Paper No. 1

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMMSCOPE TECHNOLOGIES LLC
Petitioner

v.

BELDEN CANADA ULC
Patent Owner

IPR2024-01227
U.S. Patent No. 11,435,542

PETITION FOR *INTER PARTES* REVIEW OF U.S. PAT. NO. 11,435,542 UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. § 41.100 ET SEQ.

Table of Contents

Mandatory Notices iv
A. Real Parties-in-Interest iv
B. Related Matters iv
C. Lead and Back-Up Counsel iv
D. Service Information iv
Preliminary Matters 1
A. Standing 1
B. Identification of Challenge 1
C. Supporting Declaration 1
D. Fees 1
Introduction 2
Technology Background 2
Summary of the Challenged Patent 4
A. Disclosure of the '542 patent 4
B. Claims 7
C. Prosecution History 8
D. Related IPR proceedings 15
Summary of the Asserted Prior Art 15
A. Fukui (EX1004) 15
B. Sedor (EX1005) 20
C. Sauter (EX1006) 20
Claim Construction 22
A. "one, two, three, four, and six" standard width units 22
B. "directly adjacent" 25
Level of Ordinary Skill 26
Discretionary Issues 27
Argument 27

Ground 1: The challenged claims are obvious based on Fukui plus Sedor or Fukui itself....27
A. Independent Claim 1 27
B. Claim 2 62
C. Claim 3 64
D. Claim 4 64
E. Claim 5 65
F. Independent Claim 8 66
G. Claim 9 79
H. Claims 10-11 82
I. Claim 12 83
J. Claim 13 85
Ground 2: Fukui anticipates Claims 8-13 85
Ground 3: Sauter alone renders Claims 1-5, 8, 10-13 obvious....86
A. Independent Claim 1 86
B. Claim 2 113
C. Claim 3 115
D. Claim 4 118
E. Claim 5 120
F. Independent Claim 8 122
G. Claim 10 125
H. Claim 11 126
I. Claim 12 126
J. Claim 13 127
Ground 4: Sauter in light of Fukui renders Claims 1-5, 8, 10-13 obvious....129
A. Claims 1-5, 8, 10-11, 13 129
B. Size limitations: Elements 1C, 8B 134
C. Claim 12 135
Ground 5: Either of Grounds 3 or 4 in further light of Sedor renders Claims 1-5, 8, 10-13 obvious....137

A. Element 1A 137
B. Elements 1C: "…cassettes…arrangeable… along said tray front end" and Element 8C: "…securing said selected cassettes along the front edge of the tray" 138
C. Claim 12 140
Conclusion 141
Claims Listing Appendix 143
Petitioner Exhibit List 146

Mandatory Notices

A. Real Parties-in-Interest

CommScope Technologies LLC, CommScope, Inc. of North Carolina, and CommScope, Inc., are the real parties-in-interest.

B. Related Matters

The challenged patent was asserted against petitioner CommScope Technologies LLC in a complaint in *Belden Canada ULC v. CommScope, Inc. et al.,* Case No. 1:23-cv-00810-RGA (D. Del.) (served July 28, 2023).

C. Lead and Back-Up Counsel

Lead Counsel	Backup Counsel
Philip P. Caspers, Reg. No. 33,227 Capella Tower, Suite 4200 225 South Sixth Street Minneapolis, MN 55402 pcaspers@carlsoncaspers.com Phone: 612.436.9617 Fax: 612.436.9605	Samuel A. Hamer, Reg. No. 46,754 Capella Tower, Suite 4200 225 South Sixth Street Minneapolis, MN 55402 shamer@carlsoncaspers.com Phone: 612.436.9615 Fax: 612.436.9605

D. Service Information

Please address all correspondence and service to both counsel listed above. Petitioners consent to service by email at the email addresses listed.

Preliminary Matters

A. Standing

Petitioner certifies that IPR is available for the '542 Patent; Petitioner is not barred or estopped.

B. Identification of Challenge

Petitioner requests invalidation of claims 1-5, 8-13.

	Claims	Basis for Unpatentability
Ground 1	1-5, 8-13	Obvious: Fukui alone or when combined with Sedor
Ground 2	8-13	Anticipated: Fukui
Ground 3	1-5, 8, 10-13	Obvious: Sauter alone
Ground 4	1-5, 8, 10-13	Obvious: Sauter when combined with Fukui
Ground 5	1-5, 8, 10-13	Obvious: Either of Grounds 4 or 5 when further combined with Sedor

C. Supporting Declaration

Petitioner submits a declaration from Dr. Stephen Ralph (EX1003).

D. Fees

Petitioners authorize the Patent Office to charge Deposit Account No. 502880 for the fee set forth in 37 C.F.R. § 42.15(a) and any other required fees.

Introduction

The ‘542 patent claims a modular fiber optic cassette system and method. The claims recite the conventional elements of fiber optic system, including a “case” and “tray.” The claims also recite limitations about the width of the cassettes and the placement of the cassettes “directly adjacent” to each other. Patent Owner obtained this patent by arguing the “Sedor” reference did not disclose the width and directly adjacent limitations because Sedor’s system used “rails” between its cassettes.

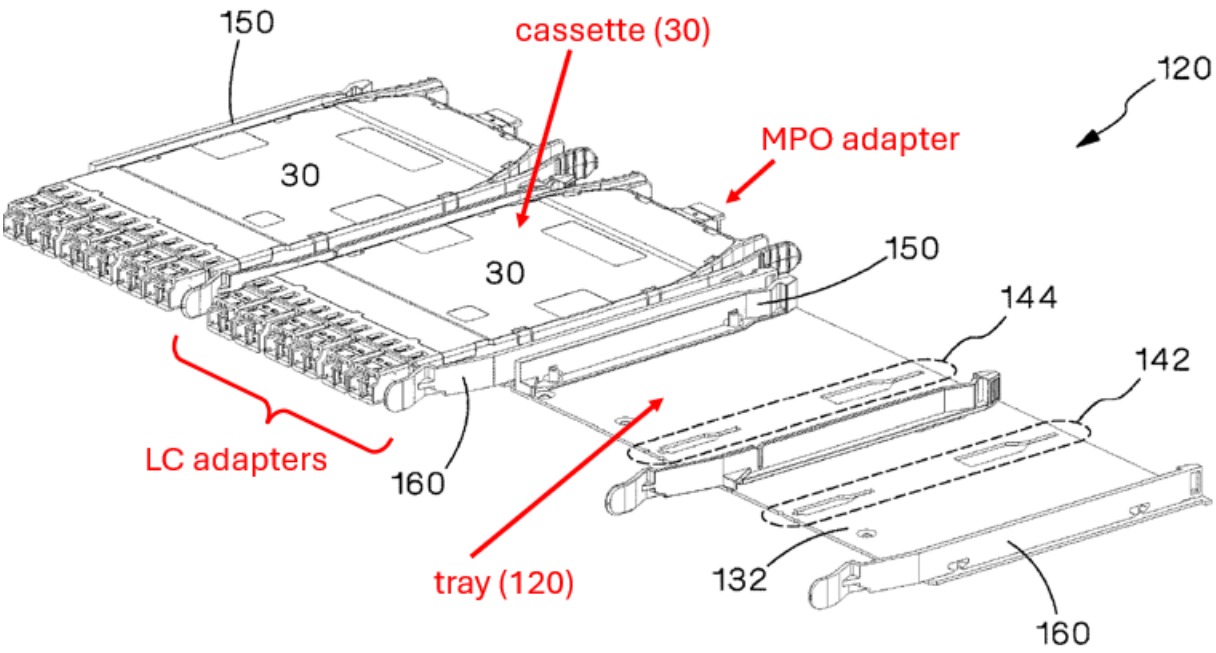
“Fukui” is a new reference. It does not have any rails between the cassettes and discloses the exact limitations the examiner believed were missing from Sedor.

The petition also identifies an alternative ground based on “Sauter.” In the co-pending litigation, Patent Owner has abandoned the positions it took during proseuction to distinguish Sedor and now proposes much broader claim constructions to read the claims for infringement on rail-based systems. Patent Owner’s claim construction read right on Sauter.

Technology Background

The technology at issue is fiber optic cassette systems. These systems are deployed in data rooms where high-capacity fiber optic cables are distributed to many subscriber connections.

The conventional elements are a case, tray, and cassettes (also called modules). The "Sedor" prior art reference, discussed during prosecution, shows a conventional cassette and tray:



EX1005, Fig. 8. A cassette has an "MPO" adapter port on the rear and "LC" adapters ports on the front for connecting fiber optic cables. MPO stands for "multiple-fiber push-on." "LC" stands for "Lucent Connector."

The trays of cassettes are stored in a protective case. Sedor illustrates a conventional case:

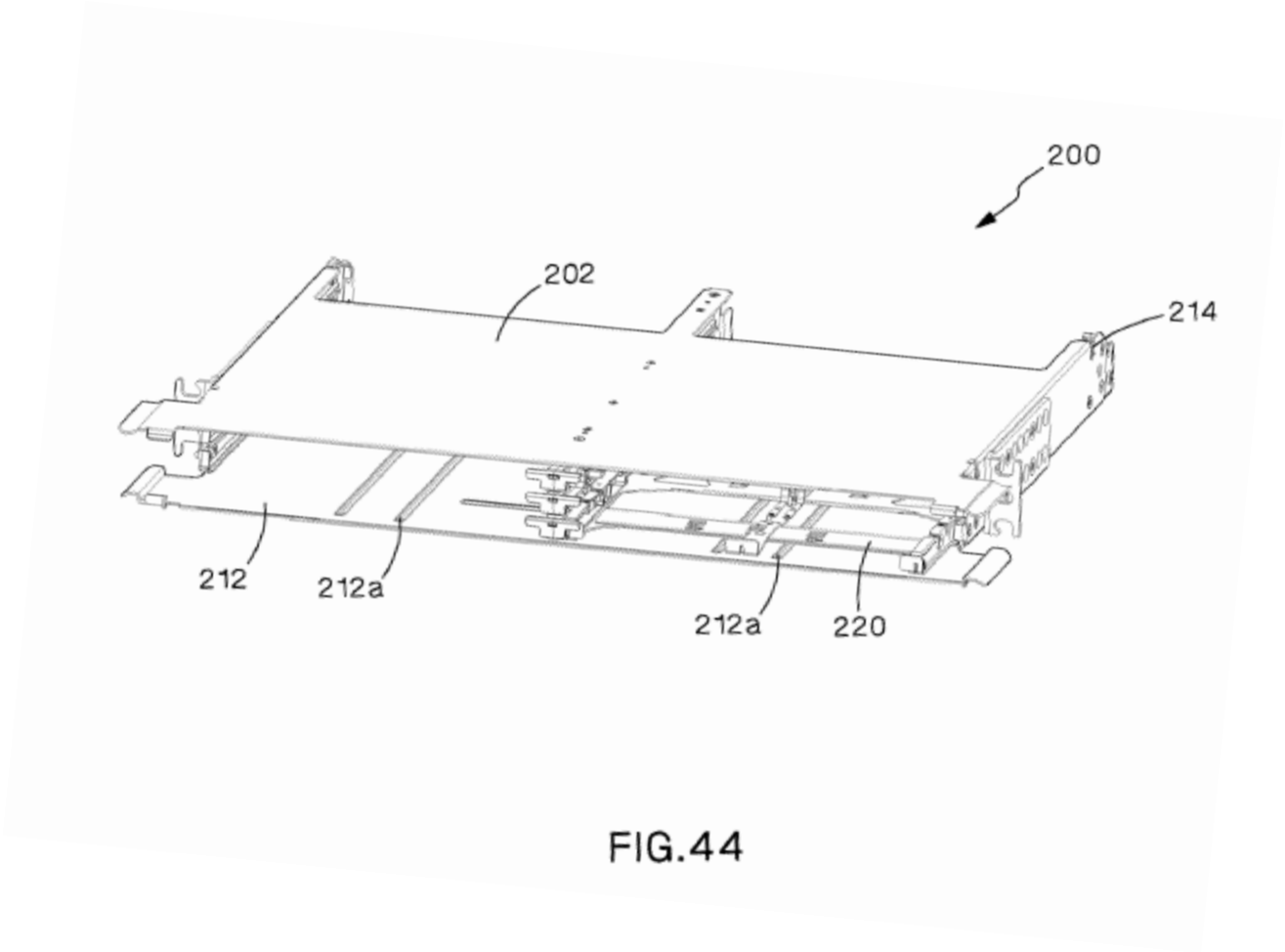


FIG.44

The trays slide in and out of the case to allow the operator to insert cassettes and plug in cables. The operator typically mounts the case in a rack using standard brackets.

Summary of the Challenged Patent

A. Disclosure of the '542 patent

The '542 patent discloses a modular fiber optic cassette system. EX1001, 1:15-16, 2:45-47, Title. Figure 1 is illustrative:

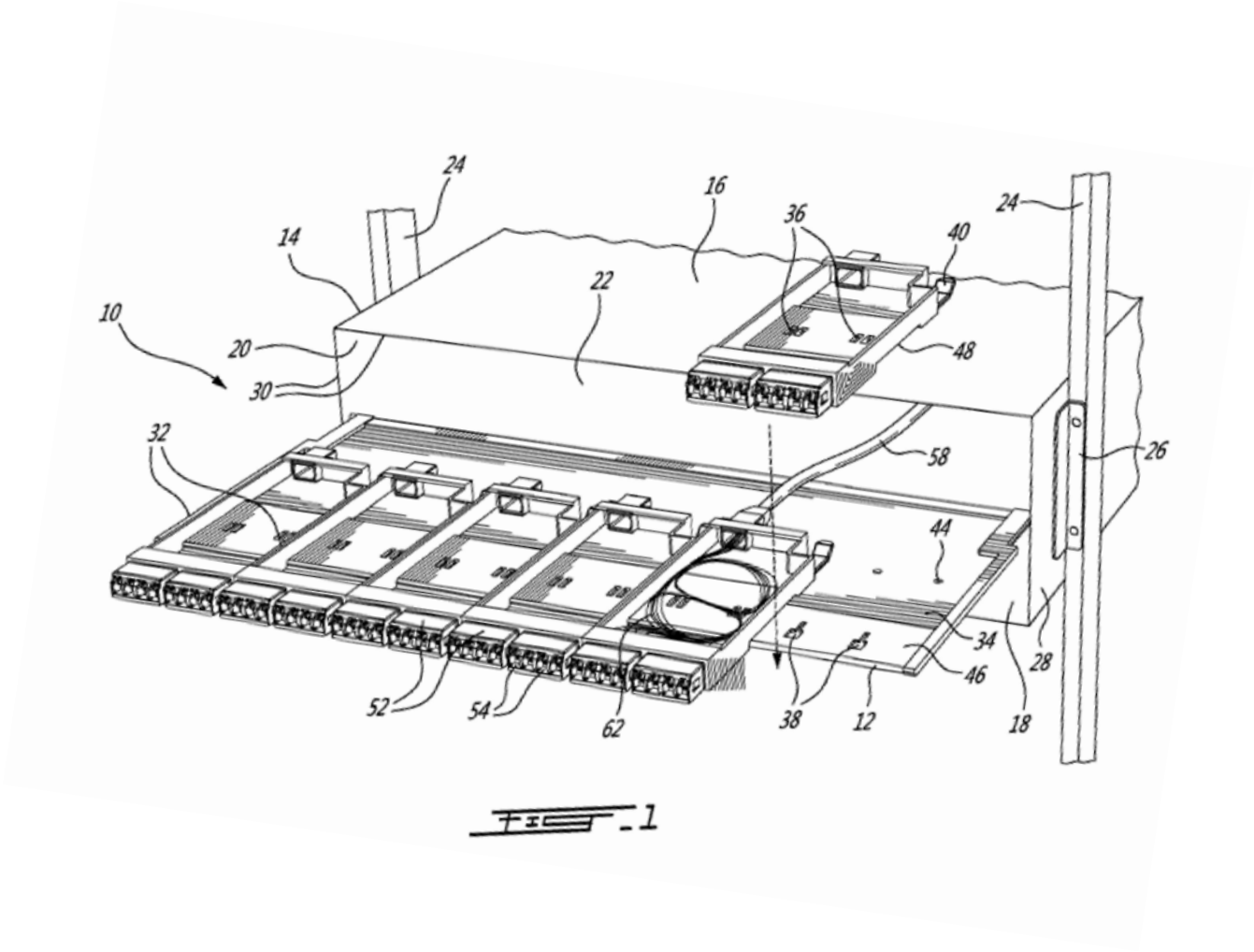


Fig. 1

EX1001, Fig. 1. The system comprises a case (14), sliding tray (12), and cassettes. EX1001, 2:45-48. The cassettes snap into apertures (44) on the tray. EX1001, 3:2-5.

