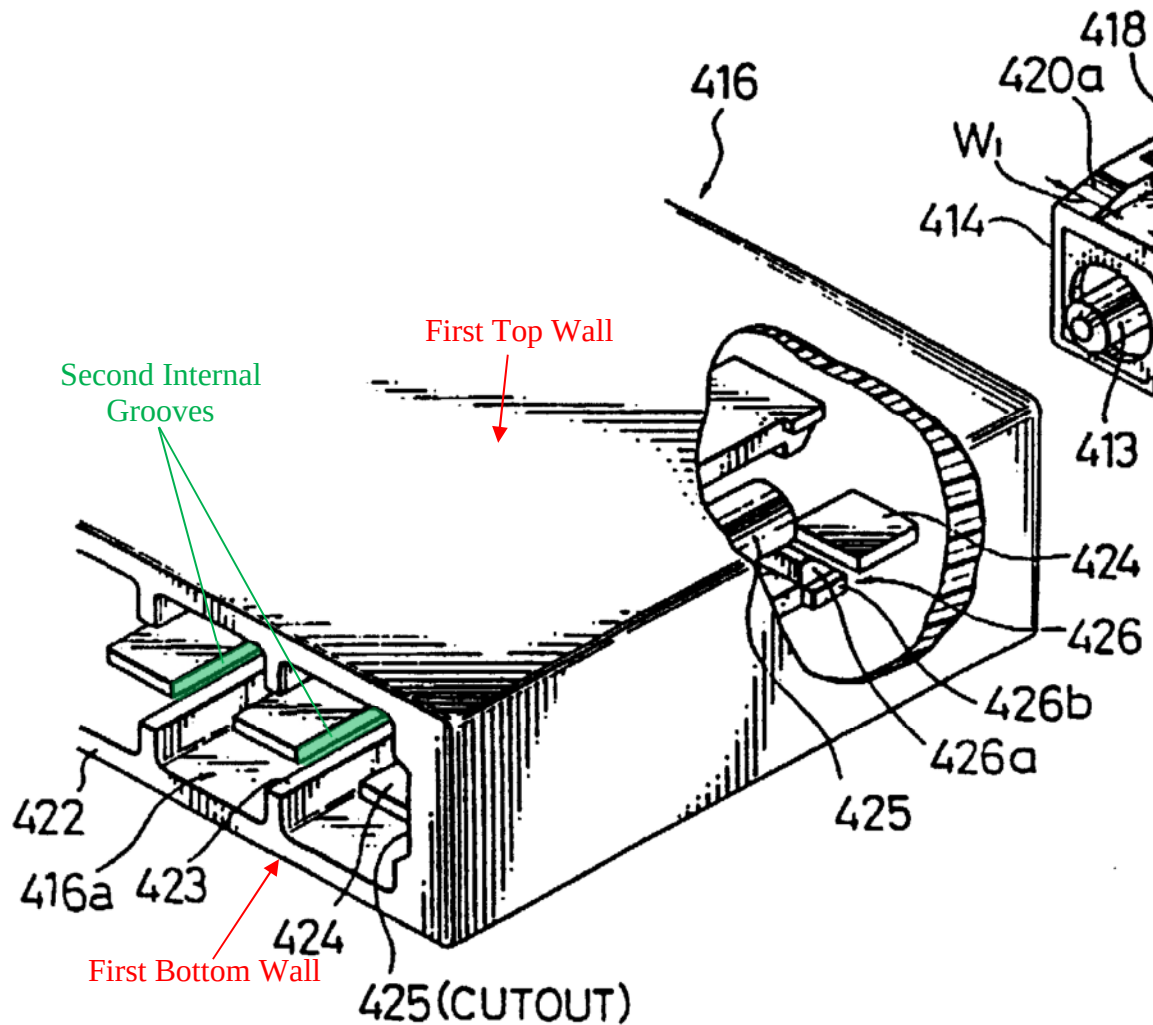


FIG. 27



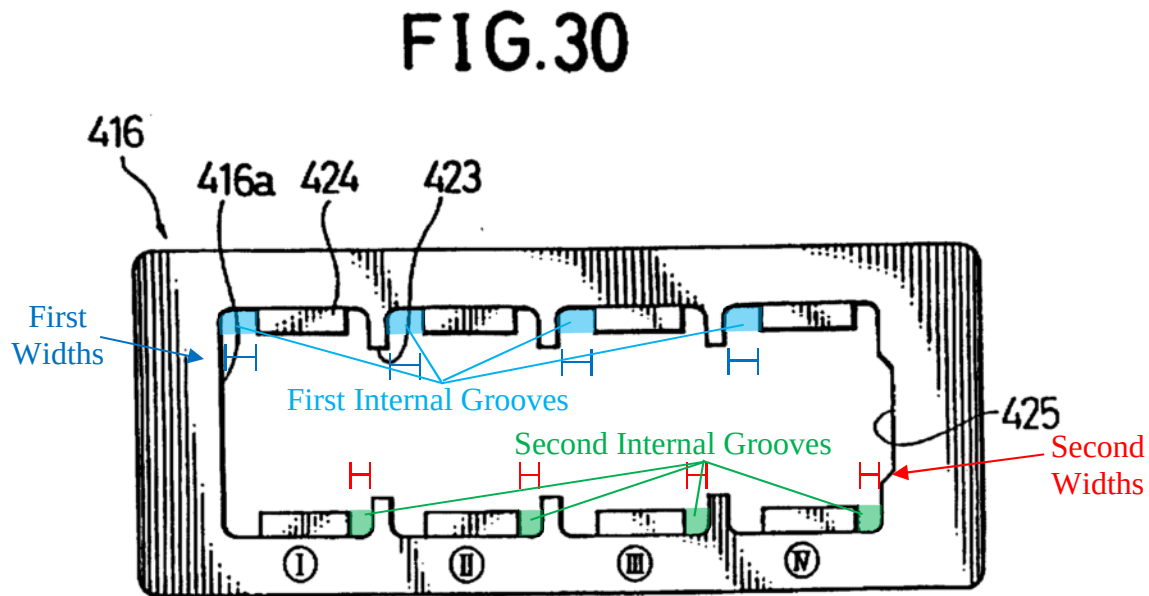
EX1006: Figs. 27 and 30 (annotated); EX1002: ¶265.

Therefore, Iwano meets 12.b.

12.c.1

As discussed in Section V(K), the first internal grooves have a first width and the second internal grooves have a second width. EX1002: ¶267] The first

width is greater than the second width. EX1006: Figs. 31(a)&(b), 30:1-5, 30:44-54; EX1002: ¶267-271.



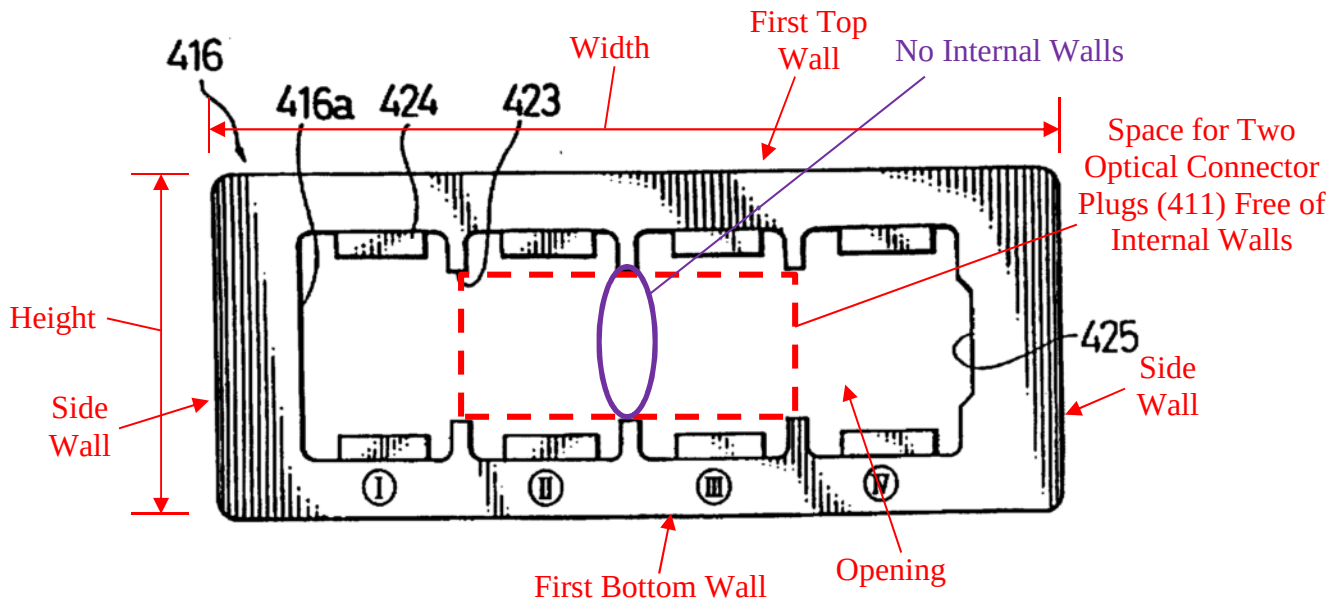
EX1006: Fig. 30 (annotated); EX1002: ¶267.

Therefore, Iwano meets 12.c.1.

12.c.2

As shown below, Iwano's connector housing (416) does not include internal walls along the width or height between the adjacent spaces for receiving two optical connector plugs (411) that are adjacent to one another on the same side in the opening. EX1002: ¶273.

FIG.30



EX1006: Fig. 30 (annotated); EX1002: ¶273.

Each of the first top and bottom walls includes projections (424) and partition walls (423). EX1002: ¶274. The first and second internal grooves are identified by Claim 12 as being part of the first top and first bottom walls, respectively. EX1001: 8:17-19; EX1002: ¶274. Thus, in the context of the claims of the '415 Patent, the projections (424) and partition walls (423) defining the grooves in the top and bottom walls are part of the respective top and bottom walls. EX1002: ¶274.

Therefore, Iwano meets 12.c.2.

M. Claim 13

For reasons discussed in Section V(E), Iwano meets this claim.

N. Claim 14

For reasons discussed in Section V(F), Iwano meets this claim.

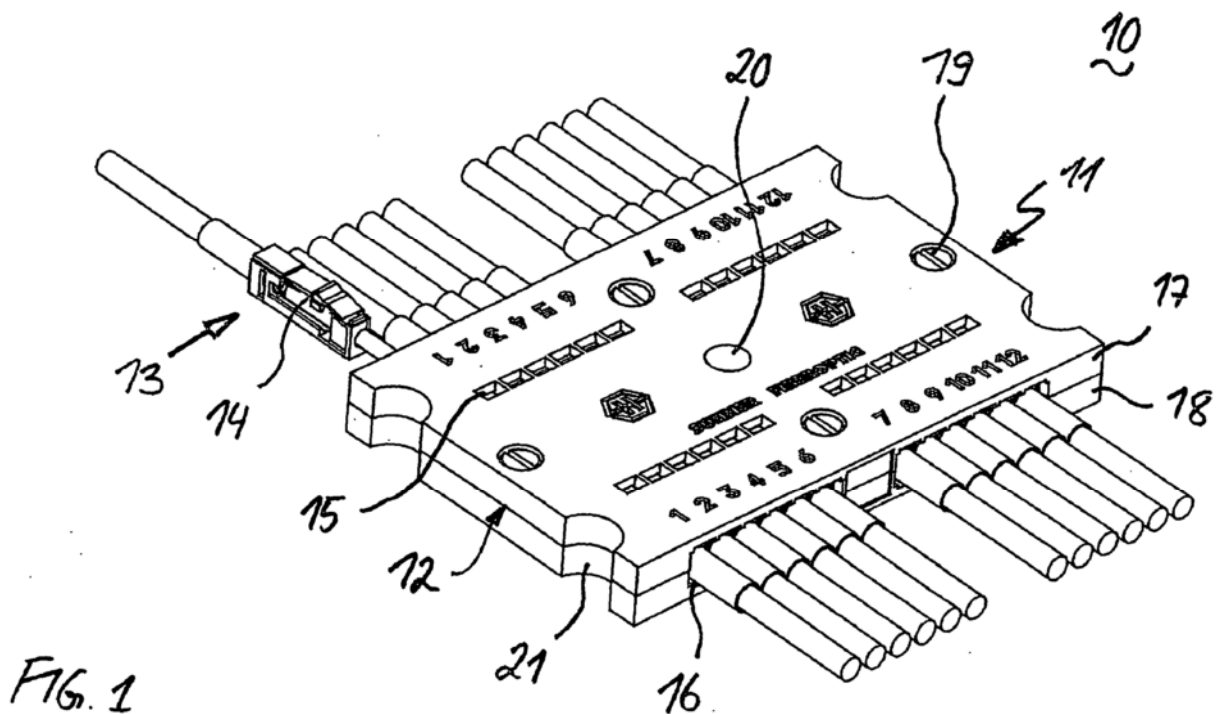
VI. GROUND 2: Claims 12-14 are Anticipated by Eigenmann

A. Independent Claim 12

12.P

Eigenmann teaches an adapter (11) and individual optical plug-in connectors (13) inserted into the adapter “to produce an optical connection.” EX1010:

Abstract; EX1002: ¶288.

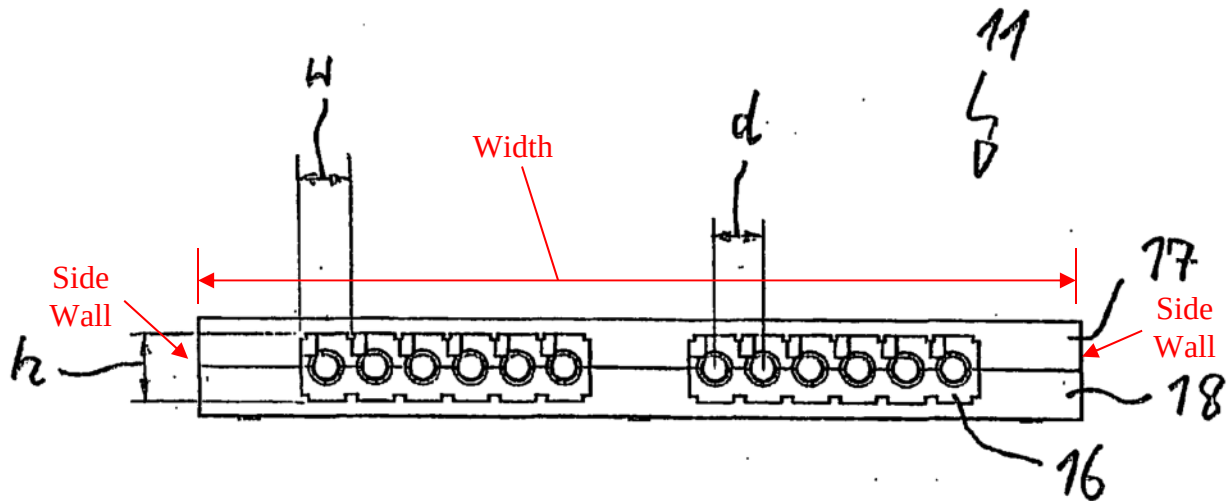


Eigenmann includes an opening comprising the insertion openings (16) on each side of the adapter (11) and cylindrical bores extending between pairs of the insertion openings. EX1010: ¶[0027]; EX1002: ¶292. Specifically, Eigenmann explains there are “rows of insertion openings 16” on each side of the adapter that “directly oppose” one another. EX1010: ¶[0027]; EX1002: ¶293. Eigenmann further explains there are cylindrical depressions (48) that form “cylindrical bore[s]” extending between each pair of insertion openings (15). EX1010: Fig. 2, ¶[0027]; EX1002: ¶294.

Since each cylindrical bore is continuous with its respective pair of insertion openings (16) and each pair of insertion openings is continuous with the other pairs of insertion openings, the plurality of cylindrical bores and insertion openings form a single opening. EX1010: Figs. 2 and 5, ¶[0027]; EX1002: ¶¶295-297. The opening comprising the insertion openings (16) and cylindrical bores extends longitudinally from a first side of the adapter (11) to a second side of the adapter. EX1010: Figs. 1-3, ¶[0027]; EX1002: ¶298.

opposing side walls spaced apart along the width of the adapter housing (12).

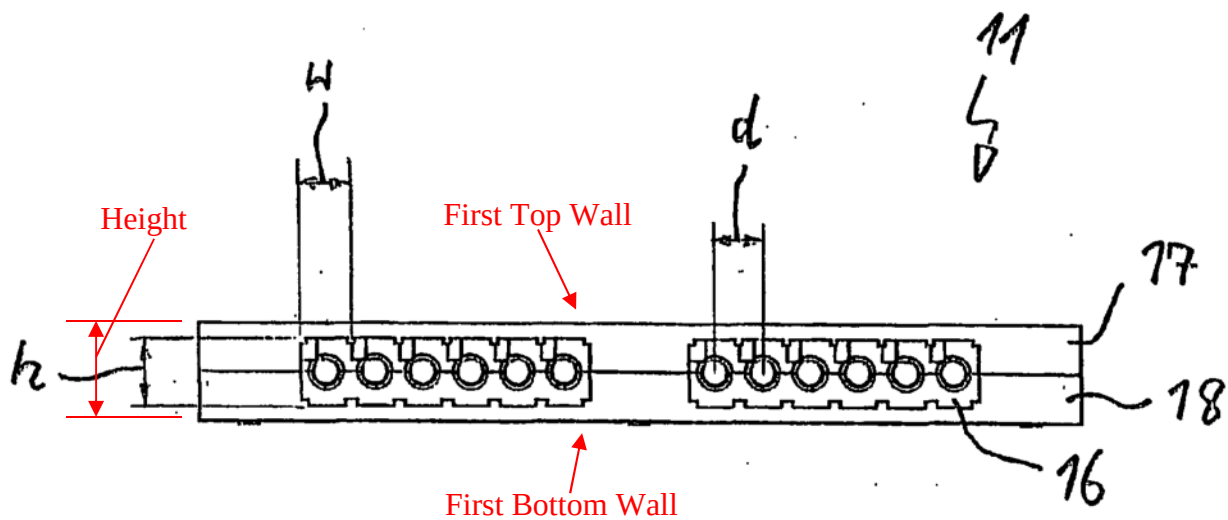
EX1010: Fig. 5; EX1002: ¶301.

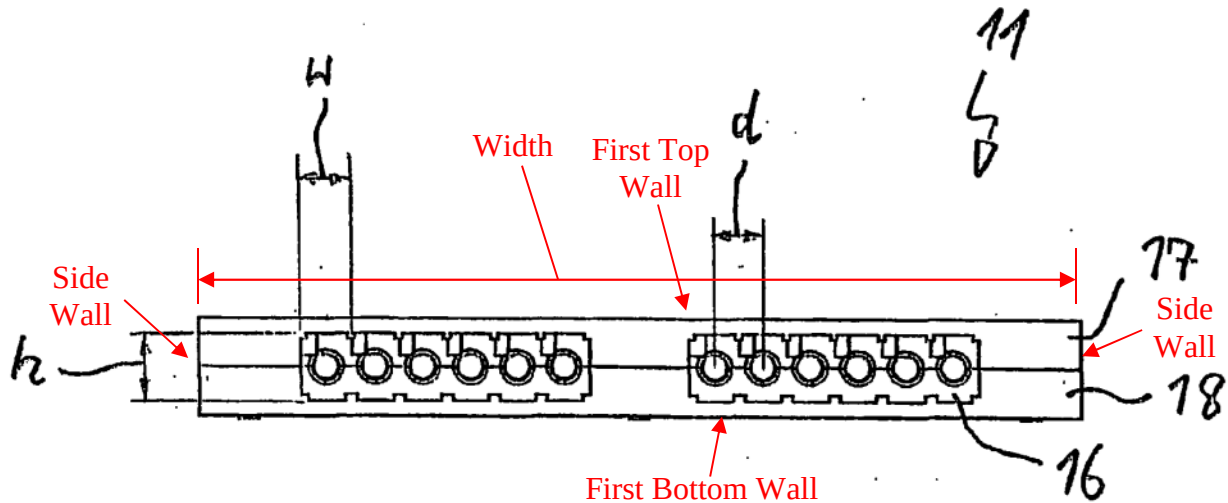


EX1010: Fig. 5 (annotated); EX1002: ¶301.

The upper part (17) and the lower part (18) respectively form a first top wall and a first bottom wall spaced apart along the height of the adapter housing (12).

EX1010: Fig. 5; EX1002: ¶303.





EX1010: Fig. 5 (annotated); EX1002: ¶306.

Therefore, Eigenmann meets 12.a.3.

12.b

Eigenmann's first top wall and first bottom wall each include internal grooves spaced apart along the width. EX1010: Figs. 2, 5; EX1002: ¶308. Each of the upper and lower parts (17, 18) include guiding rails (46) defining the insertion channels (47) (i.e., grooves). EX1010: ¶[0031]; EX1002: ¶309. The guiding rails (46) on the top are part of the first top wall and the guiding rails (46) on the bottom are part of the first bottom wall. EX1002: ¶¶309-310.

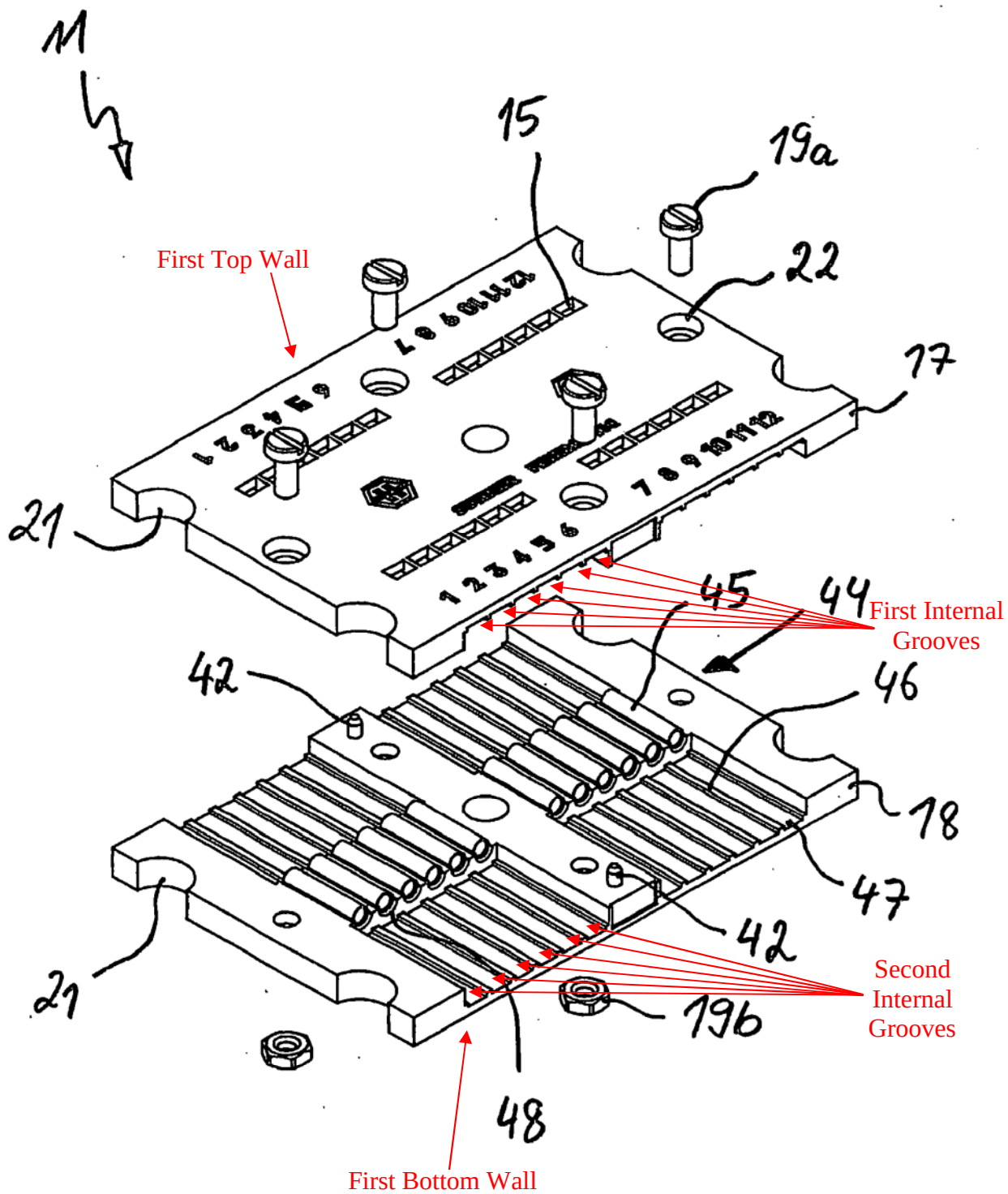
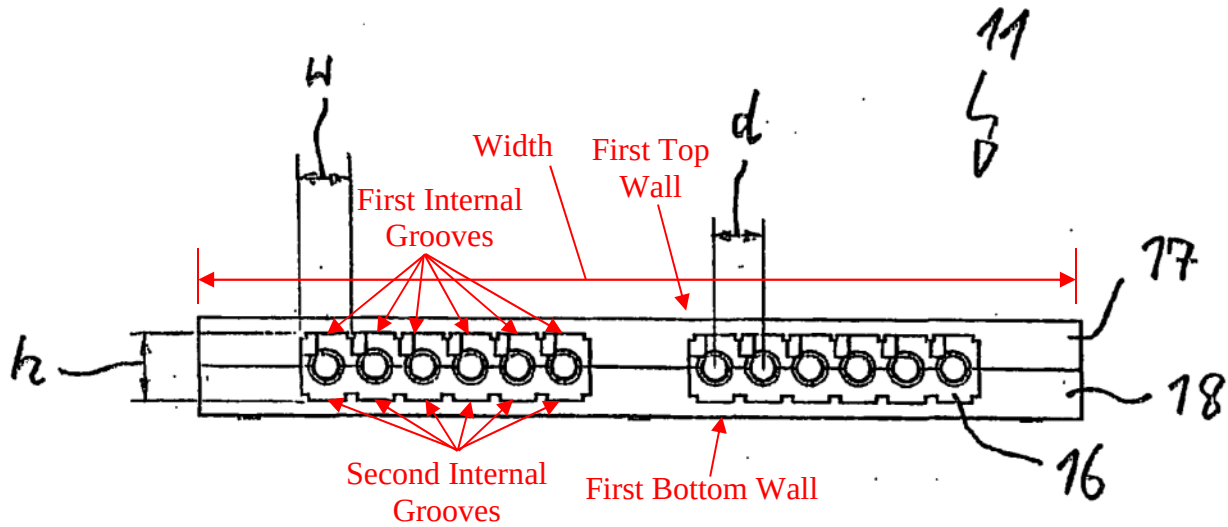


FIG. 2

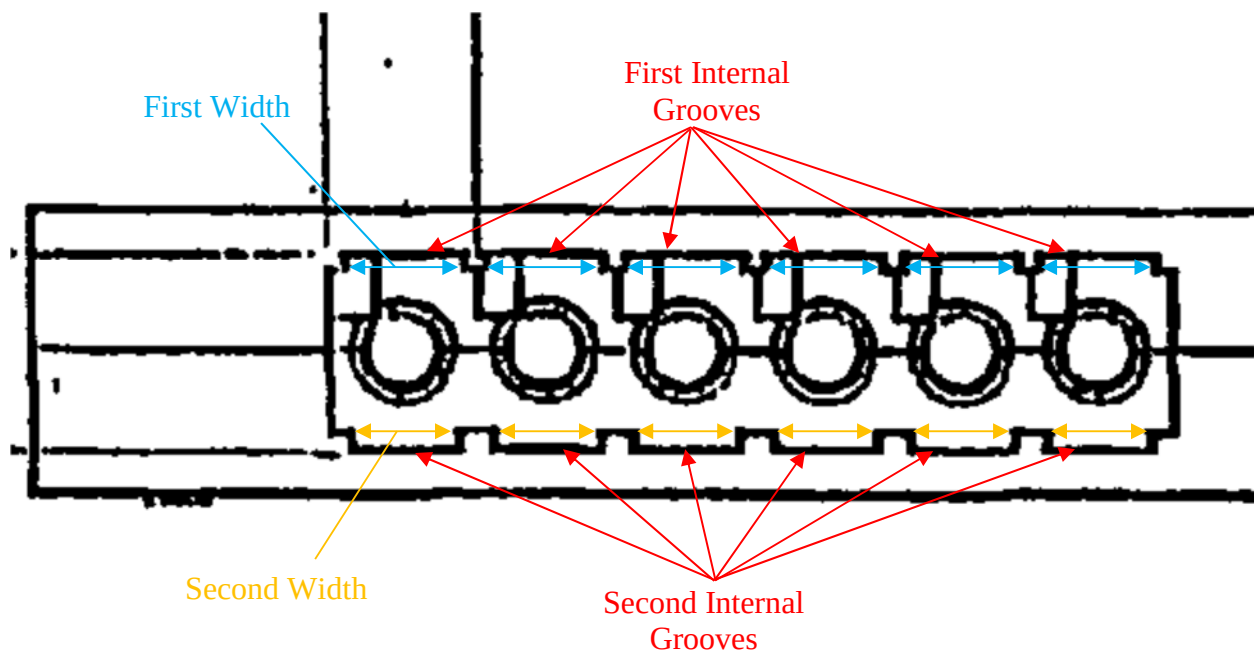


EX1010: Figs. 2 and 5 (annotated); EX1002: ¶309.

Therefore, Eigenmann meets 12.b.

12.c.1

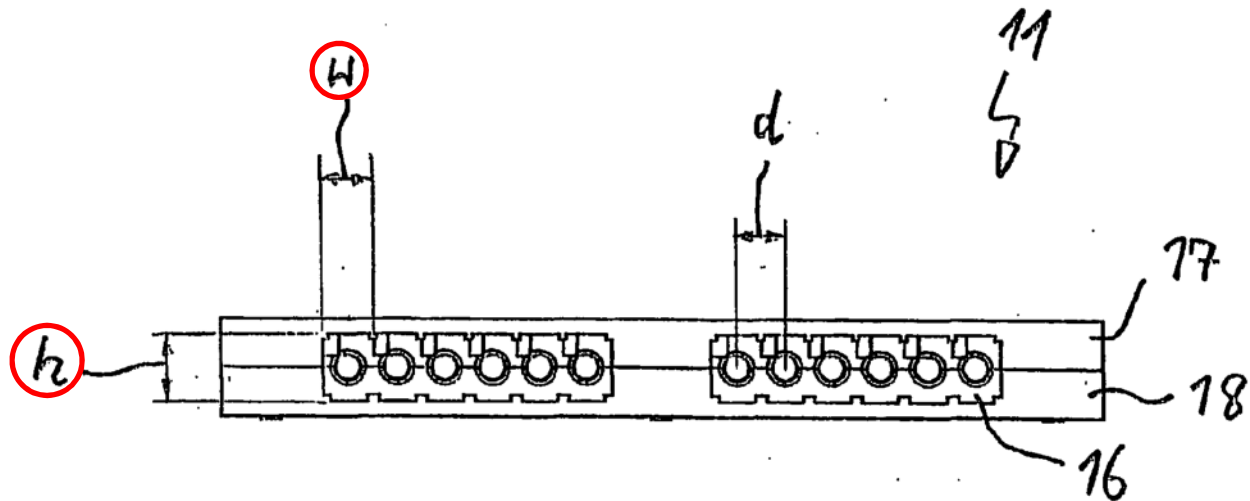
Eigenmann's guide rails (46) define insertion channels (47) (i.e., internal grooves) there-between. EX1010: ¶[0031]; EX1002: ¶¶312-313. As shown in Fig. 5, the guide rails (46) on the upper part (17) have a smaller width than the guide rails (46) on the lower part (18). EX1010: Fig. 5; EX1002: ¶314. As a result, each insertion channel (47) in the upper part (17)—the first internal grooves—has a width larger than a width of each insertion channel in the lower part (18)—the second internal grooves. EX1010: Fig. 5; EX1002: ¶¶315-316.



EX1010: Fig. 5 (excerpted, annotated): EX1002: ¶312.

Notably, Figure 5 can be relied upon to show the different widths in the top and bottom insertion channels (47) (i.e., first and second internal grooves) because Eigenmann provides scale information for the drawings. EX1010: ¶¶[0031] (“[t]he overall height of the adapter housing 12 is in this case no more than approximately 5 mm”), [0038] (“each insertion opening 16 has dimensions (width×height) with a width *w* of approximately 2.4 mm and a height *h* of approximately 3.4 mm.”), [0039] (identifying dimensions of plug-in connectors”); *Collabo Innovations, Inc. v. Sony Corp.*, 778 Fed. Appx. 954, 960 (Fed. Cir. 2019) (relative dimensions in drawings may be used when the specification provides scale information); *Paice LLC v. Ford Motor Co.*, 722 Fed. Appx. 1015, 1022 (Fed. Cir. 2018) (scale in

drawings can invalidate a patent when the prior art “provides some scale information”).

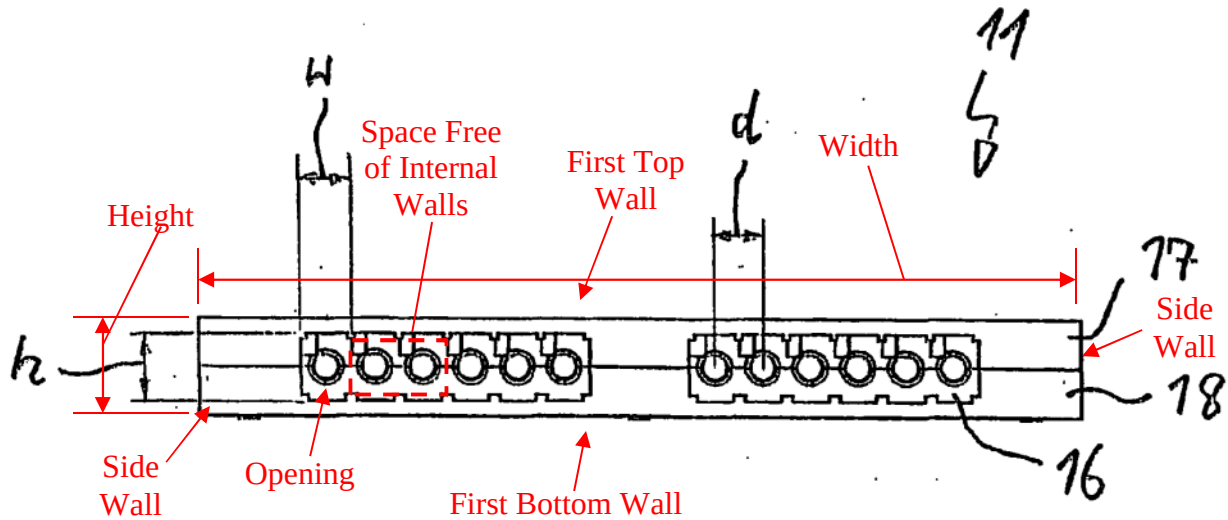


EX1010: Fig. 5 (annotated).

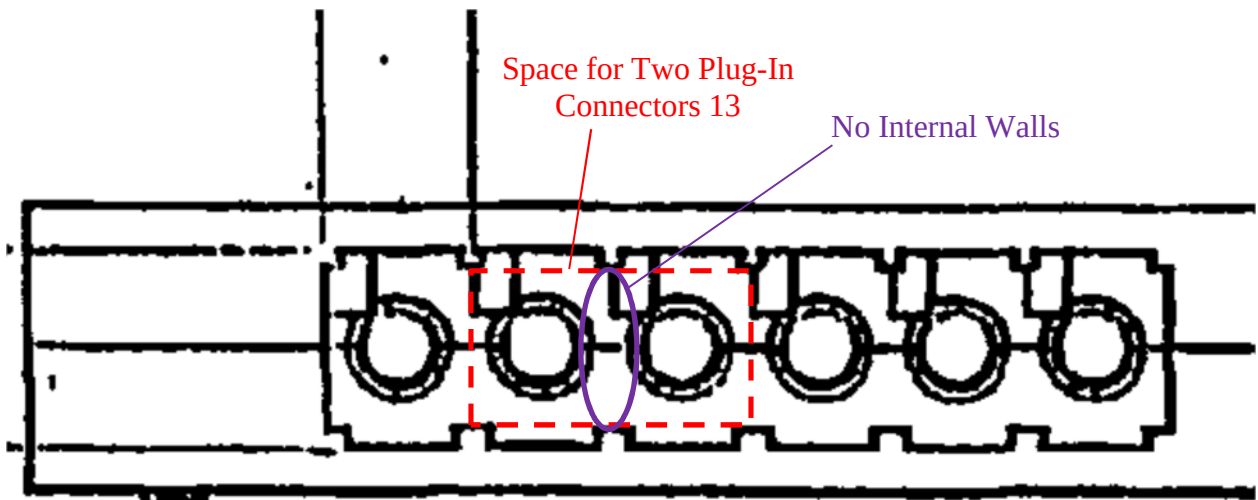
Therefore, Eigenmann meets 12.c.1.

12.c.2

As shown below, Eigenmann’s adapter (11) includes openings in which multiple fiber optic connectors may be inserted adjacent to one another on a same side of the adapter. EX1002: ¶317. As shown below, there are no internal walls along the width or height between the spaces for the two adjacent fiber optic connectors. EX1002: ¶320.



EX1010: Fig. 5 (annotated); EX1002: ¶320.



EX1010: Fig. 5 (enlarged, annotated); EX1002: ¶320.

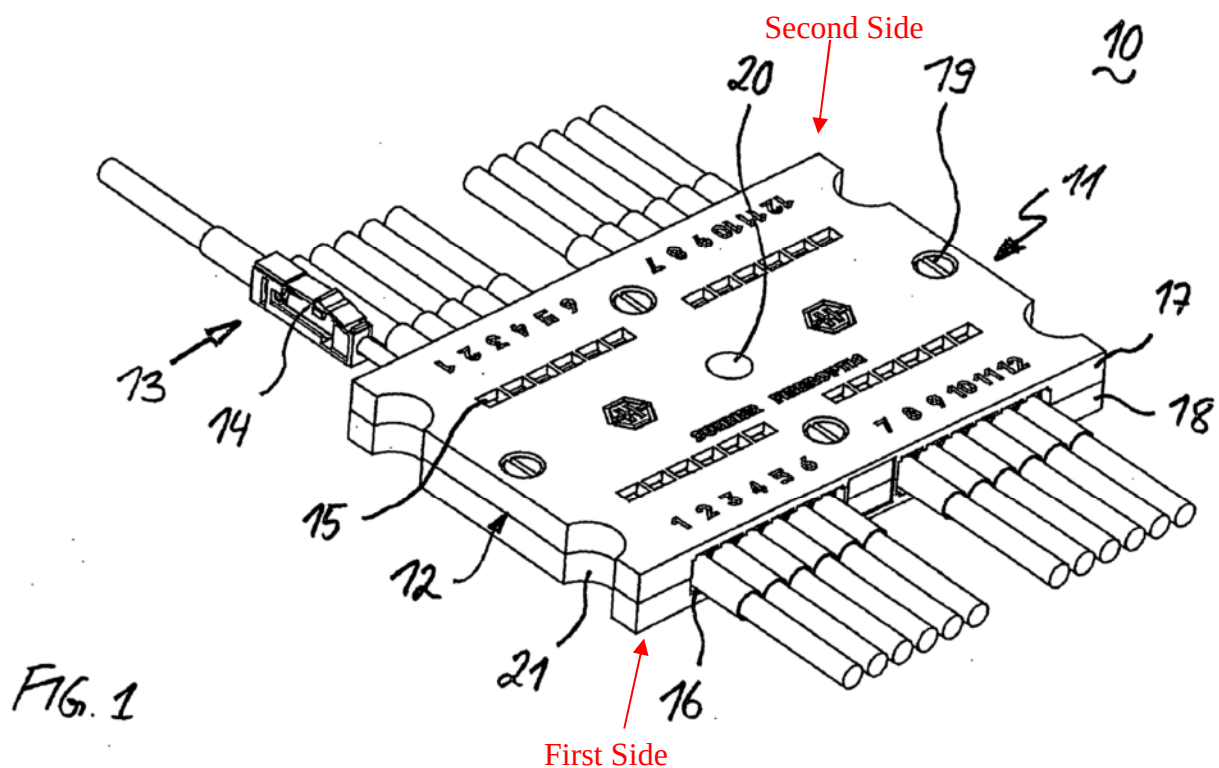
The first and second internal grooves are identified in Claim 12 as being part of the first top and first bottom walls, respectively. EX1001: 8:17-19; EX1002: ¶318. Thus, in the context of the claims of the ‘415 Patent, the insertion channels (47) are disposed in their respective top and bottom walls—and the guiding rails

(46) defining the insertion channels (47) are part of the respective top and bottom walls. EX1002: ¶319.