The "modular" system accommodates cassettes with different widths. Each of the different widths is an "integer multiple" of a standardized width unit "W." EX1001, 3:38-41. The different multiples are W, 2W, 3W, 4W, and 6W. EX1001, 3:32-55.

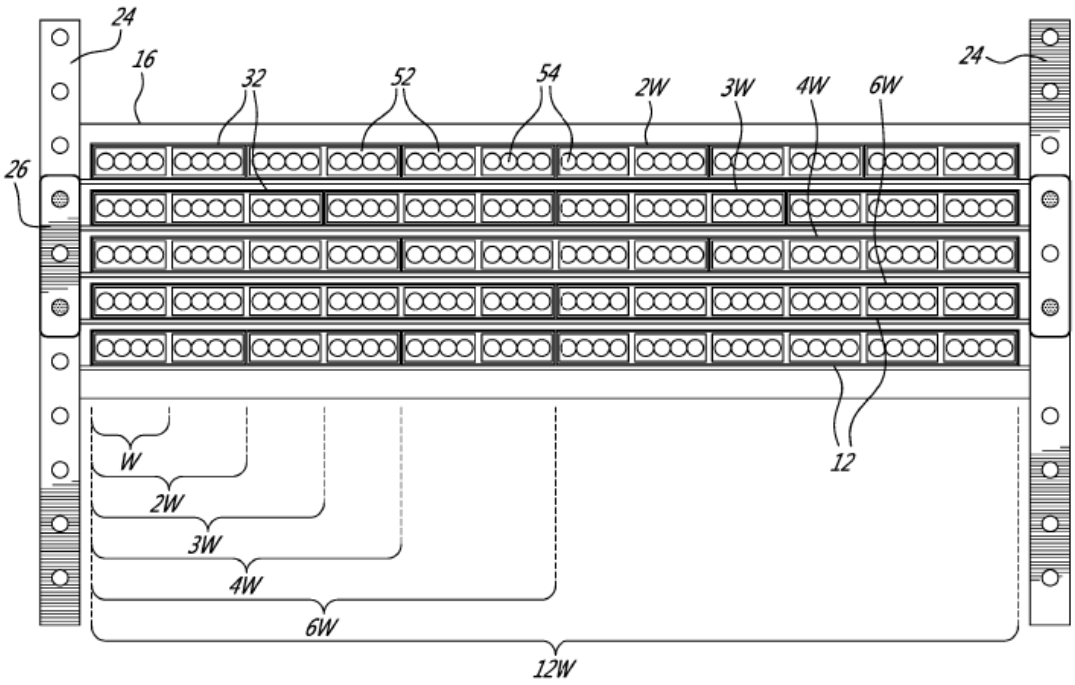


Fig. 3

In the preferred embodiment, the width W is based on an "LC Quad" technology footprint. EX1001, 3:56-58. Figure 2A-2B illustrates the LC Quad technology footprint for a 2W cassette:

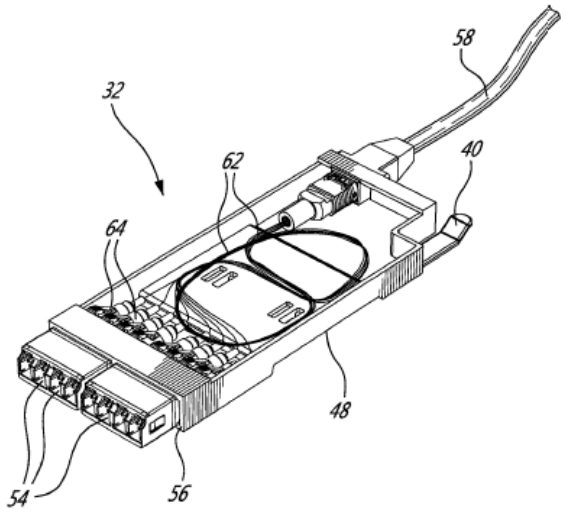


Fig. 2A

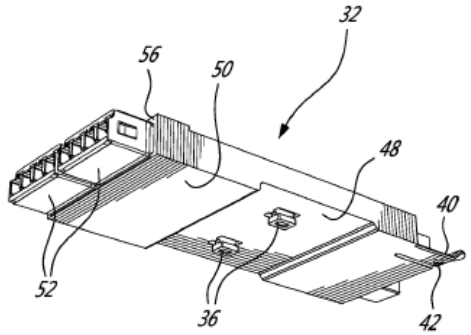
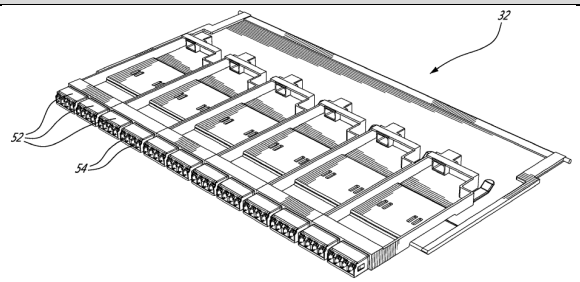
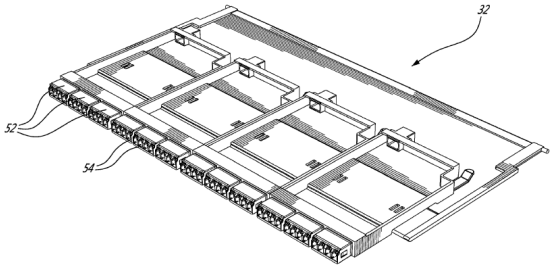
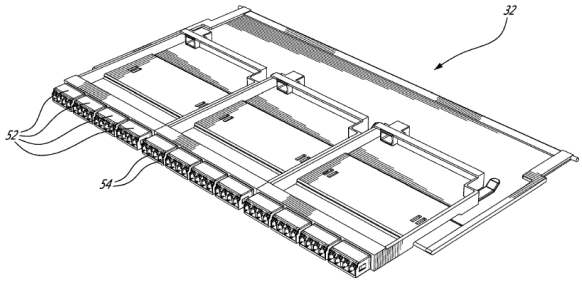
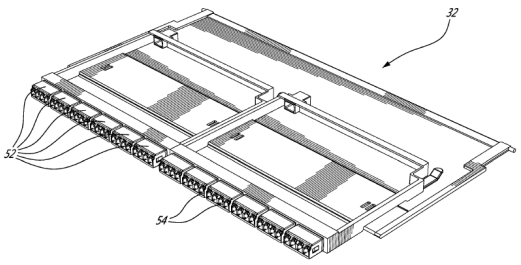


Fig. 2B

Numeral 52 is an LC quad receptable module with four individual LC ports 54. EX1001, 3:10-15. Figures 4A-4D shows the larger 2W, 3W, 4W, 6W sizes:

2W Cassettes	3W Cassettes
	
4W Cassettes	**6W Cassettes**
	

EX1001 (cropped). The purpose of the different cassette sizes is to support "different numbers of optic fibers" (i.e., the input cables plugged in the rear can have larger or smaller numbers of fibers). EX1001, 3:67-4:1.

B. Claims

There are two independent claims: a system claim (claim 1) and method claim (claim 8). The claims recite the conventional elements of a "case" and "tray." The claims also require two cassettes with different widths. Claim 1, for example, requires first and second cassette having a width of one, two, three, four, or six standard width units. The claims also require the cassettes be "directly adjacent" when mounted on the tray.

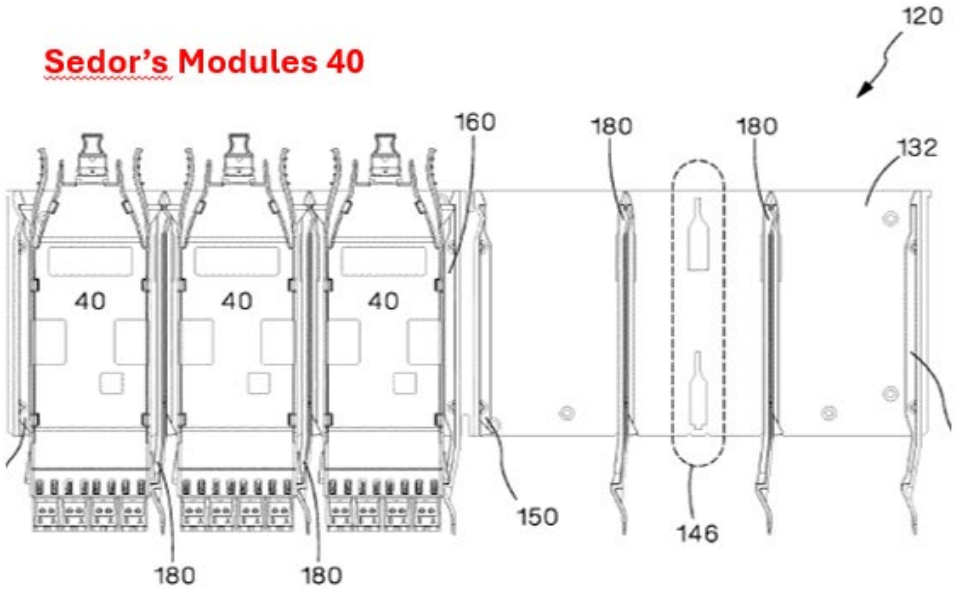
C. Prosecution History

The prosecution history, which starts in the parent case, focused on two limitations: the claim language relating to the widths of the cassettes being multiples of the standard width unit and the phrase "directly adjacent."

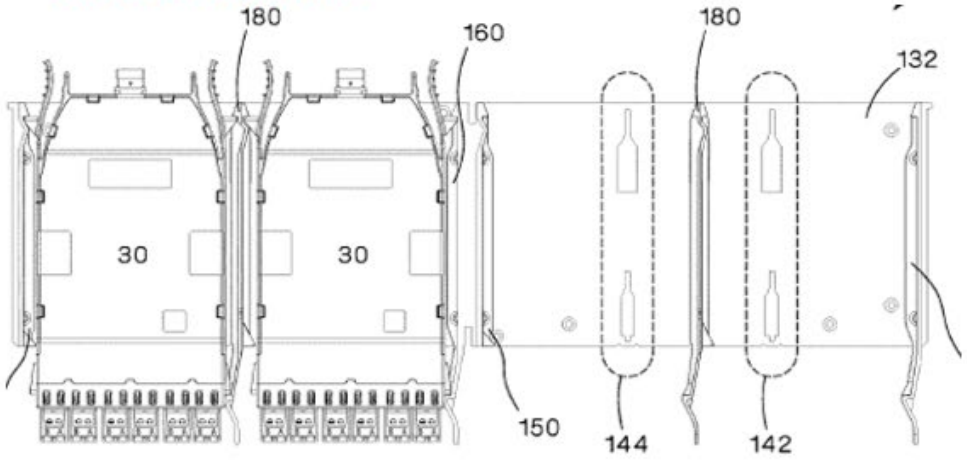
1. Parent case

First Office Action (April 2019). The examiner initially rejected all the challenged claims as anticipated by "Sedor" (U.S. Patent No. 10,215,944). EX1007, 64-67. Sedor's tray accommodates three cassette sizes (modules 30, 40, 20) by adjusting the location of removable rails on the tray:

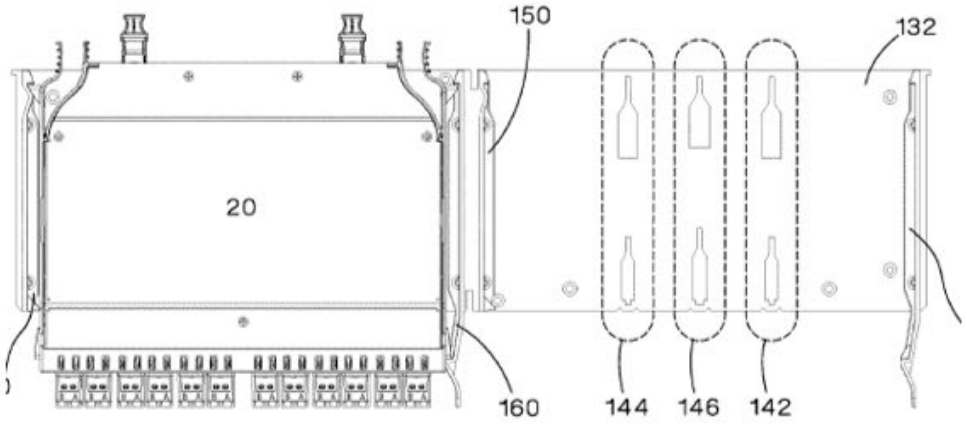
Sedor's Modules 40



Sedor's Modules 30



Sedor's Module 20



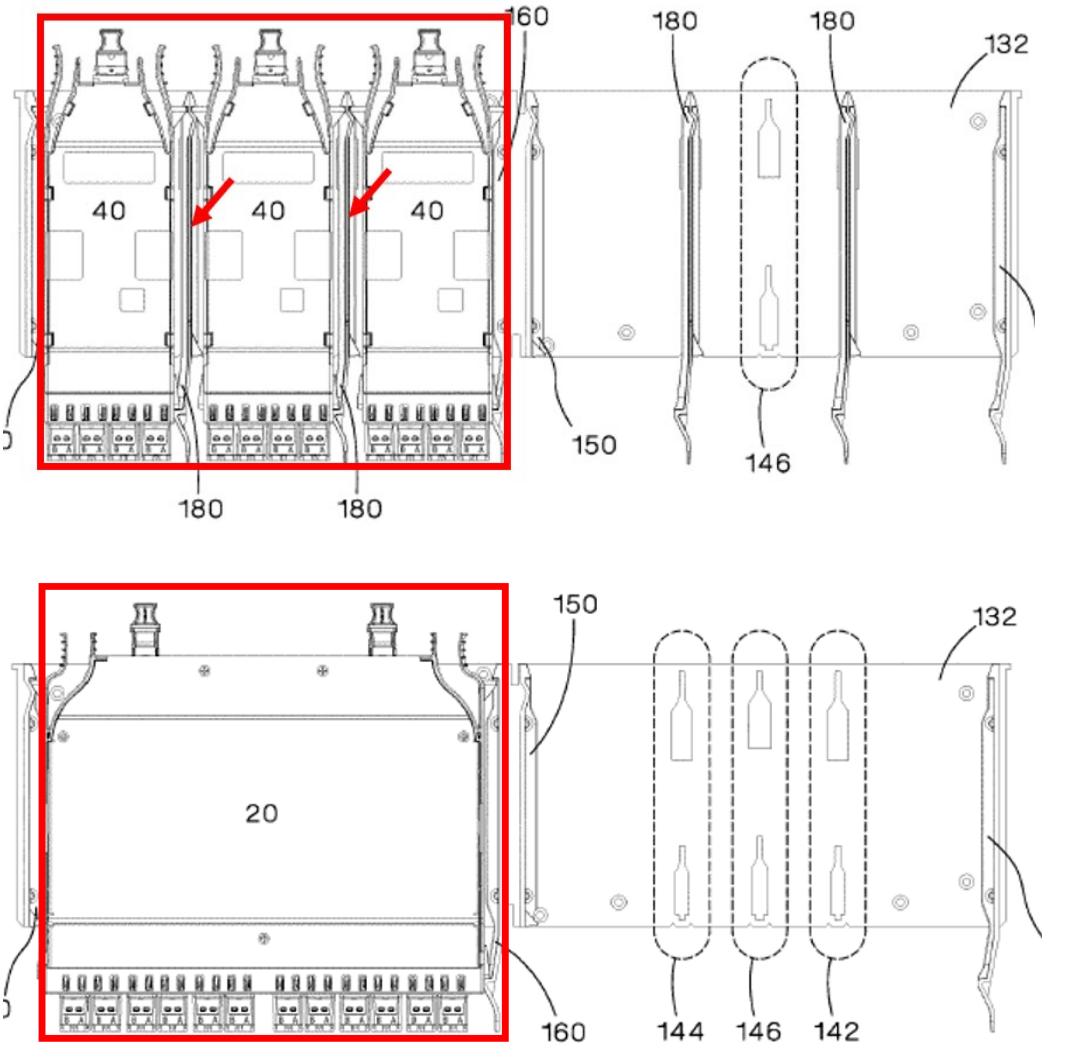
EX1005, Figs. 7, 9, 11 (cropped). The examiner identified modules 30 (top) as having a width of two standard width units and modules 40 (middle) as having a width of three standard width units. EX1007, 65.