Therefore, Eigenmann meets 12.c.2.

B. Claim 13

As shown, the first and second sides of Eigenmann's adapter housing (12) can each receive up to 12 plug-in connectors (13). EX1010: Figs. 1 and 3, ¶[0027]; EX1002: ¶323.



EX1010: Fig. 1 (annotated); EX1002: ¶323.

Therefore, Eigenmann meets this claim.

C. Claim 14

14.a

Eigenmann's adapter (11) includes a "central web" (44) (i.e., a wall) disposed between the first and second sides (i.e., within and across the central portion) of the adapter housing (12). EX1010: Figs. 2 and 3, ¶[0030]; EX1002: ¶326.

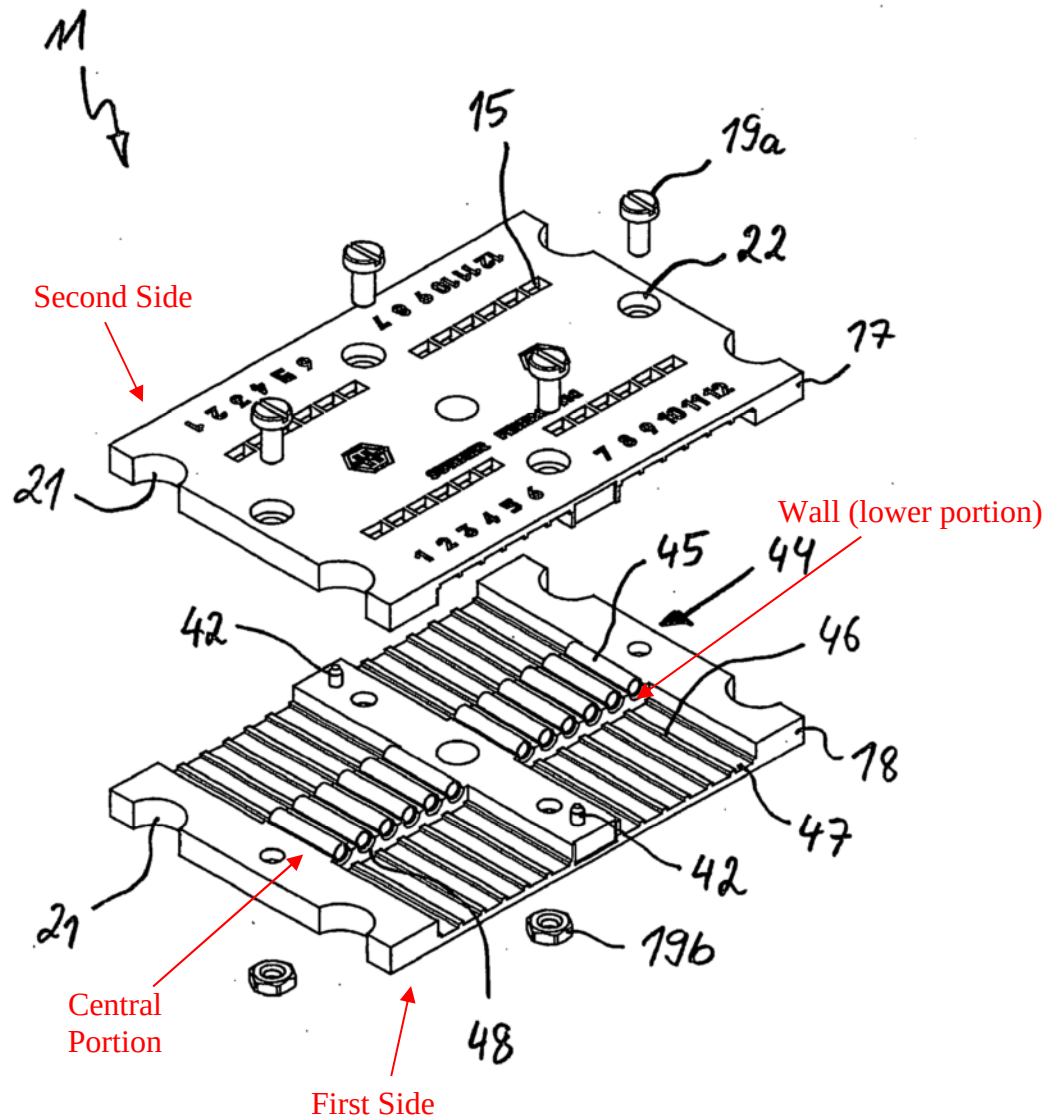


FIG. 2

EX1010: Fig. 2 (annotated); EX1002: ¶326.

Therefore, Eigenmann meets 14.a.

14.b

Eigenmann's wall includes the plurality of guiding sleeves (45), one for each pair of plug-in connectors (13) coupled by the adapter (11). EX1010: Figs. 2 and

3, ¶¶[0029]-[0032]; EX1002: ¶328. Each guiding sleeve (45) of the wall defines a passage. EX1010: ¶[0029]; EX1002: ¶330. Eigenmann explains that when the plug-in connectors are inserted into the adapter (11), “their ferrules 23 [are] received by the associated guiding sleeves 45.” EX1010: ¶[0032]; EX1002: ¶331. In doing so, at least a portion of the ferrules pass therethrough the wall via the passages formed by the guiding sleeves (45). EX1002: ¶333.

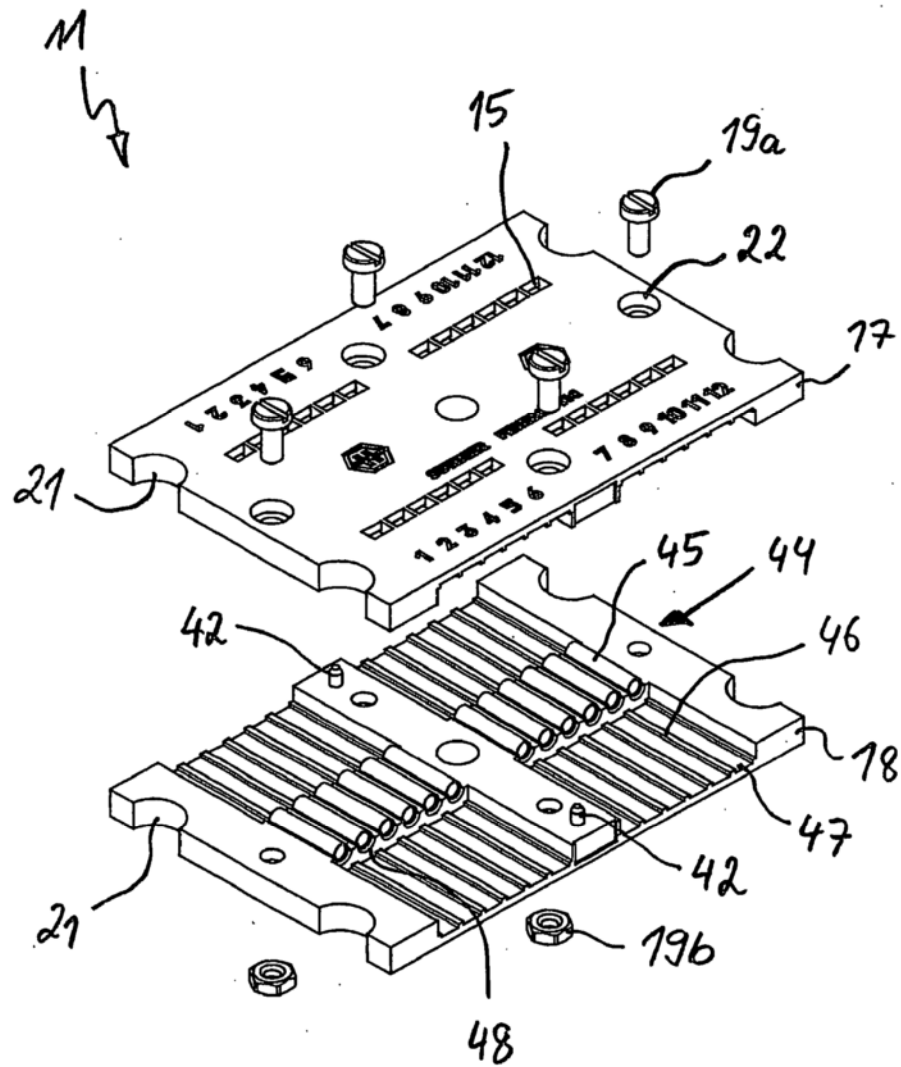
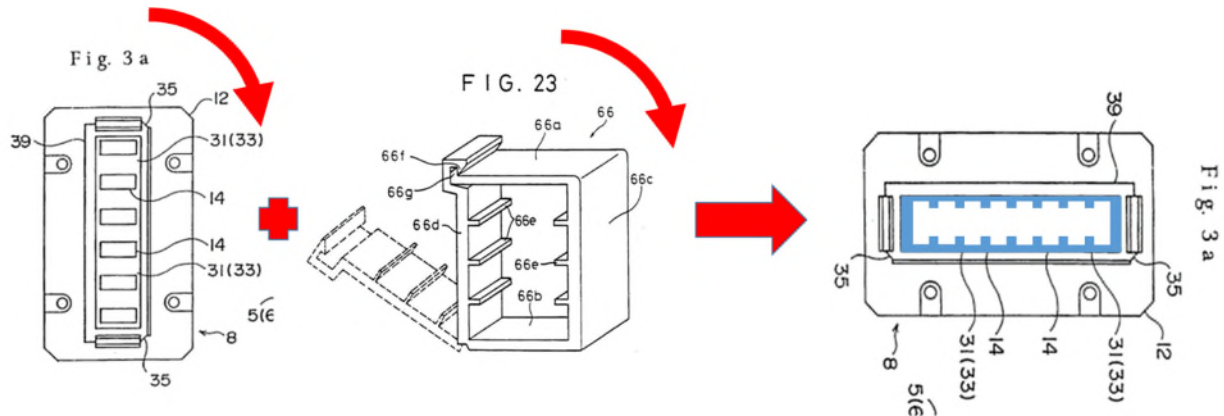


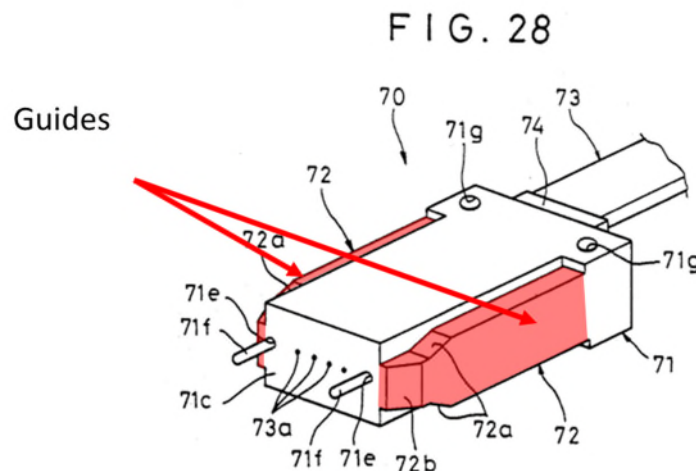
FIG. 2

guides with ribs or partial partitions of Saito, as shown below. EX1002: ¶¶338-340. This modification would result in alignment slots (i.e., grooves) for receiving the edges of the ferrules between each of the ribs—or between the first/last rib and the inner side wall. EX1002: ¶340.



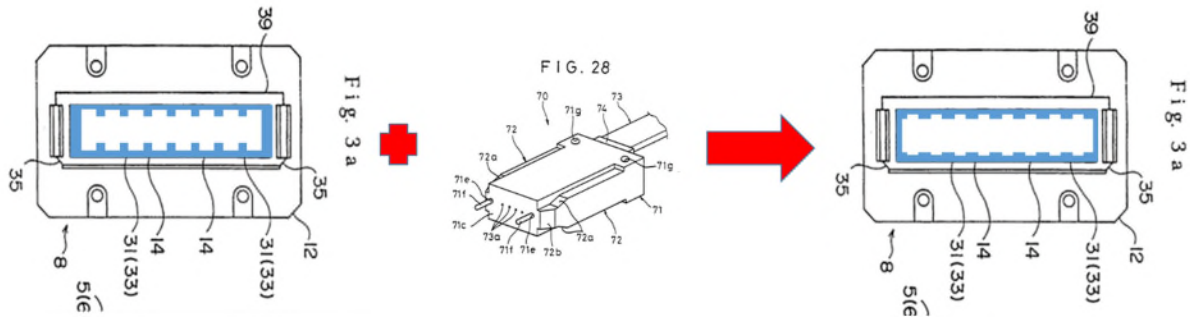
EX1003: Fig. 3a (annotated); EX1004: Fig. 23.

Moreover, it would have been obvious to further modify the interior grooves/ribs of the adapter as suggested by the embodiment of ferrule shown in Fig. 28 of Saito (reproduced below) to reduce the risk of damaging the face and alignment pins of the ferrule. EX1002: ¶341. In this embodiment, guides (72) with tapered surfaces (72a, 72b) are located on the sides of the ferrule for aligning the ferrule within the grooves of the adapter. EX1002: ¶342.



EX1004: Fig. 28 (annotated); EX1002: ¶341.

One of skill in the art would have recognized that the specific adapter configuration that would correspond to the ferrule of Saito Figure 28 would require slight modifications compared to the adapter shown in Saito Figure 23. EX1004: 12:56-68 (explaining the ferrule embodiment of Figure 28 was merely a variation of the embodiment used with the adapter of Figure 23, such that a detailed description was omitted); EX1002: ¶343-345. More specifically, the grooves would be narrowed so as to securely hold the guides (72) of the ferrule and the ribs would require widening so as to entirely fill the space between the guides (72) of adjacent ferrules and provide a modest separation of the main bodies of the ferrules. EX1002: ¶346. Shoulders would further be placed against the inner side walls of the central opening to secure the guides of the first and last ferrule from both sides. EX1002: ¶347. An implementation of Saito's Figure 28 with respect to the Kanai adapter is demonstrated below.

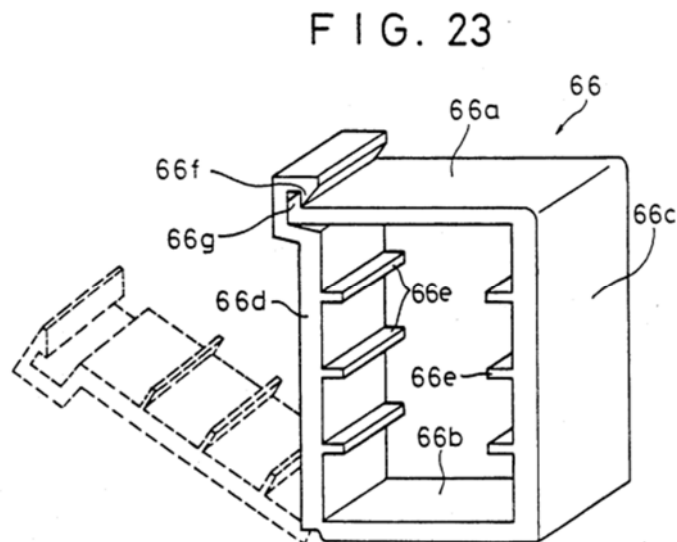


EX1003: Fig. 3a (annotated); EX1004: Fig. 28; EX1002: ¶348.

A. Motivation to Modify Kanai Based on Saito

It would also have been obvious to modify Kanai's adapter to consolidate the individual tubular guides (31, 33) into a single opening having walls extending continuously around the optical connectors with grooves to guide each ferrule of the optical connectors into mating position as demonstrated by Saito's Figure 23.

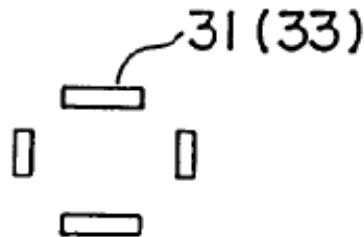
EX1002: ¶350.



EX1004: Fig. 23.

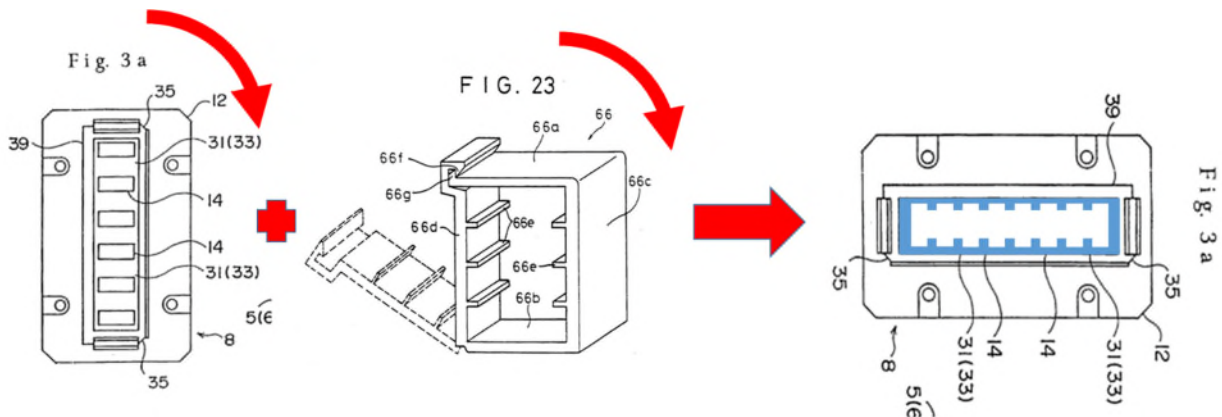
Kanai specifically recognizes that the walls of the guides can be discontinuous. EX1003: Fig. 9, 11:67–12:3; EX1002: ¶351.

F i g . 9



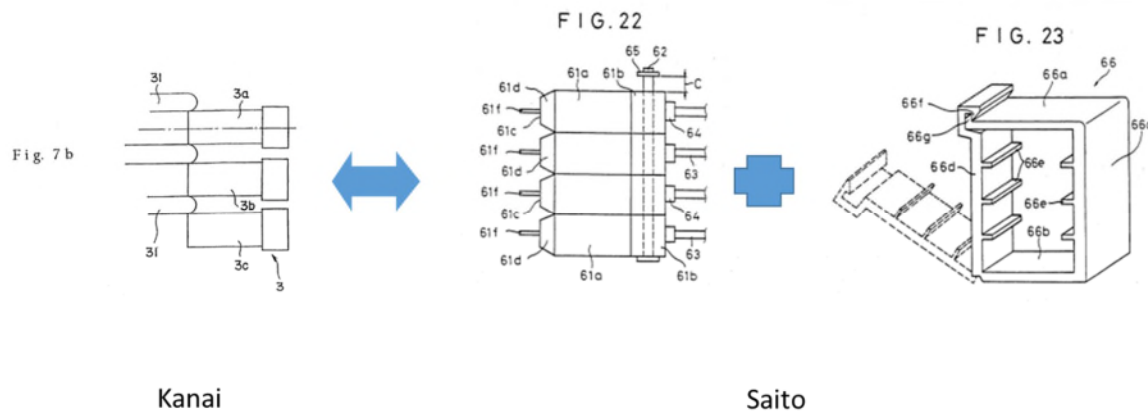
EX1003: Fig. 9.

Saito discloses an obvious variation on Kanai's discontinuous guides shown in Fig. 9 in which short ribs or partitioning pieces (66e) are attached to top and bottom walls to define grooves for receiving a sufficient portion of the optical connector to guide the connector. EX1002: ¶352. This modification of Kanai in view of Saito is demonstrated in the renderings below. EX1002: ¶353.



EX1003: Fig. 3a (annotated); EX1004: Fig. 23.

Notably, instead of relying on rounded edges of the walls of the adapter's guides to align the ferrules as used in Kanai, Saito provides tapered surface on the ferrules to provide the fine alignment of the ferrules. EX1004: 12:9-13; EX1002: ¶¶354-355.



EX1003: Fig. 7b; EX1004: Figs. 22 and 23.

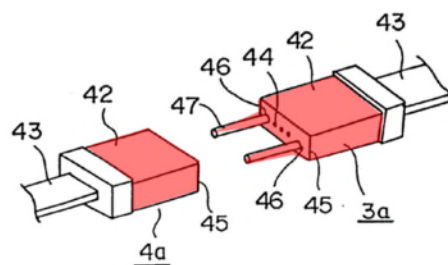
Saito's use of tapered surface on the ferrules, eliminates the need for each of Kanai's "guides" (31, 33) to comprise a full wall on each side of the guide.

EX1002: ¶356. This is especially true of the embodiment of Saito shown in Figure 28 where the ferrule uses two sets of tapered surfaces (72a, 72b) which serve to position the ferrule in both the vertical and widthwise orientation. EX1004: 11:56-64; EX1002: ¶356.

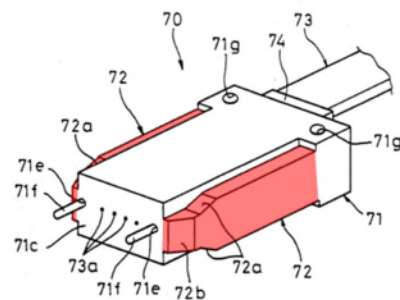
Accordingly, one of skill in the art would have been motivated to modify the Kanai adapter in view of Saito because the modification would allow the walls separating the guide slots (31, 33) to be eliminated, which it turn would provide

increased density of fiber optic connectors and a reduction in material required to manufacture the adapter. EX1004: 11:56-64; EX1002: ¶356.

Potential Contact with the Adapter's Interior Walls



Kanai



Saito

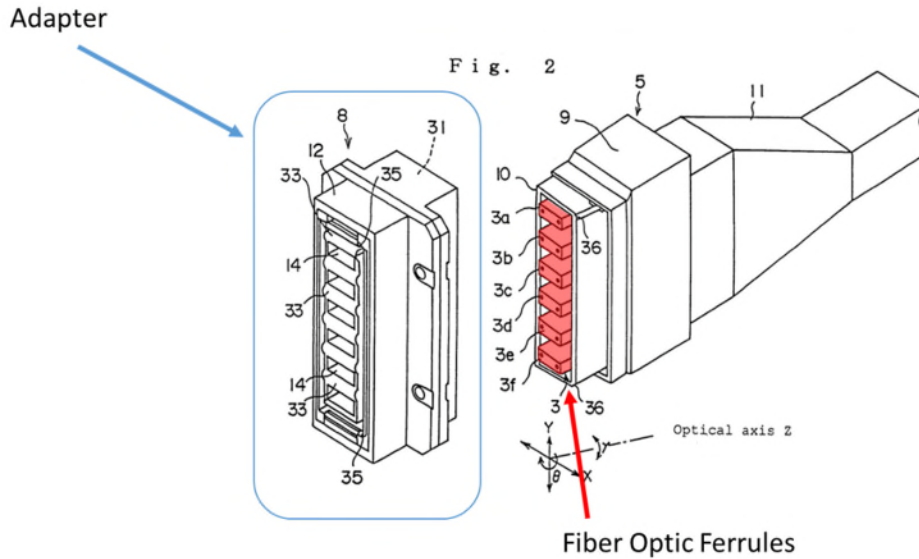
Accordingly, the risk of damaging face of the ferrule or the ferrule's alignment pins (71f in Saito and 47 of Kanai) would be all but eliminated.

The POSA would have recognized the use of tightly toleranced guide holes with rounded entries to align a squared edge ferrule—as disclosed in Kanai—and grooves for receiving ferrules with tapered surfaces and guide ribs as disclosed in Saito both provide pre-alignment of the ferrules and represents interchangeable design alternatives that achieve the same result. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416-17 (2007); *see Sparton Corp. v. U.S.*, 89 Fed. Cl. 196, 237 (Fed. Cl. 2009) (“[t]he variation of known mechanical designs to achieve an alternative solution to the same problem solved by the known mechanical designs in generally the same manner is obvious, especially where [a POSA] could easily implement the variation”); EX1002: ¶359.

B. Independent Claim 1

1.P

Kanai teaches an “adapter” that aligns and holds optical connector groups (3, 4) comprising ganged optical connectors (3a-f, 4a-f)—and their fiber optic ferrules (42)—inserted from opposing first and second sides. EX1003: Abstract, Fig. 2; EX1002: ¶¶360-361.



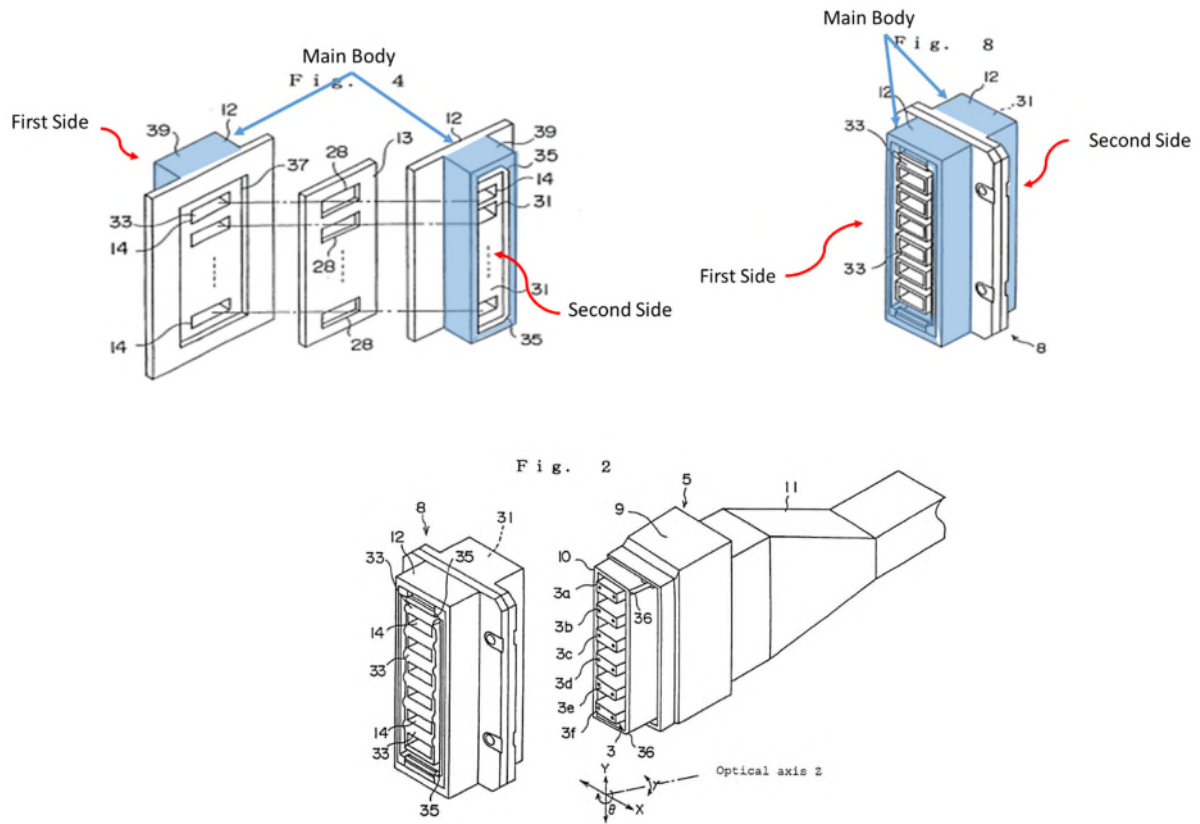
EX1003: Fig. 2 (annotated); EX1002: ¶361.

Therefore, Kanai meets 1.P.

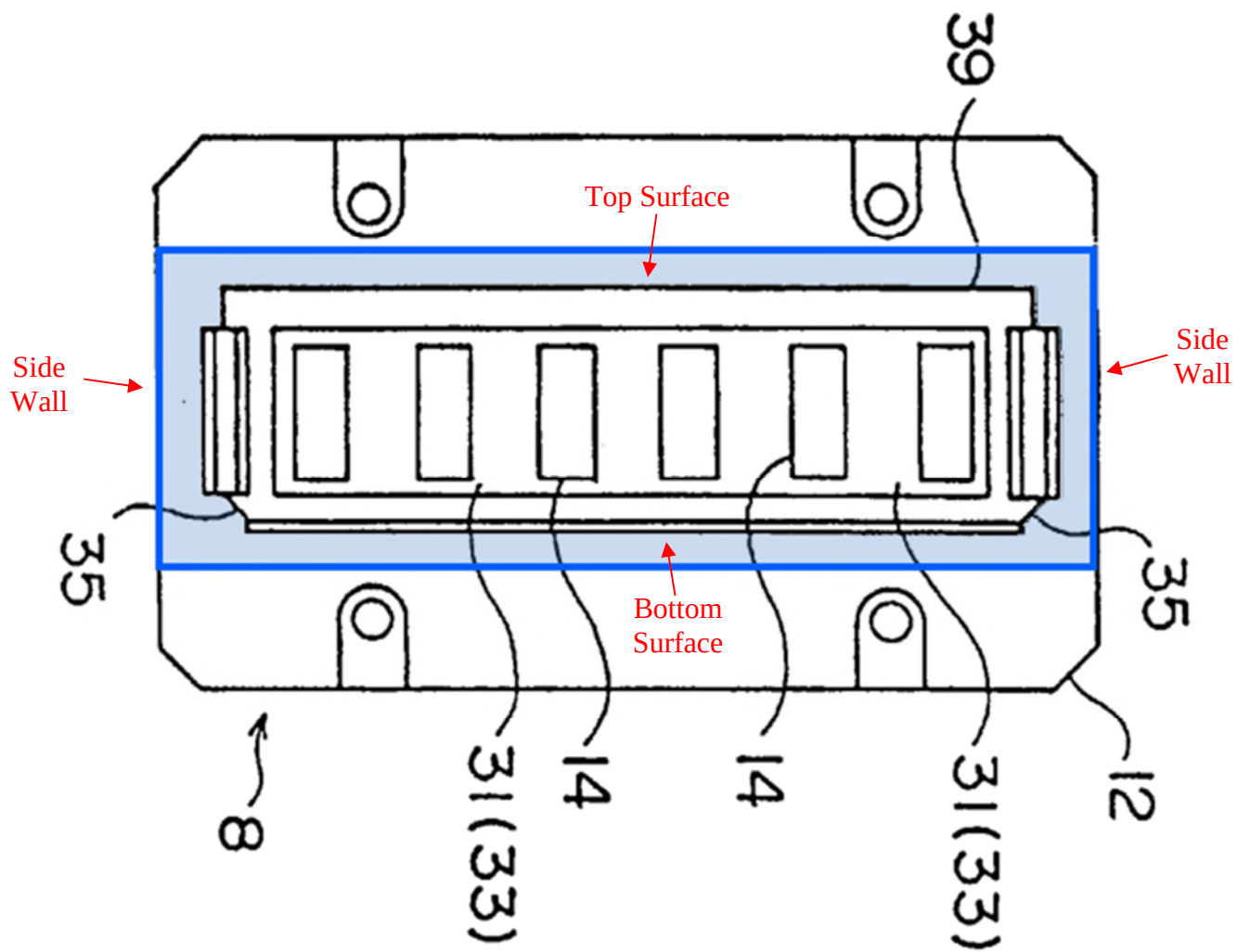
1.a.1

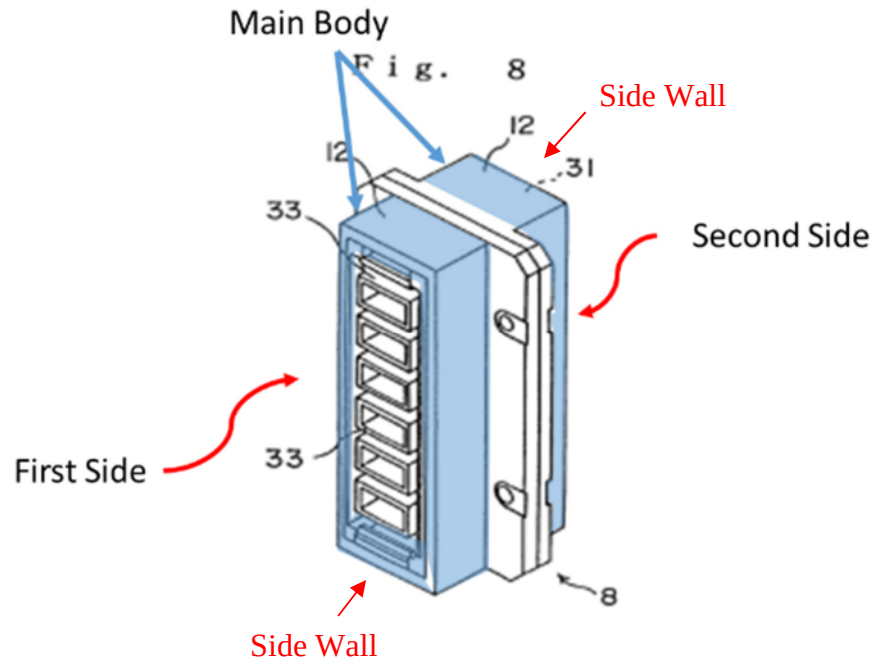
Kanai's adapter is formed of two housing halves (12) joined together with a metallic plate (13) there-between. EX1003: 8:22-26, Figs. 4 and 8⁶ (annotated below); EX1002: ¶363. The housing halves each have frame portions (39) which collectively act as the "main body." EX1003: 8:54-59, Figs. 2, 4, and 8 (annotated below); EX1002: ¶¶364-365.

⁶ The adapter depicted in Figure 8 represents a modified embodiment as compared to the adapter depicted in Figures 2-4 and 7a-7b with respect to the guides (31, 33). EX1002: ¶364.



As shown below, the opening is defined by two opposing side walls, a top surface, and a bottom surface. EX1002: ¶369.





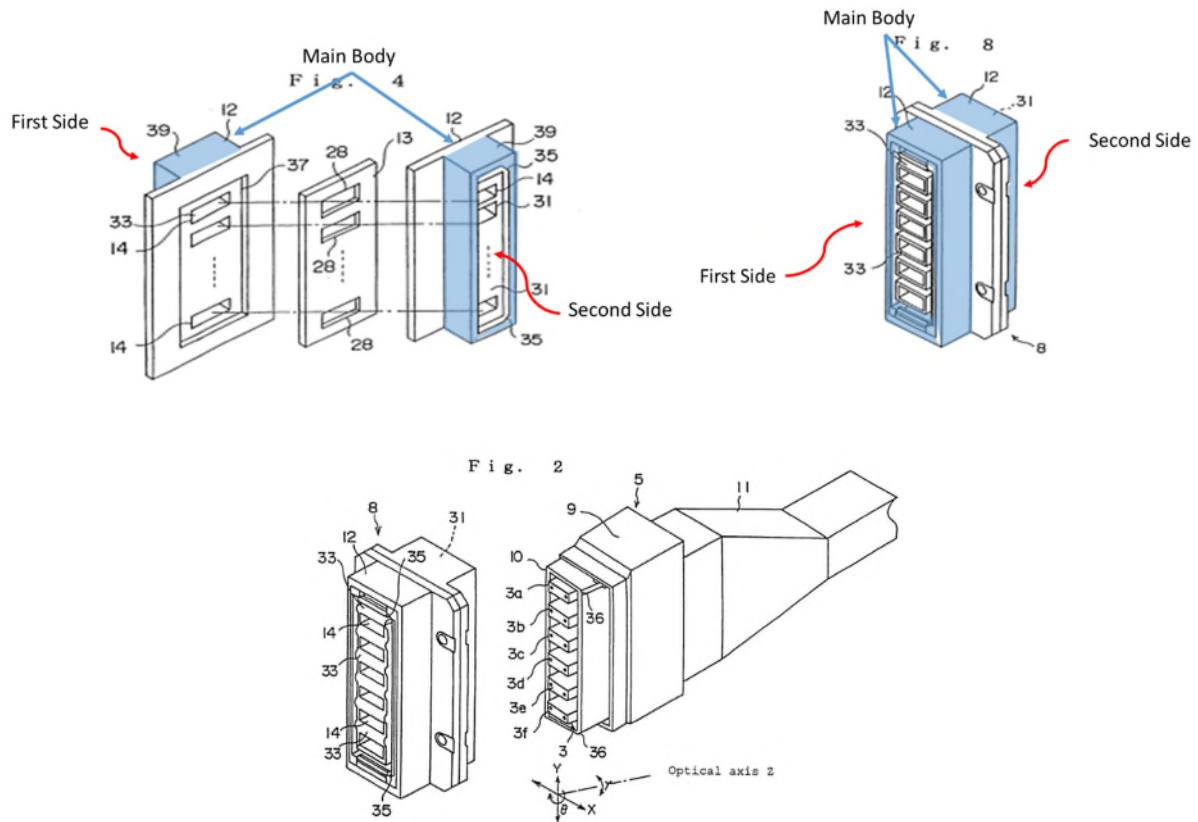
EX1003: Figs. 3a⁷ and 8 (annotated); EX1002: ¶369.

Therefore, Kanai meets 1.a.1.

1.a.2

Kanai's frame portions (39) form the first side and the second side of the main body for receiving optical connectors. EX1002: ¶371.

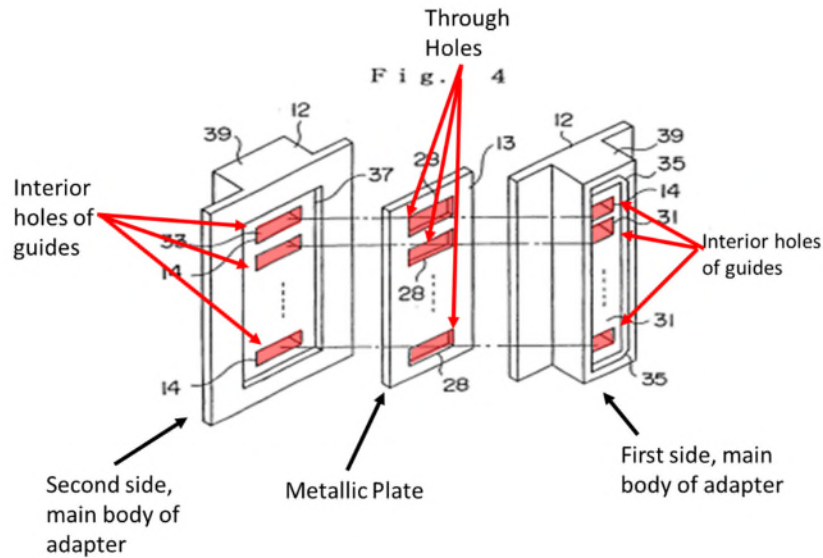
⁷ Fig. 3a depicts an inner boundary of the frame portion (39) that the plug (4, 5) is inserted into. EX1003: Figs. 1-3a and 8, 8:11-15. A blue box has been added to Fig. 3a to show the exterior boundary of the frame portion (39), shown in Figs. 1, 2 and 8.



EX1003: Figs. 2, 4, and 8 (annotated); EX1002: ¶369.

The frame portions (39) forming the main body define an opening on opposing sides, with guides (31, 33) providing passages through the adapter and connecting the openings in the opposing sides of the main body.⁸ EX1002: ¶366.

⁸ The wall (13) has holes (28) that align with the rectangular passages in the guides (31, 33) to define continuous openings through the main body. As addressed below, Claim 6 of the '415 patent calls out a central wall as a separate element.



EX1003: Fig. 4 (annotated) ; EX1002: ¶372.

Accordingly, Kanai's main body defines an opening extending between the first side and the second side of the adapter. EX1003: 8:46-51, Fig. 4 (annotated above); EX1002: ¶369.

Therefore, Kanai meets 1.a.2.

1.a.3

The adapter as disclosed by Kanai has a central portion (purple) formed by the first and second guides (31, 33) disposed between the first and second sides.

EX1003: 8:27-29; EX1002: ¶374.

Fig. 4

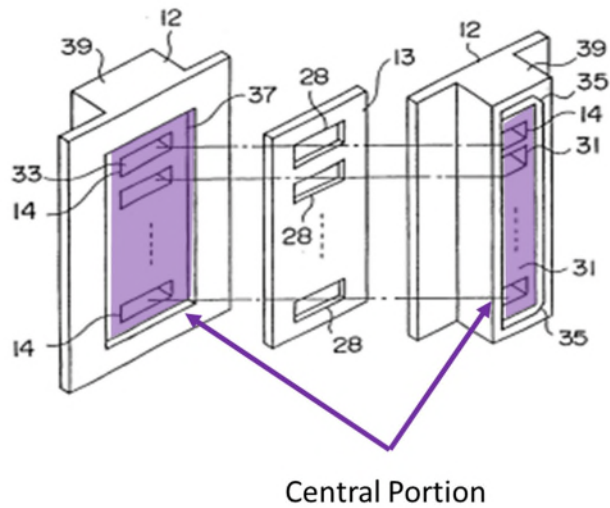
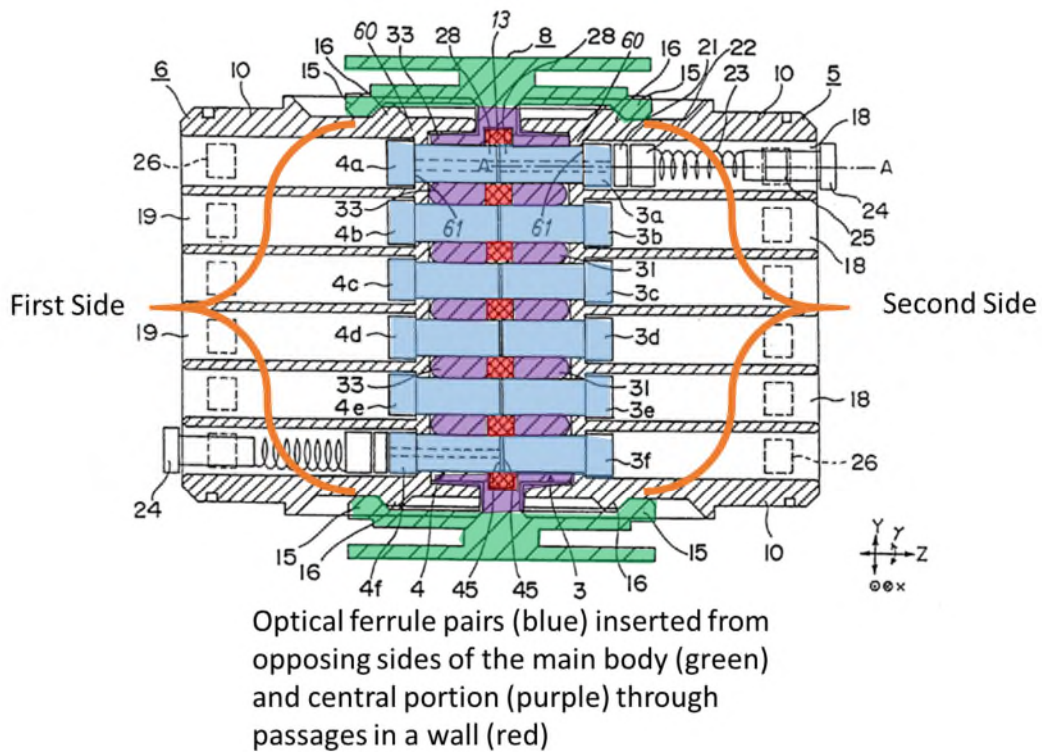


Fig. 1



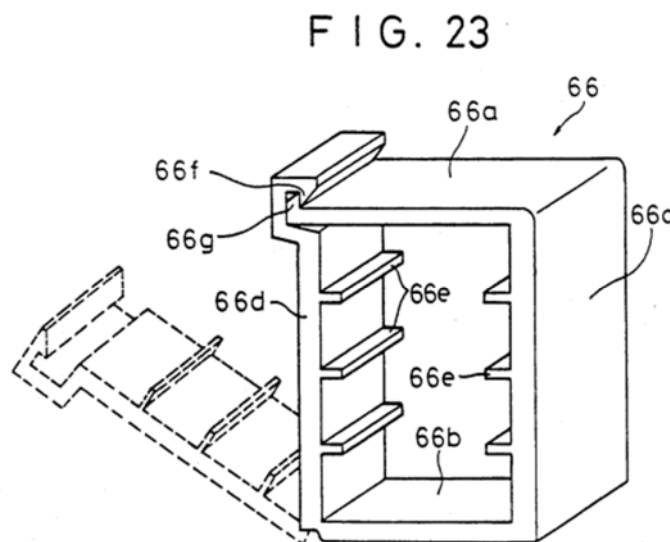
EX1003: Figs. 1 and 4 (annotated); EX1002: ¶374.

Therefore, Kanai meets 1.a.3.

1.b.1

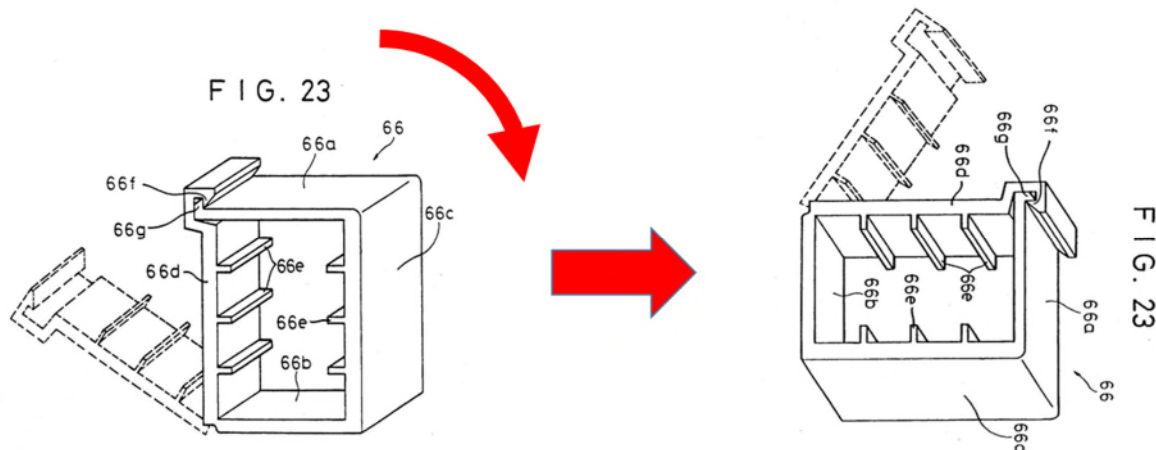
Kanai discloses guides (31, 33) defining rectangular passages the receive optical connectors (3a-3f, 4a-4f) and guide them. EX1003: 8:26-36; EX1002: ¶376. As discussed in Section VII.A, the POSA would have been aware of and motivated to use other approaches to regulating the positioning of the optical connectors. EX1002: ¶¶349-359, 379. For example, Saito concerns stacked-type optical connectors—*i.e.*, connectors with ferrules that are ganged together—and corresponding adapters, similar to those at issue in Kanai. EX1004: 4:17-2; EX1002: ¶380.

Saito discloses partitioning pieces or ribs (66e) that define the space to receive the connector such that a plurality of grooves are formed. EX1002: ¶381.



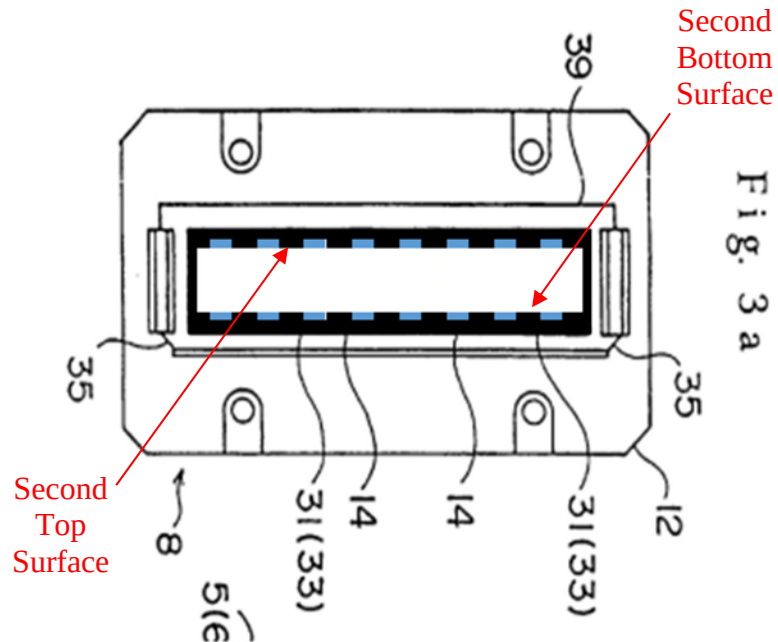
EX1004: Fig. 23.

These ribs define opposing grooves on each side (or top and bottom surface depending on the orientation of the adapter) of the adapter, which in turn define passageways for optical connectors, similar to Kanai's guides (31, 33). EX1002: ¶382.



EX1004: Fig. 23.

A representative depiction of how Kanai could be modified to consolidate the individual tubular guides (31, 33) into a single opening—separated by partial partitions or ribs—was described above and is shown again below EX1002: ¶385. As discussed in Section VII(A), such a modification would have been obvious to a POSA as the modification would result in increased fiber optic density, a reduction in material used to form the guides, and a reduced risk to damage the ferrules. EX1002: ¶386. This modification would result in grooves (blue) between each of the ribs—or between the first/last rib and the inner side wall. EX1002: ¶387.



EX1003: Fig. 3a (annotated); EX1002: ¶387.

Therefore, Kanai/Saito renders 1.b.1 obvious.

1.b.2

As shown below, the second top surface and the second bottom surface are different than the top surface and the bottom surface in Kanai's main body:

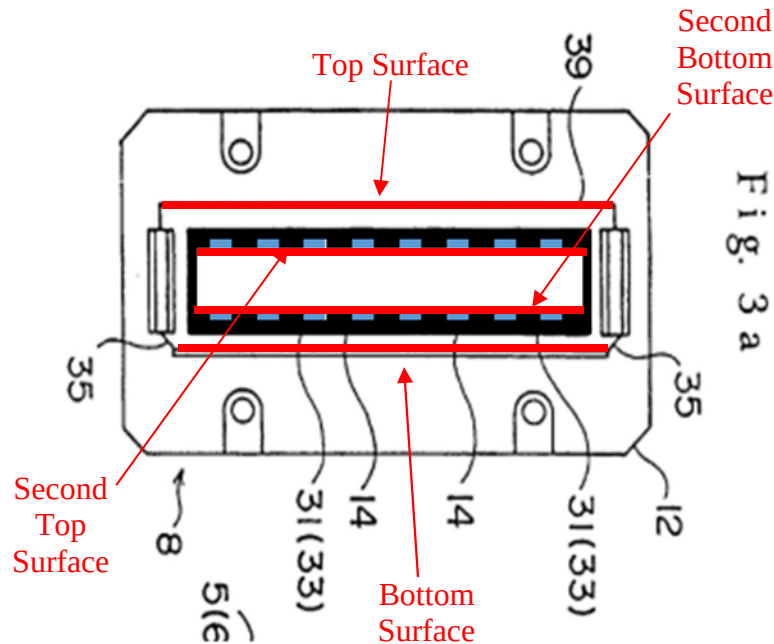


Fig. 3 a

EX1003: Fig. 3a (annotated); EX1002: ¶389.

Therefore, Kanai/Saito renders 1.b.2 obvious.

1.b.3

The passageways of Kanai's guides (31, 33) extend into the center of the main body. EX1002: ¶391. In incorporating the teachings of Saito into Kanai's plug and adapter, it would have been obvious for the grooves being incorporated into the interior surface of guides (31, 33) to extend into the center of the main body. EX1002: ¶392.

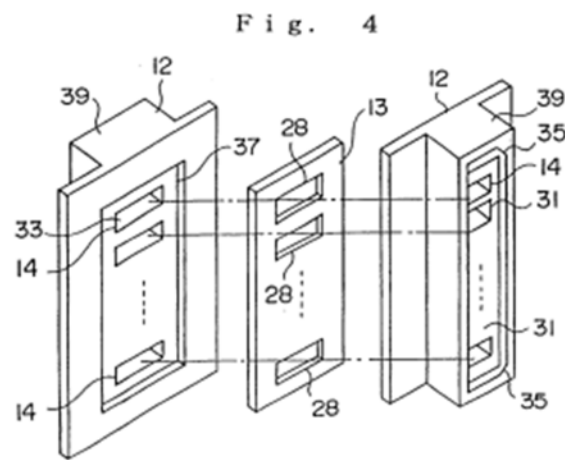
Saito shows in Fig. 23 the ribs (66e) extending toward the center from opposite first and second sides of the adapter. EX1002: ¶393. This condition is necessary to perform the function of the Kanai and Saito adapters to achieve connection of opposing optical connectors. EX1002: ¶393. Kanai and Saito teach

corresponding ferrules inserted from each side and butt-connect with each other within the adapter. EX1003: Fig. 1, Abstract; EX1004: 11:10-17, Fig. 26; EX1002: ¶¶394-396. Thus, modifying Kanai according to Saito would result in the grooves in the second top and bottom surfaces extending toward the center of the main body (e.g., extending into the central portion from each of the first and second sides) to align the opposing ferrules for butt-connection within the adapter. EX1002: ¶397.

Therefore, Kanai/Saito renders 1.b.3 obvious.

C. Claim 4

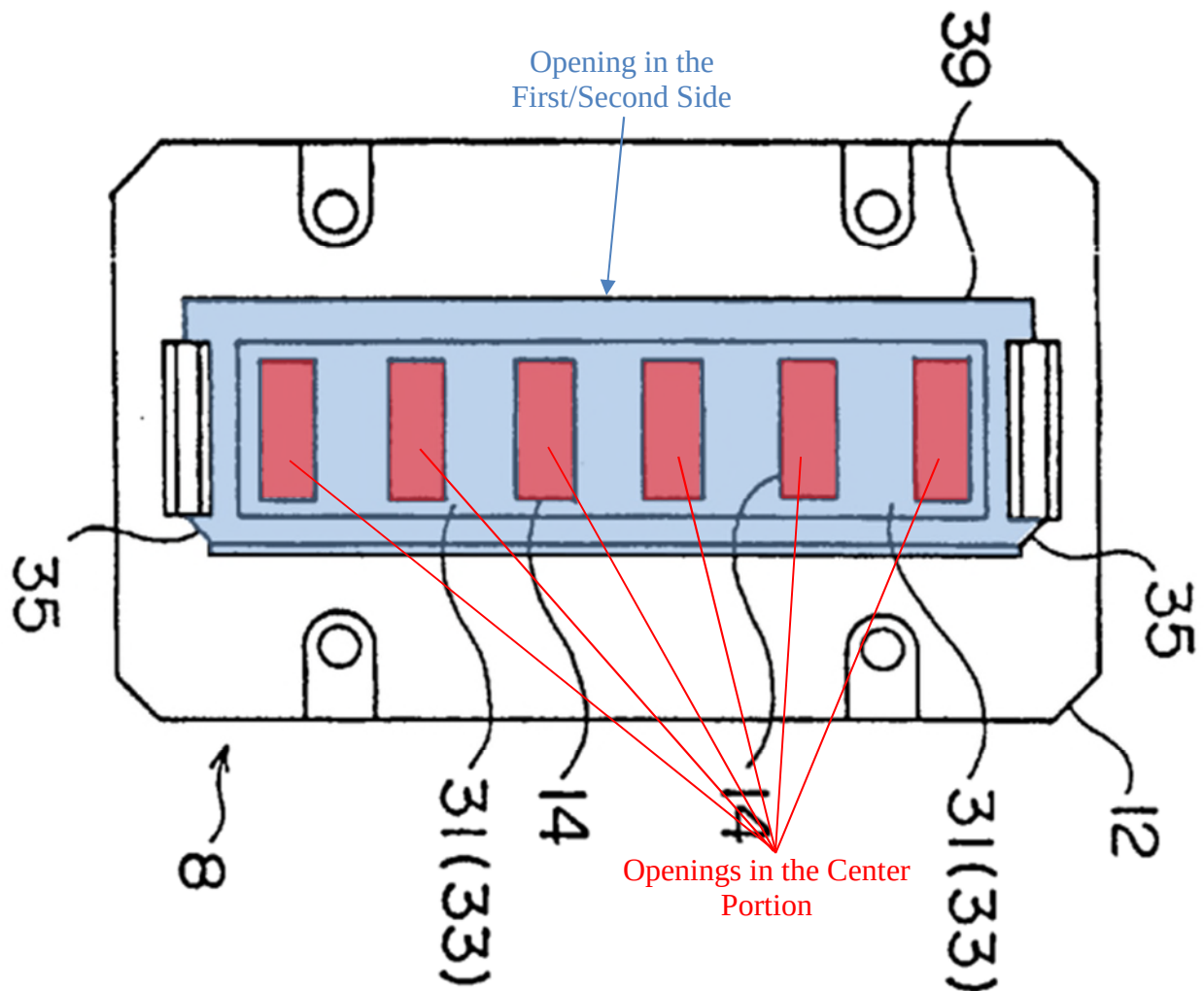
As shown in Figure 4, the opening in the center of the main body of the Kanai adapter comprises the aggregate of the through holes (28)—which themselves “correspond[] to the hole space enclosed by the inner circumferential wall 14 of the first and second guides 31 and 33.” EX1003: 8:45-51; EX1002: ¶399.



EX1003: Fig. 4.

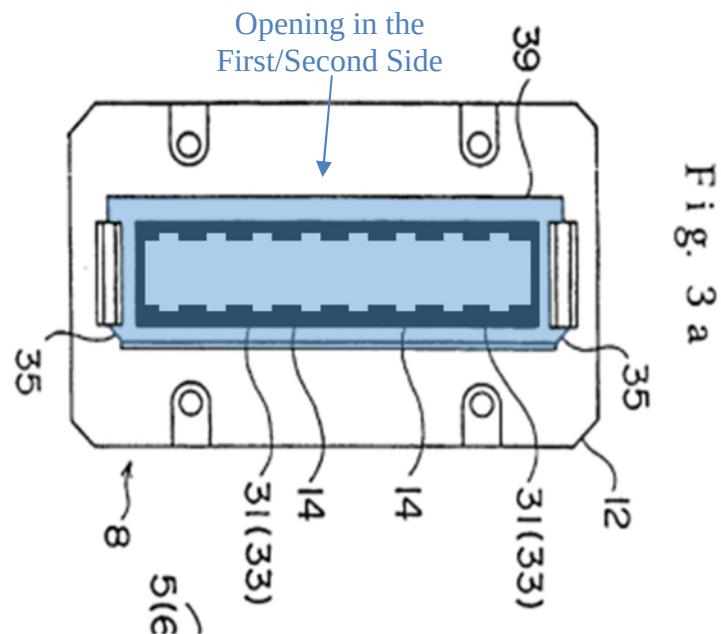
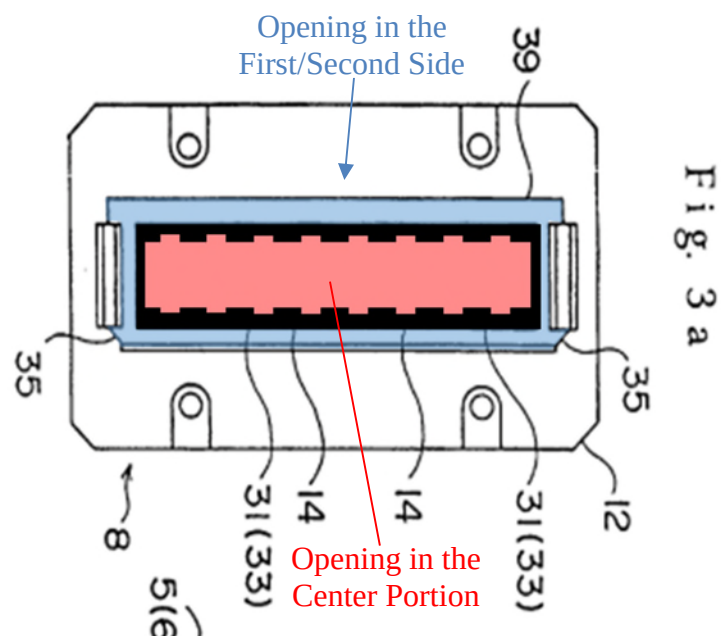
As the plurality of guides (31, 33) are entirely within their respective opening in the frame portions (39) of adapter's housing [i.e., the opening in the first and second sides (blue in the figure below)], the opening in the center of the adapter [the aggregate opening of the guides (31, 33) (red in the figure below)] is smaller than the opening in the first and second sides. EX1003: Figure 3a;

EX1002: ¶400.



EX1003: Fig. 3a (annotated); EX1002: ¶400.

This would remain the case even was modified in view of Saito discussed above. EX1002: ¶401.



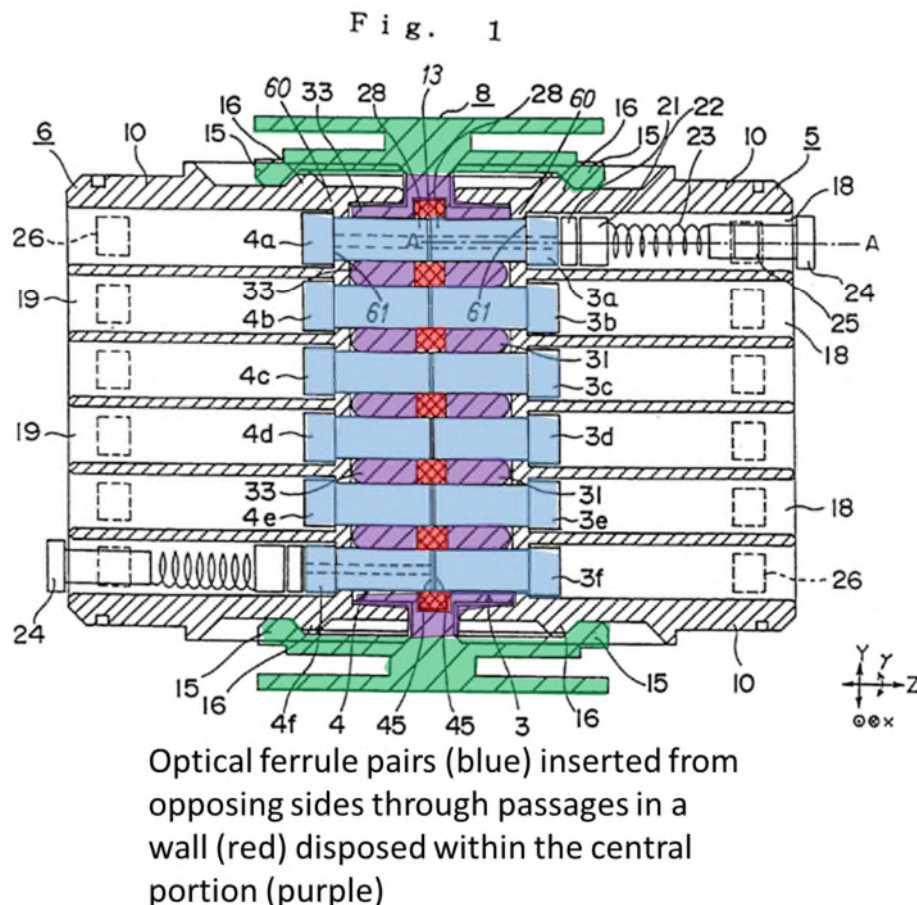
EX1003: Fig. 3a (annotated); EX1002: ¶401.

Therefore, Kanai/Saito renders this claim obvious.

D. Claim 5

As discussed in Kanai, the “connection end face 45 side of the respective optical connector groups 3 and 4 is inserted from both sides of the adapter 8 along guides 31 and 33 at both sides of the adapter 8.” EX1003: Abstract; EX1002:

¶403. The optical connectors (3a-f, 4a-f) of optical connector groups (3, 4) include optical ferrules (42). EX1003: 10:44-49; EX1002: ¶404. As shown below, Kanai’s adapter receives six optical connectors/ferrules from each side.



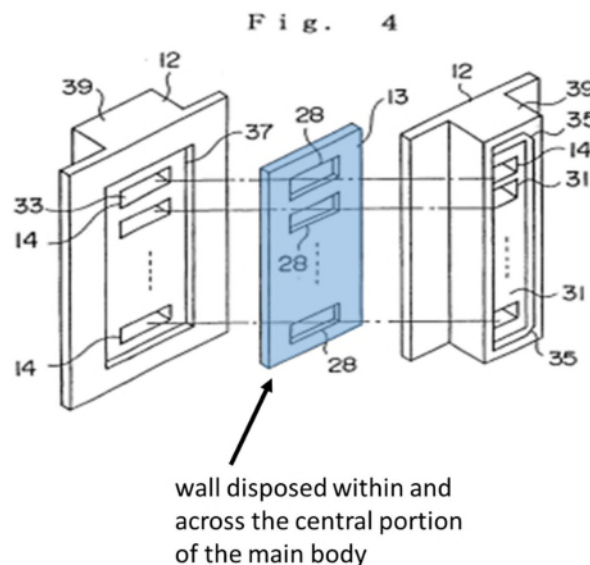
EX1003: Fig. 1 (annotated); EX1002: ¶406.

Therefore, Kanai/Saito renders this claim obvious.

E. Claim 6

6.a

Kanai's adapter includes a metallic plate (13) between the two housing halves (12). EX1003: 8:22-26; EX1002: ¶408. This metallic plate constitutes a wall disposed within and across the central portion of the main body and between the first side and the second side. EX1003: 8:22-26, Figs. 4 (annotated below); EX1002: ¶409.



EX1003: Fig. 4 (annotated); EX1002: ¶409.

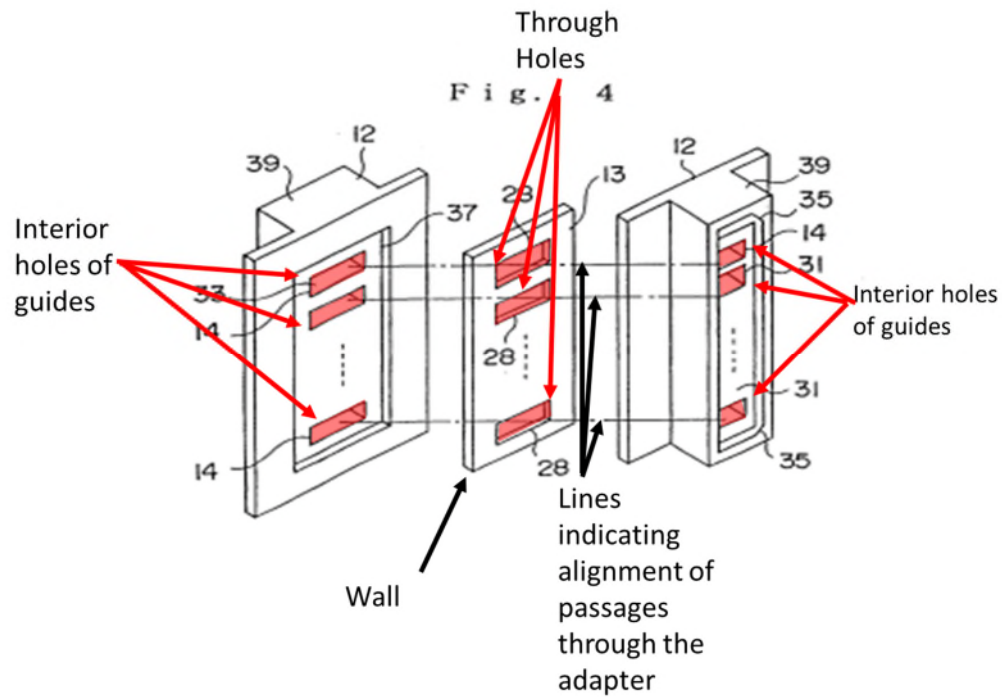
In modifying the Kanai adapter, the POSA would have recognized that it would have still been desirable to maintain the metallic plate (13) as the metallic plate was included in Kanai for the purpose of providing EMI mitigation.

EX1002: ¶412.

Therefore, Kanai meets 6.a.

6.b

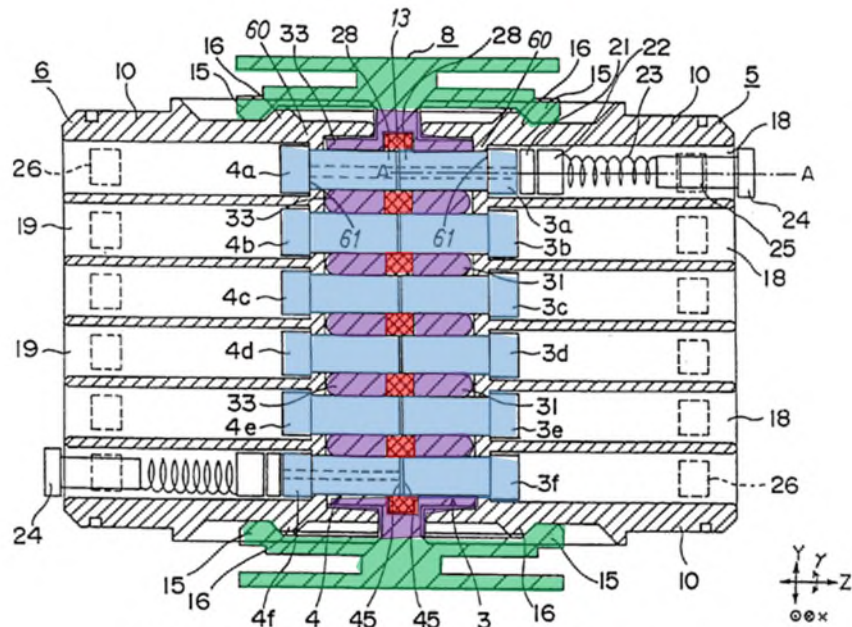
The metallic plate (13) between Kanai's two housing halves (12) contains through holes (28) [i.e., passages] for the end portions of the fiber optic ferrules to pass therethrough. EX1003: 8:45-51; EX1002: ¶416.



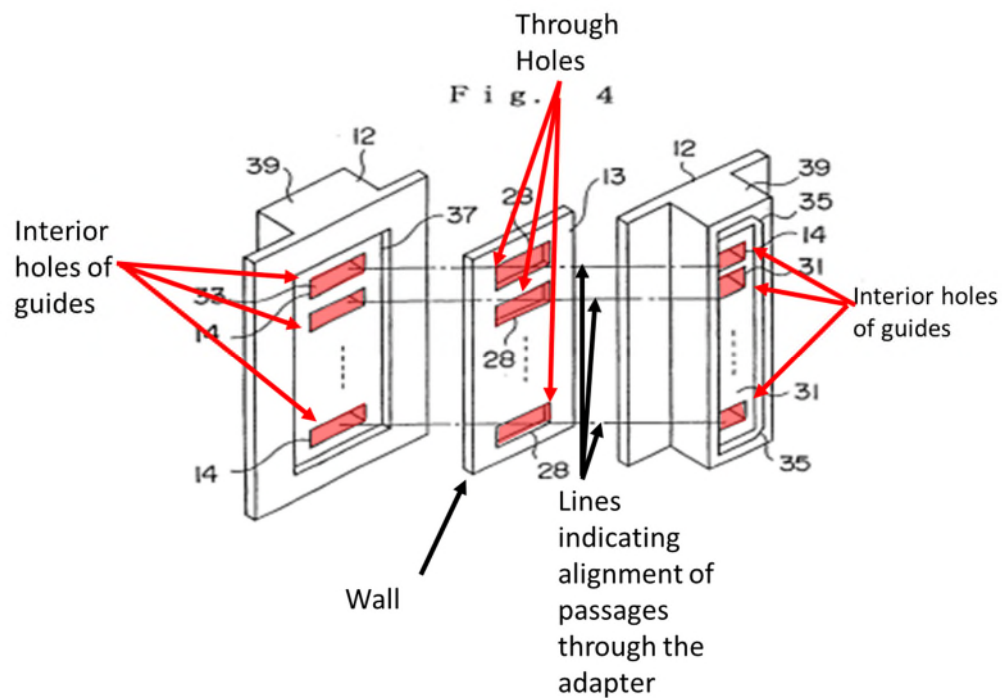
Therefore, Kanai meets 6.b.

As shown in Figures 1 and 4, Kanai's through holes (28) provide a plurality of passages through the disclosed adapter. EX1002: ¶419. Each passage corresponds to a pair of optical connectors such that the number of passages corresponds to the number of pairs of corresponding fiber optic ferrules. EX1002: ¶420.

Fig. 1



Optical ferrule pairs (blue) inserted from opposing sides through passages in a wall (red) disposed within the central portion (purple)



EX1003: Figs. 1 and 4 (annotated); EX1002: ¶416.

Therefore, Kanai meets this claim.

G. Independent Claim 8

8.P

As discussed in Section VII(B)(1.P), Kanai's adapter connects plugs (5, 6) containing optical connectors (3a-f, 4a-f). EX1001, Abstract, Fig. 2; EX1002: ¶424. Each optical connector (3a-f, 4a-f) includes a multi-fiber ferrule (42). EX1001: Figs. 10-11b, 1:18-32, 10:40-53, 10:63-11:3; EX1002: ¶425.

Therefore, Kanai meets 8.P.

8.a.1

As discussed in Section VII(B)(1.a.1)&(1.a.2), Kanai's adapter (8) has an opening extending between first and second sides of the adapter. EX1002: ¶¶427-429.

Therefore, Kanai meets 8.a.1.

8.a.2

Each of the first and second sides of Kanai's adapter (8) are respectively defined by two opposing side walls, a top surface, and a bottom surface, as shown below:

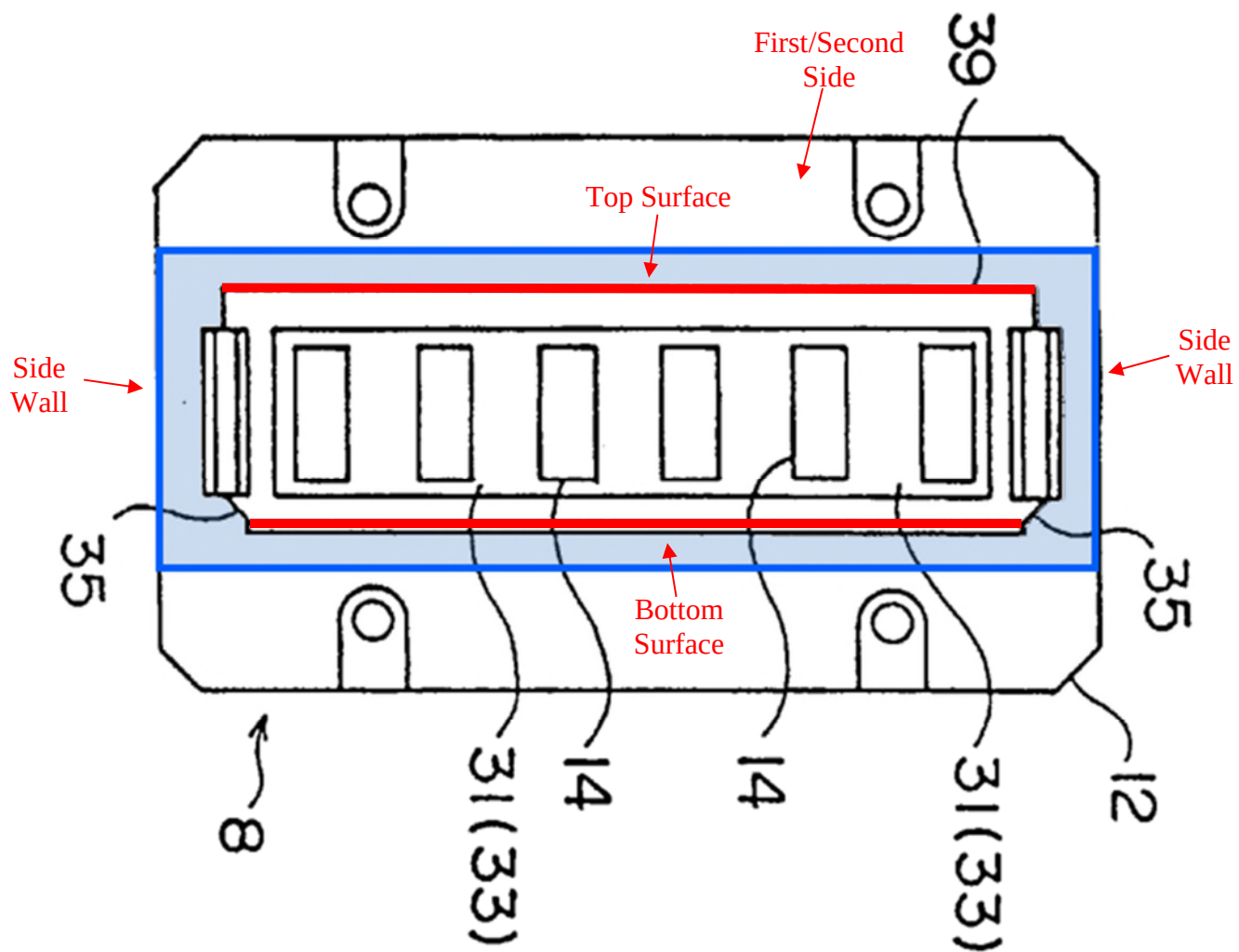
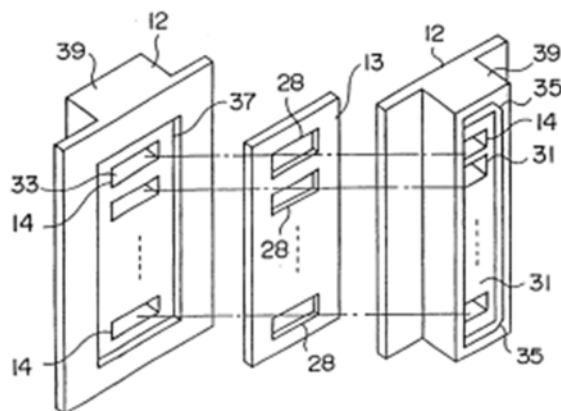


Fig. 4

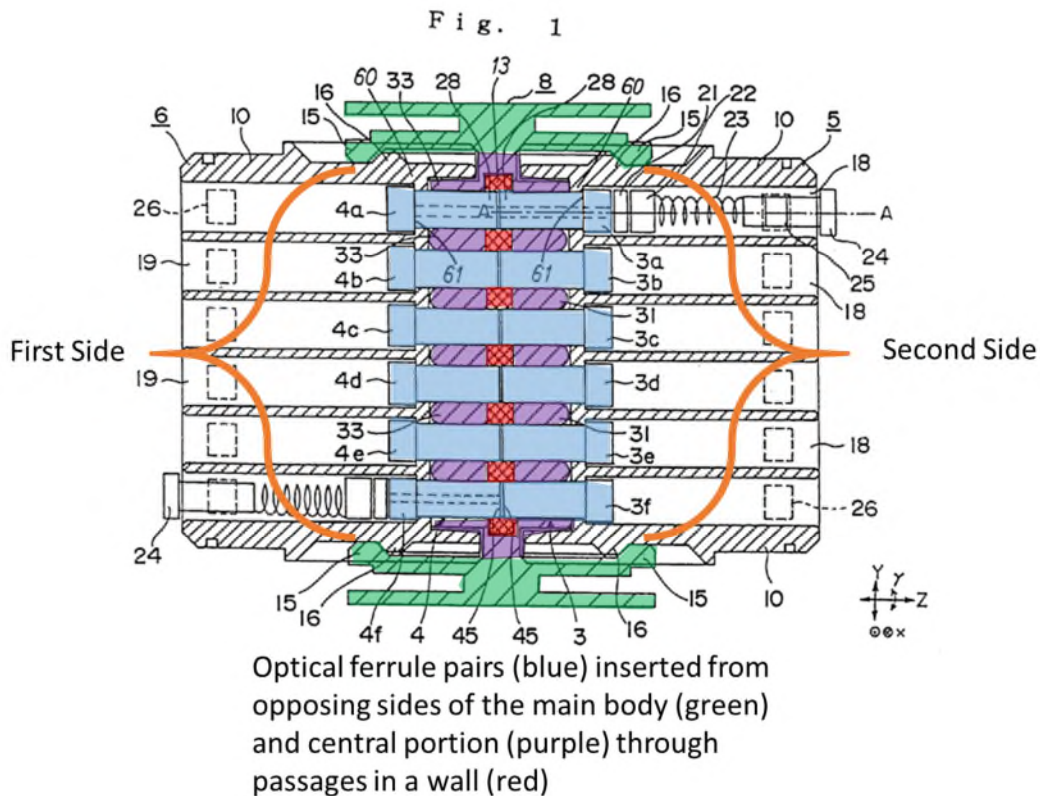


EX1003: Figs. 3a (annotated) and 4; EX1002: ¶436.