In response, the applicant argued Sedor's modules have "no common" standard module width because of the rails. Applicant presented a mathematical equation:

> occupies the same overall width. As each rail is of a pre-determined width W_R, and given that the modules of the configuration of Figure 8 have a width W_2, the modules of Figure 9 has a width W_3 and the module of Figure 11 has a width W_1, it follows that for the configurations of Sedor et al.:
>
> $$2*W_2 + W_R = 3*W_3 + 2*W_R = W_1$$
>
> Clearly, therefore, due to the presence of a varying number of rails the module widths W_2, W_3 and W_1 have no common standard module width. In particular, neither W_2 or W_1 are divisible by W_3. The same applies if the standard width unit is taken

EX1007, 87. The applicant emphasized that "in particular" the width of the larger cassettes was not divisible by the width of the smaller cassette because of the addition of the width of the rails (W_R). *Id.*

If you draw a box around the smaller module, you can see that the width larger module includes the additional amount otherwise occupied by the rail:



S

Thus, the width of the larger module is not evenly divisible by the smaller module (it would have the remainder of two rails).

Second Office action (Aug. 2019). The examiner issued a final rejection. The examiner reasoned that the specification "defines" the standardized width as accommodating a single receptable module comprising four receptacles (ports) per standard width unit; thus, applying that definition, Sedor's module 40 is two

standard width units because it supports eight receptacle and Sedor module 30 is three standard width units because it supports twelve receptacles. EX1007, 94-95.

In response, the applicant amended the claims to require the cassette be "immediately adjacent." EX1007, 114-115.

Third Office action (Dec. 2019). The examiner again rejected all the claims. EX1007, 138-139.

In response, PO amended the claims to require that each cassette "touches" each other. EX1007, 167, 170. The examiner then allowed the claims. The examiner found a POSA would not be motivated to "remove the rails in Sedor" to enable the modules to touch because the rails were "necessary to affix the modules to the tray." EX1007, 184.

2. Present application

Applicant then filed the present continuation application in which the claims do not require touching but only required the cassettes be "directly adjacent." EX1002, 17.

First office action (Sept. 2021). The examiner rejected the challenged claims as anticipated by Sedor. Like "immediately" adjacent, the examiner reasoned that "directly" adjacent requires a smaller distance than adjacent "but does not preclude intervening structure". EX1002, 83.

In response, PO emphasized that the modifier "directly" was "clearly" intended to "exclude any intervening structure" such as a "rail." EX1002, 135. PO also returned to arguing Sedor did not disclose the width limitations. PO again presented math equations:

> 3*2U + 2*(width of rail) = 2*width of 12-optical fiber modules (40) + width of rail, or width of 12-optical fiber modules (40) = 3U + ½ the width of a rail (180).
>
> Clearly, therefore, Sedor et al. fails to disclose a system where the cassettes have the dimensions of the those as claimed at Claim 1.

EX1002, 134. These equations showed that the width of the second module (40) did not equal three units (3U) exactly but rather included the additional amount of "+ ½ the width of a rail." *Id.*

Second office action (Dec. 2021). The examiner issued a final rejection. EX1002, 141-47. The examiner reasoned that the unit width of the modules merely referred to the number of receptable modules on the modules. EX1002, 142-43. The examiner explained that the width of Sedor's modules accommodated the same number of receptable modules described in applicant's specification. *Id.*

In response, the applicant reemphasized that "directly" adjacent "clearly" does "exclude any intervening structure" such as a "rail." The applicant also emphasized that the width of the module is not merely the number of receptacle modules and that such a definition "makes no sense":

> Applicant respectfully disagrees with the Examiner's characterization of width and her finding that paragraph [0015] defines the width in terms of the number of receptacles. Indeed, nowhere does the speciation define width in such a fashion. In particular, such a definition of width makes no sense when viewed in respect to Claim 8, and where the standard width is defined in terms of a width of a front edge of a tray on which the cassettes are secured.
>
> Clearly, therefore, a person of ordinary skill in the art would understand that the width of a cassette is simply the width of the cassette from side to side and not some other "dimension" such as the number of receptacles or the like.

EX1002, 187. The applicant then presented the same mathematical equations to argue that the prior art cassette widths did not satisfy the size limitations. EX1002, 188.

Advisory action. The examiner issued an advisory action maintaining his rejections. EX1002, 195. In response, the applicant amended the claims to require the cassette widths be "measured between the outer sides edges thereof" to make clear its argument from the last response that the cassette width is the width from side to side and not the number of receptacles. The applicant repeated its math calculation arguments for a third time. Ex1002, 208-209.

Notice of allowance. The examiner allowed the claim and *italicized* both the amended language relating to the widths of the cassettes and the "directly adjacent" language in his reasons for allowance:

Allowable Subject Matter

Claims 1-13 allowed.

The following is an examiner's statement of reasons for allowance:

Re. Claims 1-7, the prior art does not disclose or reasonably suggest a modular fiber optic cassette system, the system comprising a set of fiber optic cassettes, a selected plurality of the cassettes arrangeable side by side along said tray front end wherein each of said cassettes comprises a plurality of optic plug receiving receptacles arranged side by side in a row along a front thereof, a first of said set of cassettes comprising a first cassette width *as measured between outer side edges thereof* of one, two, three, four and six standard width units and a second of said cassettes comprising a second cassette width *as measured between outer side edges thereof* different from said first cassette width and one of one, two, three, four and six standard width units, wherein when arranged on the tray *an outer side edge of each of said selected cassettes is directly adjacent an outer side edge at least one other selected cassette*, in combination with the remaining limitations of the claims.

.

EX1002, 221-222.

D. Related IPR proceedings

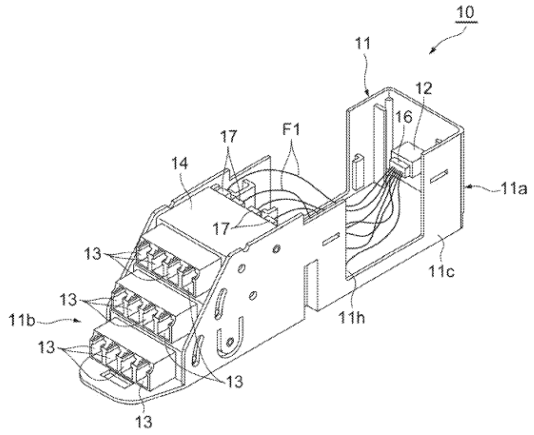
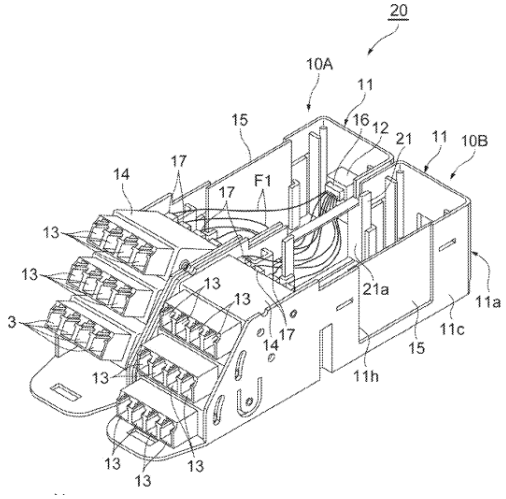
Petitioner is filing Petitions for IPR on the parent patent (10,795,107) and child continuation patent (11,656,422).

Summary of the Asserted Prior Art

A. Fukui (EX1004)

Fukui is a new reference. It is U.S. Patent No. 10,101,551, which is 102(a)(2) prior art.

Fukui discloses a modular fiber optic system based on module 10. EX1004, Figs. 1-4, 4:60-7:22. Module 10 can be used individually or coupled to form larger modules. Figure 1 shows one module 10, and Figure 5 shows two modules 10A and 10B coupled to form the larger module 20:

One module 10	Two coupled modules 10A and 10B
	

EX1004, Figs. 4-5. Fukui text broadly discloses a "plurality of coupled unit modules," i.e., two or more coupled modules. EX1004, 8:2-3. The coupled units function as "one body." EX1004, 8:2-3. Fukui had the further innovation to increase the height to support three rows in the height dimension, but that is irrelevant because the challenged claims recite limitations on the width.

Like PO's preferred embodiment, Fukui explains that the purpose of coupling module 10 is to support cables with "various" number of "cores" (i.e., fibers), including 12, 24, 36, 48, etc. EX1004, 3:27-28, 4:2-3, 4:42-43, 9:58-59, 10:4-6, 10:34-35. One module 10 can support a cable with 12 cores. EX1004, Fig.

1 (showing 12 adapter ports). Two coupled modules 10A and 10B can support a cable 24 cores. EX1004, Fig. 5 (showing 24 adapter ports), EX1004, 7:60-67 ("expanded to 24"). Fukui further explains the modules can support larger sizes "such as" 36 and 48 cores according to "the number of coupled unit modules," i.e., three of four coupled unit modules. EX1004, 7:67-8:6.

Fukui's modules 10 can be coupled together because every module has detachable shutters 15 to form an opening in the walls on each side. EX1004, 9:44. Figure 1 shows the right shutter (yellow), and Figure 4 shows both shutters removed:

Fig.1

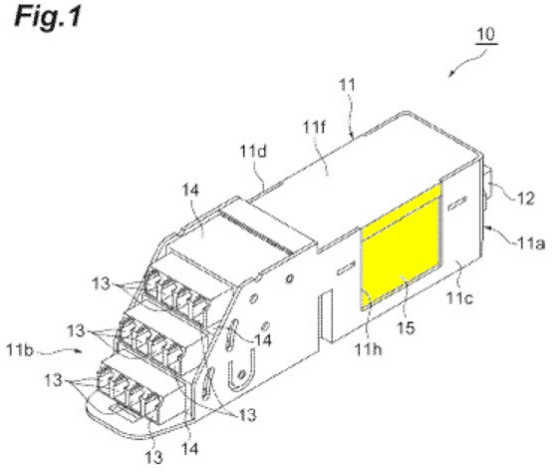
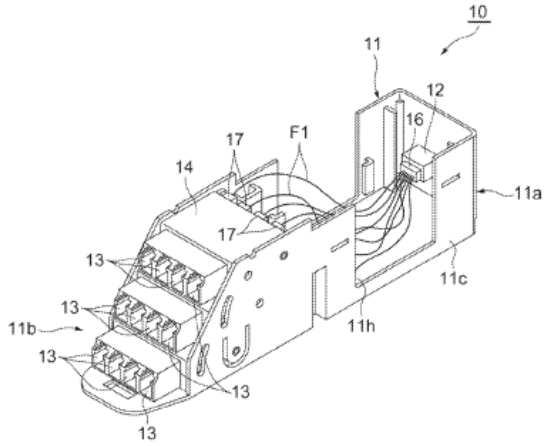
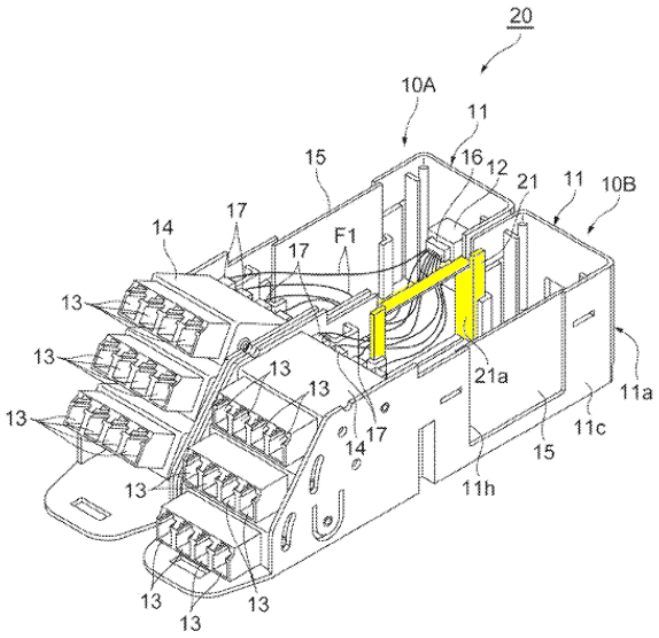


Fig.4



A coupling member (21) is inserted in place of the shutter. EX1004, 7:34-51.

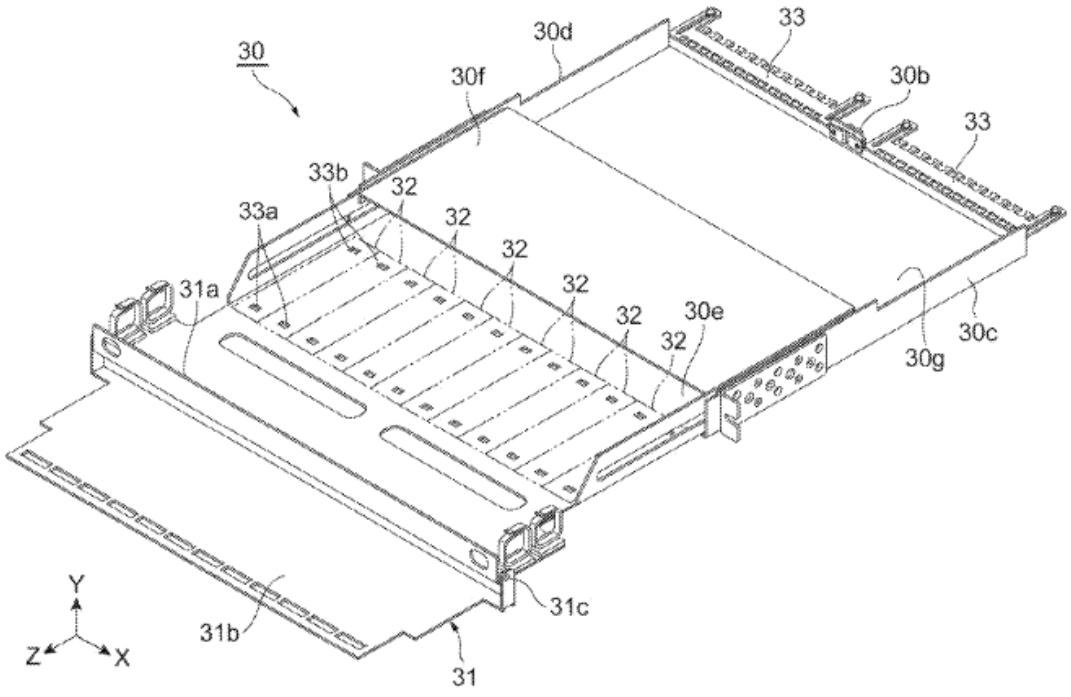
Fig.5



The two coupled units function as "one body." EX1004, 8:2-3. Fibers "pass through" the opening in the middles to second module. EX1007, 7:52-67. The other shutters can be removed to coupled additional unit modules.

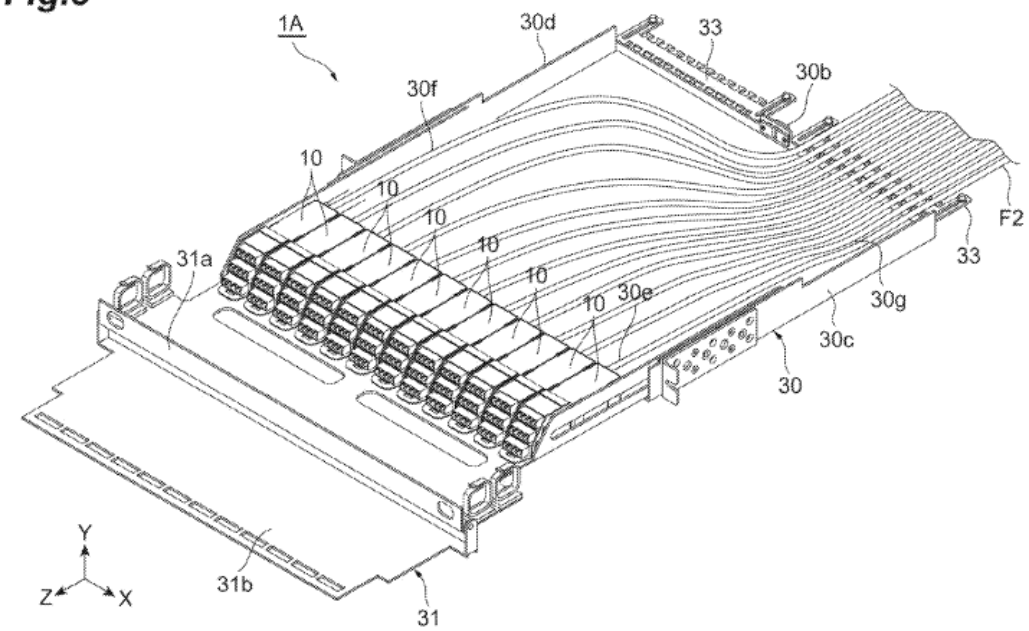
Fukui does not use rails. Fuki's modules have "hooks" on the bottom that attached to "holes" (33a, 33b) on the bottom panel (30e) of the tray that has twelve areas for attaching the modules:

Fig.9



EX1004, Fig. 9, 8:49-56. Figure 8 shows the modules attached:

Fig.8



B. Sedor (EX1005)

Sedor, as already discussed, discloses a modular fiber optic cassette system with three different sizes. *Supra* at Technology Background.

C. Sauter (EX1006)

Sauter is U.S. Patent No. 9,690,064, which is 102(a)(2) prior art. It is art of record; however, it was never discussed.

Sauter explains his system allows "multiple different sizes of cassettes." EX1006 at 1:28-29, 51-58; 4:7-14; 9:60-63. Sauter uses "single-gang" for the smaller cassette size and "multi-gang" for the larger cassette sizes. The larger "multi-gang" sizes are wider than the single gang by a "factor." EX1006 4:54-61. For example, Sauter's "double-gang" cassette "is approximately twice as wide as a single-gang cassette" and a "triple-gang" cassette which is approximately "three times as wide as a single-gang cassette." EX1006 at 4:54-61; 6:47-56; 7:3-19; 7:38-47, 63-66.

Figure 5 shows an example of a tray with two single-gang cassettes:

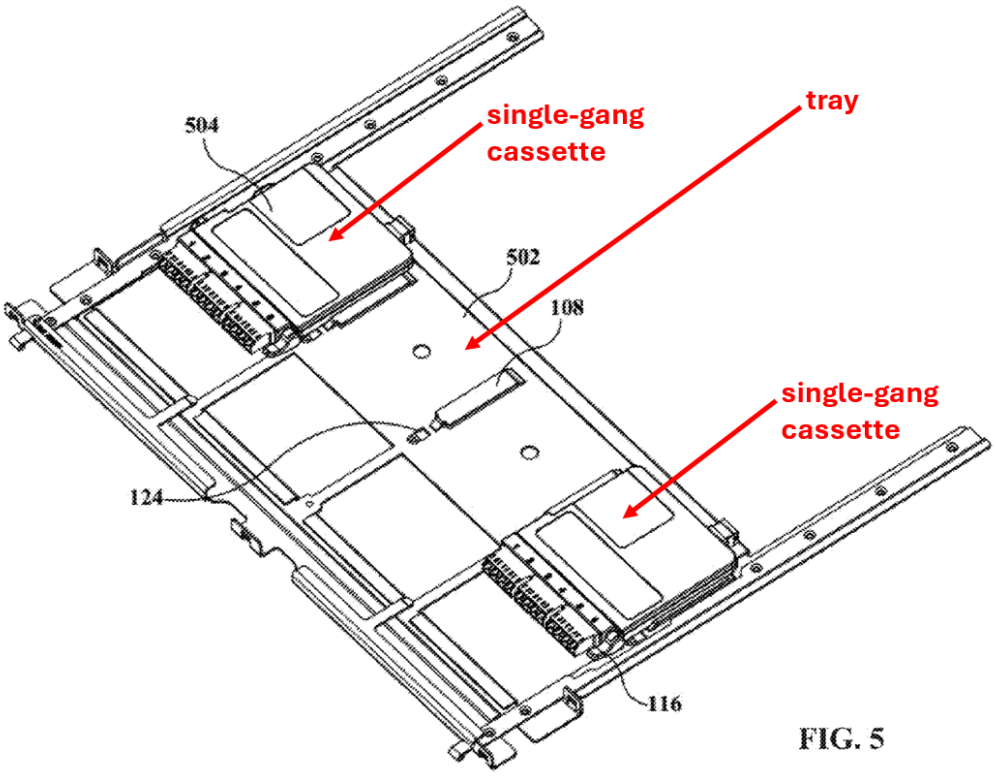


FIG. 5

EX1006, Fig. 5. Figure 6 shows a double-gang cassette.

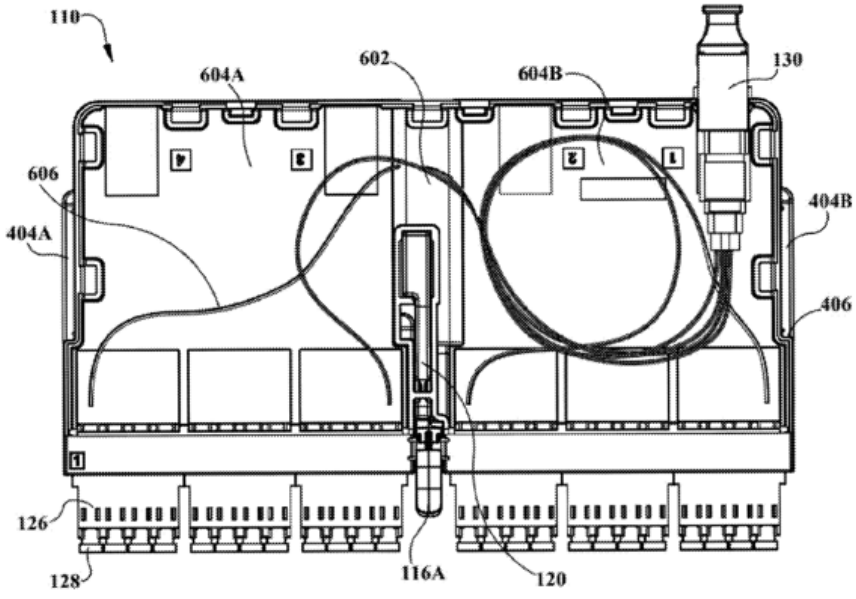


FIG. 6

EX1006, Fig. 6.

Figures 7 shows single and double gang cassettes mounted to the same tray.

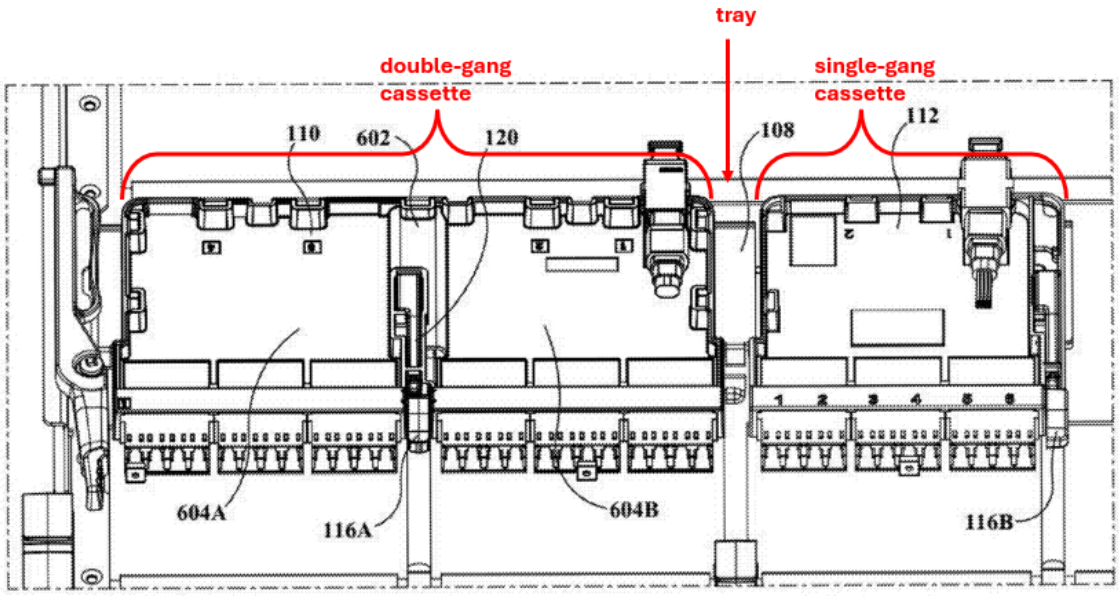


FIG. 7

EX1006 at Fig. 7.

Claim Construction

Petitioner presently believes the plain meaning is enough to resolve this the lead Fukui ground. There are two disputes relevant to the alternative Sauter ground.

A. "one, two, three, four, and six" standard width units

The parties proposed the below constructions in the co-pending litigation:

Term	Patent Owner's proposed construction	CommScope's proposed construction
"cassette width as measured between outer side edges thereof of one of one, two, three, four and six standard width units"	"cassette width as measured between outer side edges thereof that accommodates one of one, two, three, four, or six receptacle modules"	"The cassette width as measured between outer side edges thereof equals one, two, three, four, or six times the standard width unit, without an additional amount. This means the cassette width must be evenly divisible by the standard width unit."

The plain language of the claim says the width is "one of one, two, three, four and six standard width units." To be "one of…" these choices, the width must actually equal one of the choices; otherwise, the width is not "one of" these choices but some other value.[1] The applicant also explained the scope of this term using mathematical equations with equal signs during prosecution. EX1002, 134. The plain language "one of…" also does not support adding any additional amounts. Nothing in this phrase refers to fractional amounts, e.g., 3.2 standard width units. The applicant repeatedly explained during prosecution that the scope of this term "clearly" did not cover even the small additional amount of three standard width

[1] The phrase "one of…" certainty does not mean "accommodate" as Patent Owner proposes.

units "+1/2 the width of a rail."[2] EX1002, 134. Thus, PO also disclaimed additional amounts during prosecution.

PO's construction cannot be correct based on PO's express statements during proseuction. The examiner initially interpreted the claim language to refer to the number of receptacle modules. EX1007, 94. PO, however, emphatically rejected this and said it "such a definition of width makes no sense":

> Applicant respectfully disagrees with the Examiner's characterization of width and her finding that paragraph [0015] defines the width in terms of the number of receptacles. Indeed, nowhere does the speciation define width in such a fashion. In particular, such a definition of width makes no sense when viewed in respect to Claim 8, and where the standard width is defined in terms of a width of a front edge of a tray on which the cassettes are secured.
>
> Clearly, therefore, a person of ordinary skill in the art would understand that the width of a cassette is simply the width of the cassette from side to side and not some other "dimension" such as the number of receptacles or the like.

EX1002, 187. Patent Owner unequivocally stated in the last sentence that "clearly" that width is "not some other 'dimension' such as the number of receptacles."[3] Thus, Patent Owner disclaimed the very meaning it now proposed.

2

[3] The examiner eventually agreed and italicized this limitation as not taught by the prior art in the notice of allowance. EX1002, 221-222.

Patent Owner also emphasized that Sedor "clearly" failed to disclose the claim language because the width of Sedor's module was "not" "3U" but rather equaled "3U + ½ the width of a rail"

> Sedor et al. discloses a modular fiber optic tray comprising fiber optic modules which are configured to engage with rails. In particular with reference to Fig. 7, Fig. 9 and Fig. 11 Sedor et. al. discloses respectively two 12-optical fiber modules (30), three 8-optical fiber modules (40) and single 24-optical fiber module (20) all which fit in the same space of the tray. If, as characterized by the Examiner in his Official Action, each 8-optical fiber module (40) is of two unit widths 2U, the 12-optical fiber modules (30) would not have a width of 3U. Indeed, as clearly shown in the figures, the 3 8-optical fiber modules (40) and 2 rails (180) occupy the same space as 2 12-optical fiber modules (40) and a single rail (180), or 3*2U + 2*(width of rail) = 2*width of 12-optical fiber modules (40) + width of rail, or width of 12-optical fiber modules (40) = 3U + ½ the width of a rail (180).
>
> Clearly, therefore, Sedor et al. fails to disclose a system where the cassettes have the dimensions of the those as claimed at Claim 1.

EX1002, 188. Patent Owner unequivocally explained that the claim required the width equal three times the standard width unit (3U) without an additional amount (3U + ½ the width of a rail), as CommScope proposes. By emphasizing that Sedor "clearly" did not disclose the claim langauge because of the difference between 3U and 3U + ½ the width of a rail, PO disclaimed additional amounts.

B. "directly adjacent"

The parties recognize the applicant narrowed this term during prosecution. CommScope's construction clarifies that the applicant excluded rails (see underlining):

Term	Patent Owner's Proposed Constructions	CommScope's Proposed Construction
"an outer side edge of each of said selected cassettes is directly adjacent an outer side edge of at least one other selected cassette"	"an outer side edge of each of said selected cassettes is almost touching or touching, without any intervening structure, an outer side edge of at least one other selected cassette"	"an outer side edge of each of said selected cassettes is almost touching or touching an outer side edge of at least one other selected cassette. This excludes arrangements with any intervening structure such as a rail between an outer side edge of a cassette and an outer side edge of at least one other selected cassette"

The applicant made a clear disclaimer. The applicant repeatedly said the modifier "directly" was "clearly" intended to exclude "any" intervening structure and specifically discussed "rails." EX1002, 135, 187. There is no ambiguity in the terms "clearly" and "any."

Level of Ordinary Skill

A person of ordinary skill in the art (POSITA) of the '542 patent would have a B.S. degree or equivalent in mechanical or electrical engineering or similar fields, in addition to a minimum of two years of professional experience with or graduate studies involving design, development, and/or utilization of optical communication systems. EX1003 ¶¶19-23.

Discretionary Issues

Petitioners' grounds are not the same or substantially the same as any combination previously presented to the Patent Office. Fukui is a new reference that discloses the elements the examiner believed all the other art failed to disclose, filling the precise gap at issue during prosecution.

There is little risk of duplication of effort. Trial in the co-pending litigation between the parties is not expected within the next 18 months. This IPR also challenges a broader set of claims than are at issue in the co-pending suit. Finally, the litigation is pending before a Delaware District Court who has already recently stayed other actions between these parties after the PTAB instituted Inter Partes Reviews.

Argument

Ground 1: The challenged claims are obvious based on Fukui plus Sedor or Fukui itself

A. Independent Claim 1

1. Preamble

Fukui discloses a *modular fiber optic cassette system* as recited in the preamble. EX1003 ¶¶53-60. Figures 6 and 8 shows Fukui's system with twelve modules (10) connected to fiber optic cables (F2):

Fig.6

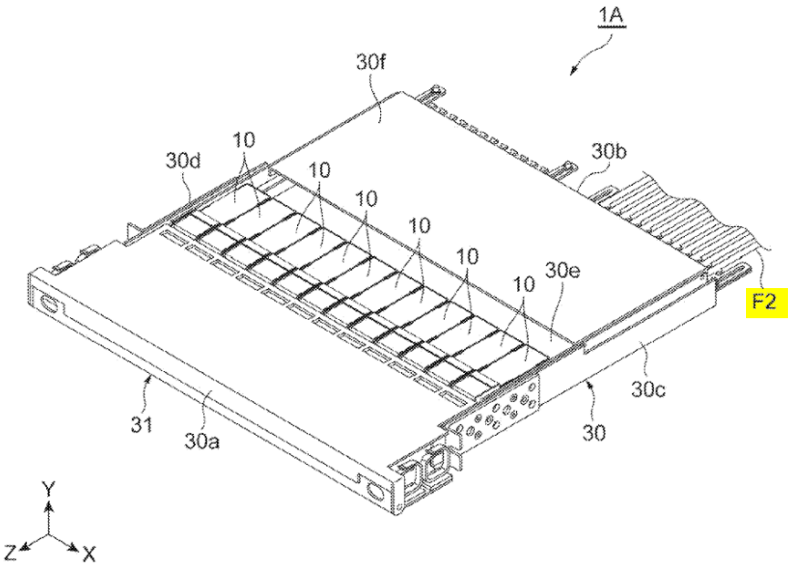
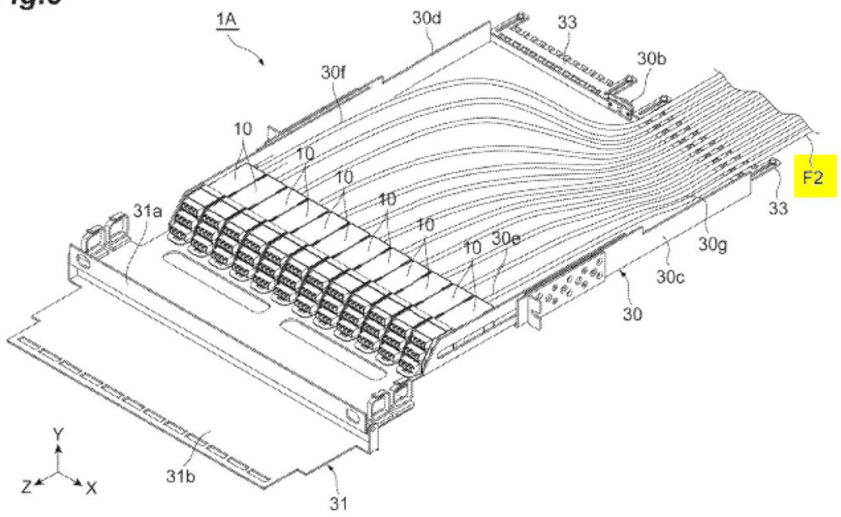