Therefore, Kanai meets 8.a.2.

8.a.3

Kanai's opening receives several pairs of optical connectors (3a-f, 4a-f) from each side. EX1003: Abstract, Fig. 1, 7:8-11; EX1002: ¶439. As illustrated, the opening of the adapter (8) can receive six optical connectors (3a-f, 4a-f) from each of the first and second sides. EX1003: Abstract, Fig. 1, 7:1-11; EX1002: ¶440.



EX1003: Fig. 1 (annotated).

Therefore, Kanai meets 8.a.3.

8.b

As discussed in Section VII(G)(8.a.3), Kanai's opening receives six optical connectors (3a-f, 4a-f) from each of the first and second sides. EX1002: ¶442. The optical connectors (3a-f) inserted from the second side mate with the optical connectors (4a-f) inserted from the first side. EX1003: Fig. 1, Abstract, 7:1-11; EX1002: ¶442. For each pair of optical connectors (e.g., 3a and 4a), the ferrules (42) of the two optical connectors butt-connect with each other, thereby mating and forming an optical connection there-between. EX1003: Fig. 1, Abstract; EX1002: ¶443.

Therefore, Kanai meets 8.b.

8.c.1

As discussed in Section VII(B)(1.a.3), Kanai's adapter (8) includes a central portion (purple). EX1002: ¶445. The central portion is between the first and second sides. EX1002: ¶¶445-446.

Fig. 4

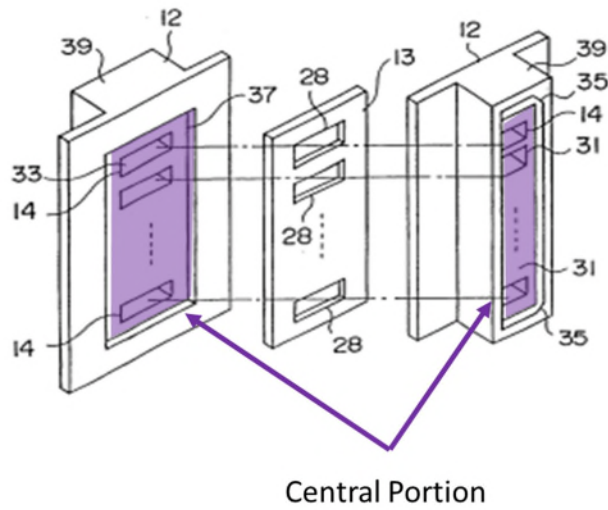
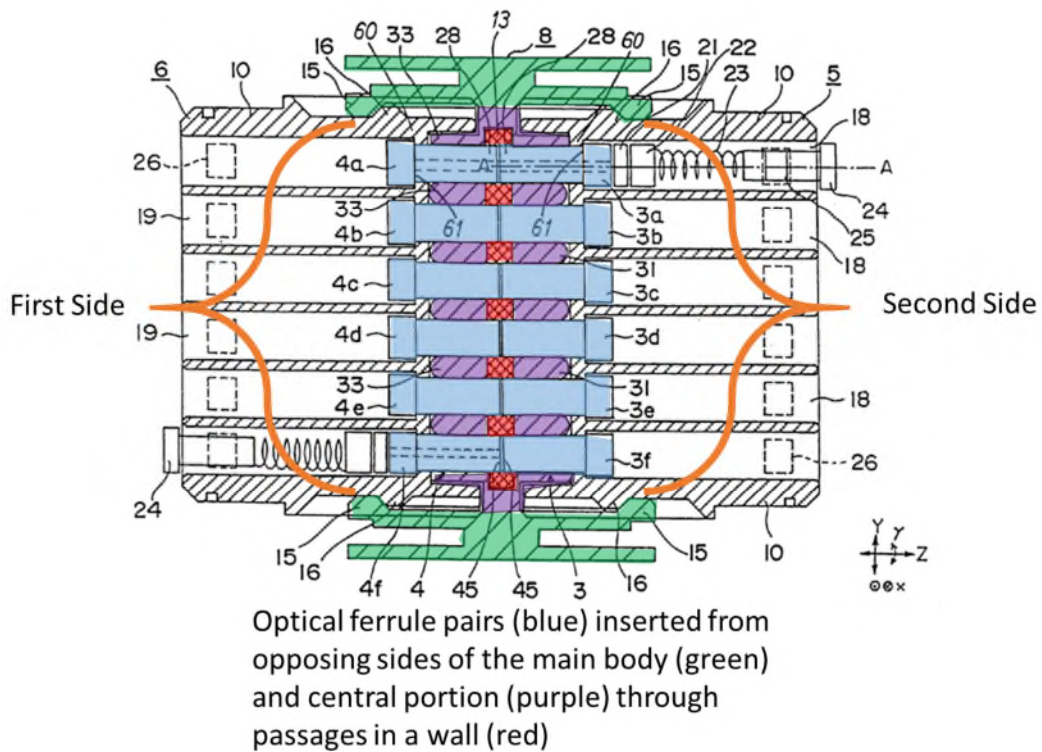


Fig. 1



EX1003: Figs. 1 and 4 (annotated).

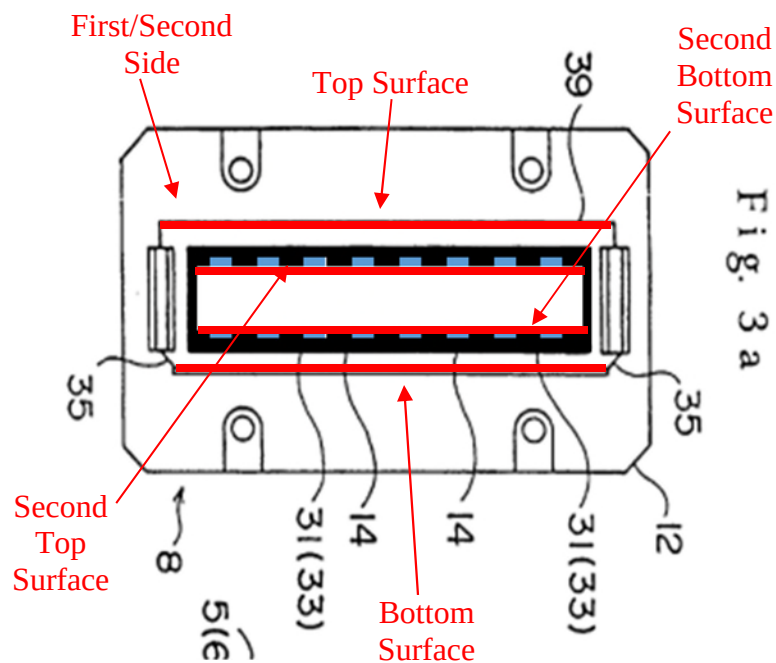
Therefore, Kanai meets 8.c.1.

8.c.2

For reasons discussed in Section VII(B)(1.b.1), Kanai/Saito renders 8.c.2 obvious.

8.c.3

As shown below, the second top surface and the second bottom surface of the Kanai/Saito combination are different than the respective top surface and bottom surface of the first and second sides:



EX1003: Fig. 3a (annotated); EX1002: ¶460.

Therefore, Kanai/Saito renders 8.c.3 obvious.

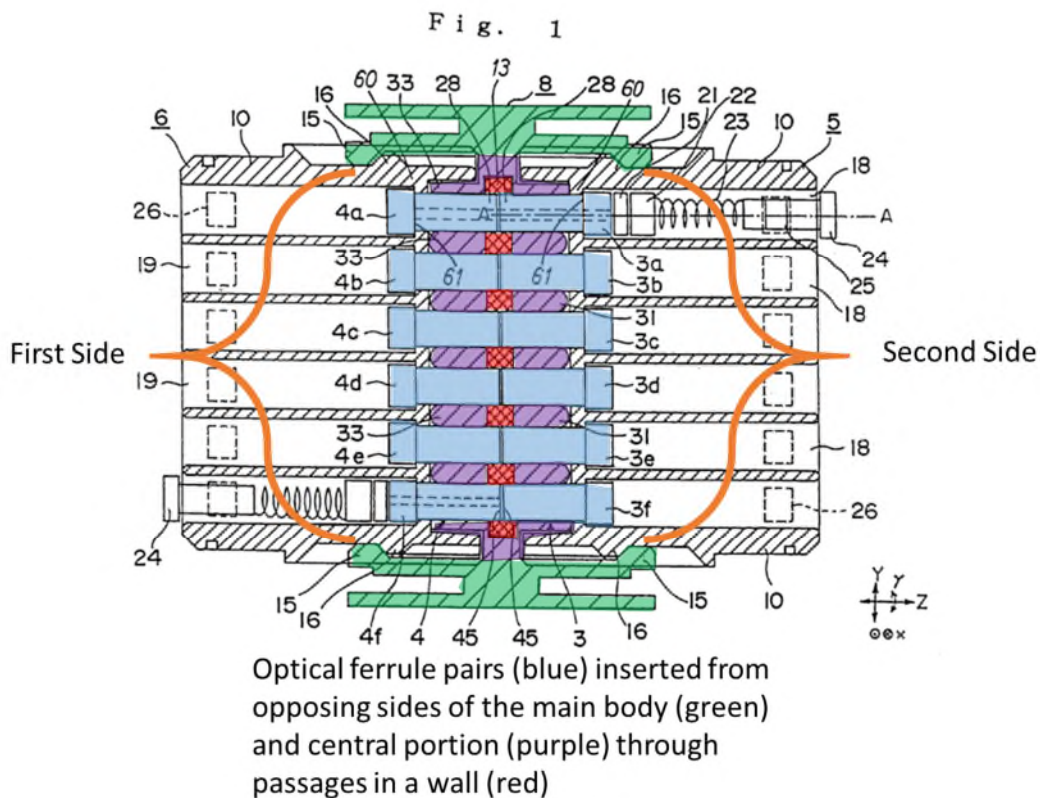
8.c.4

For reasons discussed in Section VII(B)(1.b.3), Kanai/Saito renders 8.c.4 obvious.

H. Claim 9

9.a

As discussed in Section VII(B)(1.a.1)&(1.a.2), Kanai's adapter (8) includes an opening. EX1002: ¶470. The optical connectors (3a-f, 4a-f) butt-connect with one another in the central portion of Kanai's adapter (8). EX1003: Abstract, Fig. 1; EX1002: ¶471. Thus, as shown below, the first and second sides of the opening are in communication with one another in the central portion. EX1002: ¶471.



EX1003: Fig. 1 (annotated).

Therefore, Kanai meets 9.a.

9.b

For reasons discussed in Section VII(C), Kanai/Saito renders 9.b obvious.

I. Claim 10

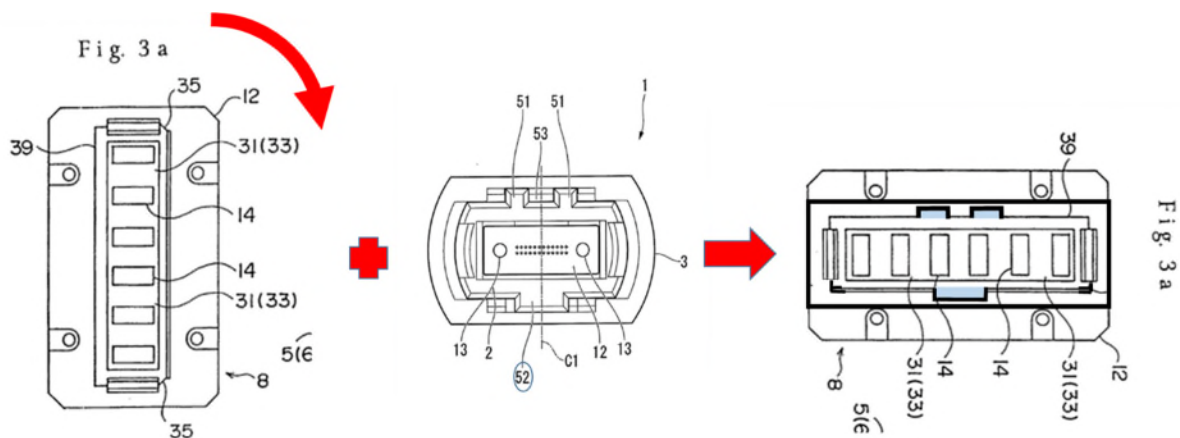
For reasons discussed in Section VII(D), Kanai/Saito renders this claim obvious.

VIII. GROUND 4: Claims 2 and 3 Would Have Been Obvious Over Kanai in View of Saito and Katoh

A. Motivation to Modify Kanai/Saito Combination Based on Katoh

It would have been obvious to modify the inner wall of the frame portion (39) of the Kanai adapter to incorporate grooves (highlighted blue) for receiving corresponding keys on the plug as taught by Katoh as shown below. EX1002:

¶¶482-483.



EX1003: Fig. 3a (annotated); EX1005: Fig. 9.

One of skill in the art would have recognized that when using an adapter to mate opposing plugs that each contain multiple fiber optic ferrules—as is the case with Kanai—it is critical to match the proper corresponding ferrules of the opposing plugs within an adapter. EX1002: ¶484.

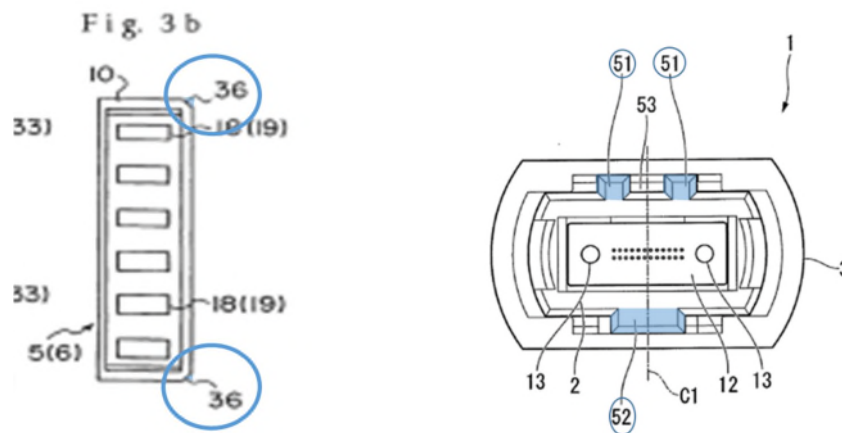
Kanai's adapter discloses the optional use of notched inserting portions (35) for providing proper orientation of the plug. EX1003: 8:54-64, 12:21-29; EX1002: ¶¶485-486.

The POSA would have been familiar with other methods to identify and ensure the proper orientation of the optical connector/plug being inserted into the adapter. EX1002: ¶487. For example, another common method of ensuring the proper orientation is the use of keys. EX1019: Fig. 3; EX1020: Fig. 1, 5:21-32; EX1002: ¶488. These keys match corresponding grooves or keyways in the adapter. EX1002: ¶489. More particularly, the use of differing sized keys on opposing surfaces of the optical connector plug and corresponding keyways on opposing surfaces of the adapter to ensure proper orientation was known in the art and is specifically taught by Katoh. EX1024: ¶¶[0011], [0014], Figs. 2-5; EX1205: [0077], Fig. 9; EX1002: ¶490.

Kanai's notched inserting portions are relatively small such that they may not provide visual confirmation of the proper plug orientation in advance of meeting interference upon the insertion of the plug into the adapter. EX1003:

8:54-64; EX1002: ¶492. The use of keys on the plug and corresponding keyway grooves in the adapter as taught by Katoh can be more readily seen by the installer as they can be more pronounced both in location and size. EX1005: ¶¶[0014], [0045]-[0046], [0058], [0077], Figs. 2, 5 and 9; EX1002: ¶493.

FIG. 9



EX1203: Fig. 3b (annotated); EX1205: Fig. 9 (annotated)

The different methods in identifying and ensuring the proper orientation between Kanai and Katoh is merely a design choice as to the shape and location of the keying feature, as both methods would be readily compatible. EX1002: ¶494. The POSA would have also had an expectation of success in incorporating the keying method of Katoh. EX1002: ¶495.

Accordingly, incorporating Katoh's method of identifying and ensuring the proper orientation would have been a simple and obvious substitution. *KSR Int'l*

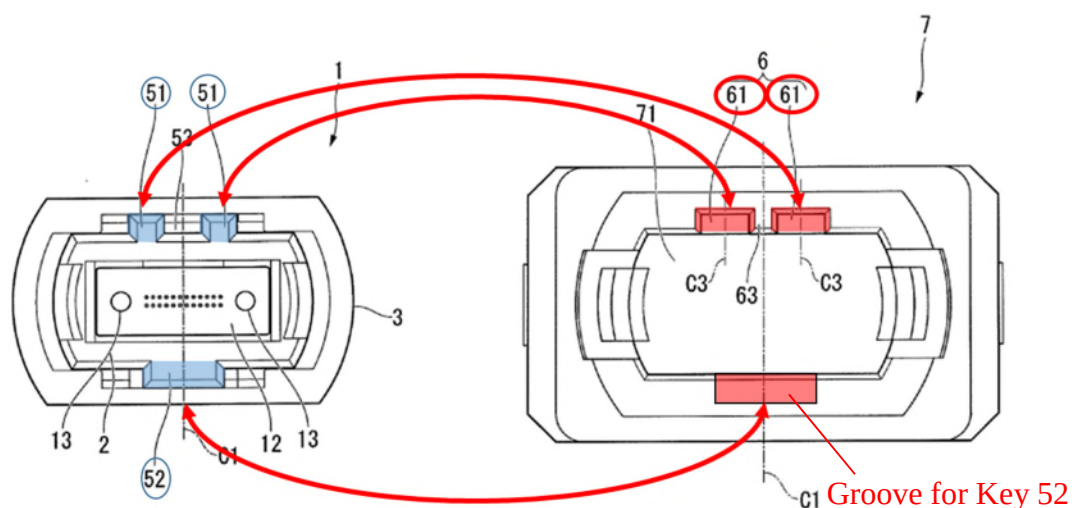
Co. v. Teleflex Inc., 550 U.S. 398, 416-17 (2007); *see Sparton Corp. v. U.S.*, 89 Fed. Cl. 196, 237 (Fed. Cl. 2009).

B. Claim 2

Kanai uses notched inserting portions (35) for providing proper orientation of the plug, while simultaneously recognizing that other ways could be implemented. EX1003: 12:30-40, 8:54-64; EX1002: ¶498.

Additional methods of providing alignment and orientation of plugs for insertion into adapters were well known in the art. EX1002: ¶499. For example, Katoh teaches an optical connector with keys (51, 52) on the top and bottom surfaces of the connector housing and a corresponding adapter with keyway grooves (61) to receive the keys. EX1005: ¶¶[0045]-[0046], [0077]; EX1002: ¶501.

FIG. 9

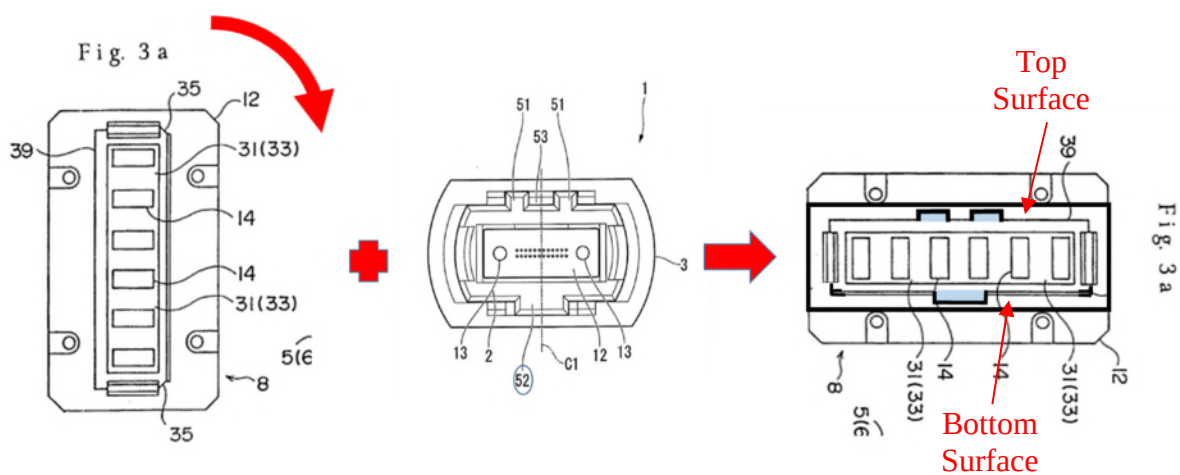


EX1005: Fig. 9 (annotated), Fig. 5 (annotated, modified to add bottom groove).

It would have been obvious to modify the Kanai/Saito combination according to Katoh use keys and keyways instead of notched corners, as the keys and keyways would be more visually apparent. EX1002: ¶504.

When implemented in the Kanai/Saito combination, the keyway grooves of Katoh would be in the top and bottom surfaces of the Kanai/Saito adapter.

EX1002: ¶505.



EX1003: Fig. 3a (annotated); EX1005: Fig. 9.

Therefore, Kanai/Saito/Shirakawa renders this claim obvious.

C. Claim 3

For reasons discussed in Section VIII(B), Kanai/Saito/Shirakawa renders this claim obvious.

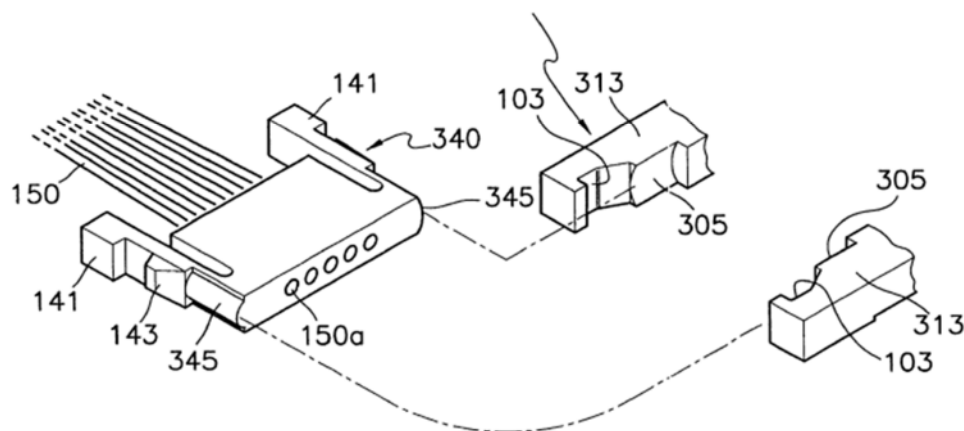
IX. GROUND 5: Claims 11-14 Would Have Been Obvious Over Kanai in View of Saito and Yoon

A. Motivation to Modify Kanai/Saito Combination Based on Yoon

Kanai uses notched inserting portions (35) for providing proper orientation of the plug, while simultaneously recognizing that other ways could be implemented. EX1003: 12:30-40, 8:54-64; EX1002: ¶508. It was common within the art to include polarity keys on the ferrules and to include corresponding grooves within the adapter to ensure proper polarity both during use and in any pre-installation testing. EX1002: ¶509.

As an example, Yoon teaches using guide grooves (305) to receive corresponding guide portions (345) at the leading ends of a ferrule. EX1008: 7:34-41; EX1002: ¶511. While Yoon's guide grooves (305) and guide portions (345) are curved, they are otherwise similar to and provide the same function as the grooves and guides of the Saito adapter (66) and ferrule (70). EX1008: 7:49-55; EX1002: ¶512.

FIG. 6



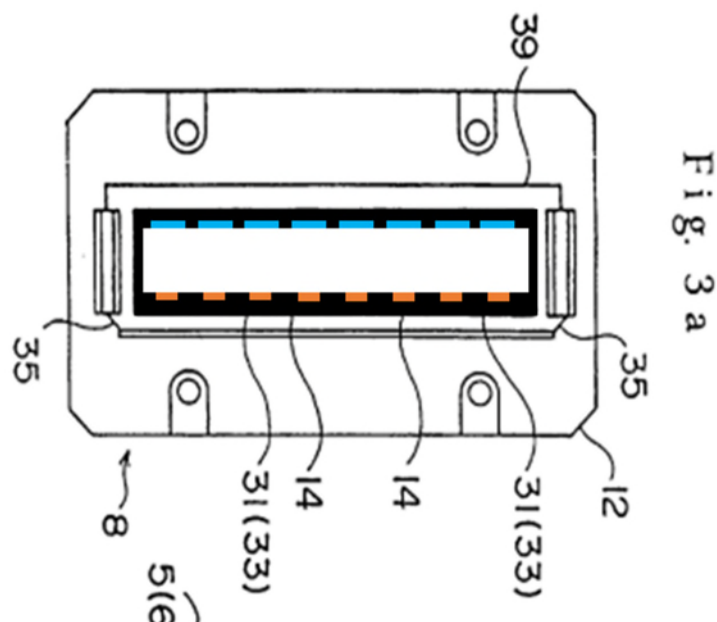
EX1008: Fig. 6.

Yoon teaches the guide grooves (305) and guide portions (345) have “different curvatures at facing sides” so as to ensure proper polarity. EX1008: 7:41-49; EX1002: ¶513. As visible by comparing the heights of the guide portions (345) in Figure 6 above, this equates to the groove on one side being wider than the grooves on the other side. EX1008: Fig. 6; EX1002: ¶514.

In modifying the Kanai adapter to incorporate the guide and groove alignment taught by Saito, it would have been obvious to choose non-identical shapes/sizes for the ferrule guides—and the corresponding grooves in the adapter—to ensure proper polarity of the ferrules as they are being inserted into the adapter, as taught by Yoon. EX1002: ¶515. Accordingly, it would have been an

obvious design choice to size the guides and grooves on the opposing sides of the ferrule differently, such that the grooves on the top surface and bottom surface of the central portion of the adapter would have different widths. EX1002: ¶516.

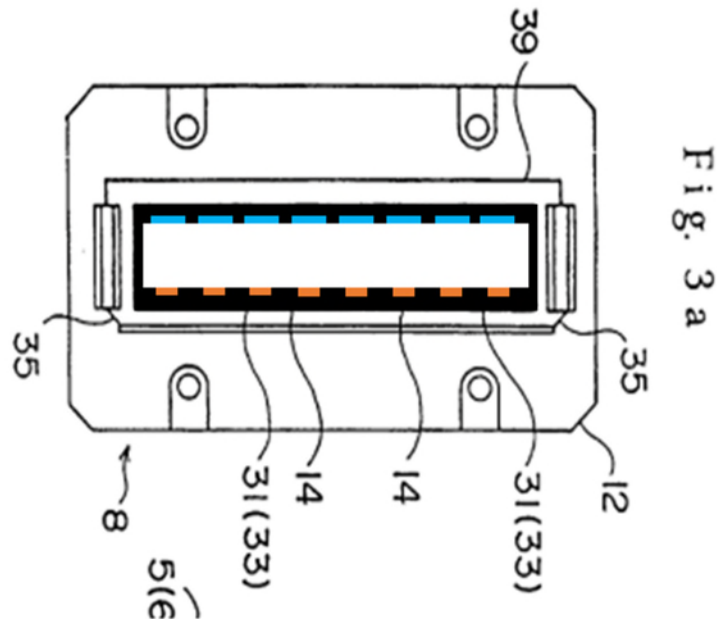
This modification of the Kanai/Saito combination in further view of Katoh is demonstrated below (upper grooves colored blue, lower grooves colored orange).



EX1003: Fig. 3a (annotated).

B. Claim 11

The Kanai/Saito combination as modified in view of Yoon results in the grooves (blue) in the second top surface of the central portion having a different width than the grooves (orange) in the second bottom surface of the central portion. EX1002: ¶518.



EX1003: Fig. 3a (annotated).

Therefore, Kanai/Saito/Yoon renders this claim obvious.

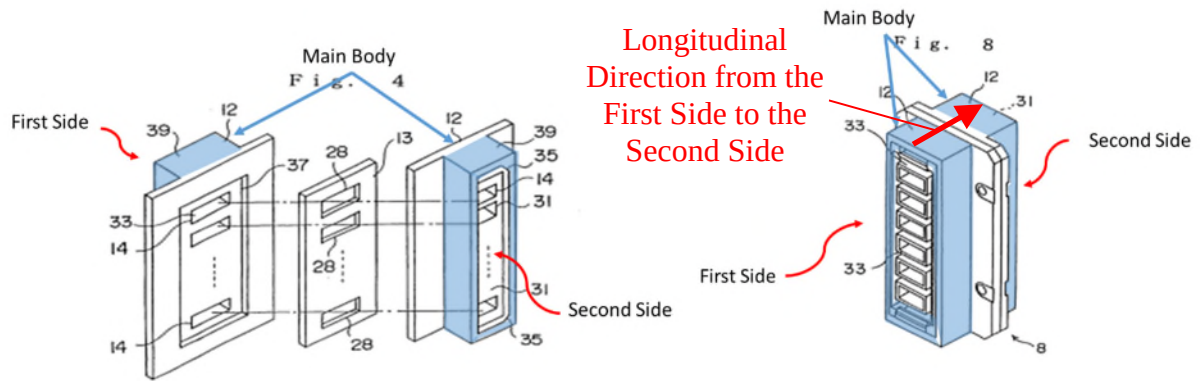
C. Independent Claim 12

12.P

For reasons discussed in Section VII(B)(1.P), Kanai meets 12.P.

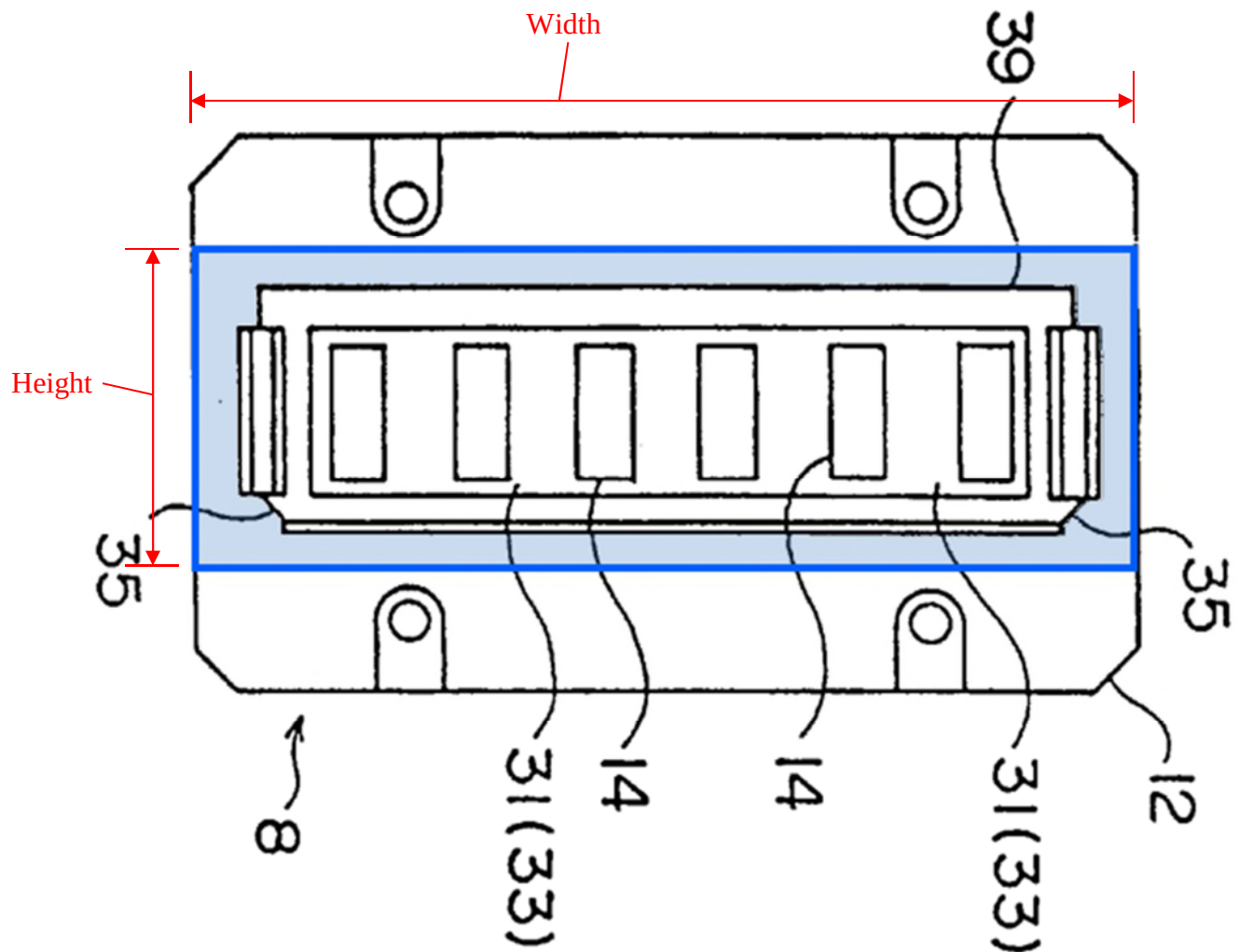
12.a.1

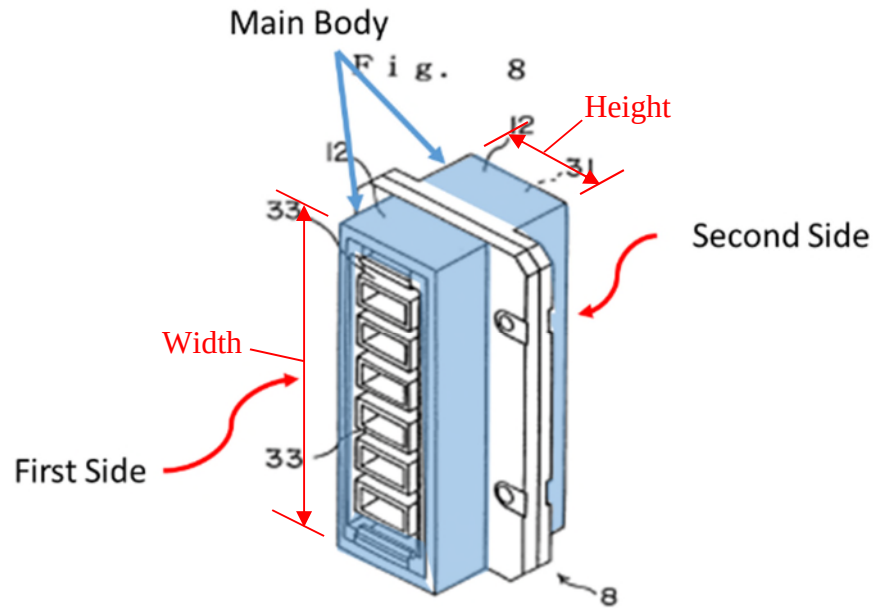
As discussed in Section VII(B)(1.a.1)&(1.a.2), Kanai has a main body with an opening extending between the first and second sides. EX1002: ¶¶523-528. As shown below, the opening extends longitudinally from the first side to the second side:



EX1003: Figs. 2 and 4 (annotated); EX1002: ¶529.

The main body has a width and a height. EX1002: ¶530.



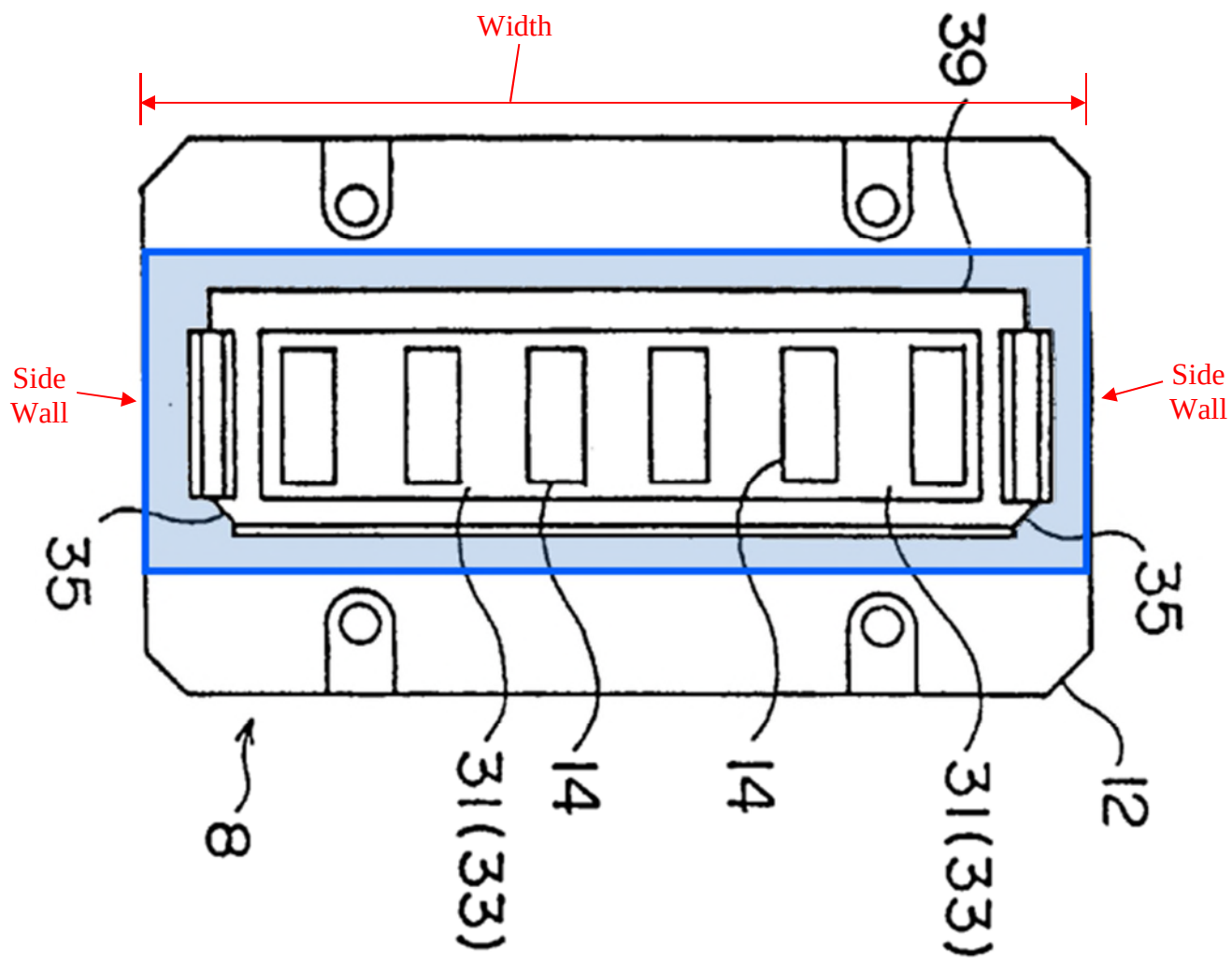


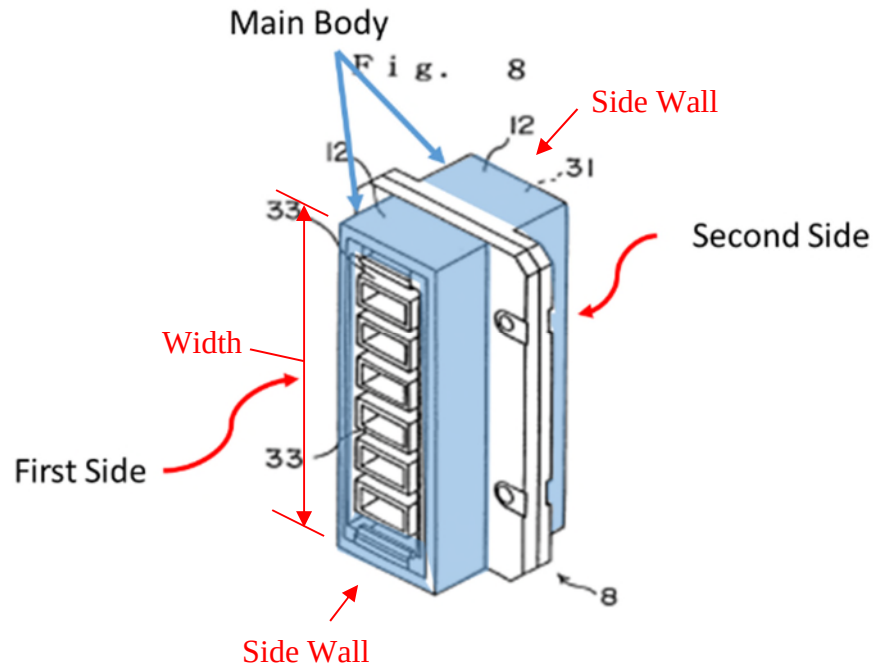
EX1003: Figs. 3a and 8 (annotated).

Therefore, Kanai meets 12.a.1.

12.a.2

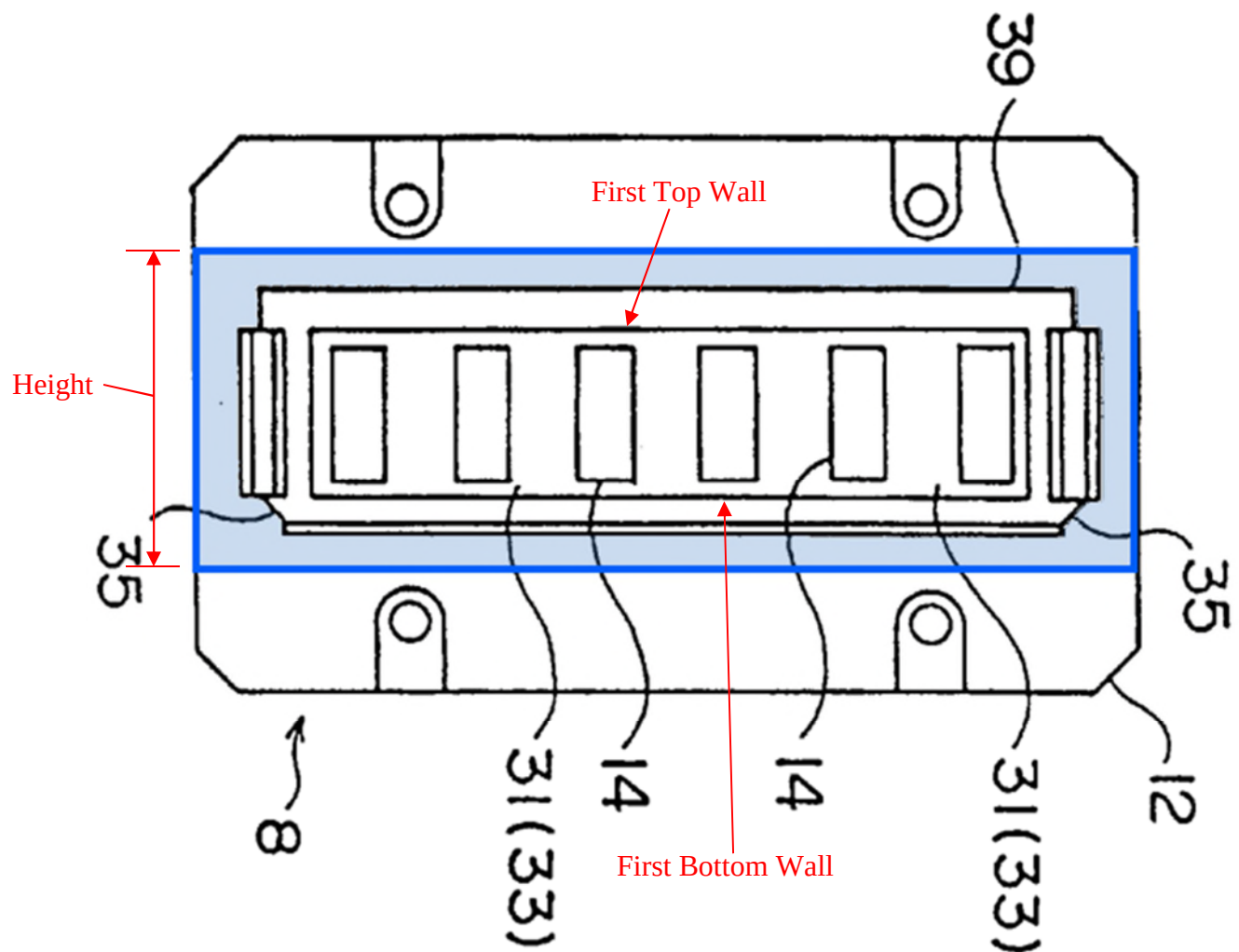
Kanai's main body includes two opposing side walls spaced apart along the width. EX1002: ¶532.





EX1003: Fig. 3a and 8 (annotated).

Kanai's main body includes a first top wall and a first bottom wall spaced apart along the height. EX1002: ¶533.

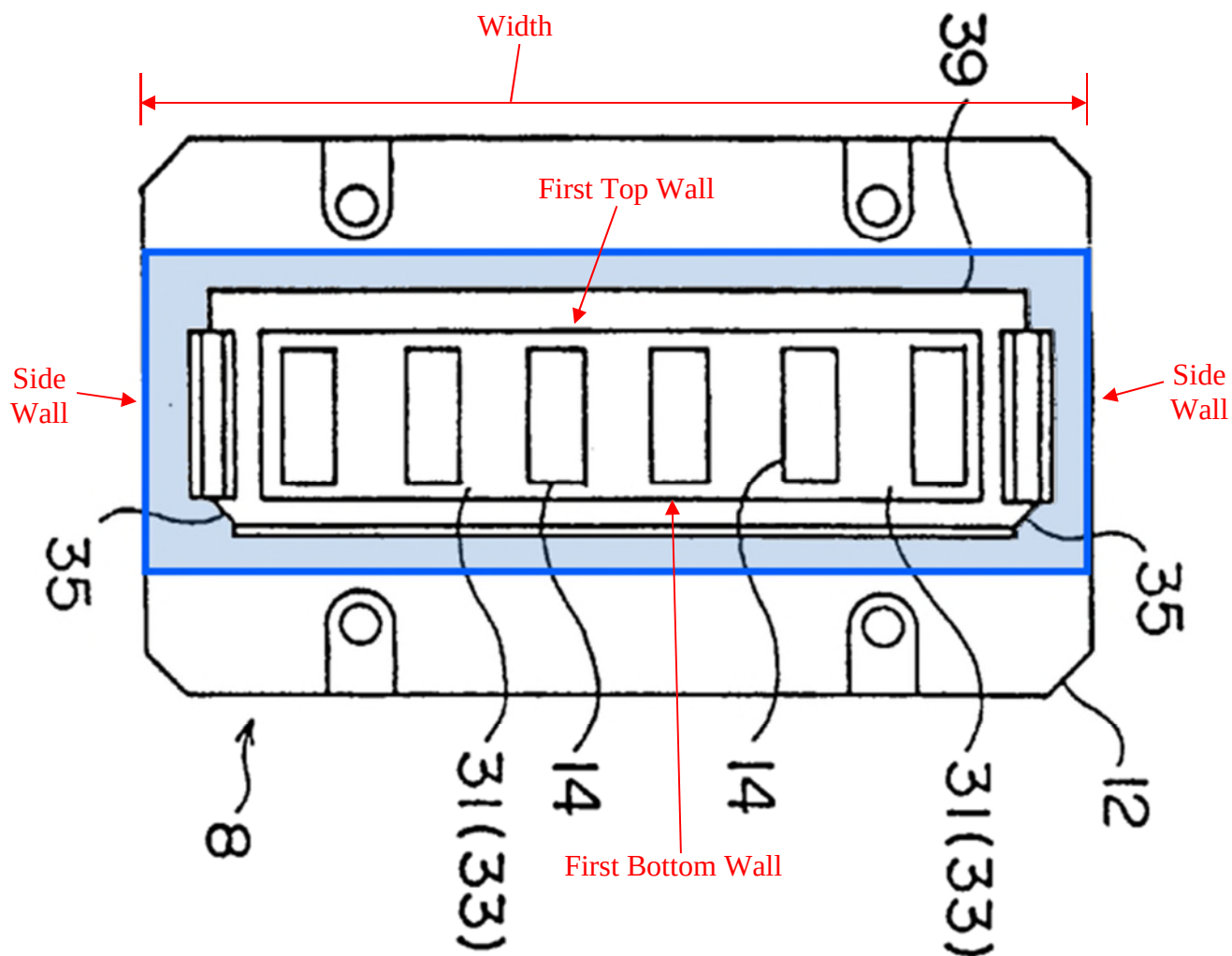


EX1003: Fig. 3a (annotated).

Therefore, Kanai meets 12.a.2.

12.a.3

Kanai's first top and bottom walls each extends widthwise between the two opposite side walls. EX1002: ¶535.

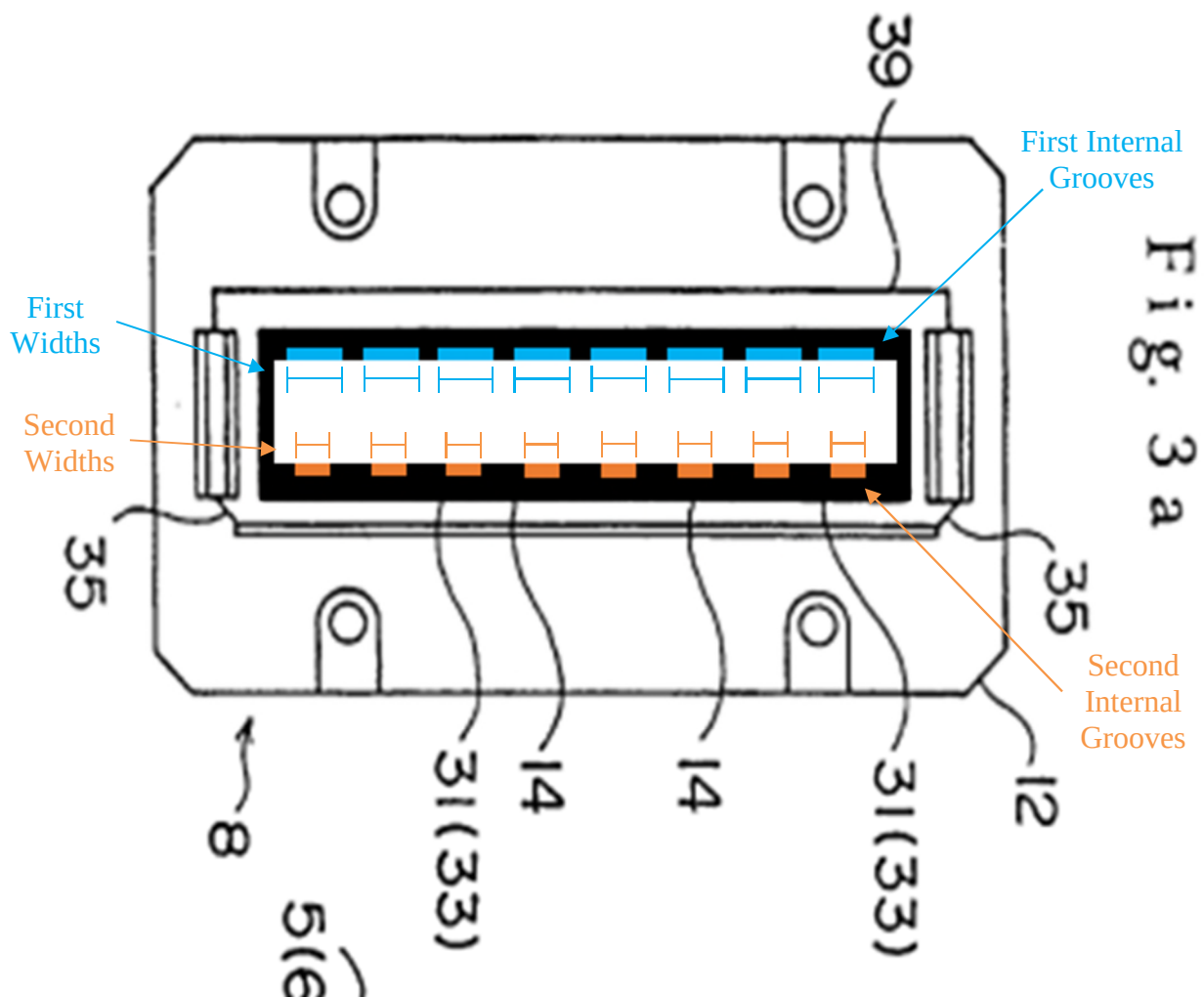


EX1003: Fig. 3a (annotated).

Therefore, Kanai meets 12.a.3.

12.b

As discussed in Sections VII(A)&(B)(1.b.1) and IX(A), the Kanai/Saito combination includes first internal grooves (blue) in the first top wall and second internal grooves (orange) in the first bottom EX1002: ¶549. As shown below, the first and second internal grooves are spaced apart along the width:



EX1003: Fig. 3a (annotated).

It would have been an obvious design choice to make the width of the grooves in the top wall larger than the grooves in the bottom wall. EX1002: ¶552. Yoon teaches making the two guide grooves (305) and the two guide portions (345) on opposite sides different sizes so as to ensure proper polarity. EX1008: 7:41-49, Fig. 6; EX1002: ¶553. The POSA would understand that there are only two options when making the width of the grooves in the top wall different than

the width of grooves in the bottom wall, either: (1) make the width of the grooves in the top wall larger than the width of grooves in the bottom wall, or (2) make the width of the grooves in the top wall smaller than the width of grooves in the bottom wall. EX1002: ¶554. Thus, deciding which of the top or bottom grooves to make larger is merely a design choice as to the arrangement of the keying feature. Further, because there are only two options, the POSA would have found it obvious to try to have the width of the grooves in the top wall larger than the width of grooves in the bottom wall when implementing Yoon teachings into the Kanai/Saito combination. EX1002: ¶555.

Therefore, Kanai/Saito/Yoon renders 12.c.1 obvious.

12.c.2

As shown below, Kanai's adapter (modified in view of Saito and Yoon) does not include internal walls along the width or height between the adjacent spaces for receiving two optical connectors that are adjacent to one another on the same side in the opening. EX1002: ¶557.

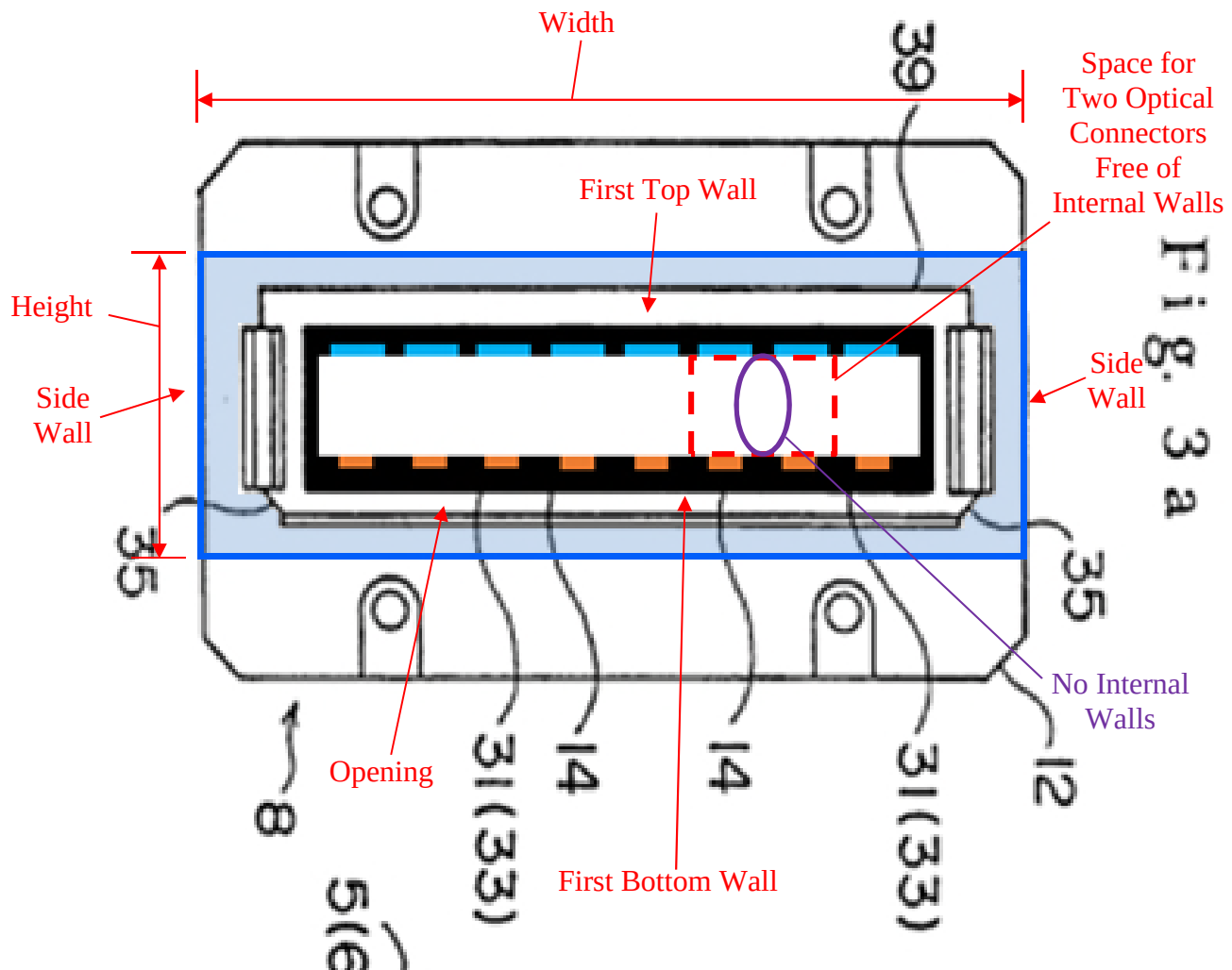


Fig. 3a

EX1003: Fig. 3a (annotated).

The first and second internal grooves are identified by Claim 12 as being part of the first top and first bottom walls, respectively. EX1001: 8:17-19;

EX1002: ¶558. Thus, in the context of the claims of the '415 Patent, the ribs of the Kanai/Saito/Yoon combination that define the grooves are part of the respective walls. EX1002: ¶558.

Therefore, Kanai/Saito/Yoon renders 12.c.2 obvious.

D. Claim 13

For reasons discussed in Section VII(D), Kanai meets this claim.

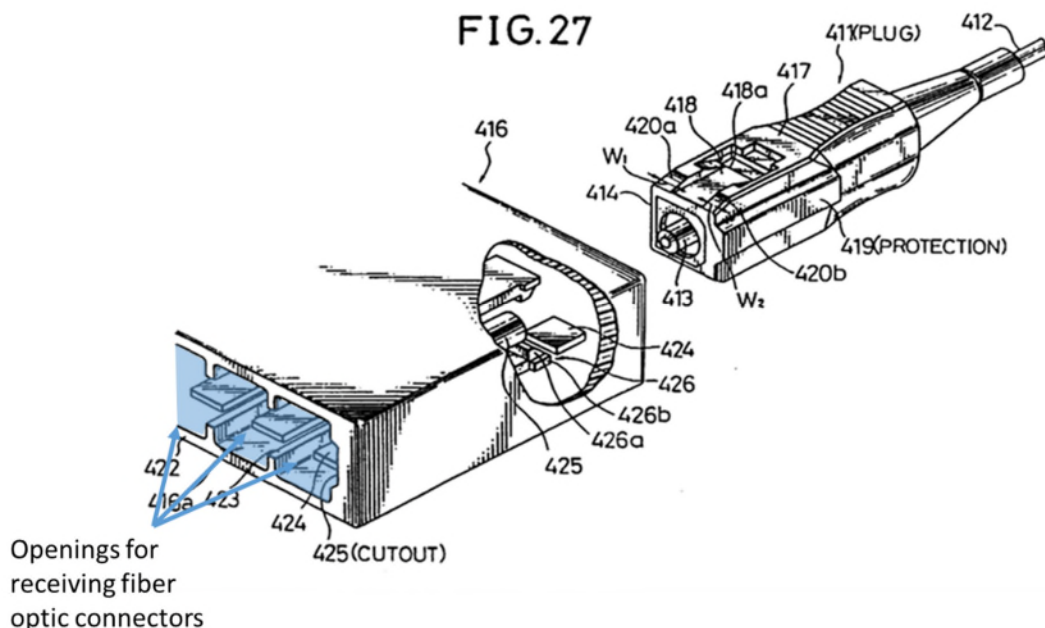
E. Claim 14

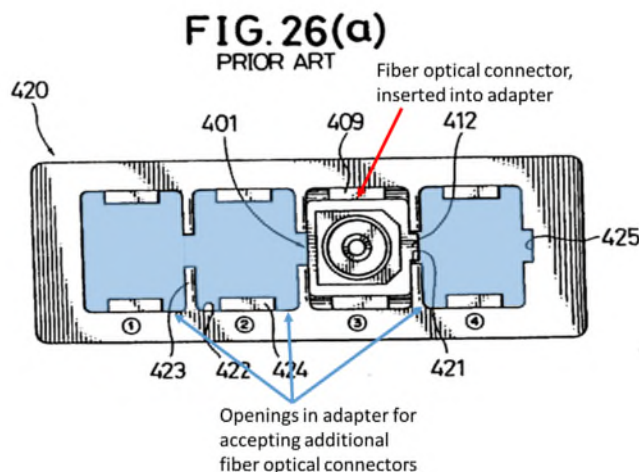
For reasons discussed in Section VII(E), Kanai meets this claim.

X. GROUND 6: Claims 1-5, 8-13 Would Have Been Obvious Over Hodge in View of Iwano

A. Motivation to Modify Hodge Based on Iwano

Although Hodge's adapter accepts only one ferrule assembly (10) from each side, the industry has increasingly sought to increase fiber optic density by expanding adapters to receive multiple assemblies in close proximity to one another. EX1002: ¶¶573-575, 578-579. For example, Iwano's adapter accepts multiple fiber optic connectors for increased density. EX1006: 28:60-63, Figs. 26(a)&(b), 27, 30, and 31(a); EX1002: ¶580.





EX1006: Figs. 26(a) and 27 (annotated).

It would have been obvious to expand Hodge's adapter (60) to receive multiple fiber optic connectors (e.g., ferrule assemblies (10)) arranged in parallel to one another, similar to Iwano's adapter.⁹ EX1002: ¶581.

In modifying the Hodge adaptor to accept multiple fiber optic connectors, a POSA would duplicate the internal structures of the adapter (60) that receive each fiber optic connector—e.g., the internal structures for receiving the fiber optic connector's forward section (39) and alignment projections (48)—for each additional connector pair. EX1002: ¶585.

⁹ Hodge's and Iwano's different ferrule styles do not negate the motivation to expand Hodge's adapter. For example, it was known for an adapter to receive multiple Hodge style MT ferrules. EX1004; EX1002: ¶582.

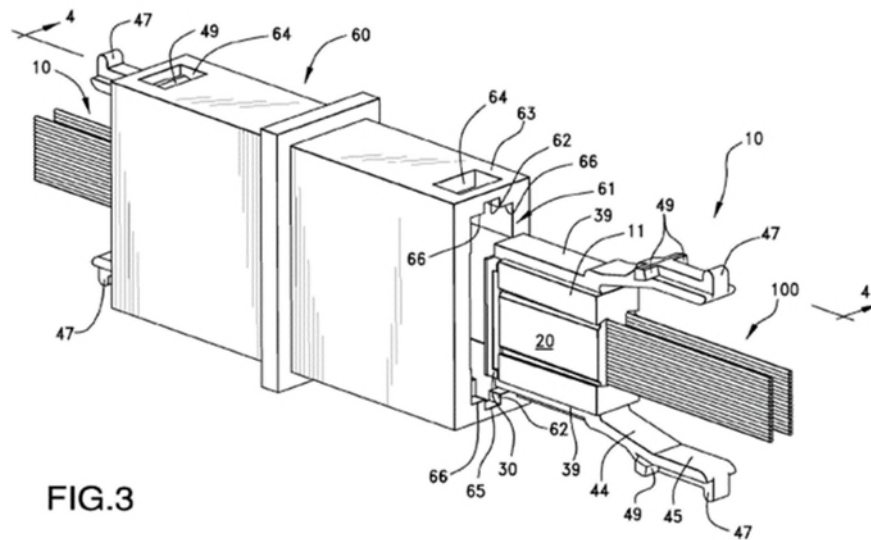


FIG.3

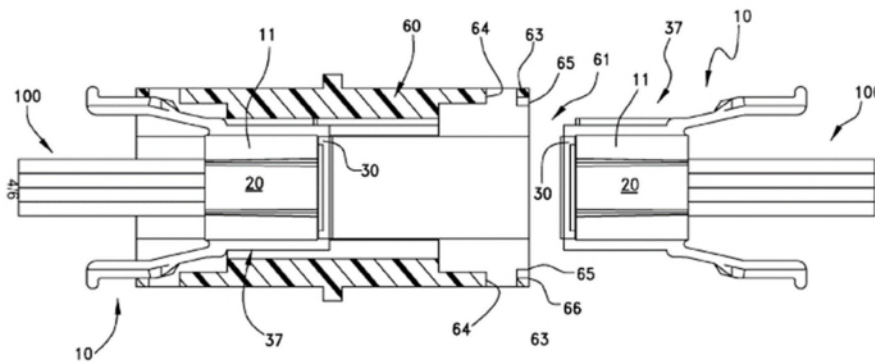


FIG.4

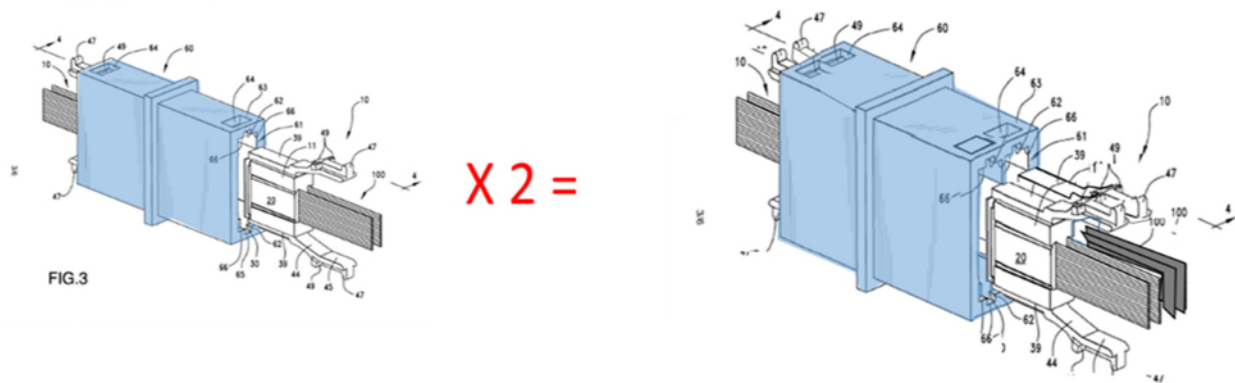
EX1009: Figs. 3, 4.

As described by Iwano, one of skill in the art would further recognize that in expanding the Hodge adapter, any partitions would be limited to ribs to achieve the highest density and reduce cost. EX1006: 28:65-29:5 (teaching cutting away walls to minimize the mounting pitch); EX1002: ¶586.

One of skill in the art would have an expectation of success in modifying the Hodge adapter to receive multiple fiber optic connectors and to maximize the

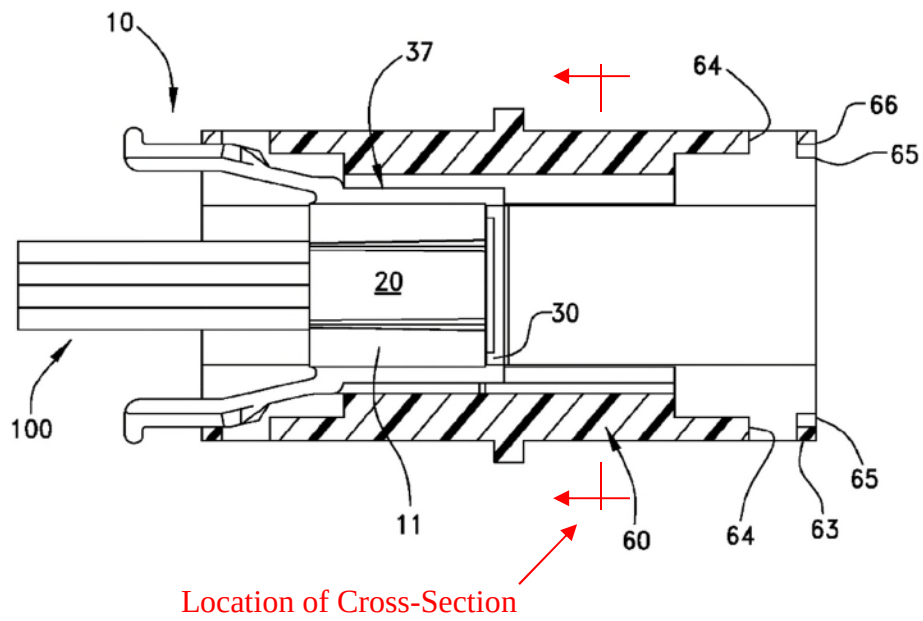
mounting density as taught by Iwano. EX1002: ¶587. For example, both Hodge and Iwano use grooves in the top and bottom surfaces of the adapter to receive and engage corresponding projections in the top and bottom surfaces of the optical connector. EX1002: ¶588.

This modification of Hodge in further view of Iwano is demonstrated below. EX1002: ¶589.

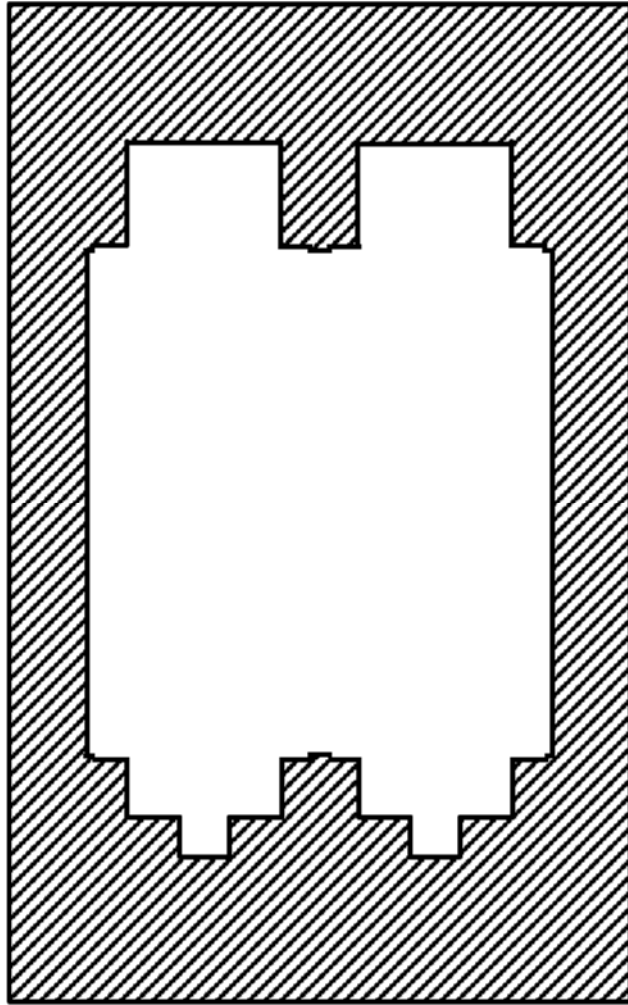


EX1009: Fig. 3 (annotated and modified to demonstrate a Hodge adapter modified to receive two ferrule assemblies (10)); EX1002: ¶589.

An illustrative cross-section of the Hodge/Iwano combination taken through the central portion is illustrated below. EX1002: ¶590.



EX1009: Fig. 4 (annotated, flipped).



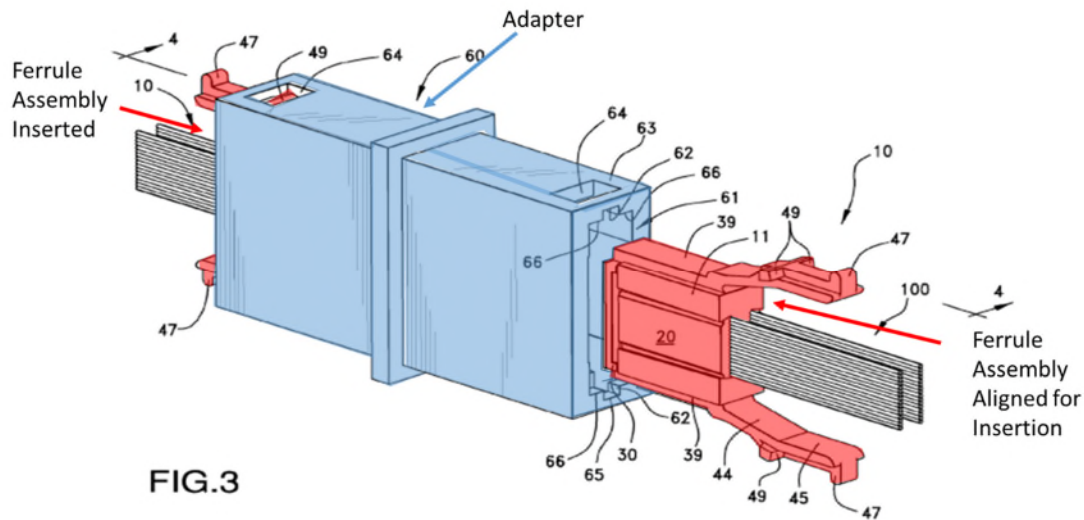
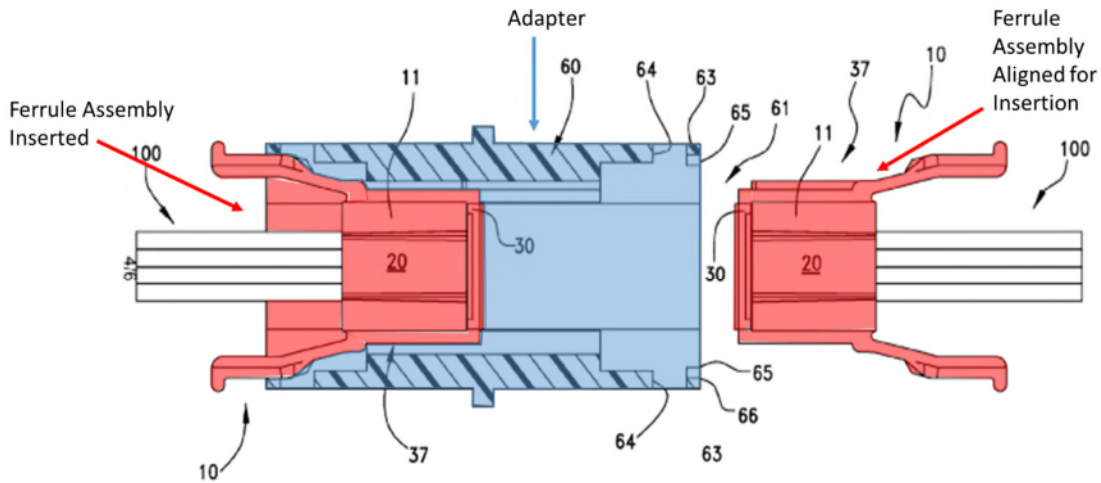
Cross-Section of Hodge/Iwano Combination
(orientation as shown in Hodge *Fig. 3*)

EX1002: ¶590.

B. Independent Claim 1

1.P

Hodge discloses an “adapter” receiving, holding, and aligning ferrule assemblies from opposite first and second sides. EX1002: ¶591. Hodge’s Figures 3 and 4 depict an adapter (60) “with one ferrule assembly 10 inserted therein and a second ferrule assembly aligned for insertion.” EX1009: ¶[0041]; EX1002: ¶592.



EX1009: Figs. 3 and 4 (annotated); EX1002: ¶592.

Therefore, Hodge meets 1.P.

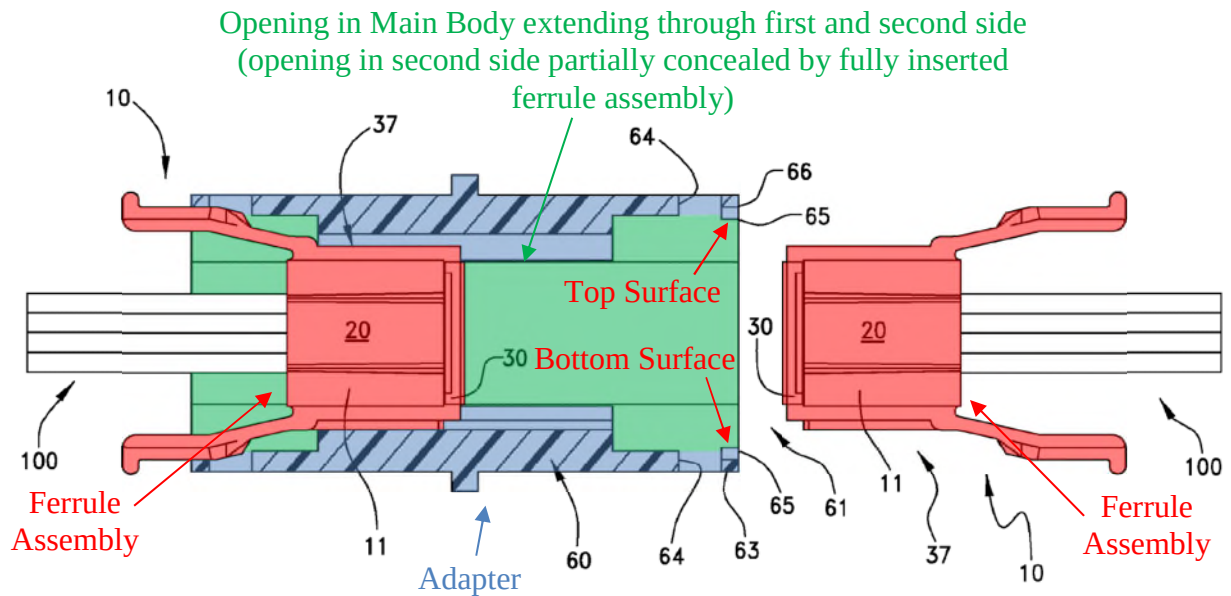
1.a.1

Hodge's adapter has a main body with an opening (61) from each side for receiving the ferrule assemblies (10). EX1009: ¶[0041], Figs. 3 and 4; EX1002:

bottom surface. EX1009: Figs. 3 and 4; EX1002: ¶595.



EX1009: Fig. 3 (annotated).

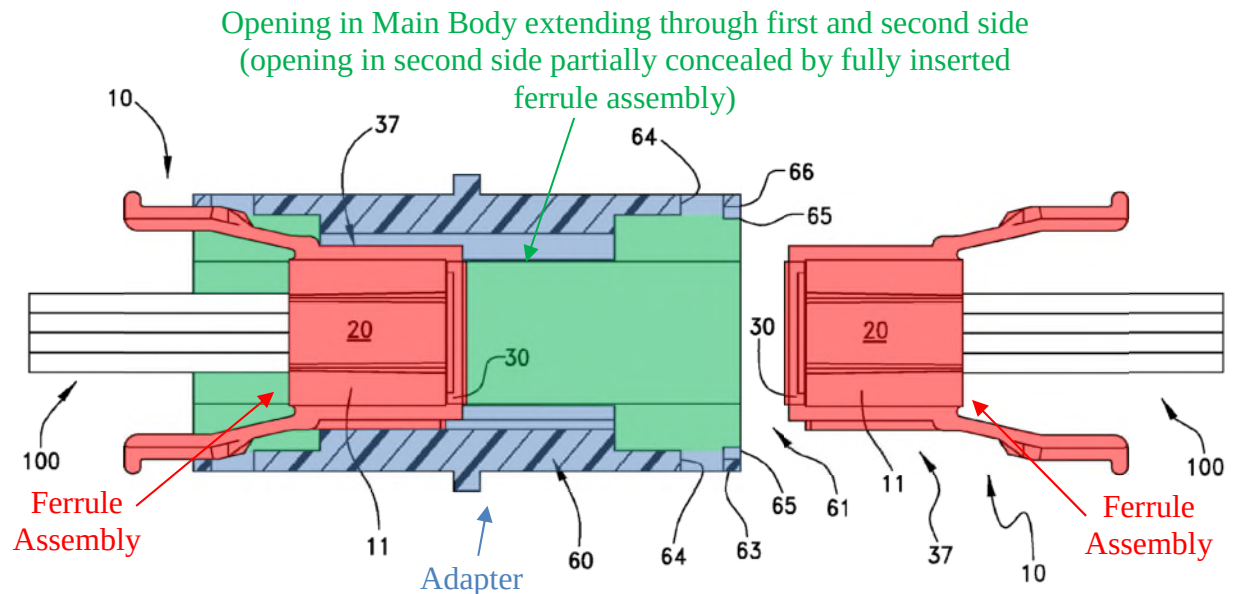


EX1009: Fig. 4 (annotated, flipped); EX1002: ¶594.