Fig.8



EX1004, Figs. 6, 9

Fukui's modules are fiber optic cassettes. EX1003 ¶¶55-59. Like PO's preferred embodiment, Fukui's module has a multi-fiber MPO adapter (12) in the rear, LC adapters (13) in the front, and fibers (F1) interconnecting them:

Fig.1

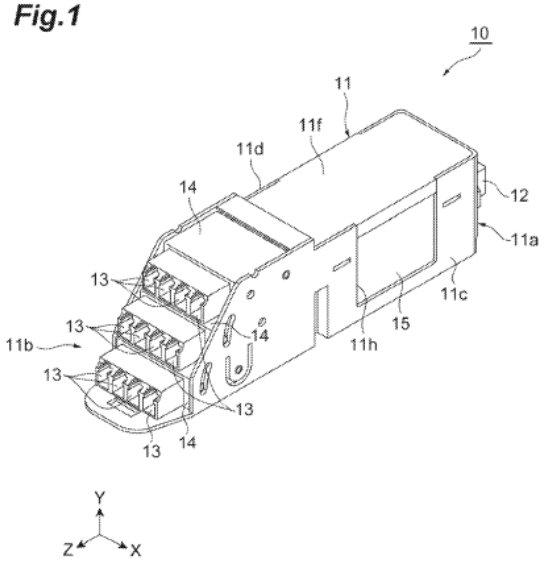
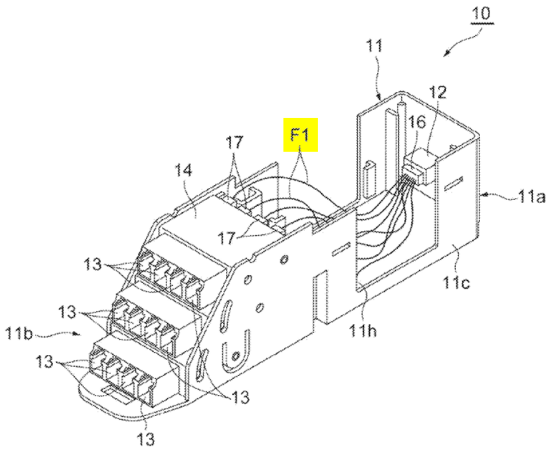


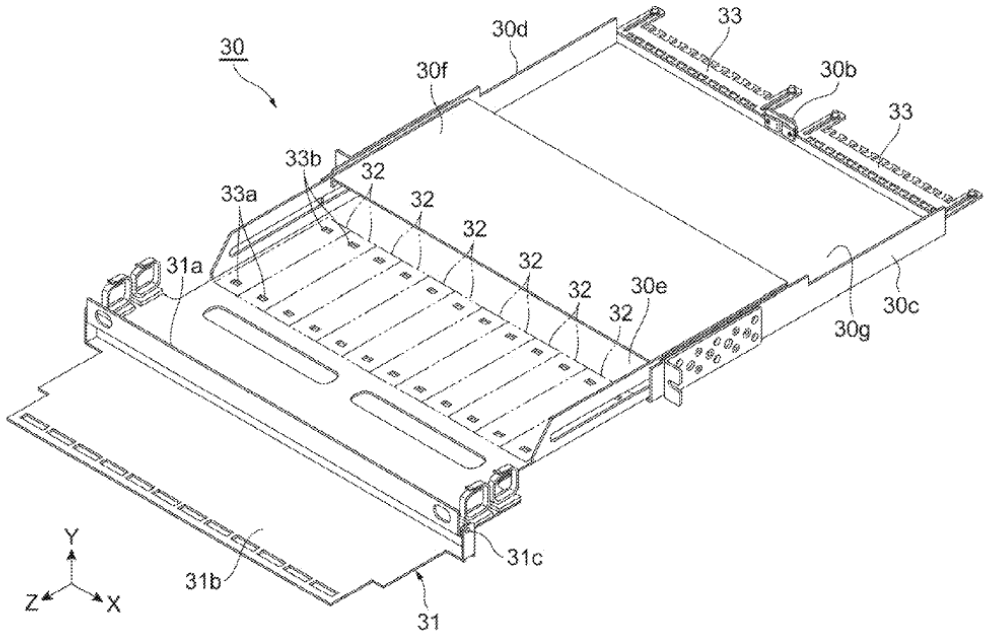
Fig.4



EX1004, Figs. 1, 4, 5:12-42; *see also* Fig. 5. Fukui's modules have a flat bottom with hooks such that the modules can be "easily fixed" to the tray. EX1004, Fig. 2, 8:52-56. Figure 4-5 show the modules with three rows of adapters, but they may also have two rows of adapters. EX1004, 10:43-44

Fukui's system is modular. Like PO's preferred embodiment, Fukui's modules are arrangeable in different areas (32) on Fukui's tray:

Fig.9



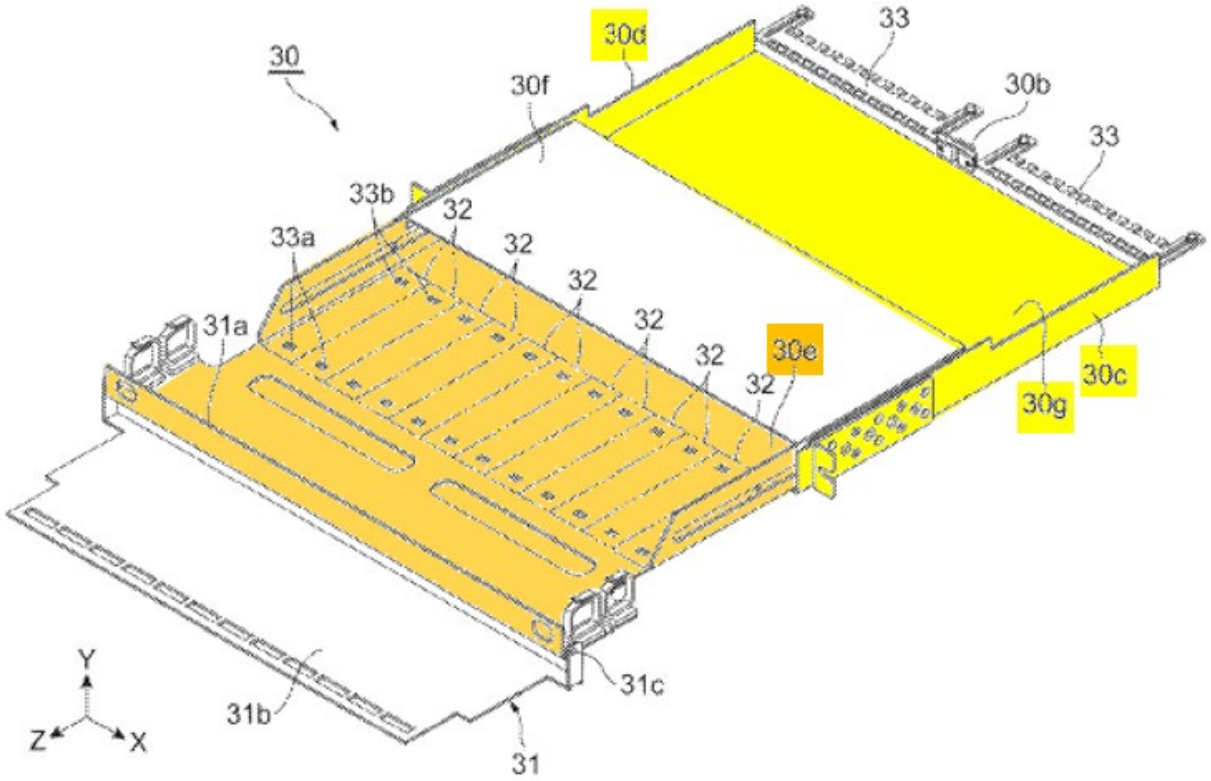
EX1004, Fig. 9, 8:45-48. Fukui expressly allows for a "combination" of different modules. EX1004, 9:42-43, EX1003 ¶60.

2. Element 1A

Element 1-A recites a conventional *"case*." EX1001, 1:22-27 (PO's '542 patent acknowledging: "The prior art discloses…tray systems within a rack mount case.").

Fukui discloses a case. Figure 9 shows Fukui's case (yellow) with the tray (orange) slide out:

Fig.9



EX1004, Fig. 9. Elements 30g, 30c, 30d (yellow) are formed into "one body" comprising a bottom panel and two side walls. EX1004, 8:58-60. This "one body" defines Fukui's case. EX1003 ¶66. The bottom of Fukui's case is partially obscured because Fukui's tray (orange) overlaps and covers up the bottom. EX1004, Fig. 9, 8:57-58.

Fukui's case is hollow and defines a *"tray receiving space"* and an *"opening"* as recited in the claim. EX1004, 8:24-27. Comparing Figures 6 and 9, below, shows that Fukui's tray 30e (orange) slides in and out of the hollow space (red lines):

Fig.9

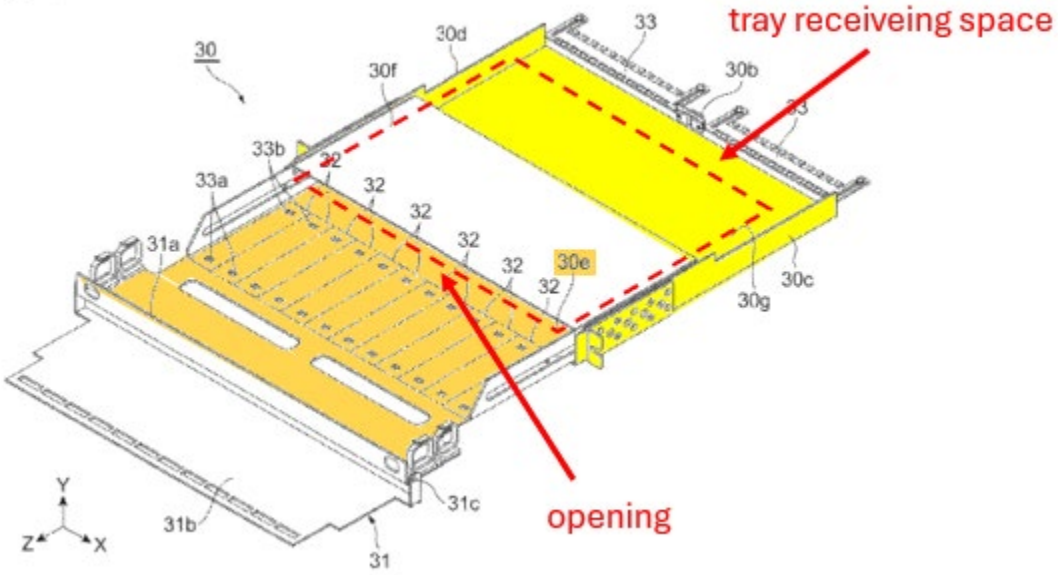
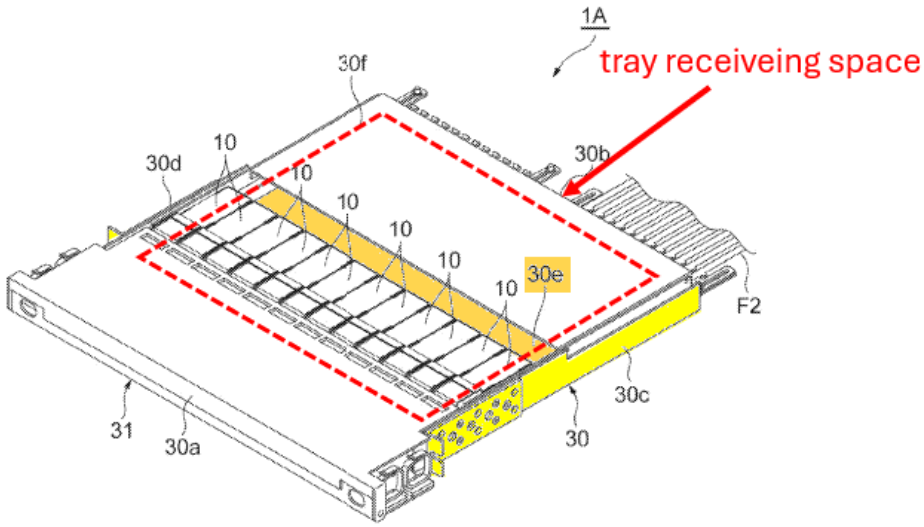


Fig.6



EX1004, Figs. 6, 9; EX1003 ¶67, ¶70.

Fukui's case, however, does not include a top wall as recited in this element. Instead, Fukui tray has a sliding partial top panel (30f) and front lid (31) that flips up to partially cover the top.

Fig.9

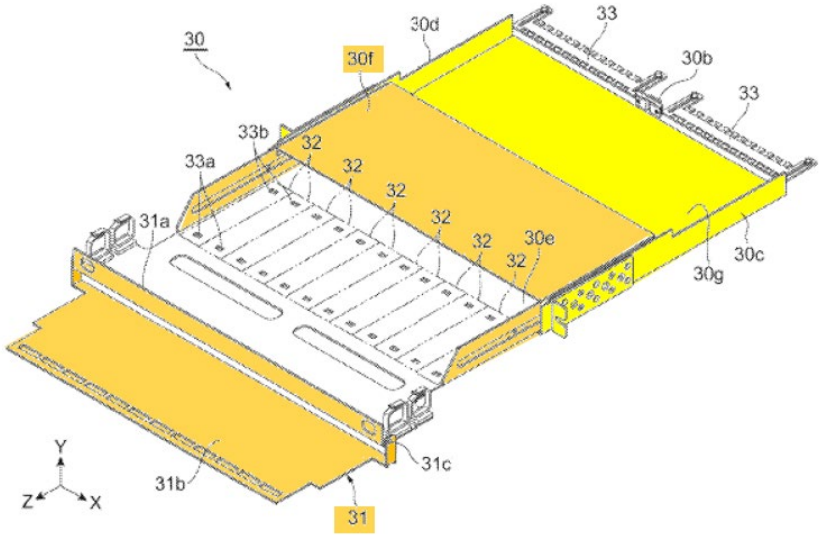
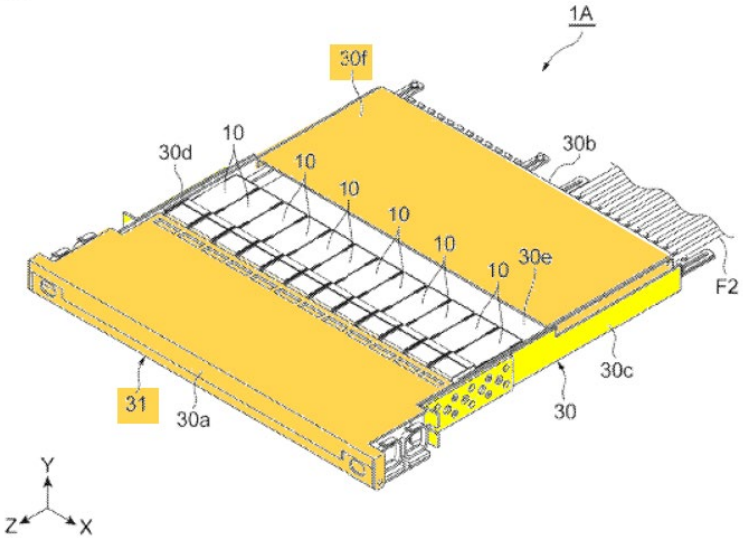


Fig.6



EX1004, Figs. 6, 9, 8:34-42, 8:29-30; EX1003 ¶72. Fukui's modules, however, are not protected from the top because there is a gap (white) where there is no top. EX1003 ¶90.

A POSITA would have found the difference between Fukui and the '542 patent—whether the case had a top wall—obvious based on the combination of Fukui and Sedor or Fukui itself.