Therefore, Hodge meets 1.a.1.

1.a.2

As shown in Figure 4, the opening of the Hodge adapter extends through the main body from the first side to the second side. EX1009: Fig. 4; EX1002: ¶597.



EX1009: Fig. 4 (annotated, flipped).

Therefore, Hodge meets 1.a.2.

1.a.3

Hodge's adapter has a central portion between the first and second sides. EX1006: Fig. 4; EX1002: ¶599. As depicted in Figure 4 (annotated below), the adapter has an initial opening height at each side and then has an internal step within the adapter to a shorter opening height, thus defining a center portion of the adapter separating the first side and the second side. EX1002: ¶599.

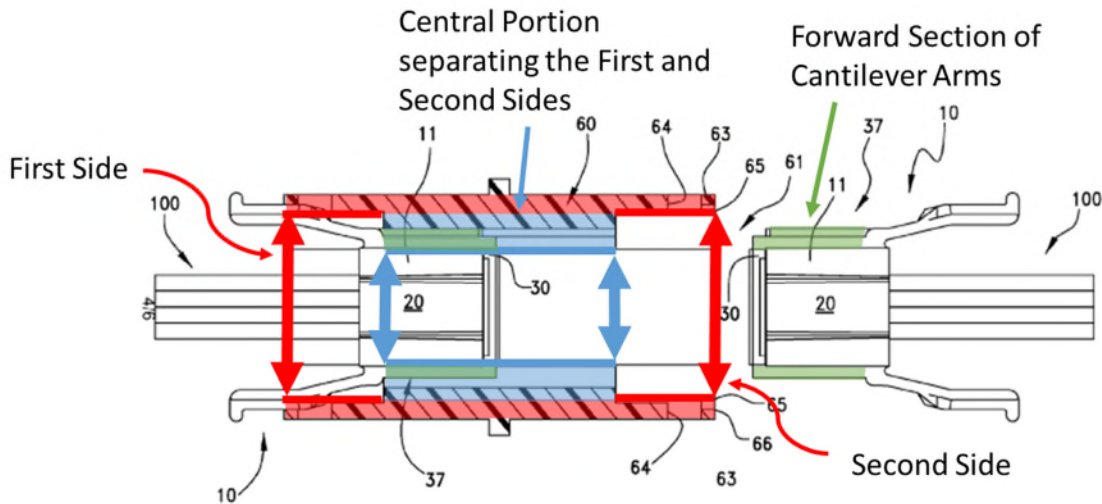


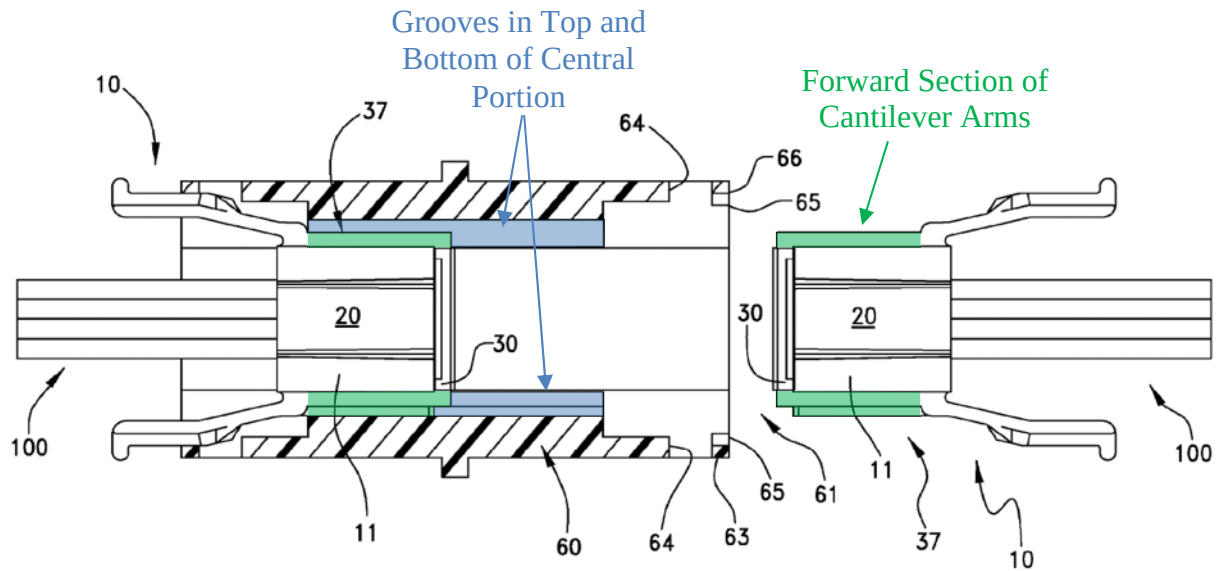
FIG. 4

EX1006: Fig. 4 (annotated).

Therefore, Hodge meets 1.a.3.

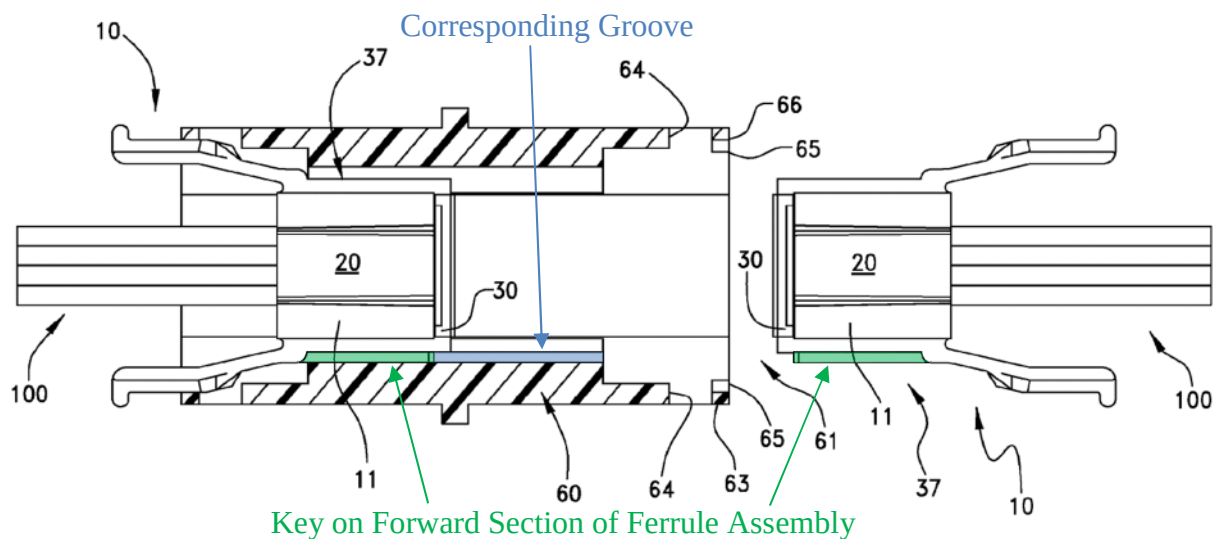
1.b.1

The POSA would recognize the stepped up bottom surface and stepped down top surface of the center portion provides ledges to engage the sidewalls (14) of the ferrule body and includes alignment slots (i.e., grooves) to receive the forward sections (39) of the cantilever arms (37). EX1009: Fig. 4 (annotated below). EX1002: ¶601.

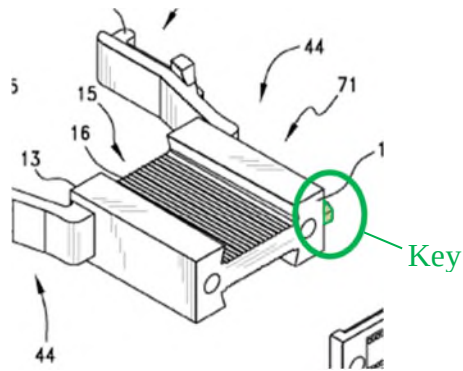


EX1009: Fig. 4 (annotated, flipped).

Additionally, the Hodge adapter contains a groove within a groove in its central portion so as to receive a key (not numbered) on the forward section (39) of the cantilevered arm (37) forming one side of the ferrule assembly. EX1002: ¶602.

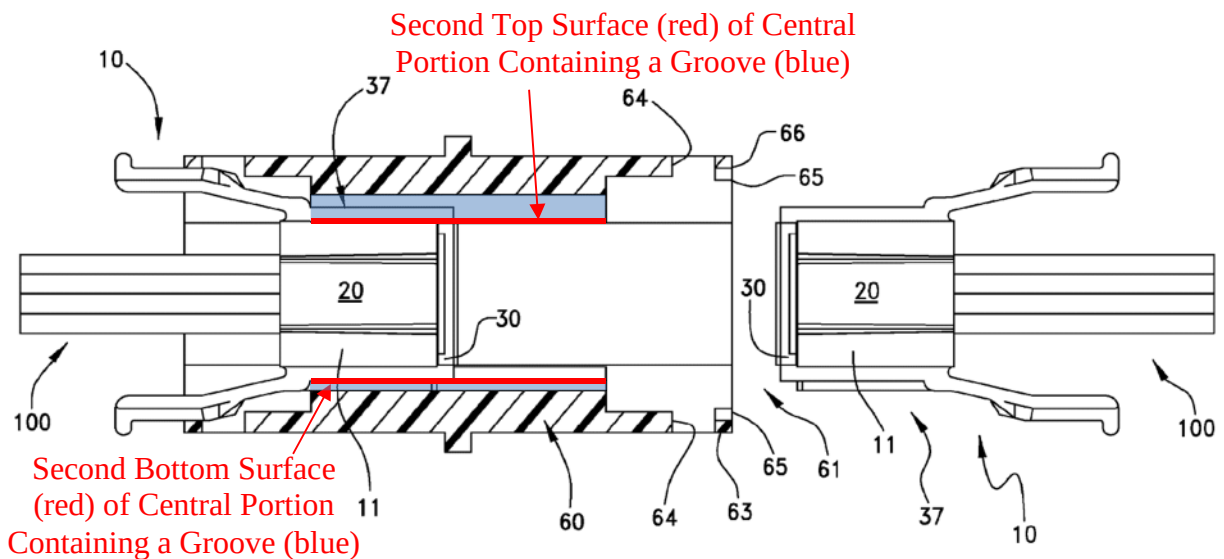


EX1009: Fig. 4 (annotated, flipped).



EX1009: Fig. 6 (annotated).

Accordingly, the Hodge adapter, as depicted in Figure 4 below, has grooves (blue) on the second top surface (red) of the central portion and the second bottom surface (red) of the central portion of the adapter. EX1002: ¶605.



EX1009: Fig. 4 (annotated, flipped).

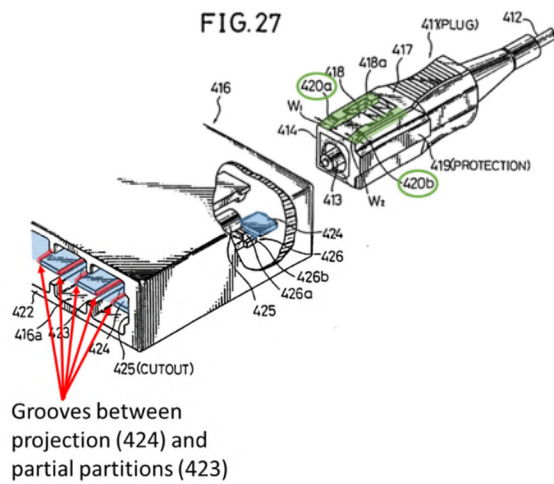
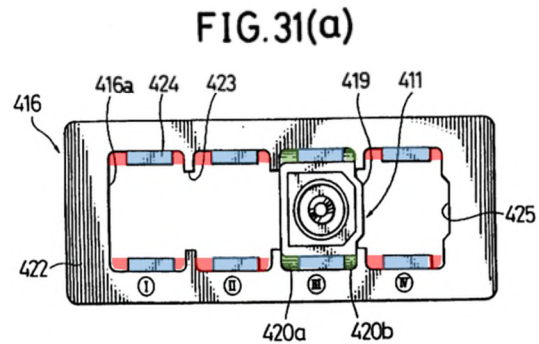
As discussed in Section X(A), it would have been obvious to modify Hodge's adapter in view of Iwano to accept additional fiber optic connectors.

EX1002: ¶607.

In modifying Hodge to a plurality of fiber optic connectors, one of skill in the art would have duplicated the grooves in the bottom surface of central portion of the adapter to have a corresponding groove to accept the forward section (39) of the cantilever arms (37) of each ferrule assembly. EX1002: ¶609. This modification would allow forward section (39) of the cantilever arms (37) and corresponding grooves to continue to act as guides. EX1002: ¶610. This duplication would result in plurality of grooves disposed in the bottom surface of the central portion of the adapter. EX1002: ¶610.

In modifying Hodge to accept a plurality of fiber optic connector pairs, one of skill in the art would have also duplicated the groove in the top of central portion that accepts the key on the forward section (39) for each of the multiple ferrule assemblies. EX1002: ¶611.

Notably, the duplication of grooves for each set of connectors is how Iwano's adapter is constructed. EX1002: ¶612. With reference to Figures 27 and 31 below, Iwano discloses an adapter with grooves (red) between partition (423) and projection (424) that are configured to receive corresponding projections (420a, 420b) (green) of the optical connector plugs. EX1006: Figs. 27 and 31, 29:12-19; EX1002: ¶613.

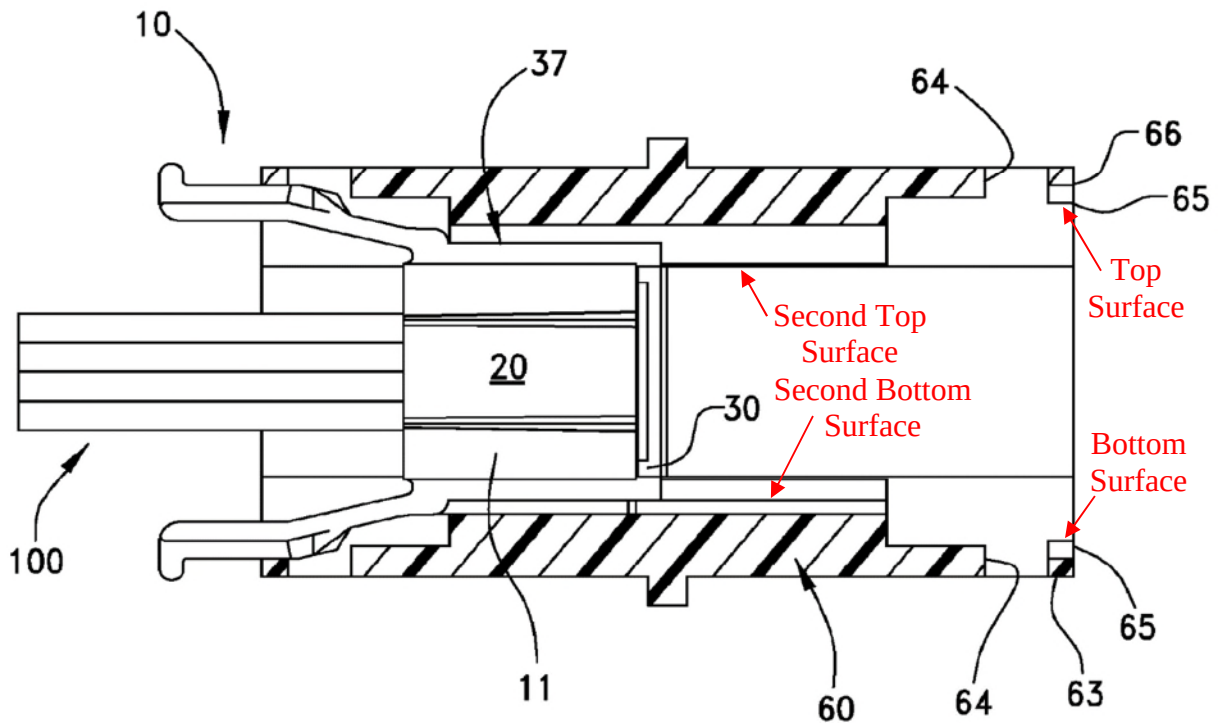


EX1006: Figs. 27 and 31(a) (annotated).

Therefore, Hodge/Iwano renders 1.b.1 obvious.

1.b.2

As shown below, the second top surface and the second bottom surface of the central portion are different than the top surface and the bottom surface in Hodge's adapter (60):

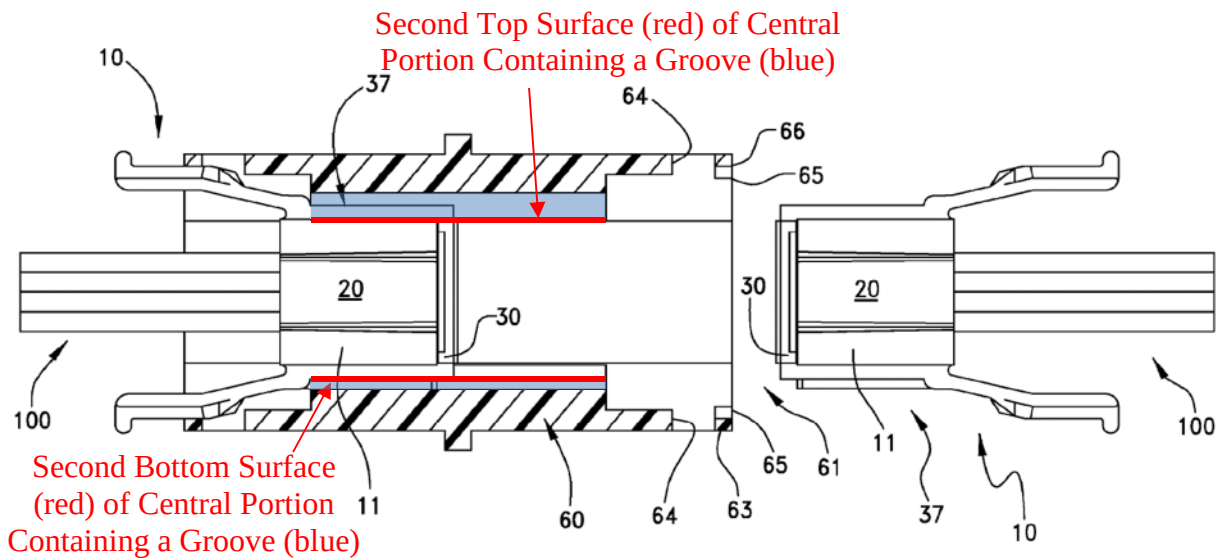


EX1009: Fig. 4 (annotated, flipped); EX1002: ¶617.

Therefore, Hodge meets 1.b.2.

1.b.3

As depicted in Figure 4 below, the groove (blue) in the second top surface of Hodge's central portion and the groove (blue) in Hodge's second bottom surface each extend toward the center of the adapter's (60) main body. EX1002: ¶619.



EX1009: Fig. 4 (annotated, flipped).

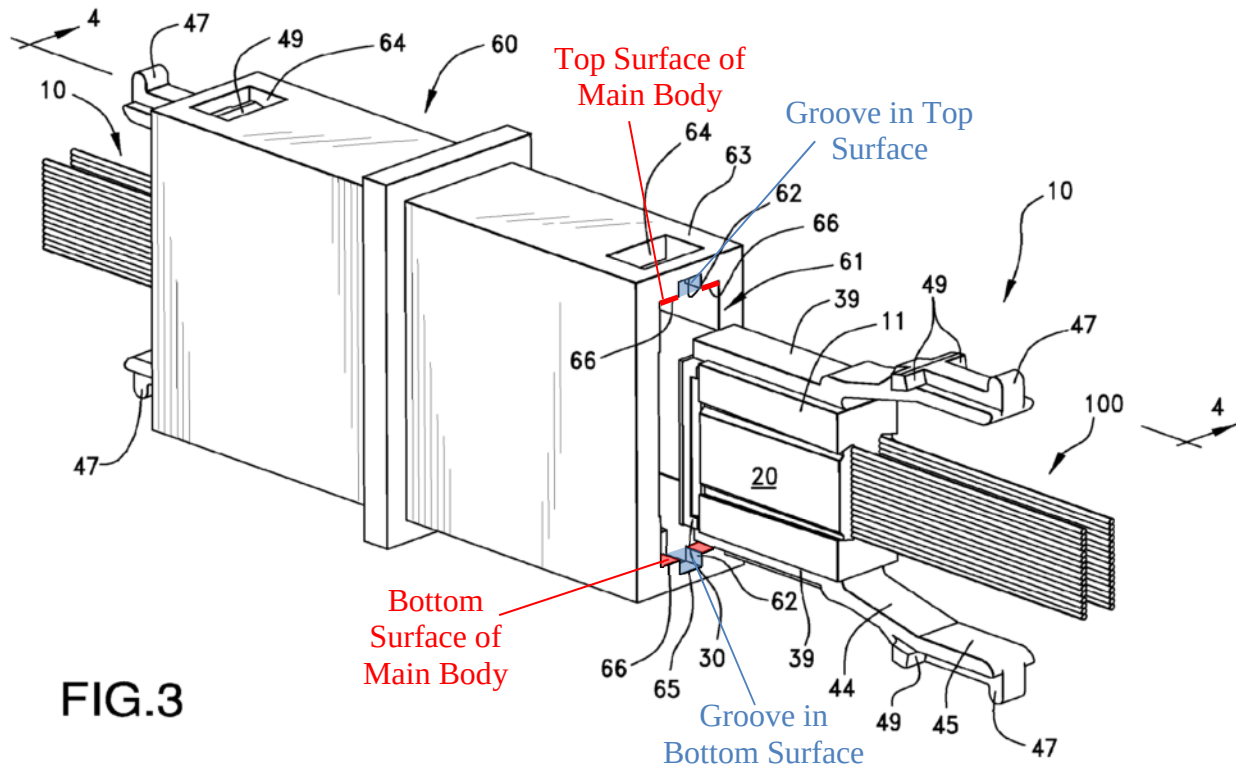
It would have been obvious that in duplicating the groove in the second top surface of the central portion and the groove in the second bottom surface of the central portion as taught by Iwano, the added grooves would likewise extended toward a center of the adapter's (60) main body. EX1002: ¶620.

Therefore, Hodge/Iwano renders 1.b.3 obvious.

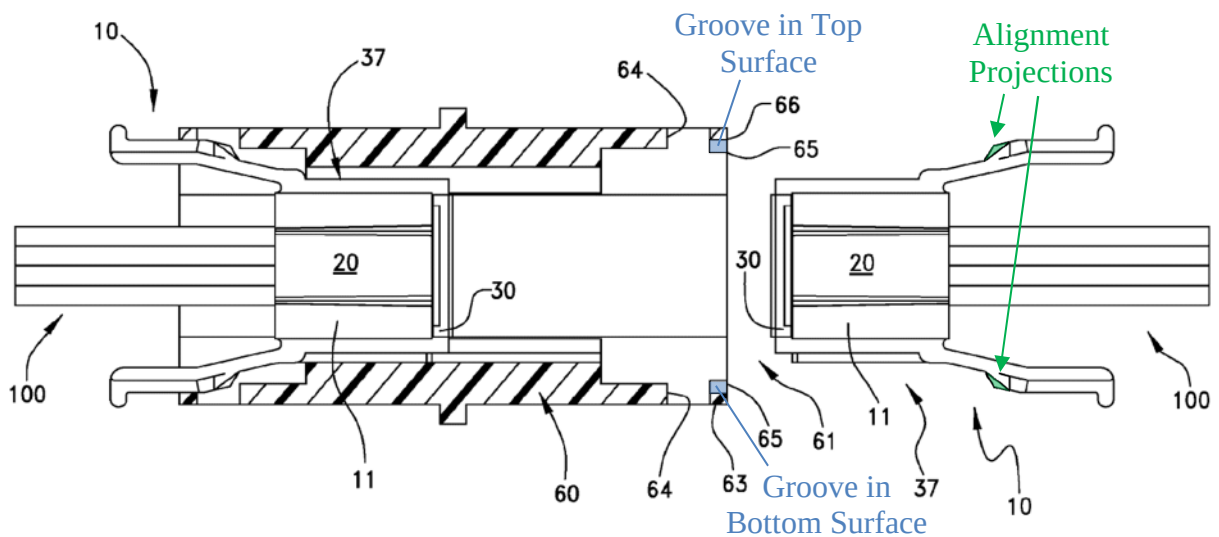
C. Claim 2

The Hodge adapter as depicted in Figure 4 (annotated below) has “[a] notch or recess 62 extend[ing] outwardly from the opening 61 towards each end wall 63.” EX1009: ¶[0041]; EX1002: ¶622. These recesses (62) “receive the alignment projections 48 of the latch member 46.” EX1009: ¶[0041]; EX1002: ¶623.

Hodge's Figure 3 shows these grooves are located at both the top surface and the bottom surface of the main body. EX1002: ¶624.



EX1009: Fig. 3 (annotated).



EX1009: Fig. 4 (annotated, flipped).

Therefore, Hodge/Iwano renders this claim obvious.

D. Claim 3

For reasons discussed in Section X(C), Hodge/Iwano renders this claim obvious.

E. Claim 4

Hodge's adapter has a main body with an opening (61) from each side for receiving the ferrule assemblies (10). EX1009: ¶[0041], Figs. 3 and 4; EX1002: ¶627. As depicted in Figure 4 (annotated below), the adapter has an initial opening height at each side and then has an internal step within the adapter to a shorter opening height at a distance interior to both the first side and the second side. EX1002: ¶628. By virtue of the opening being shorter through the central portion, the opening in the central portion of the main body is smaller than the opening in the first and second sides. EX1002: ¶629.

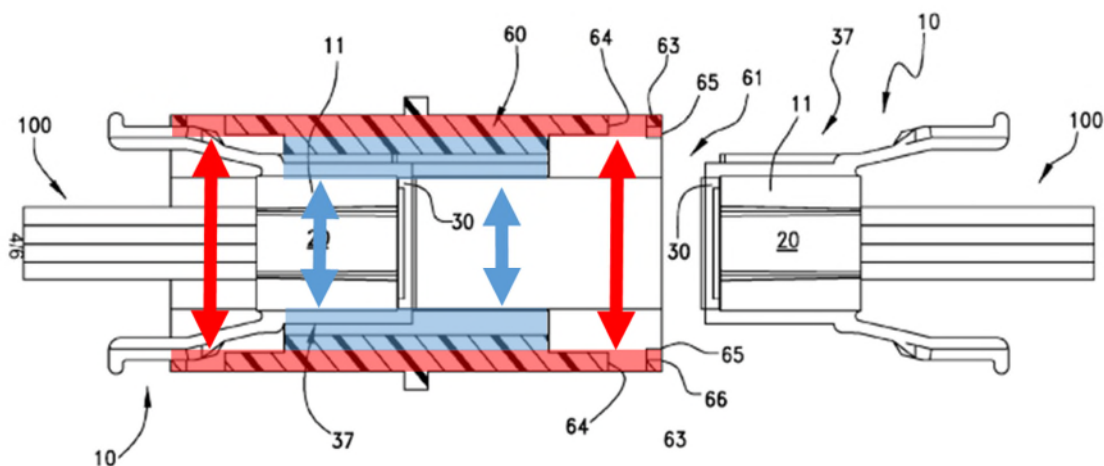


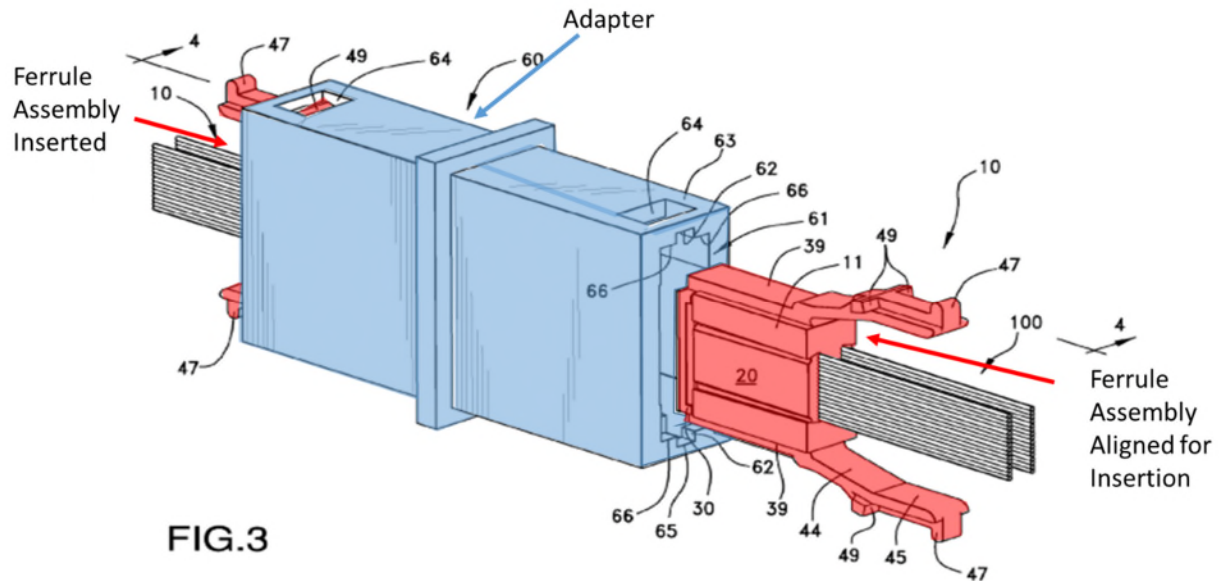
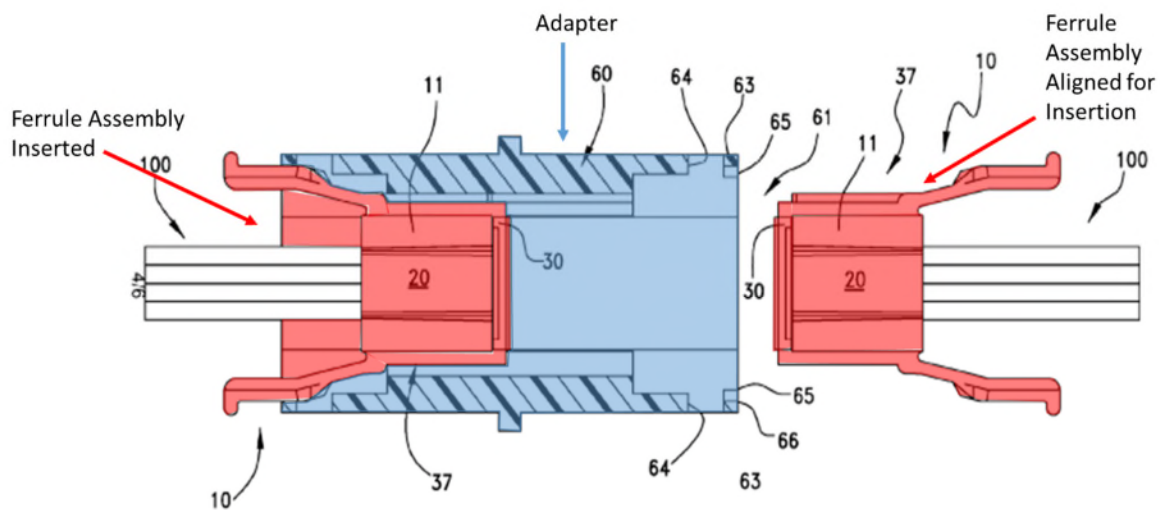
FIG.4

EX1009: Fig. 4 (annotated).

Therefore, Hodge meets this claim.

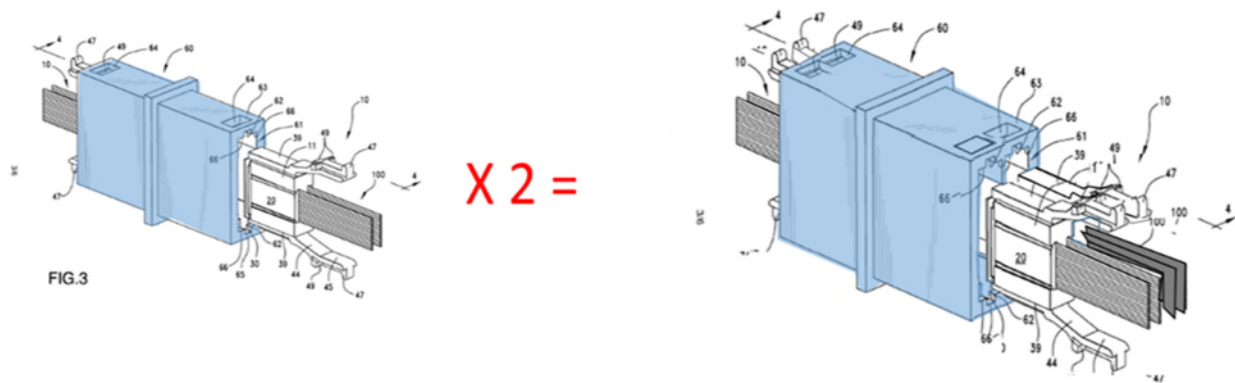
F. Claim 5

Hodge discloses an adapter that accepts a single ferrule assembly from each side. EX1009: ¶[0041], Figs. 3 and 4; EX1002: ¶631.



EX1009: Figs. 3 and 4 (annotated); EX1002: ¶631.

As discussed in Section X(A), it would have been obvious to expand Hodge's adapter (60) to receive multiple fiber assemblies (10) (each having their own ferrule body (11)) arranged in parallel to one another, similar to Iwano's adapter. EX1002: ¶634. As a result of this modification, the expanded Hodge adapter would receiver multiple fiber assemblies (10) from each side. EX1002: ¶635.



EX1009: Fig. 3 (annotated, modified to show a modified Hodge adapter (60) that receives two ferrule assemblies (10)); EX1002: ¶635.

Therefore, Hodge/Iwano renders this claim obvious.

G. Independent Claim 8

8.P

As discussed in Section X(B)(1.P), Hodge's adapter (60) connects ferrule assemblies (10). EX1002: ¶¶637-638. Each ferrule assembly (10) "includes a ferrule body (11) with a plurality of optical fibers (100) secured thereto." EX1009: ¶[0019]; EX1002: ¶639.

Therefore, Hodge meets 8.P.

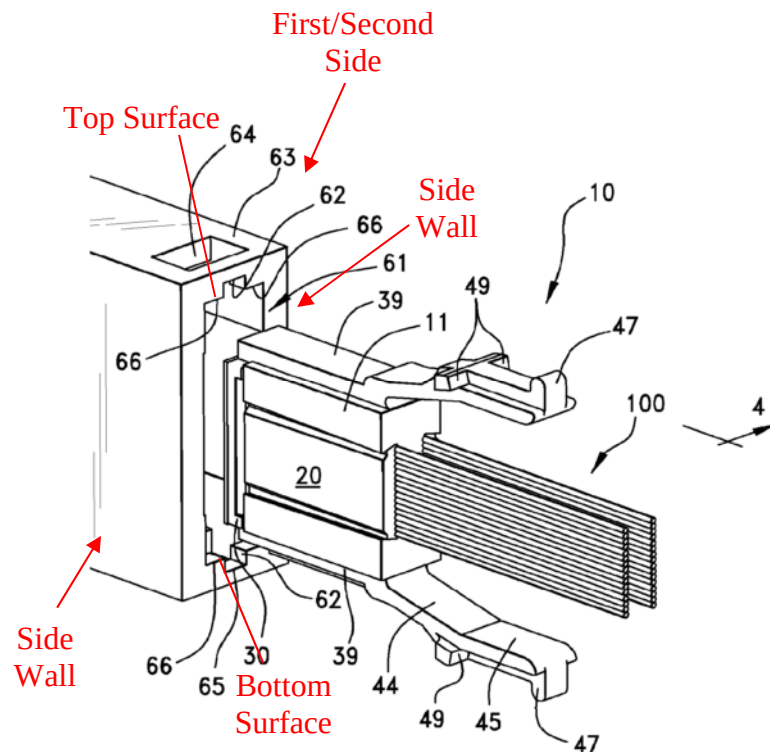
8.a.1

As discussed in Section X(B)(1.a.1)&(1.a.2), Hodge's adapter (60) has an opening extending between first and second sides of the adapter. EX1002: ¶641.

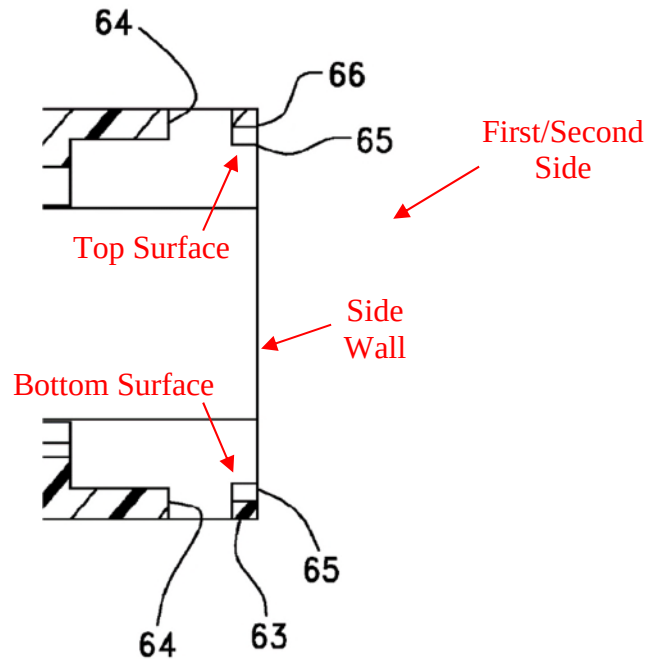
Therefore, Hodge meets 8.a.1.

8.a.2

Each of the first and second sides of Hodge's adapter (60) are respectively defined by two opposing side walls, a top surface, and a bottom surface, as shown below:



EX1009: Fig. 3 (annotated); EX1002: ¶643.



EX1009: Fig. 4 (annotated, flipped); EX1002: ¶643.

Therefore, Hodge meets 8.a.2.

8.a.3

Hodge discloses an adapter that accepts a single ferrule assembly from each side. EX1009: ¶[0041], Figs. 3 and 4; EX1002: ¶647.