Obviousness based on Fukui plus Sedor. Sedor disclsoes a conventional enclosure (200) with a top wall (202):

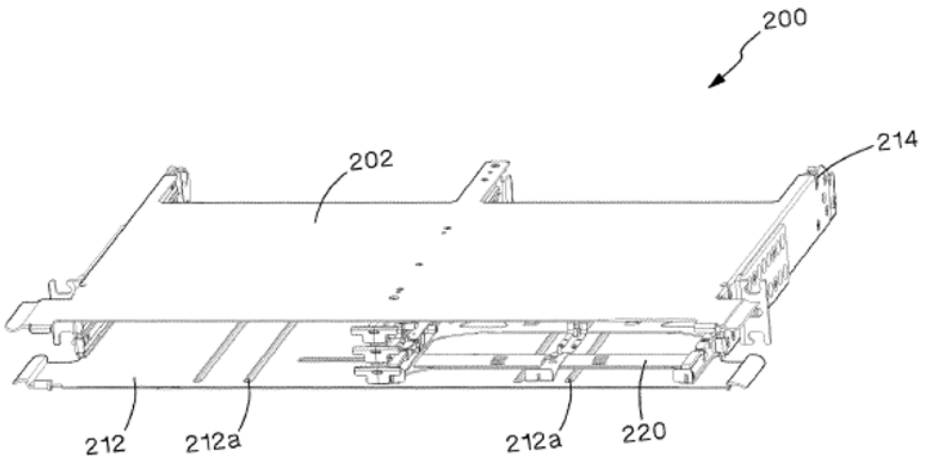


FIG.44

EX1005, Fig. 44, 7:32-35; *see also* EX1005, Figs. 1A-2C, 30-32; EX1003 ¶¶73-77.[4] The examiner found during proseuction that Sedor disclosed a "top" wall. EX1002, 82.

A POSITA would have been motivated to add a top wall to better protect Fukui's system. EX1003 ¶90. Fukui's current design leaves a gap in the top as shown above. Environmental elements (e.g., dust, water, etc.) can enter through this gap. *Id.* Components, tools, and other materials could also be accidentally

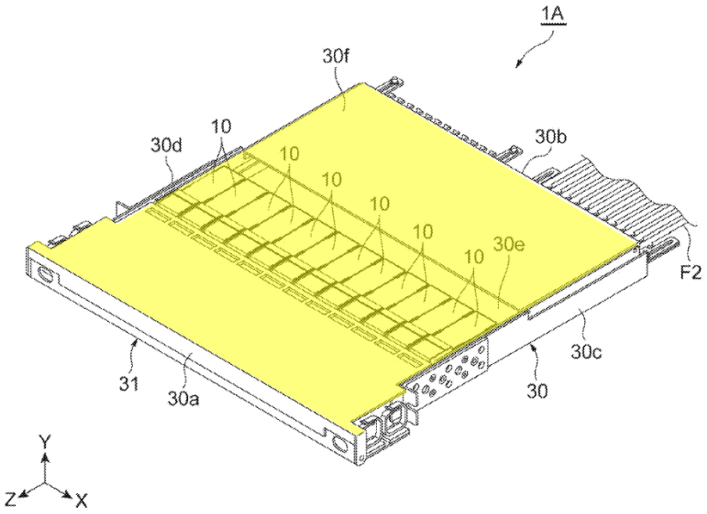
[4] The top is cut away in the back for access to rear cable management but may also be covered. EX1005, 9:15-19, Figs. 47-50.

dropped into this gap damaging the modules or cables in the rear. *Id.* The modules and cables also could be accidentally bumped through this gap during installation or maintenance. *Id.* Fiber optic components are highly sensitive and even minor movement, damage, or obstruction (e.g., dust) can impeded the proper propagation of light. *Id.* Adding a top wall would predicably better protect the system because that is the very purpose of a top wall. EX1003 ¶105. When modifying the case, a POSITA would recognize it is desirable for the case to fully enclose the system (top and bottom). EX1003 ¶91, ¶88, ¶85. There are sensitive, fragile components at the front, middle, and rear of the system. EX1003 ¶91.

A POSITA would also recognize that modifying Fukui's case to have a top wall merely calls for a simple substitution of one known element for another, i.e., a case with a top for a case without a top. EX1003 ¶¶102-106. A top wall is an ordinary piece of metal that can be added with screws. EX1003 ¶100. Nothing in PO's disclosure describes a top wall as inventive. Likewise, Fukui does not teach there is anything critical about its existing case other than that it fits in a 19-inch rack. EX1004, 9:30-35.

A POSITA would recognize that modifying Fukui's case to have a top wall is a predictable variation of Fukui's existing disclosure. Fukui's existing top panel (30f) could simply be attached to the Fukui's side walls (30c and 30d) instead of Fukui's tray and extended to the front:

Fig.6



EX1003 ¶88, ¶92, ¶¶100-101. A POSITA would recognize that Fukui's bottom panel (30g) would equally be extended to the front. EX1003 ¶92, ¶88.

A POSITA would also recognize that adding a top wall to the case simplifies Fukui's design. EX1003 ¶99. Fukui's current design requires two partial top panels (30f and 31) attached to the tray that only achieve partial protection. EX1004, Figs. 6, 9, 8:34-42, 8:29-30. Fukui's current design also requires two steps to access the modules (flip up Fukui's lid and slide the tray out):

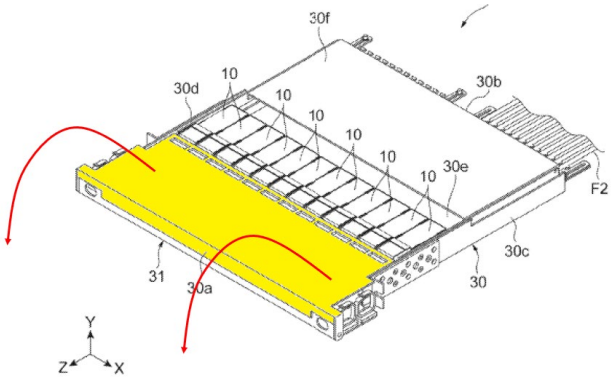
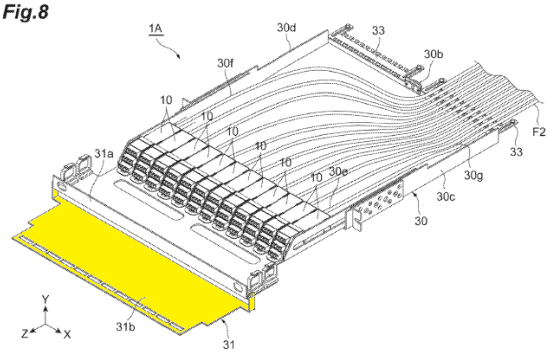


Fig.8



The pivoting lid hangs down in front of the tray, which makes it more difficult for a technician who is standing in front. EX1003 ¶99. A POSITA could simply

Fukui's design to one complete top panel attached to the case, which would eliminate the need for the two partial top panels attached to the tray. This would simplify access to one step (slide the tray out) and eliminate the problem of the pivoting partial top handing down in front. *See also* EX1003 ¶¶93-98.

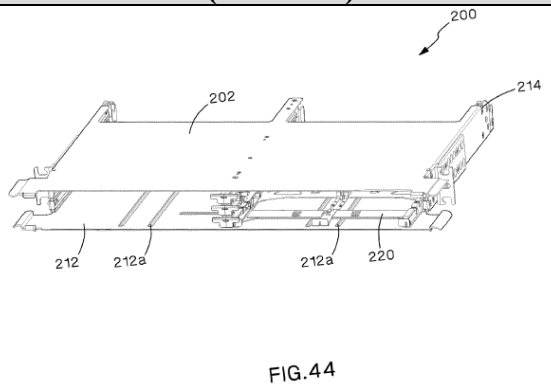
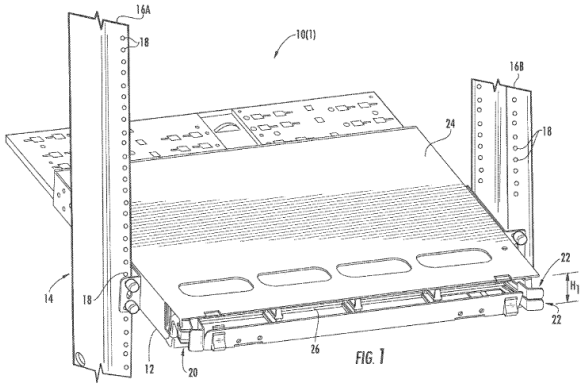
Finally, a POSITA would naturally consider the combination of Fukui and Sedor because they disclose the same type of system (modular fiber optic systems with different sizes modules).

Obviousness based on Fukui itself. A POSITA would have found the difference between Fukui and the '542 patent—whether the case had a top wall—obvious based on Fukui itself because it was common knowledeg that a case could have a top wall. *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361 (Fed. Cir. 2016) ("[A] patent can be obvious in light of a single prior art reference".) It is proper to consider common knowledge when supported by reasoned analysis and evidentiary support. *B/E Aero., Inc. v. C&D Zodiac, Inc.*, 962 F.3d 1373, 1380 (Fed. Cir. 2020) ("Here, the Board's invocation of common sense was properly accompanied by reasoned analysis and evidentiary support.")[5]

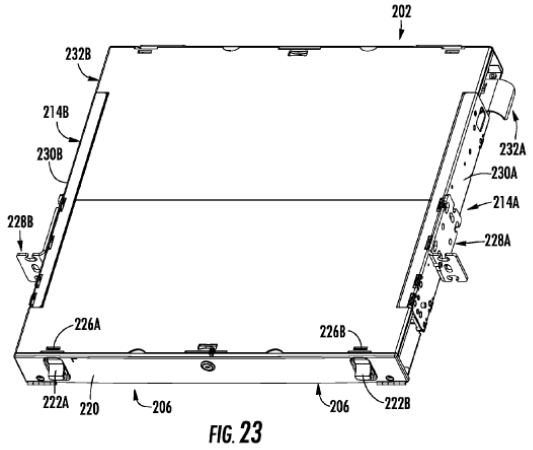
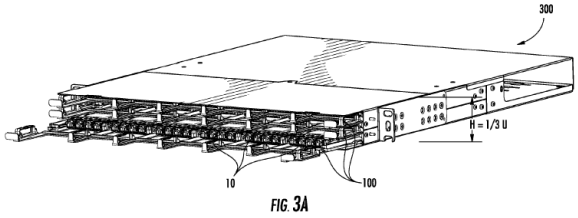
---

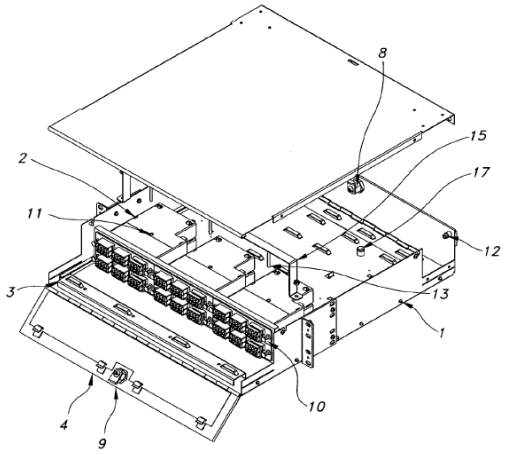
[5] *Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1338 (Fed. Cir. 2020) ("[T]he claims would have been obvious over SMIL 1.0 in light of the general knowledge of a skilled artisan"); *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355,

The evidence shows it was common knowledge a case could have a top wall. EX1003 ¶¶78-88. The prior art listed on the face of PO's '547 patent includes numerous examples of cases with a top wall, including the following:

U.S. Patent No. 10,215,944 (EX1005)	U.S. Patent No. 9,008,485 (EX1018)
 FIG.44 EX1005, Fig. 44, 7:32-35.	 FIG. 1 EX1018, Fig. 1, 3:67.

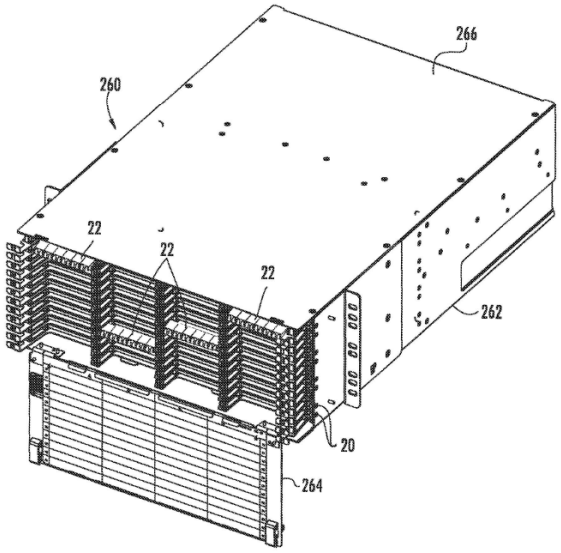
1361 (Fed. Cir. 2016) ("Hence, we do consider common sense, common wisdom, and common knowledge in analyzing obviousness."); *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1328 (Fed. Cir. 2009) ("Common sense has long been recognized to inform the analysis of obviousness if explained with sufficient reasoning.").

U.S. Patent No. 9,075,216 (EX1019)	U.S. Patent Pub. No. 2016/0062050 (EX1020)
 FIG. 23 EX1019, Fig. 23, 16:15-29, Figs. 24-27, 17:13-15.	 FIG. 3A EX1020, Fig. 3A-3C, 10D-10E, ¶0052, ¶0061.

U.S. Patent No. 7,509,015 (EX1017)
 EX1017, Fig. 1-4, 4:12-15

The publicly available product literature in the industry also shows that the manufacturers of modular fiber optic cassettes systems at the time of PO's '542 (Leviton, Corning, Panduit) each advertised that the case had a top wall. EX1003 ¶85.

Fukui's itself in its "Background" cites W02010/148325 that illustrates a case with a top wall:



EX1004, 1:21 (citing W02010/148325); EX1025 (W02010/148325**)**, Fig. 25, ¶0087 ("A cover 266 is attached").

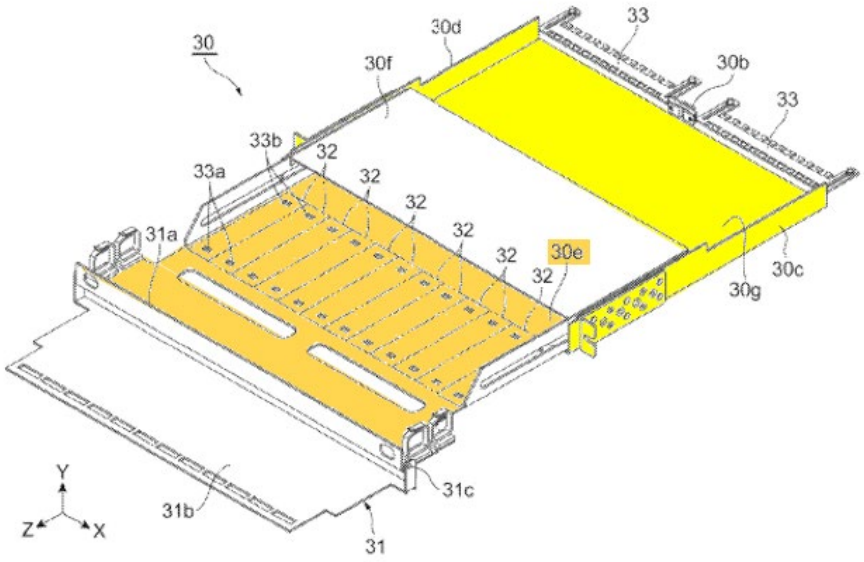
Under the case law, it is especially appropriate to consider the common knowledge because the feature at issue (a top wall) is indisputably simple. *B/E Aero*, 962 F.3d at 1380 (discussing common knowledge for "simple" technology). A top wall is merely an ordinary, flat piece of metal. EX1005, Fig. 44, EX1003 ¶100. A POSITA considering the common knowledge would have been motivated to add a top wall for the reasons already discussed (e.g., improved protection).

3. Element 1B

Element 1-B recites a conventional sliding "tray." EX1001, 1:22-27 (acknowledging: "The prior art discloses…tray systems within a rack mount case.").