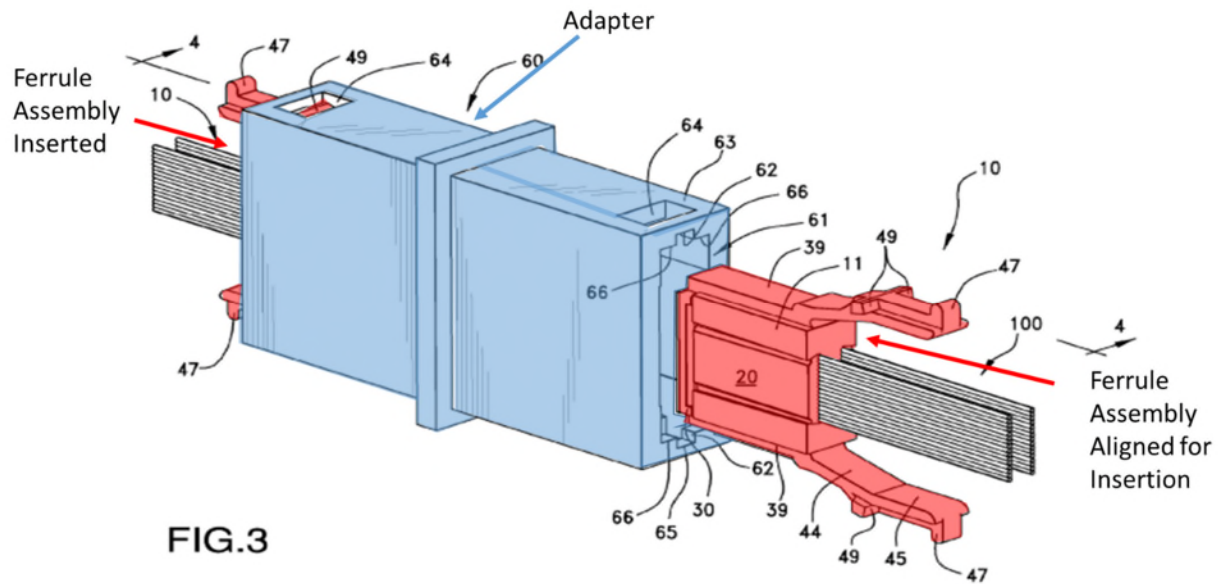


FIG. 3

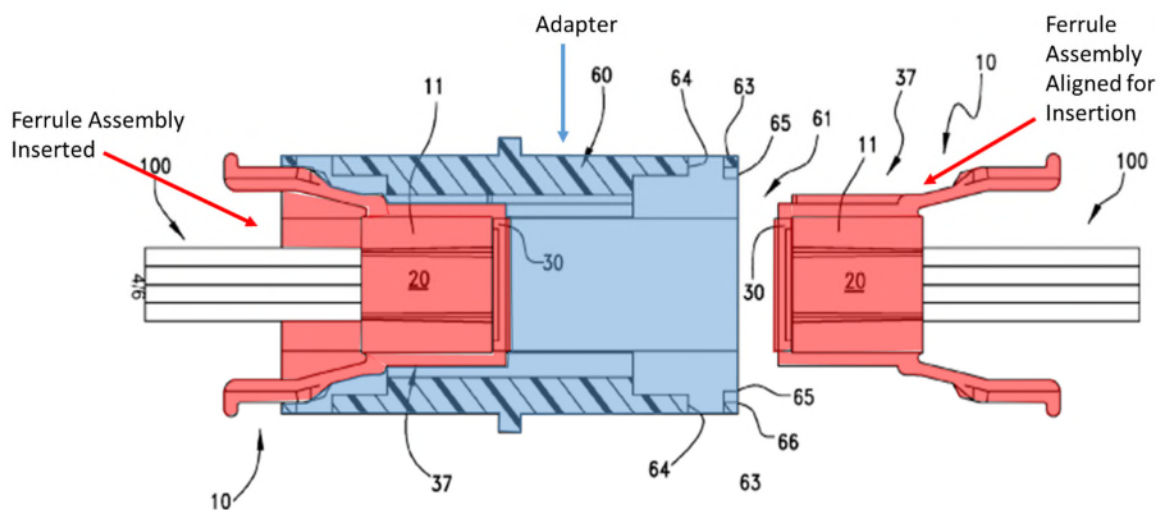
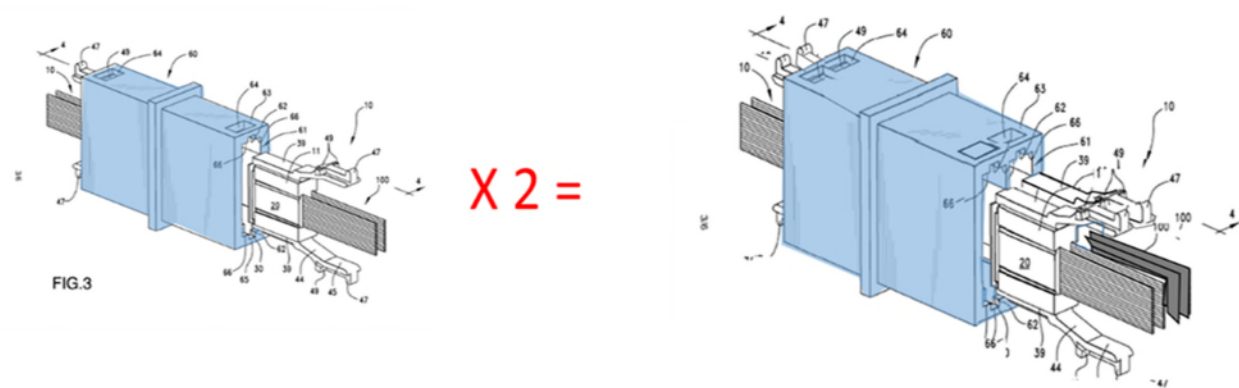


FIG. 4

EX1009: Figs. 3 and 4 (annotated); EX1002: ¶647.

As discussed in Section X(A), it would have been obvious to expand Hodge's adapter (60) to receive multiple fiber assemblies (10) (each having their own ferrule body (11)) arranged in parallel to one another, similar to Iwano's adapter. EX1002: ¶648.

As modified, the opening of Hodge's adapter would receive two ferrule assemblies (10) from the first side and another two ferrule assemblies from the second side. EX1009: Fig. 3; EX1002: ¶649.

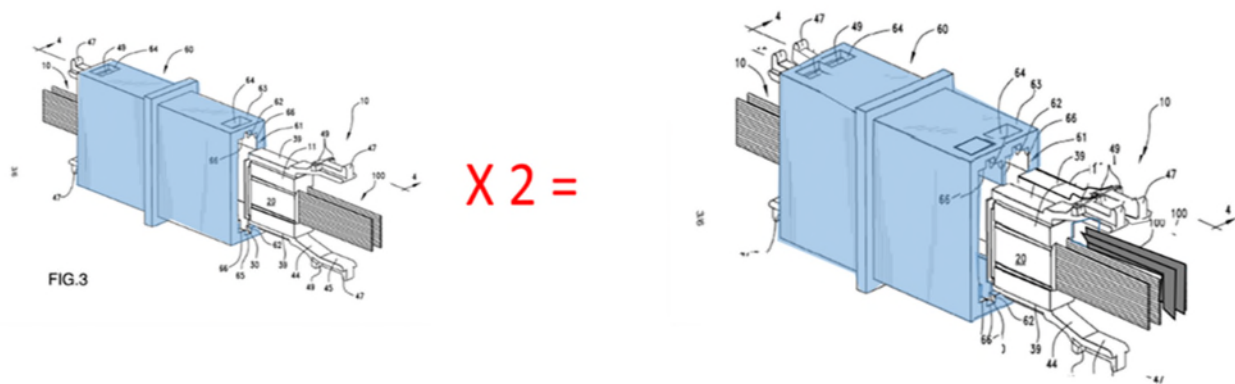


EX1009: Fig. 3 (annotated, modified to show a modified Hodge adapter (60) that receives two ferrule assemblies (10)); EX1002: ¶649.

Therefore, Hodge/Iwano combination renders 8.a.3 obvious.

8.b

As discussed in Section X(G)(8.a.3), the adapter of Hodge as modified in view of Iwano would receive at least two ferrule assemblies (10) from each side. EX1002: ¶651.



EX1009: Fig. 3 (annotated, modified to show a modified Hodge adapter that receives two sets of ferrule assemblies (10)); EX1002: ¶651.

For each pair of ferrule assemblies (10), one inserted from the first side and one inserted from the second side, the ferrules of the two ferrule assemblies face and/or butt-connect with each other, thereby mating and forming an optical connection between the two ferrule assemblies. EX1009: Figs. 3 and 4, ¶¶[0003]-[0004], [0041], [0044], Claim 8; EX1002: ¶652.

Therefore, Hodge/Iwano renders 8.b obvious.

8.c.1

As discussed in Section X(B)(1.a.3), Hodge's adapter (60) includes a central portion. EX1002: ¶654. The central portion is between the first and second sides. EX1002: ¶655.

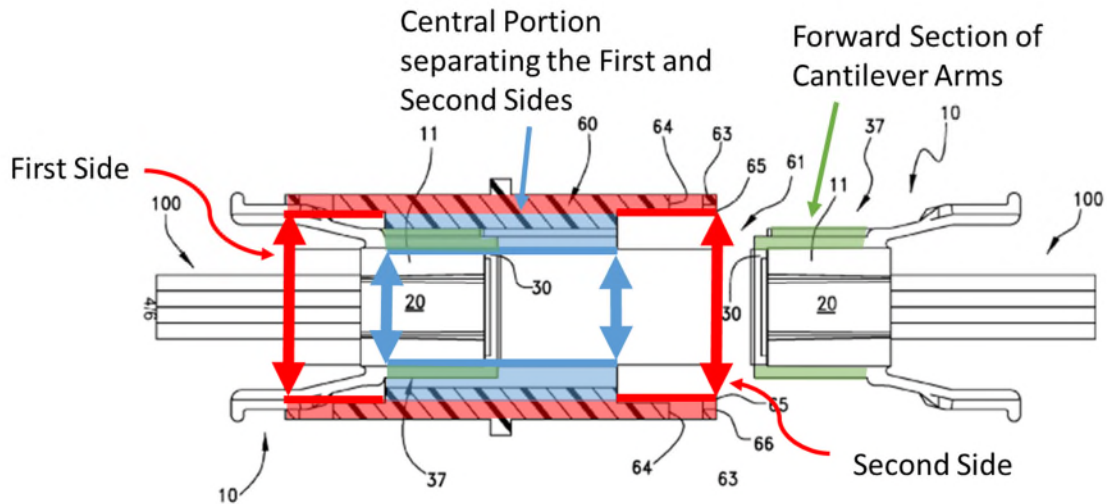


FIG. 4

EX1006: Fig. 4 (annotated); EX1002: ¶655.

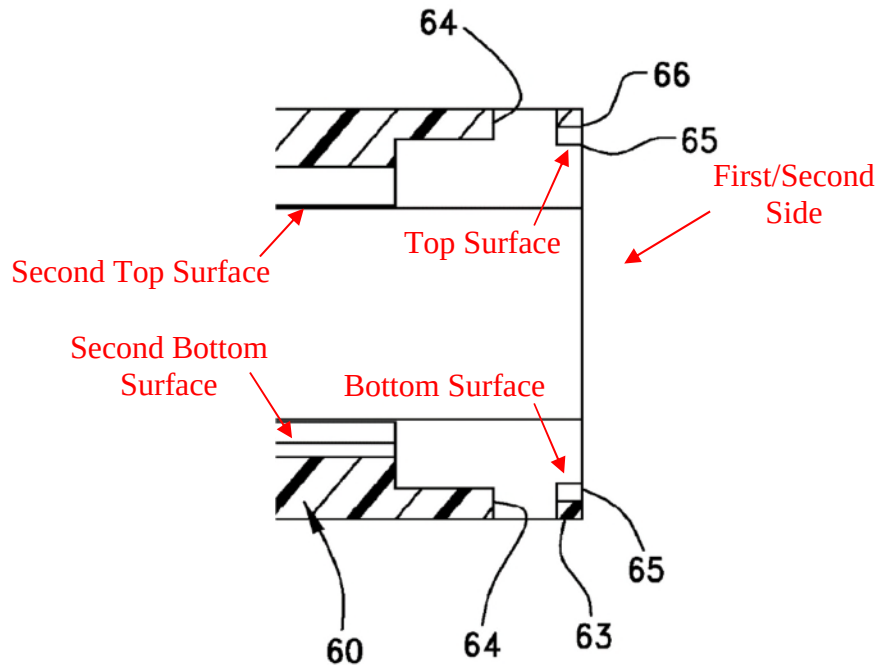
Therefore, Hodge meets 8.c.1.

8.c.2

For reasons discussed in Section X(B)(1.b.1), Hodge/Iwano renders 8.c.2 obvious. EX1002: ¶¶657-659.

8.c.3

As shown below, the Hodge adapter has a second top surface and the second bottom surface that are different than the respective top surface and bottom surface of the first and second sides:



EX1009: Fig. 4 (annotated, flipped); EX1002: ¶662.

Therefore, Hodge meets 8.c.3.

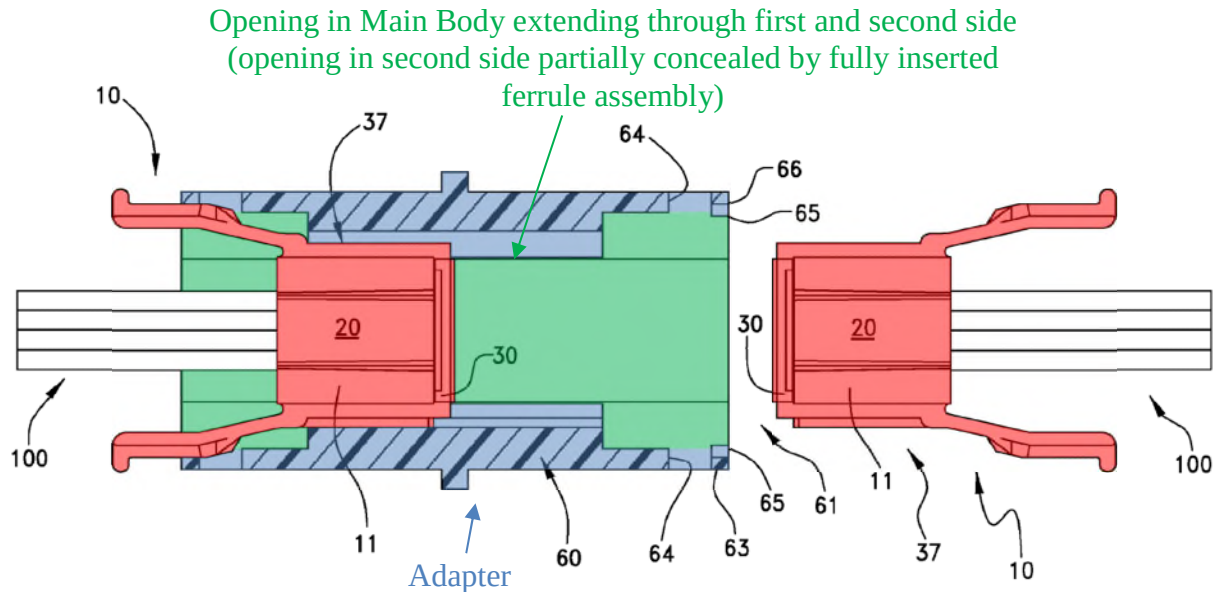
8.c.4

For reasons discussed in Section VX(B)(1.b.3), Hodge/Iwano renders 8.c.4 obvious. EX1002: ¶¶664-666.

H. Claim 9

9.a

As discussed in Section X(B)(1.a.1)&(1.a.2), Hodge's adapter (60) includes an opening. EX1002: ¶667. As shown below, the first and second sides of the opening are in communication with one another in the central portion. EX1002: ¶667.



EX1009: Fig. 4 (annotated, flipped); EX1002: ¶667.

Hodge meets 9.a.

9.b

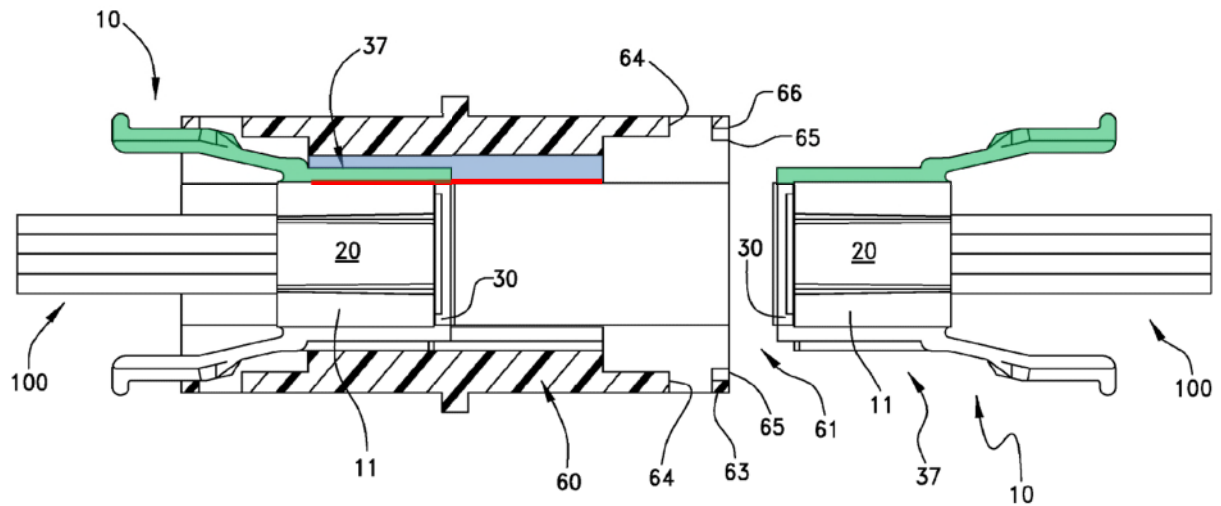
For reasons discussed in Section X(E), Hodge meets 9.b. EX1002: ¶¶669-671.

I. Claim 10

For reasons discussed in Section X(F), Hodge/Iwano renders this claim obvious. EX1002: ¶¶672-678.

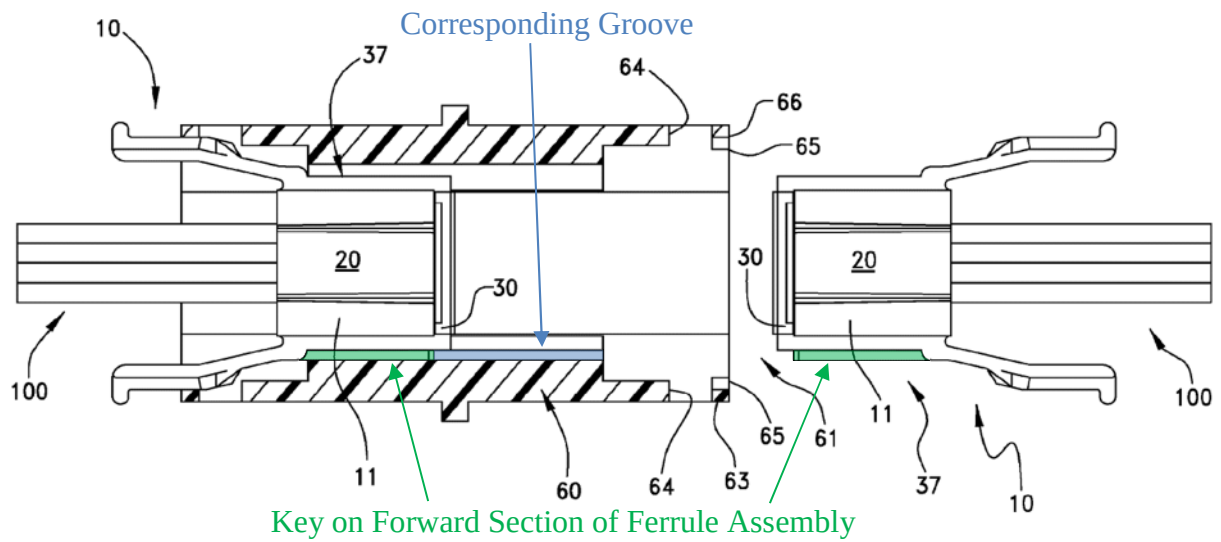
J. Claim 11

As addressed above with respect to Claim 1, Hodge's Figure 4 depicts an adapter with a groove disposed in the second top surface of a central portion that would correspond to and receive the forward section (39) of the top cantilevered arm (37). EX1002: ¶679.



EX1009: Fig. 4 (annotated, flipped); EX1002: ¶679.

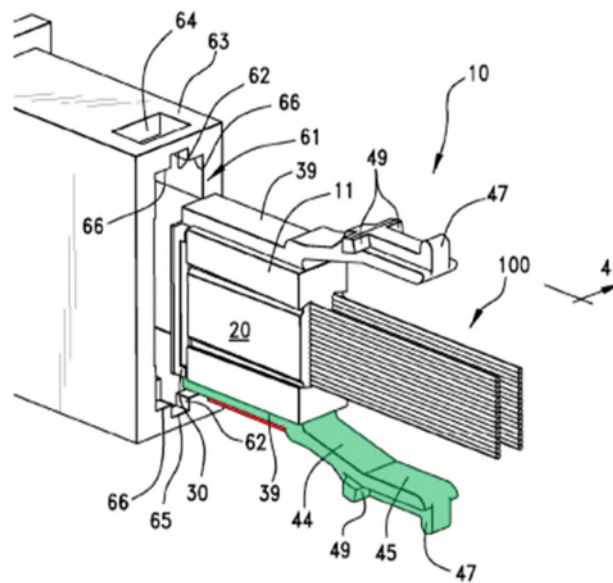
As addressed above with respect to Claim 1, Hodge's Figure 4 further depicts a keyway groove disposed in the bottom surface of a central portion that would correspond to and receive the key (not numbered) on the forward section (39) of the bottom cantilevered arm (37). EX1002: ¶680.



EX1009: Fig. 4 (annotated, flipped); EX1002: ¶680.

As is evident from Hodge's Figure 3 (excerpted below), the key (red) on the forward section (39) is narrower than the forward section (39) (green) itself.

EX1002: ¶681.

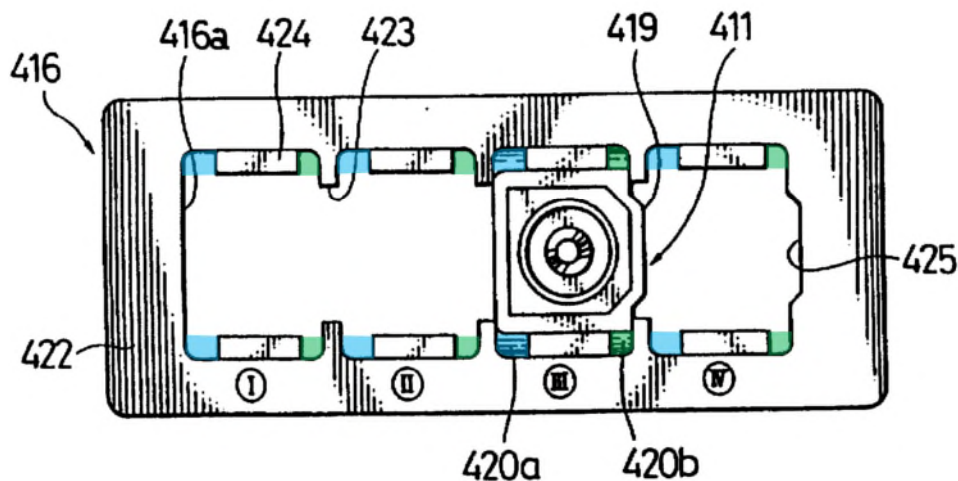


EX1009: Fig. 3 (annotated).

Accordingly, with respect to orientation of Figure 3, the keyway groove on the second bottom surface of the central portion has a first width that is narrower than the groove for accepting the forward section (39) on the second top surface of the central portion.¹⁰ EX1002: ¶682.

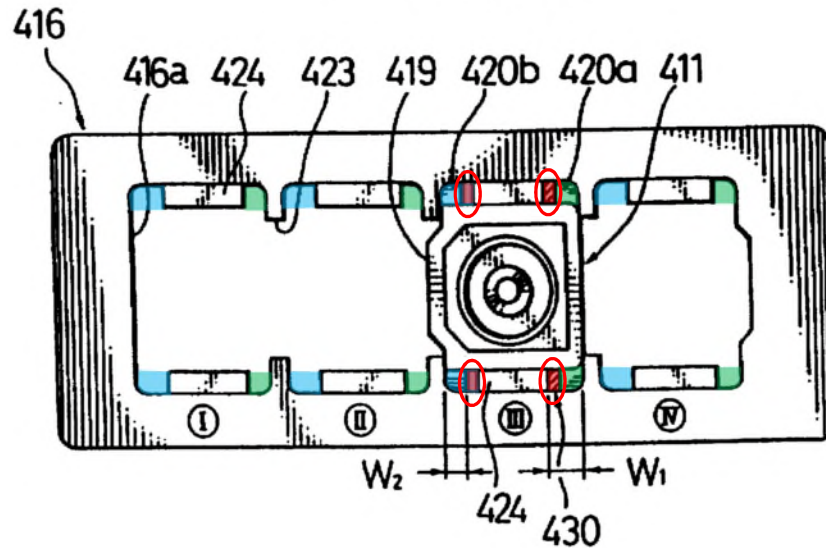
Iwano similarly relies on grooves of different widths in the adapter—specifically the groove between partition (423) and projection (424)—to ensure proper polarity of the optical connectors. EX1006: 30:48-54, Figs. 31(a)&(b); EX1002: ¶683.

FIG. 31(a)



¹⁰ The key-way groove is located within the surface of a groove for accepting the forward section (39). EX1002: ¶682.

FIG.31(b)



EX1006: Fig. 31(a)&(b) (annotated to show interference when inserted in improper orientation); EX1002: ¶683.

Thus, Hodge/Iwano renders this claim obvious.

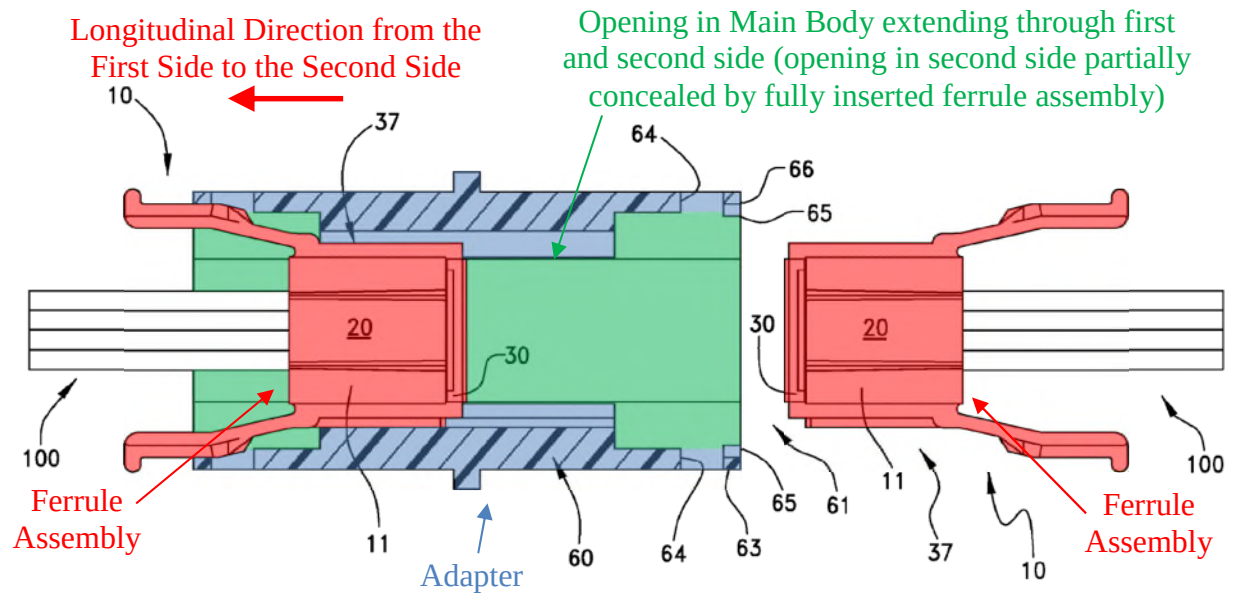
K. Independent Claim 12

12.P

For reasons discussed in Section X(B)(1.P), Hodge meets 12.P.

12.a.1

As discussed in Section X(B)(1.a.1)&(1.a.2), Hodge has a main body with an opening extending between the first and second sides. EX1002: ¶688. As shown below, the opening extends longitudinally from the first side to the second side:



EX1009: Fig. 4 (annotated, flipped); EX1002: ¶689.

The width and height of the main body can further be defined as shown:

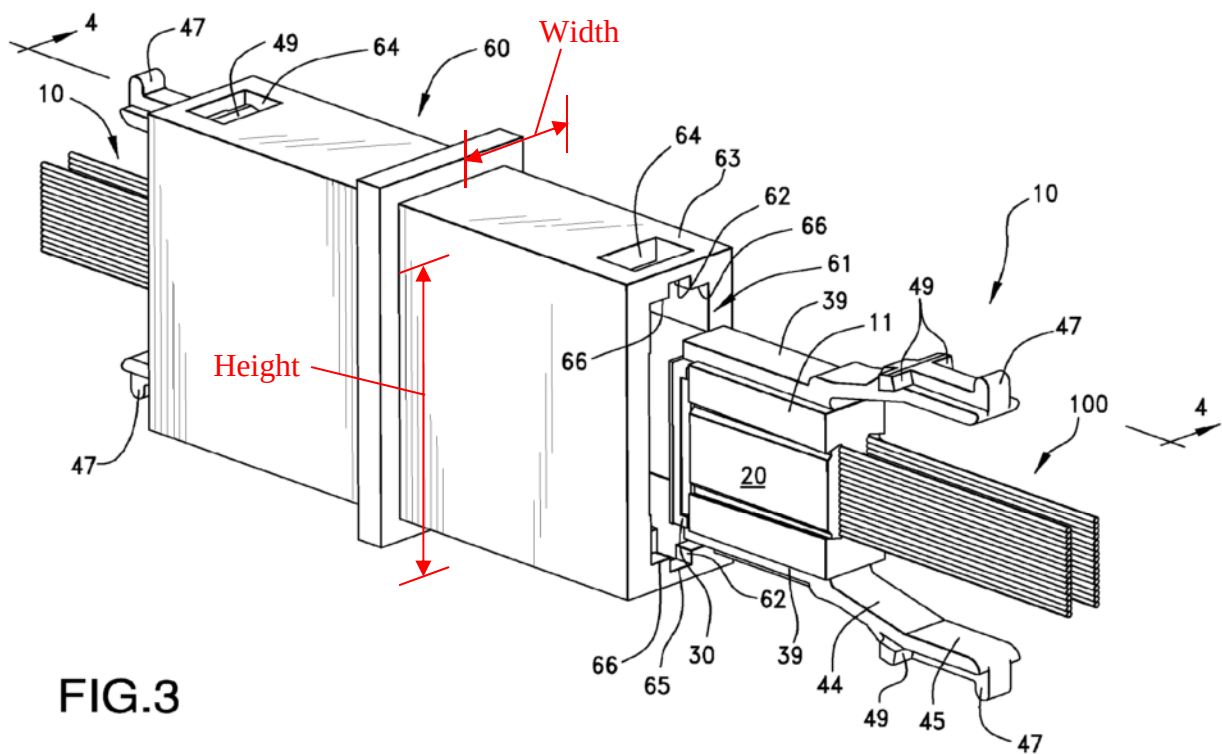
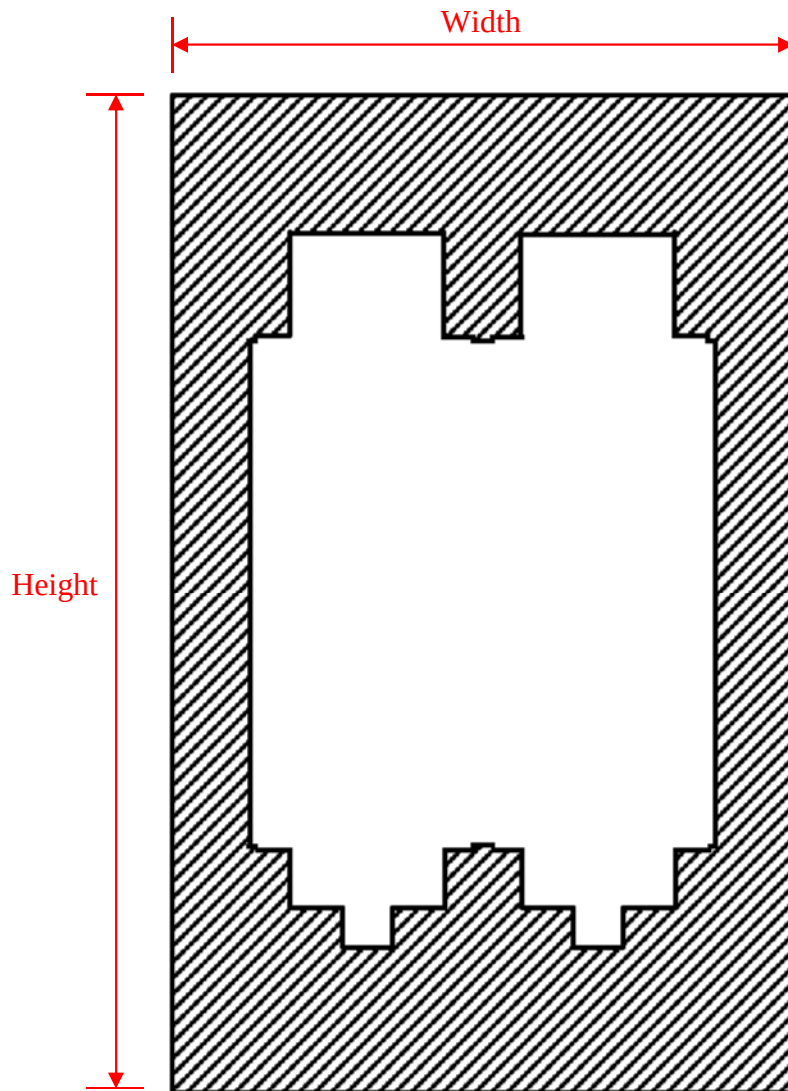


FIG.3

EX1009: Fig. 3 (annotated); EX1002: ¶690.



Cross-Section of Hodge/Iwano Combination
(orientation as shown in Hodge Fig. 3)

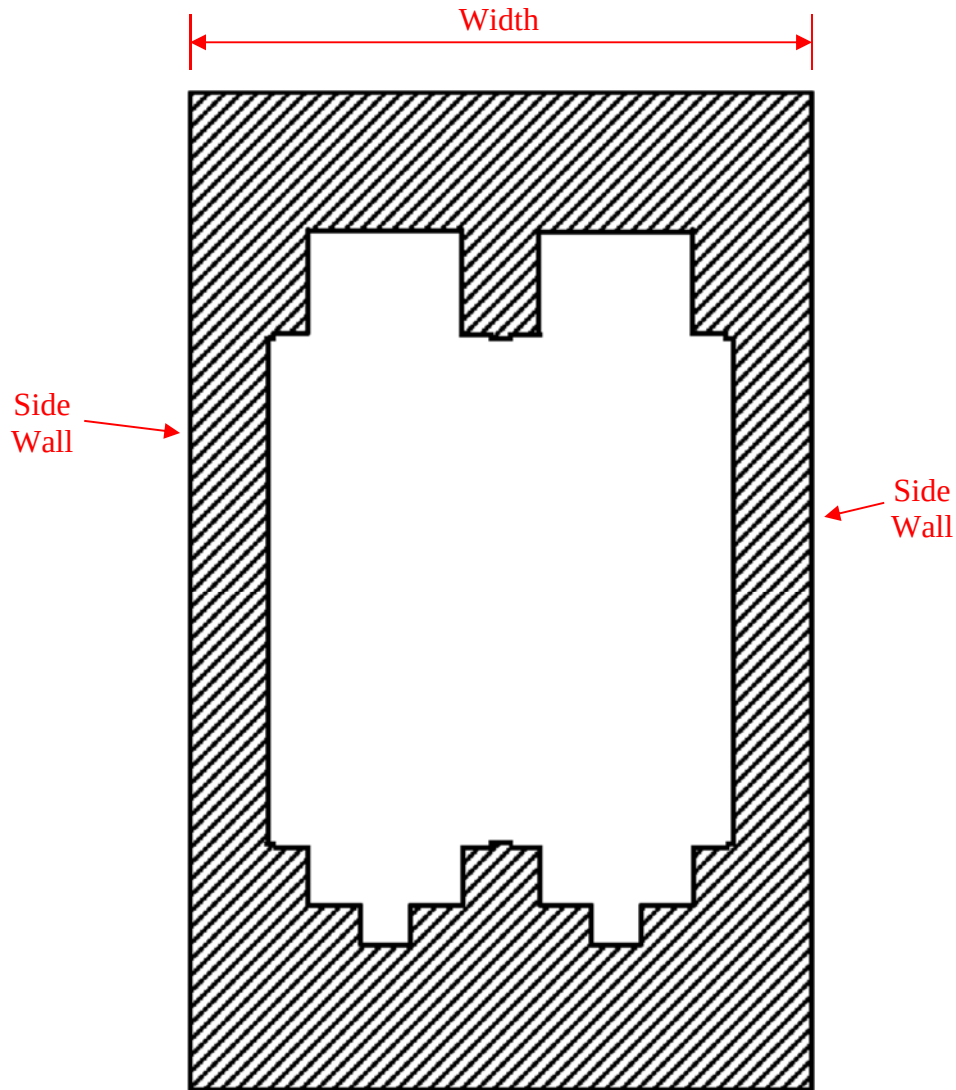
EX1002: ¶690.

Therefore, Hodge/Iwano renders 12.a.1 obvious.

12.a.2

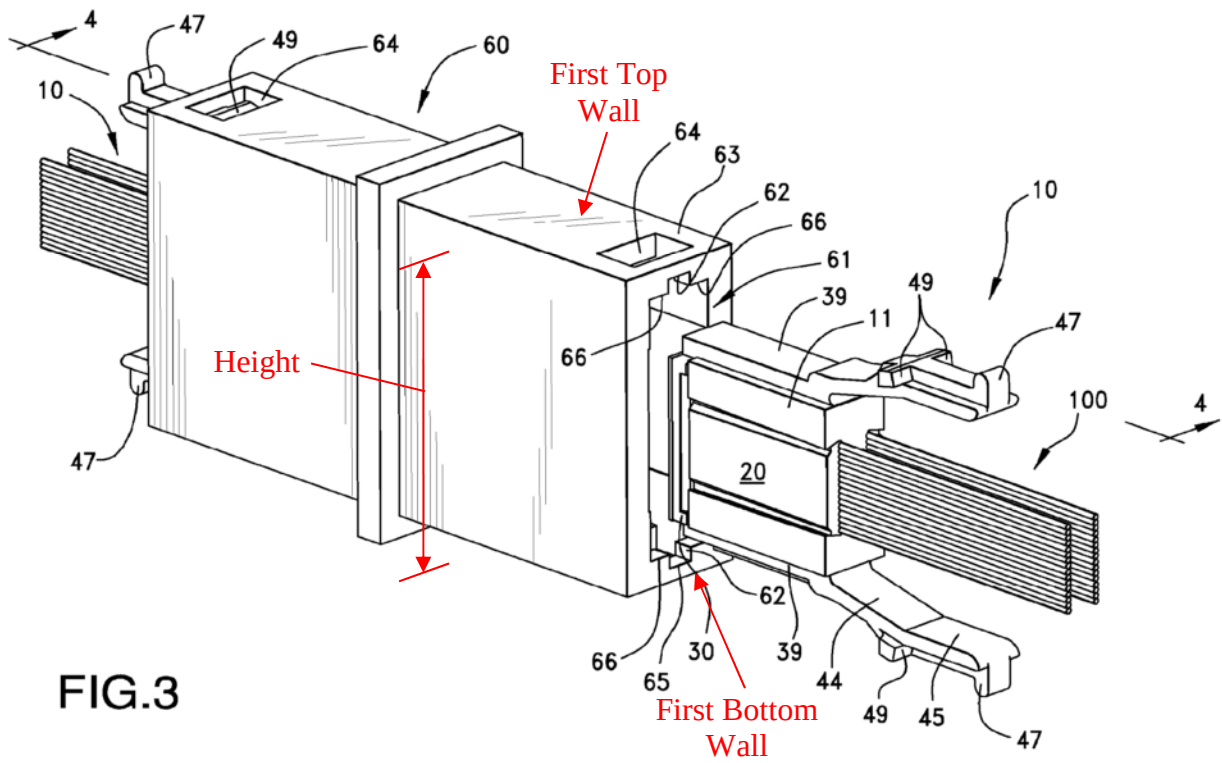
Hodge's main body includes two opposing side walls spaced apart along the width. EX1002: ¶692.

Notably, the expanded Hodge adapter would likewise have a main body includes two opposing side walls spaced apart along the width. EX1002: ¶694.

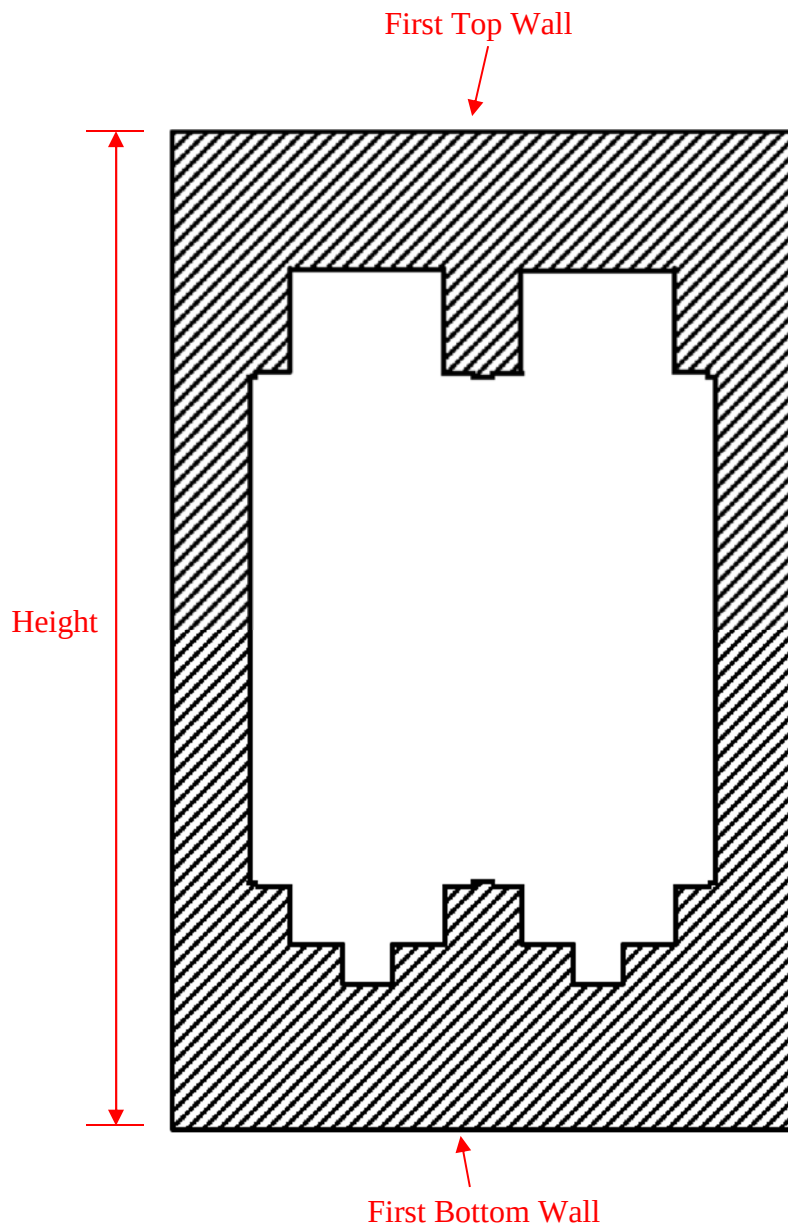


Cross-Section of Hodge/Iwano Combination
(orientation of adapter as shown in Hodge Fig. 3)

Hodge's main body likewise includes a first top wall and a first bottom wall spaced apart along the height. EX1002: ¶694.



EX1009: Fig. 3 (annotated); EX1002: ¶695.



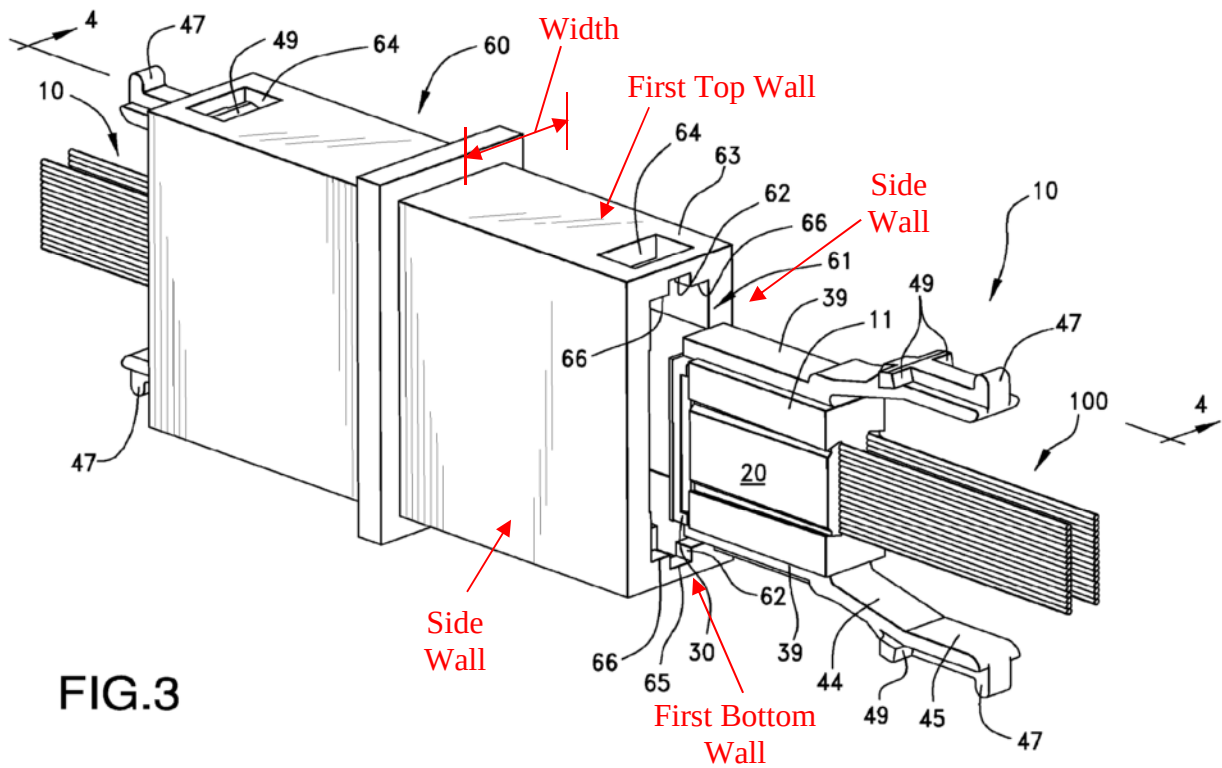
Cross-Section of Hodge/Iwano Combination (orientation of adapter shown in Hodge Fig. 3)

EX1002: ¶695.

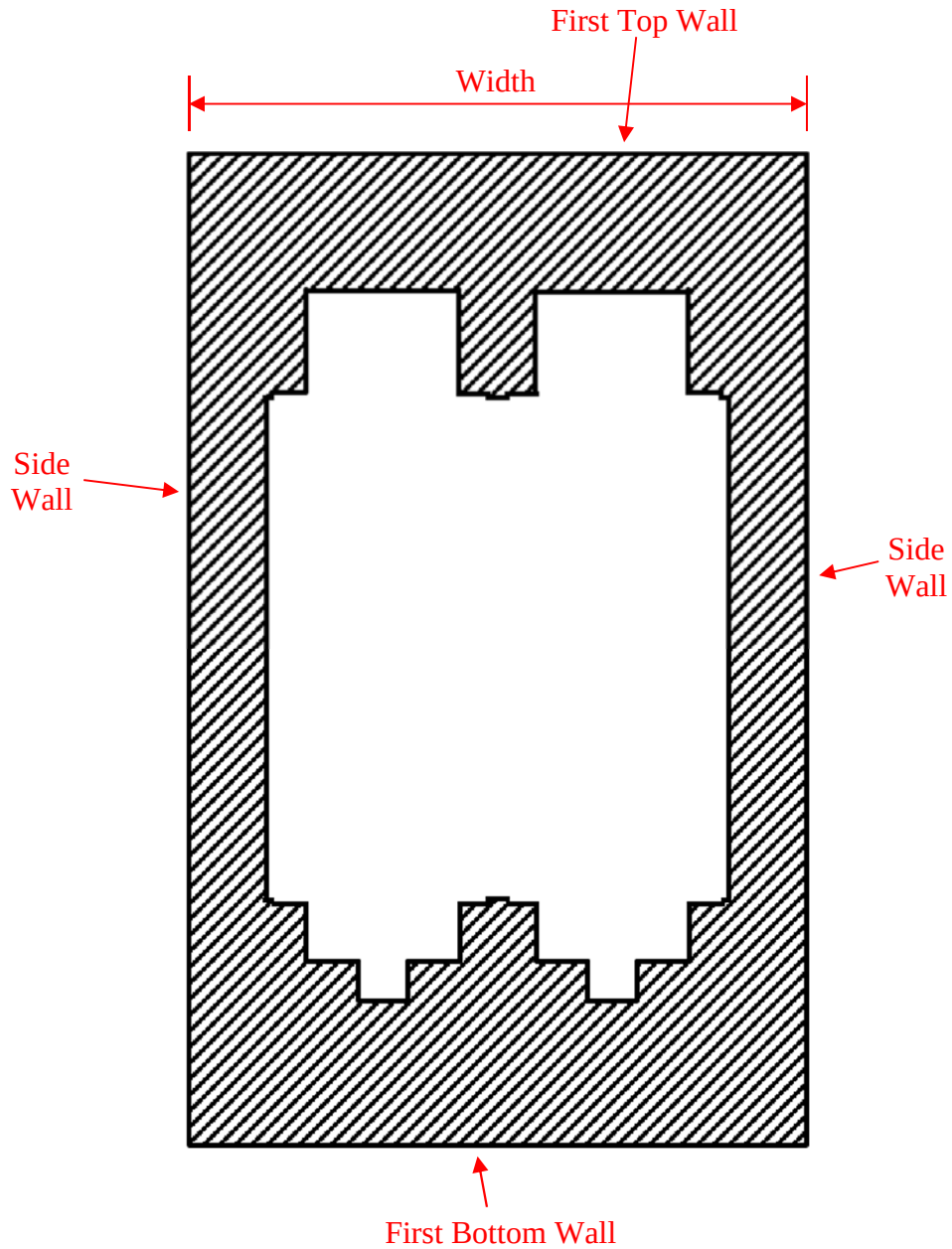
Therefore, Hodge/Iwano renders 12.a.3 obvious.

12.a.3

Hodge's first top and bottom walls each extends widthwise between the two opposite side walls. EX1002: ¶697.



EX1009: Fig. 3 (annotated); EX1002: ¶697.



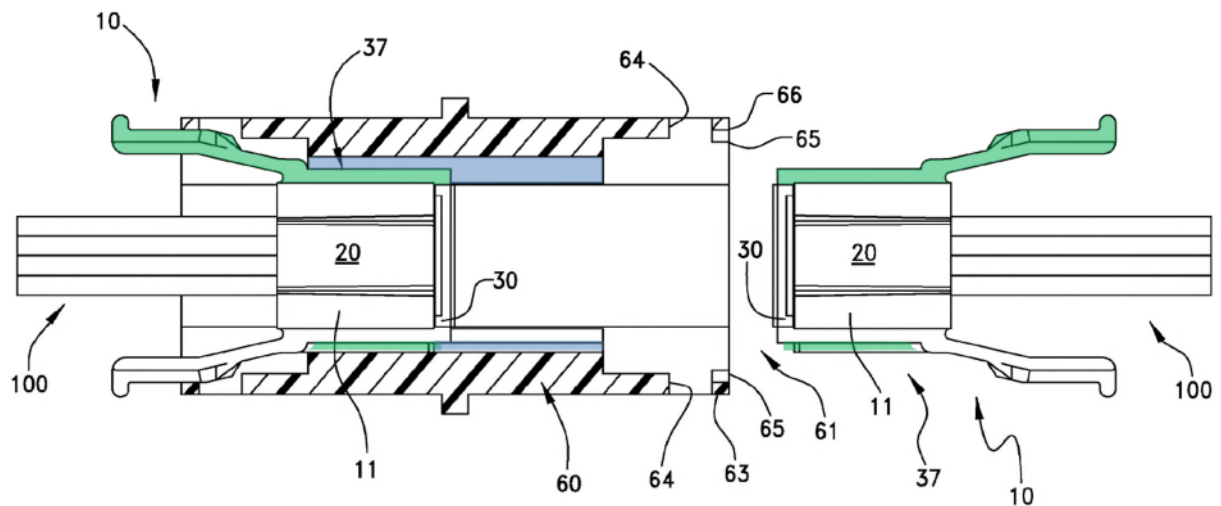
Cross-Section of Hodge/Iwano Combination
(orientation of adapter as shown in Hodge Fig. 3)

EX1002: ¶697.

Therefore, Hodge/Iwano renders 12.a.3 obvious.

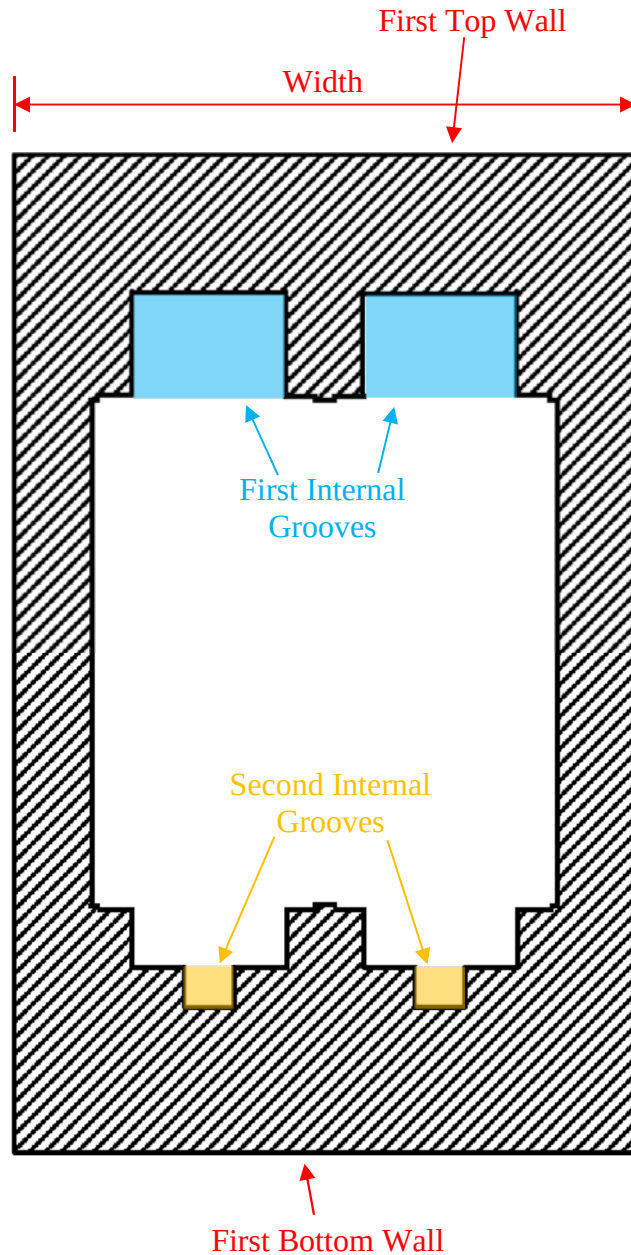
12.b

As discussed in Section X(B)(1.b.1), the Hodge/Iwano combination includes first internal grooves (blue) in the first top wall and second internal grooves in the first bottom wall. EX1002: ¶699.



EX1009: Fig. 4 (annotated, flipped); EX1002: ¶699.

As shown below, the first and second internal grooves are spaced apart along the width:



Cross-Section of Hodge/Iwano Combination
(orientation of adapter as shown in Hodge Fig. 3)

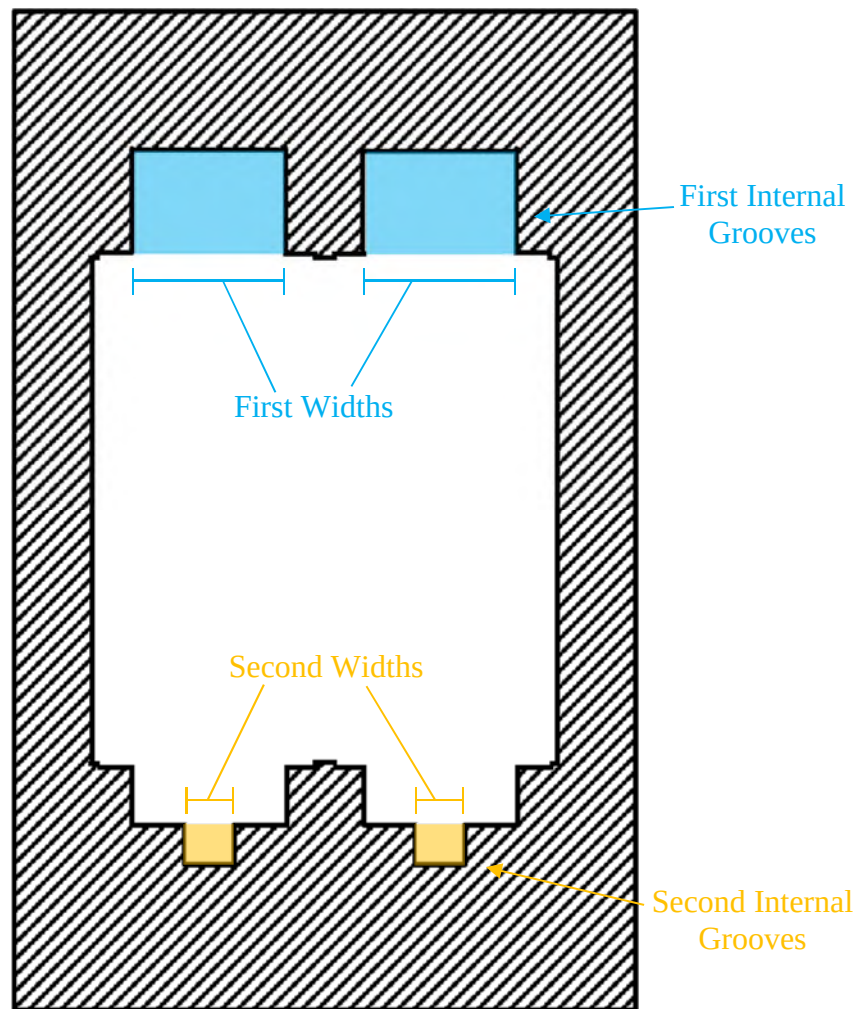
EX1002: ¶700.

Therefore, Hodge/Iwano renders 12.b obvious.

12.c.1

As discussed in Section X(J), the Hodge/Iwano combination includes first internal grooves (blue) in the first top wall that have a different—specifically, larger—width than the second internal grooves (orange) in the first bottom wall.

EX1002: ¶702.

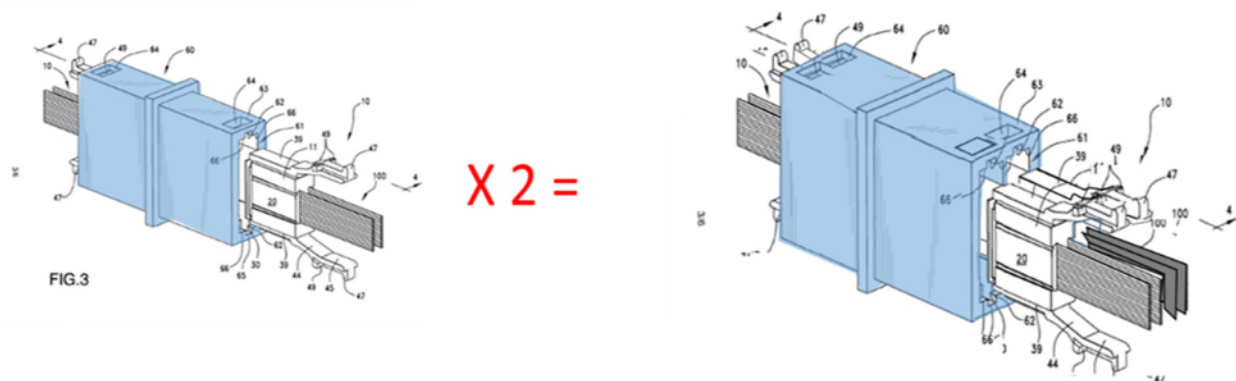


Cross-Section of Hodge/Iwano Combination
(orientation of adapter shown in Hodge Fig. 3)

Therefore, Hodge/Iwano renders 12.c.1 obvious.

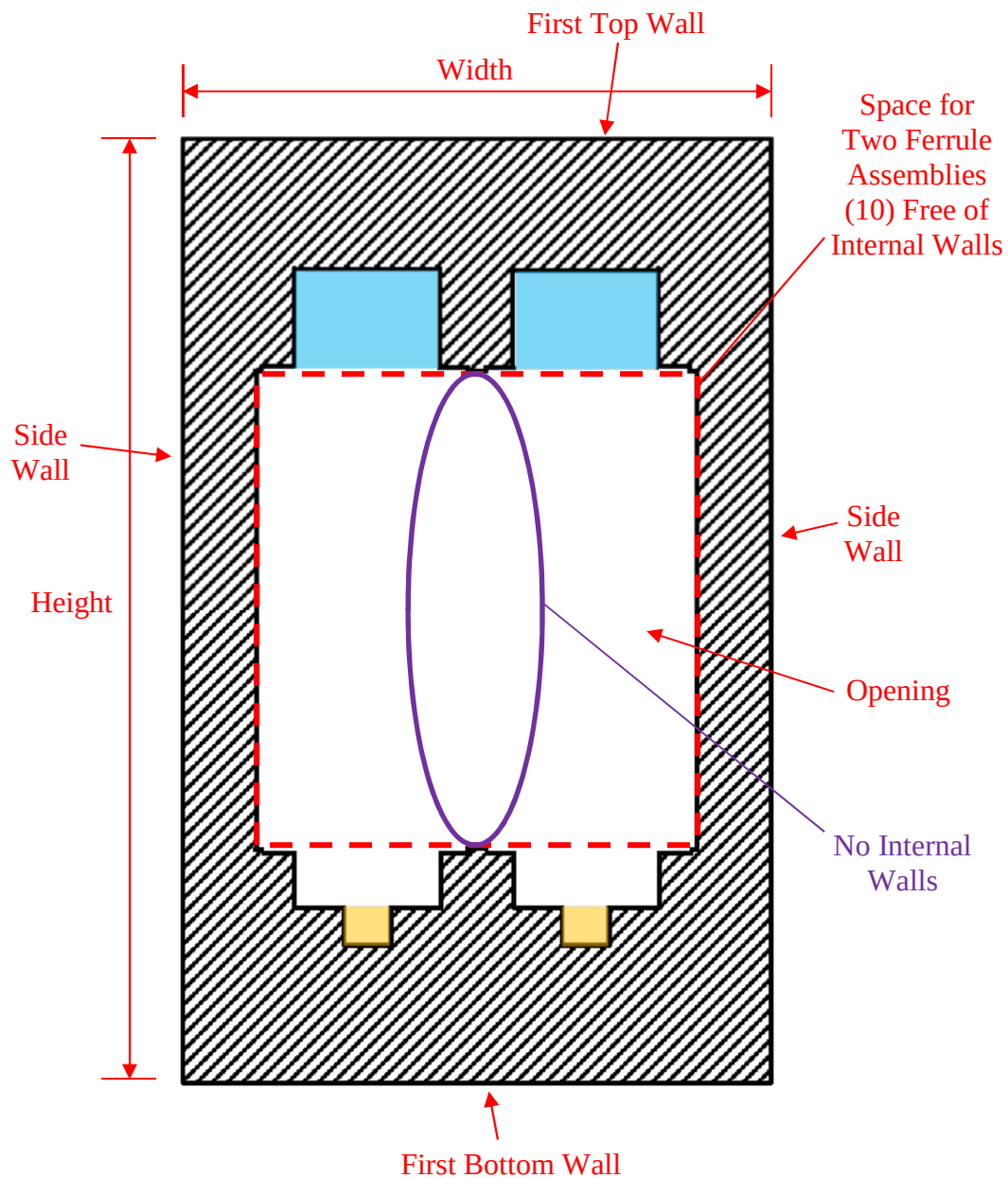
12.c.2

As described in Section X(A), when implementing the Hodge/Iwano combination, one of skill in the art would have eliminated any partitions to achieve the highest density. EX1006: 28:65-29:5; EX1002: ¶704.



EX1009: Fig. 3 (annotated, modified to show a modified Hodge adapter (60) that receives two ferrule assemblies (10)); EX1002: ¶704.

As shown above and below, Hodge's adapter (modified in view of Iwano) does not include internal walls along the width or height between the adjacent spaces for receiving two ferrule assemblies (10) that are adjacent to one another on the same side in the opening. EX1002: ¶705.



Cross-Section of Hodge/Iwano Combination
(orientation of adapter as shown in Hodge Fig. 3)

The first and second internal grooves are identified by Claim 12 as being part of the first top and first bottom walls, respectively. EX1001: 8:17-19; EX1002: ¶706. As such, in the context of the claims of the '415 Patent, the ribs of

the Hodge/Iwano combination that define the grooves are part of the respective top and bottom walls. EX1002: ¶706.

Therefore, Hodge/Iwano renders 12.c.2 obvious.

L. Claim 13

For reasons discussed in Section X(F), Hodge/Iwano renders this claim obvious.

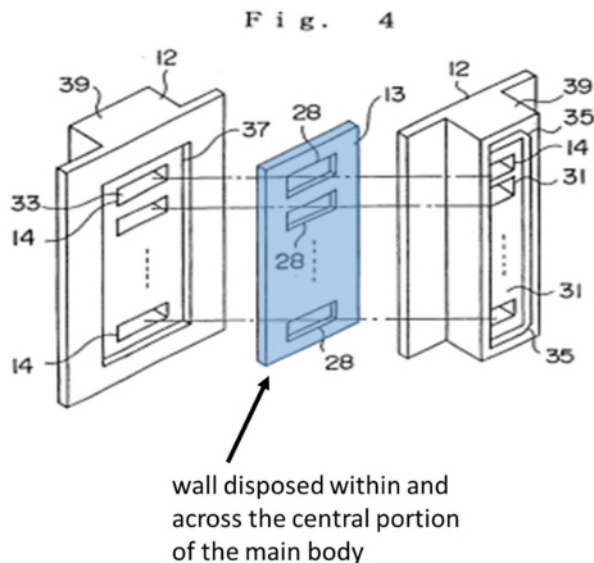
XI. GROUND 7: Claims 6, 7, and 14 Would Have Been Obvious Over Hodge in View of Iwano and Kanai

A. Motivation to Modify Hodge Based on Kanai

Electromagnetic interference (EMI) leakage can occur between optical connectors and optical connector adapters. EX1021: 1:41-44 (“[a] problem with many connector assemblies is ... electromagnetic interference (EMI) leakage”); EX1023: ¶[0004] (“control of EMI has arisen as an issue in optical connector system design”). Accordingly, it was known to provide EMI gaskets between the mating portions of optical connectors and adapters to prevent electromagnetic interference. EX1021: 1:44-47 (“it has been known to provide EMI gaskets ... to prevent the ingress and/or egress of electromagnetic interference.”); EX1002: ¶715.

While Hodge and Iwano do not discuss solutions to block electromagnetic interference, Kanai teaches the inclusion of a metallic plate (13) made of a

conductive material at the center of the adapter housing to mitigate EMI interference. EX1003: 8:22-24; EX1002: ¶¶716-717.



EX1003: Fig. 4 (annotated); EX1002: ¶716.

It would have been obvious to modify Hodge's adapter (60) to include Kanai's metallic plate (13) to mitigate electromagnetic interference. EX1003: 8:22-24; EX1007: 3:25-32; EX1021: 1:44-47; EX1023: ¶[0004]; EX1002: ¶719.

This modification of Hodge would have been nothing more using a known technique (Kanai's metallic plate (13) for an optical device module) to improve a similar device (Hodge's adapter (60)) in the same way (EMI shielding for a fiber optic adapter). *see KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007); EX1002: ¶721. In addition, this modification would have been obvious to try for the reasons explained in Section VI(A). EX1002: ¶¶719-721.

A POSA would have had a reasonable expectation of success in adding Kanai's metallic plate (13) to Hodge's adapter (60) because Kanai's metallic plate (13) would retain the same functionality when mounted to Hodge's adapter that it had when mounted to in Kanai's adapter. EX1002: ¶722.

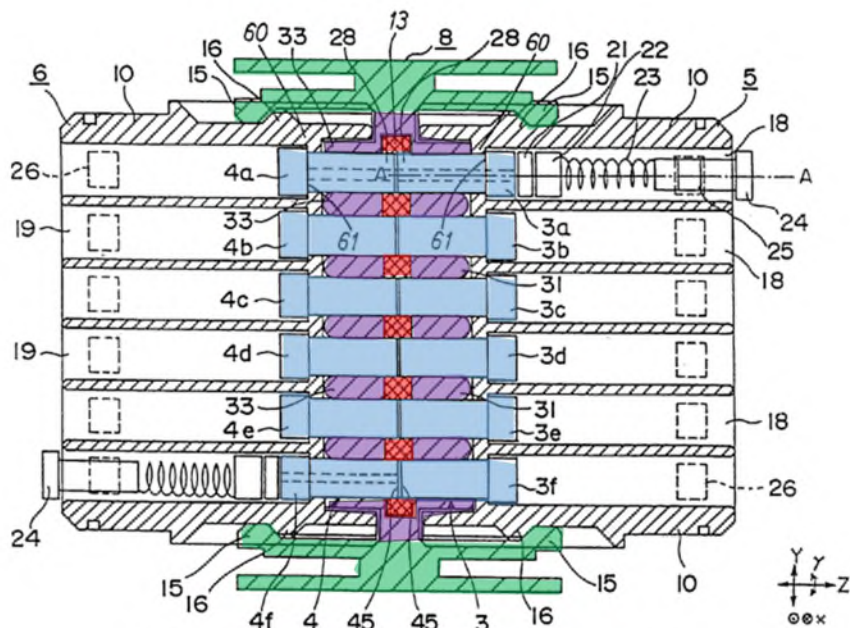
As the Hodge adapter and its openings are expanded to receive a plurality of optical connectors in parallel from each side of the adapter, it would have been obvious to incorporate a wall between the parallel ferrules, such as the metallic plate taught by Kanai. EX1002: ¶718. In incorporating such a wall within the adapter, the wall would contain apertures shaped and sized to closely surround the ferrules. EX1002: ¶720.

B. Claims 6 and 14

6.a/14.a

As explained above, it would have been obvious to further modify the Hodge adapter to include Kanai's internal wall that would surround the interface of butt-connected corresponding ferrules to reduce electromagnetic interference. EX1002: ¶728. As a result of this modification, Kanai's metallic plate (13) would be disposed within and across the central portion of Hodge's adapter (60), between the first and second sides of the adapter, as taught by Kanai. EX1003: Figs. 1 and 4, 8:22-24, EX1002: ¶728; EX1022: Abstract.

F i g. 1



EX1003: Figs. 1 and 4 (annotated); EX1002: ¶726.

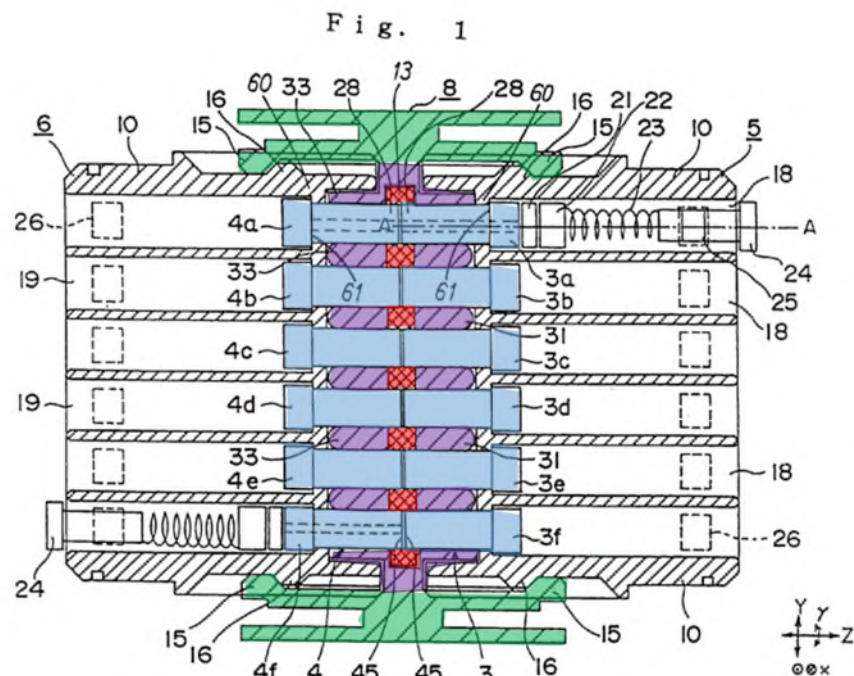
190

6.b/14.b

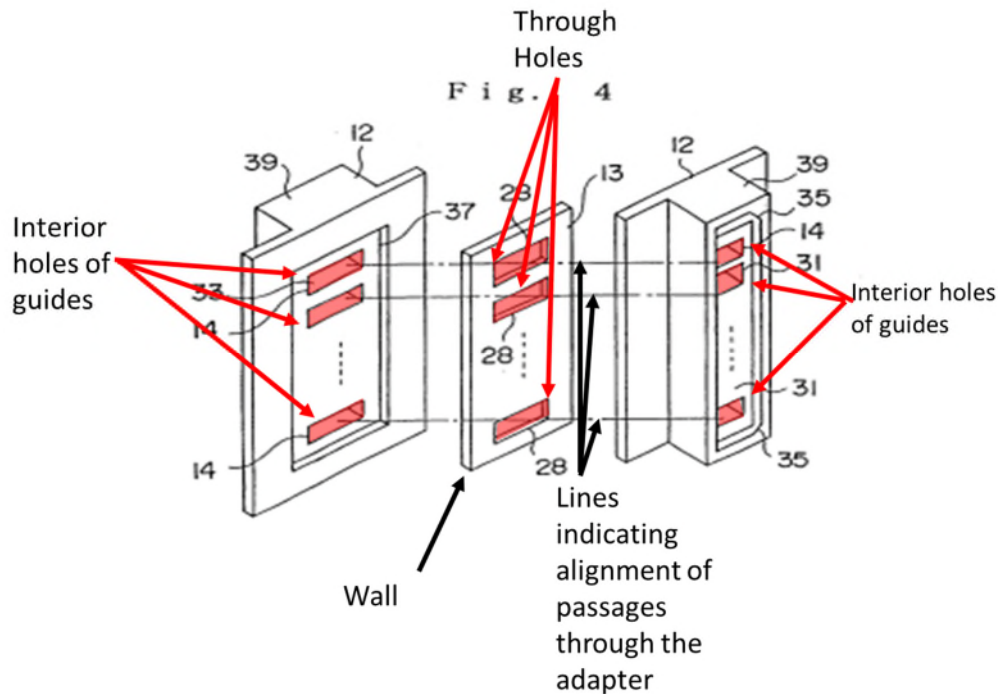
As shown in Figures 1 and 4, Kanai's through holes (28) provide a plurality of passages through the disclosed adapter. EX1003: Figs. 1 and 4; EX1002: ¶730.

Each of passage corresponds to a pair of optical connectors such that the number of passages corresponds to the number of pairs of corresponding fiber optic ferrules.

EX1002: ¶731.



Optical ferrule pairs (blue) inserted from opposing sides through passages in a wall (red) disposed within the central portion (purple)



EX1003: Figs. 1 and 4 (annotated); EX1002: ¶730.

In modifying the Hodge adapter—as expanded in view of Iwano—to include an internal wall, it would have been obvious to size, shape, and locate the apertures to precisely correspond to the outer edges of the face of the ferrules, such that the ferrules could pass therethrough. EX1002: ¶732. As such, when mating fiber optic connectors within the adapter, the face-to-face mating of corresponding ferrules would occur within the aperture of Kanai’s wall. EX1002: ¶733.

Therefore, Hodge/Iwano/Kanai renders 6.b and 14.b obvious.

C. Claim 7

In modifying the expanded adapter of the Hodge/Iwano adapter to include an internal wall as taught by Kanai, in keeping with the teachings of Kanai, the

resulting wall would have exactly one aperture corresponding to each pair of fiber optic ferrules. EX1002: ¶735. This configuration would provide shielding of EMI for each pair of optical connectors being mated. EX1002: ¶736.

Therefore, Hodge/Iwano/Kanai renders this claim obvious.

XII. SECONDARY CONSIDERATIONS

To date US Conec has not identified any secondary considerations of non-obviousness. To the extent secondary considerations are raised, they will be insufficient to overcome the strong showing of obvious presented herein. *Newell Cos., Inc. v. Kenney Mfg. Co.*, 864 F.2d 757, 768 (Fed. Cir. 1988); *Asyst Techs., Inc. v. Emtrak, Inc.*, 544 F.3d 1310, 1316 (Fed. Cir. 2008).

XIII. THE BOARD SHOULD NOT DENY INSTITUTION

The '415 Patent is currently involved in parallel district-court cases and an ITC investigation. Institution should not be denied under 35 U.S.C. §314(a) because the related district-court proceedings are in their early stages and trial has yet to be set. EX1025. Further, this Petition sets forth compelling unpatentability challenges. Accordingly, the *Fintiv* factors favor institution. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (P.T.A.B. Mar. 20, 2020) (precedential).

Institution should not be denied under 35 U.S.C. §325(d) as only Katoh was of record in during examination and is only relied upon within this petition in a single ground directed to two dependent claims.

XIV. MANDATORY NOTICES UNDER 37 C.F.R. §42.8

A. Real Parties-In-Interest under 37 C.F.R. §42.8(b)(1)

Senko Advanced Components, Inc. is a wholly owned subsidiary of Senko Advance Co., Ltd., a Japanese corporation.

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

The ‘415 Patent is involved a civil action in *Senko Advanced Components, Inc. v. US Conec Ltd.*, C.A. No. 23-83-RGA, currently pending in the United States District Court for the District of Delaware and *US Conec Ltd. v. Senko Advance Co., Ltd. et al*, 2-24-cv-00202, currently pending in the United States District Court for the Eastern District of Texas. The ‘415 Patent is also being asserted by US Conec Ltd. in *Fiber-Optic Connectors, Adapters, Jump Cables, Patch Cords, Products Containing the Same, and Components Thereof*, Inv. No. 337-TA-3733 before the International Trade Commission.

C. Designation of Lead and Back-Up Counsel under 37 C.F.R. §42.8(b)(3)

Pursuant to 37 C.F.R. §§42.8(b)(3) and 42.10(a), Senko Advanced Components, Inc. provides the following designation of counsel:

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

Senko Advanced Components, Inc. consents to service by email to lead and backup counsel, using the email addresses above.

E. Payment Information Under 37 C.F.R. §§42.15(a) and 42.203(a)

The *inter partes* review fees have been submitted herewith pursuant to 37 C.F.R. §42.103(a) and 42.15(a).

XV. GROUNDS FOR STANDING

The '415 Patent is eligible for *inter partes* review. Petitioner is not barred or estopped from petitioning for *inter partes* review and was not served with a complaint or counterclaim alleging infringement of the '415 Patent more than one year before filing this Petition.

XVI. CONCLUSION

For these reasons, *inter partes* review of claims 1-14 of U.S. Patent No. 11,385,415 is requested.

Dated: April 12, 2024

Respectfully submitted,
/Kurt F. James/
Kurt F. James, Reg. No. 33,716

Counsel for Petitioner

CERTIFICATE OF SERVICE

Under 37 C.F.R. § 42.6(e), the undersigned certifies that on April 12, 2024, a copy of the PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. 11,385,415 was served via FedEx pursuant to 37 C.F.R. § 42.105 on the following attorneys of record for Patent Owner:

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By: /Kurt F. James/
Lead Counsel for Petitioner
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**CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME
REQUIREMENTS UNDER 37 C.F.R. §42.24**

Under 37 C.F.R. § 42.24(d), the undersigned certifies that this Petition for *Inter Partes* Review complies with the type-volume limitation of 37 C.F.R. § 42.24(a)(1) because it contains 13,900 words, excluding the parts of the Petition exempted by 37 C.F.R. §42.24(a).

This paper also complies with the typeface requirements of 37 C.F.R. § 42.6(a)(2)(ii) and the type style requirements of 37 C.F.R. § 42.6(a)(2)(iii) and (iv).

/Kurt F. James/

Kurt F. James, Reg. No. 33,716
Lead Counsel for Petitioner