Fukui discloses a tray. Fukui tray is bottom panel 30e. EX1003 ¶68. Like PO's preferred embodiment, Fukui's panel 30e is a flat panel upon which the Fukui's cassettes (e.g., modules 10) are arranged and attached. EX1004, 8:30-32 ("modules 10 are arranged on the bottom panel 30e"), 8:45-47; EX1003 ¶68. Fukui's tray has twelve areas (32) for arranging Fukui's modules:

Fig.9

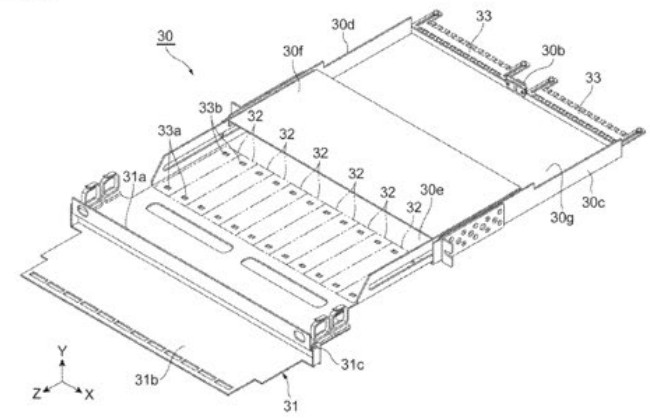


EX1004, Fig. 9, 8:45-47. Fukui expressly teaches his tray is "slidable." EX1004, 8:60-63. Figure 9, above, shows Fukui's tray has grooves on the side for sliding.

Fukui sliding tray moves between a *stored* and *accessible* position as recited in the claim:

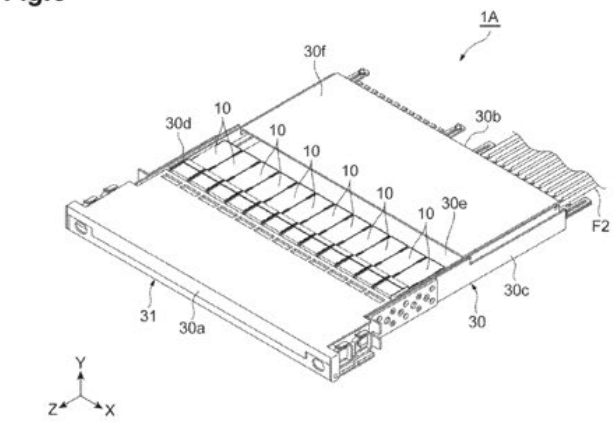
accessible position

Fig.9



stored position

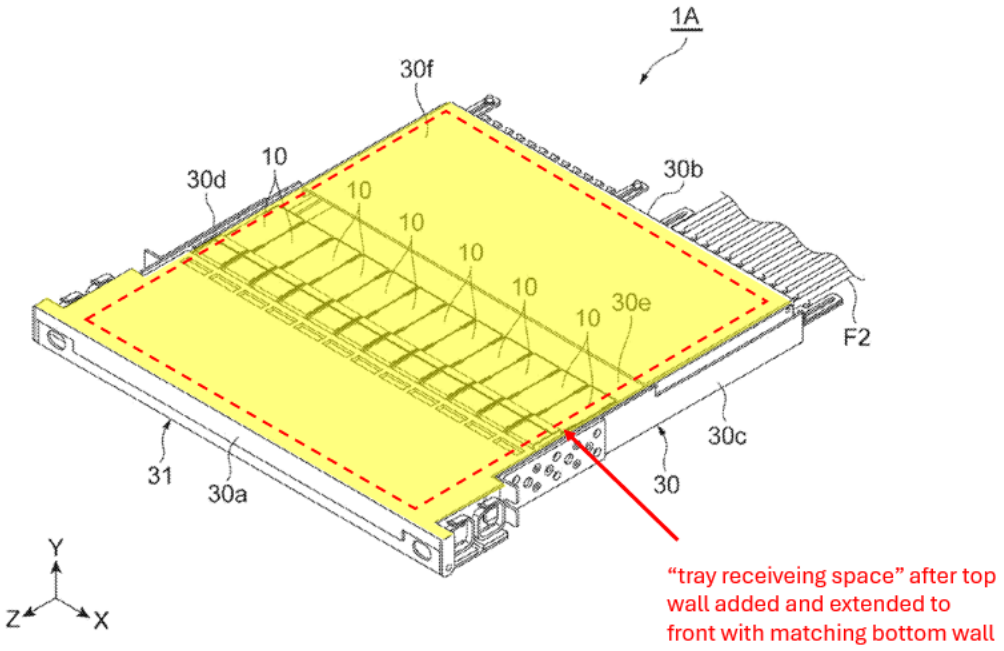
Fig.6



EX1004, Figs. 6, 9; EX1003 ¶¶69-71.

Fukui's tray, however, is not stored *"completely inside"* the tray receiving space of the case in the stored position because Fukui's case is only a partial case. As described in the prior element, it would have been obvious to place Fukui's tray inside a complete case with a top wall that completely covers the top. That same modification would result in Fukui's tray being stored "completely inside" the tray receiving space:

Fig.6



EX1003 ¶88. Sedor, below, shows that the tray (212a) is completely inside the case in the conventional design where the case has a top wall:

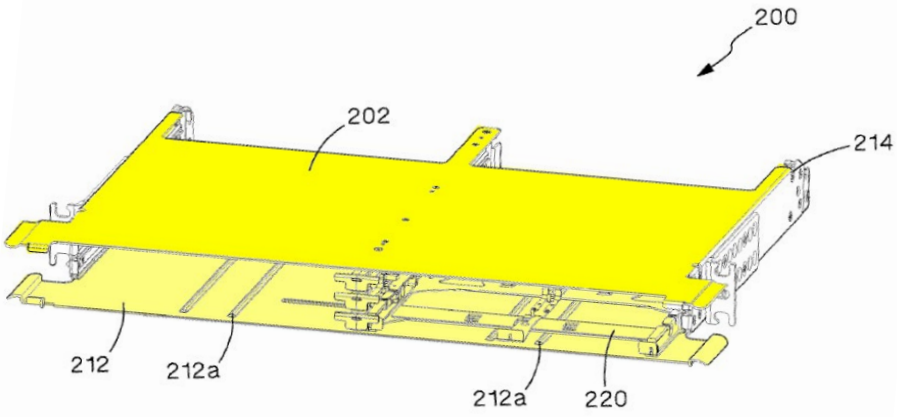
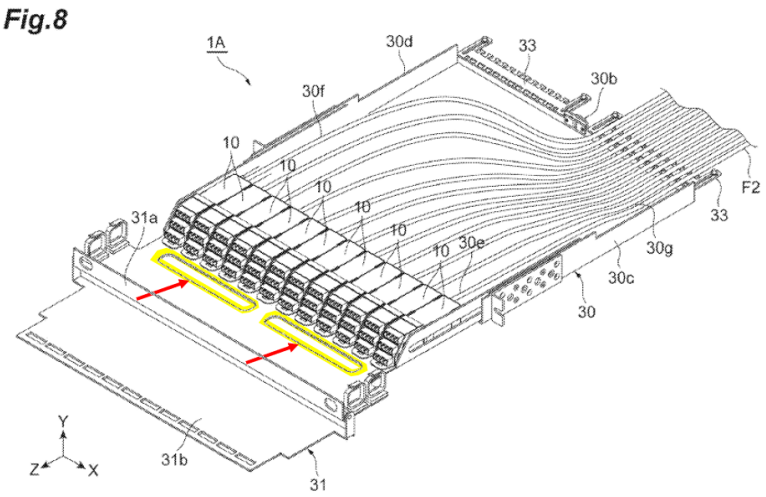


FIG.44

EX1005, Fig. 44.

If PO argues Fukui's tray is not "completely inside" the *bottom* wall, that does not distinguish Fukui. Sedor case, as shown above, teaches to have the bottom and top wall coextensive and extend all the way to the front. EX1005, Fig. 44; EX1003 ¶73, ¶85, ¶88, ¶91. When adding a top wall as discussed in the prior element, a POSITA would have followed the conventional design to fully enclose the system (top and bottom). EX1003 ¶88, ¶91. This would have advantageously covered up two holes in the bottom of Fukui's tray:

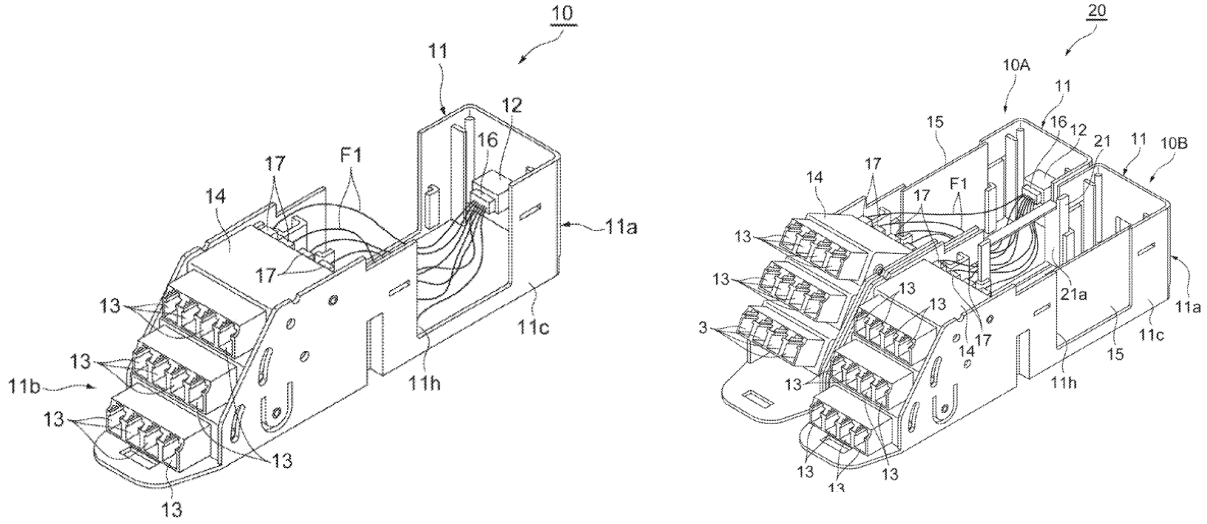


EX1003 ¶88. When the tray is slid out of the case, these openings provide access for a technician to simultaneously grasp the connectors from above and below to make it easier to pull connectors out or push them in. *Id.* But, when the tray is slid into the case, it is desirable for the bottom of the case to cover up the opening to protect the fiber optic components from below for all the same reasons discussed above in Element 1-A. *Id.*

4. Element 1C

"a set of fiber optic cassettes…"

Fukui's modules (e.g., 10, 20) are a set of fiber optic cassettes. Figures 4-5 shows modules 10 and 20:



EX1004, Figs. 4-5; EX1003 ¶¶110-111. The analysis for the preamble explains these modules have the same features as the PO's preferred embodiment of fiber optic cassettes.[6]

"…a selected plurality of the cassettes…"

[6] Like Fukui, Sedor also called his cassettes "modules." EX1005, 4:22-23, EX1002, 82.

Fukui discloses selecting a "plurality of conversion modules," including a "combination" of modules 10 and 20. EX1004, 8:18-32, 9:42-43; EX1003 ¶112. Figures 9 shows twelve areas (32) for the modules.

Fig.9

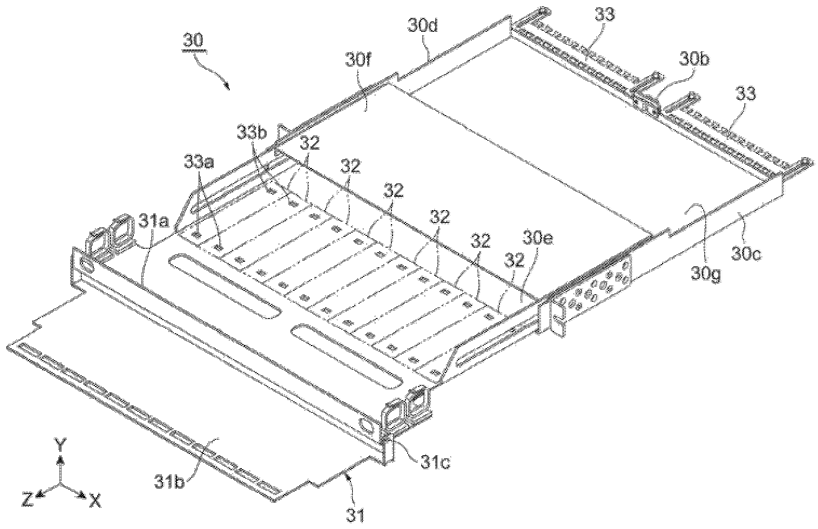
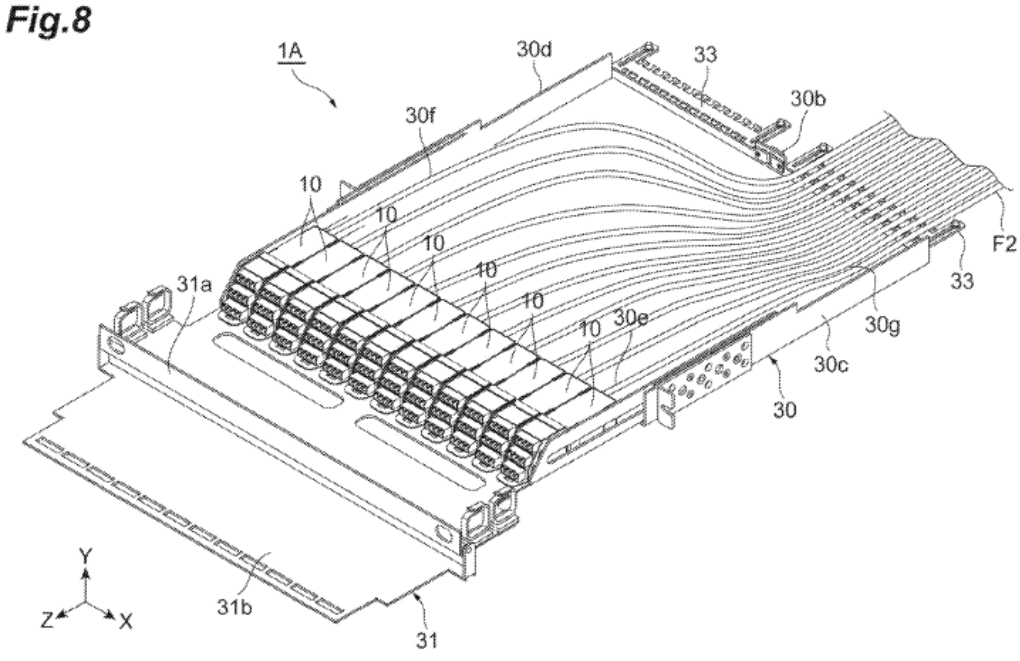


Figure 8 shows twelve modules 10 arranged in theses area:

Fig.8

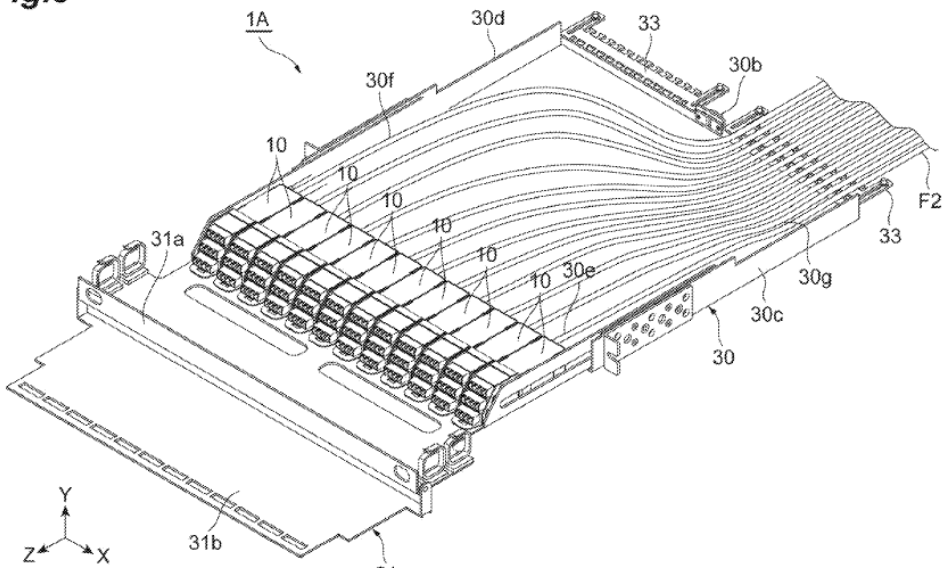


Fukui explains any of the module 10 can be coupled to form modules 20. EX1004, 8:19-24. Fukui expressly teaches: "at least one of the conversion modules 10 and the conversion module 20 is included in the plurality of conversion modules." EX1004, 8:21-24,

"…arrangeable side by side along said tray front end…"

Fukui's figures show the modules are arrangeable side by side along Fukui's tray (element 30e):

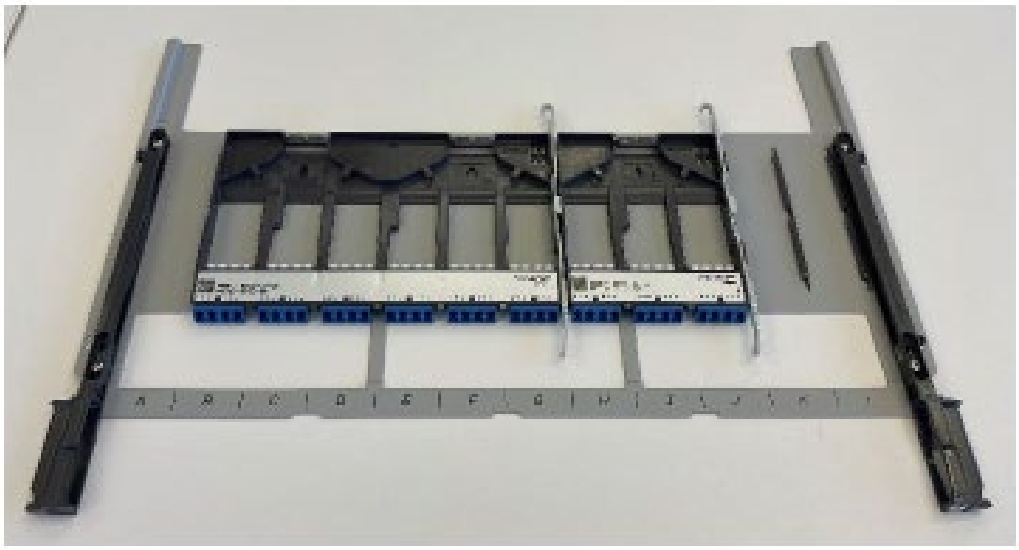
Fig.8



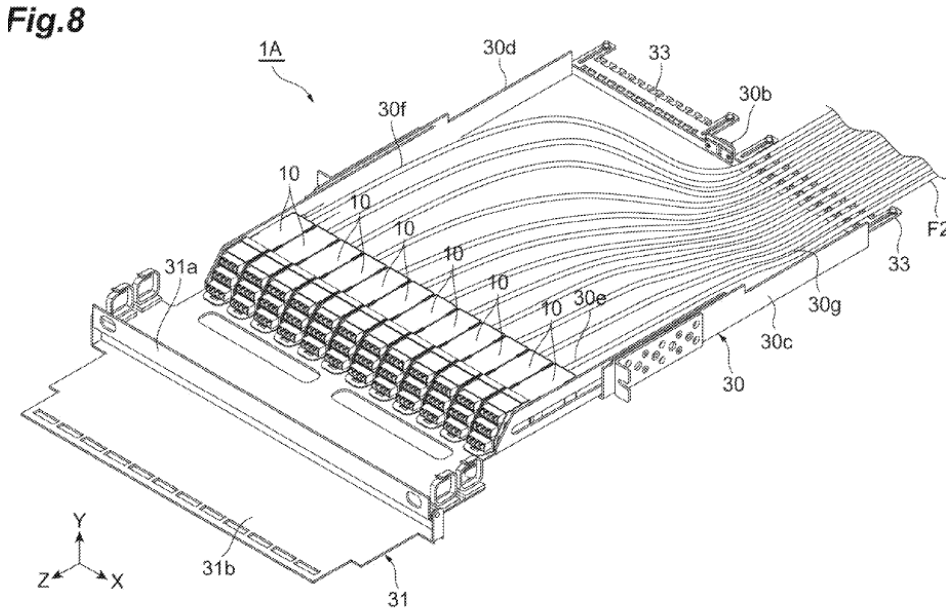
EX1004, Fig. 8, 8:51 ("lateral walls 11c and 11d are arranged with each other along the X direction"), 9:16-17 ("modules can be laterally aligned as shown in FIG. 8"); EX1003 ¶113.

The parties agreed in the co-pending litigation that "along" the tray front end means "on or beside" the tray front end. EX1011 at 2. Although Fukui's modules

are not "on" the tray front end, they are "beside" the tray front end under PO's interpretation. PO alleges the following arrangement meets the claim where the cassettes are set back from the tray front end:



EX1012, 10. Fukui's modules are arranged in the same way:



EX1004, Fig. 8; EX1003 ¶114.

If PO denies Fukui's modules are sufficiently close to the tray front end, a POSITA would find it obvious to move Fukui's modules forward to be on or beside the front end of the tray based on Fukui plus Sedor or Fukui itself. Sedor discloses to place modules (e.g., 30) on the front end of tray (120):

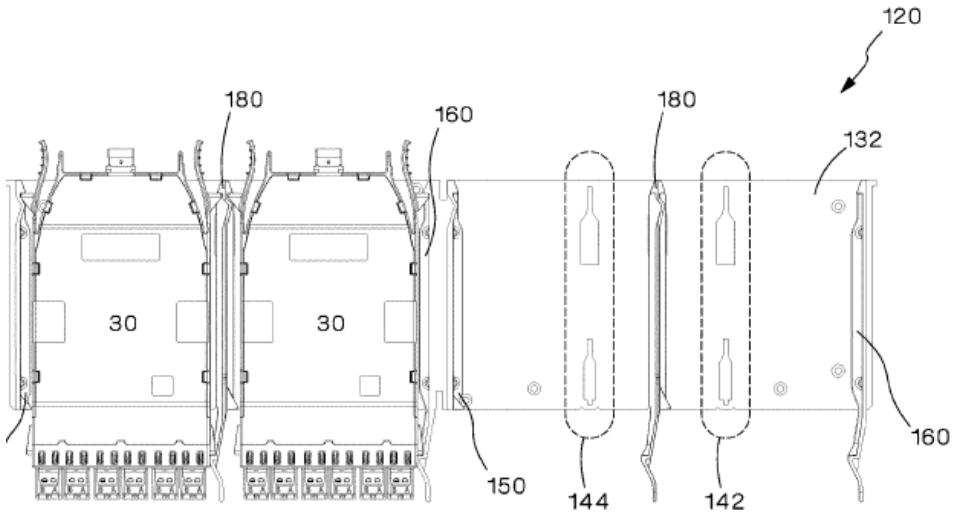


FIG.7

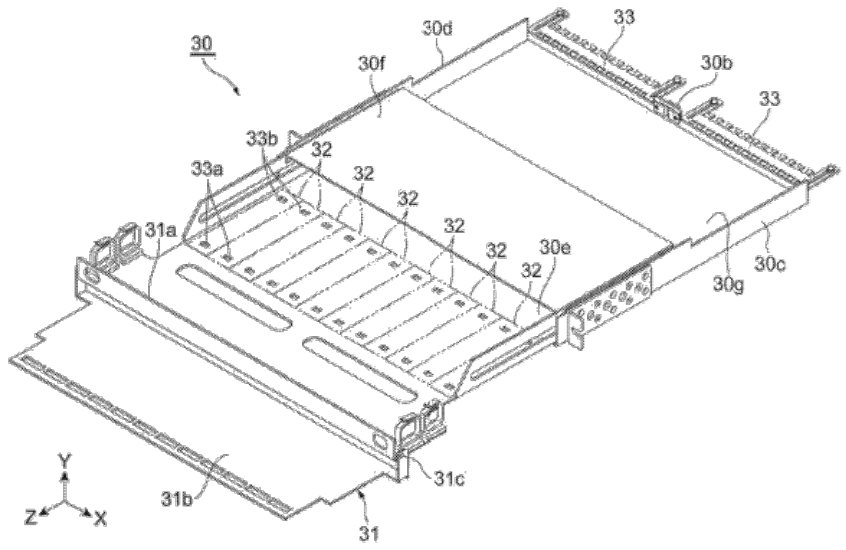
EX1005, Fig. 7, Figs. 8-12; EX1003 ¶¶117-18. The examiner found during proseuction that Sedor disclosed positioning the modules *"along said tray front end"* (EX1002, 82), and nothing in PO's disclosure describes this conventional position as inventive.

A POSITA would have been motivated to move Fukui's modules forward on the tray to make it easier for field personnel to access Fukui's modules and minimize the need to slide Fukui's tray out. EX1003 ¶116. Fukui is specifically

concerned with facilitating "access" to its modules and facilitating the work of inserting the connectors or drawing them out (unplugging them). EX1004, 8:57-64 ("facilitates an access to each single-core optical connector adapter 13"); 10:19-30 ("facilitate the inserting and drawing out work"), 9:20-29 ("reducing the work"). Field personnel must access the modules to plug/unplug LC connectors into the front. By moving the modules moved forward, field personnel do not need to reach as far into the tray and do not need to slide the tray as far out. EX1003 ¶116. This is beneficial because space in telecommunication rooms can be confined and cramped making it difficult to slide the tray out larger distances to access the module. EX1003 ¶116.

A POSITA would recognize that Fukui's modules could be moved forward to be closer to the front end of the tray simply by moving the already disclosed areas (32) and holes (33a, 33b) forward.

Fig.9



EX1004, Fig. 9, 8:52-56; EX1003 ¶116. This requires no new structures—just an adjustment of the existing structure. EX1003 ¶116. Fukui does not teach there is anything special or critical about the location of his holes; thus, there is a reasonable expectation of success to adjust the position of the modules forward.[7] EX1003 ¶116.

"wherein each of said cassettes comprises a plurality of optic plug receiving receptacles arranged side by side in a row along a front thereof"

Figure 4-5 show Fukui's modules have three rows of optical plug receiving receptables:

[7] A POSITA could equally move the two access cutouts forward as desired.

Fig.4

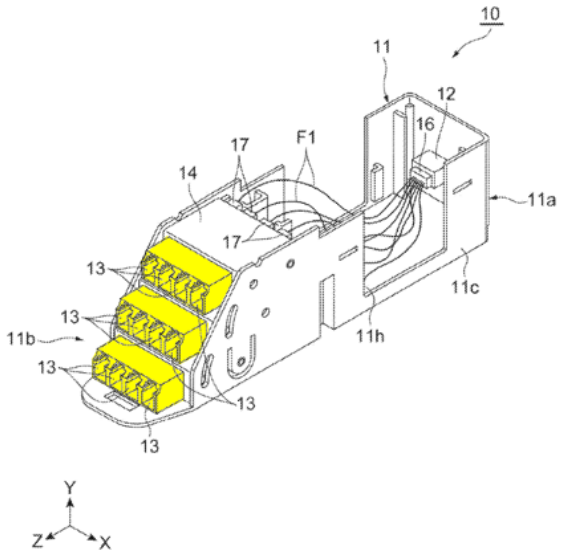
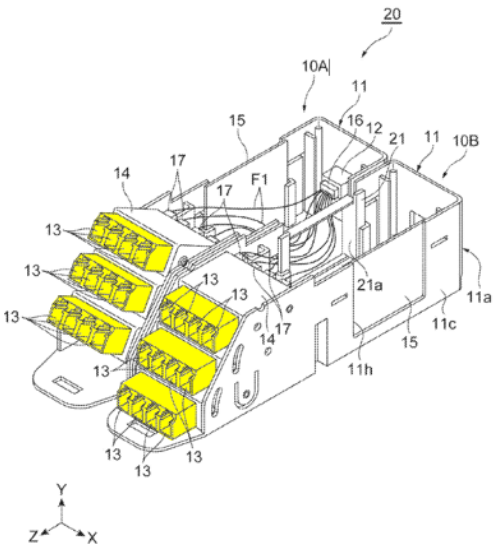


Fig.5



EX1004, Figs. 4-5, 5:24-42; EX1003 ¶119. Numerals 13 in the rows are "single-core optical connectors adapters" for an "LC connector." EX1004, 5:24-27. Any of the three rows is sufficent to disclose this element because each row has a plurality (four) of receptacles (13). The four receptacles (13) in each row are "made into one body," i.e., a quad LC adapter like PO's preferred embodiment. EX1004, 5:34-36.

> **"…a first of said set of cassettes comprising a first cassette width as measured between outer side edges thereof of one of one, two, three, four and six standard width units and a second of said cassettes comprising a second cassette width as measured between outer side edges thereof different from said first cassette width and one of one, two, three, four and six standard width units"**
>
> The relevant unit of width in Fukui's system is the width of module 10.

EX1003 ¶121. Module 10 is the "unit" for all of Fukui's modules. For example, Fukui's expressly teaches the double module 20 comprises a first "unit" 10A and

second "unit" 10B coupled together. EX1004, 7:26-27. Units 10A and 10B are the "same" as module 10. EX1004, 7:28-29, 8:3-6. Fukui explains that the modules can expand to larger sizes based on "the number" of coupled "unit modules." EX1004, 7:67-8:1. The width of module 10 is also the unit of width for tray, which has twelve evenly spaced areas for the modules 10:

Fig.9

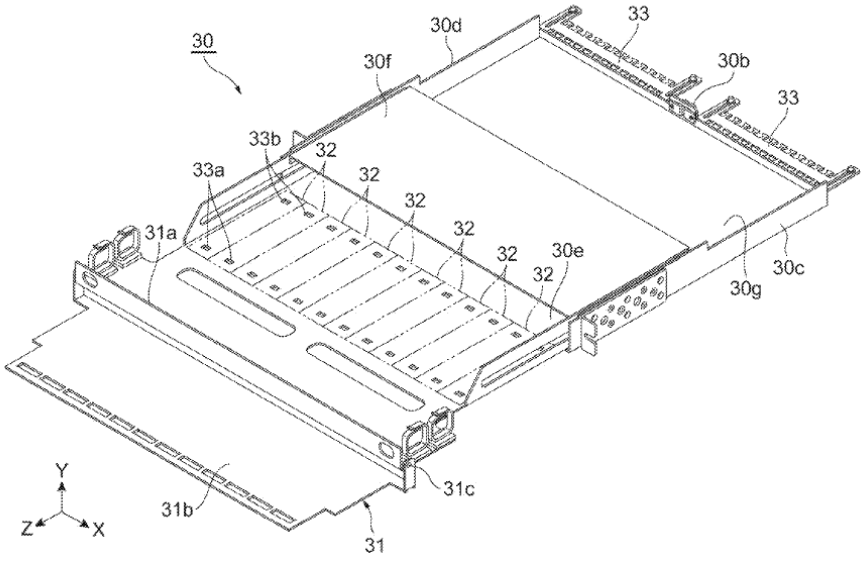
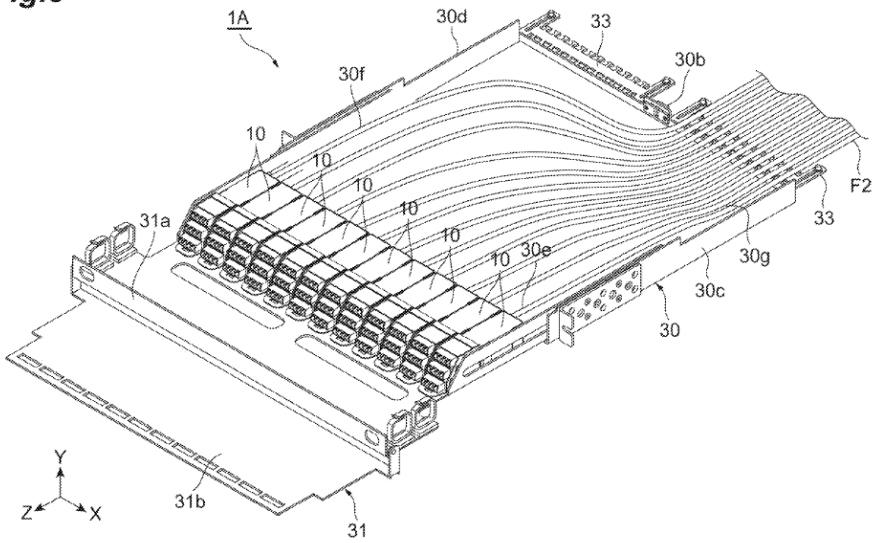


Fig.8



The width of Fukui's module 10 is a "standard" width unit because it is common for all of Fukui's modules and the tray and based on an actual width standardized in the industry. EX1003 ¶127; EX1009, 27. Figure 1, above, shows the width of Fukui's correspond to one LC quad adapter. The width of the LC quad adapter is standardized in the industry. *Id.*

Fukui's module 10 is an example of the recited *"first cassette"* with a width of *"one"* standard width unit, and Fukui's module 20 is an example of the recited *"second cassette*" with a width of *"two"* standard width units.

Fig.4

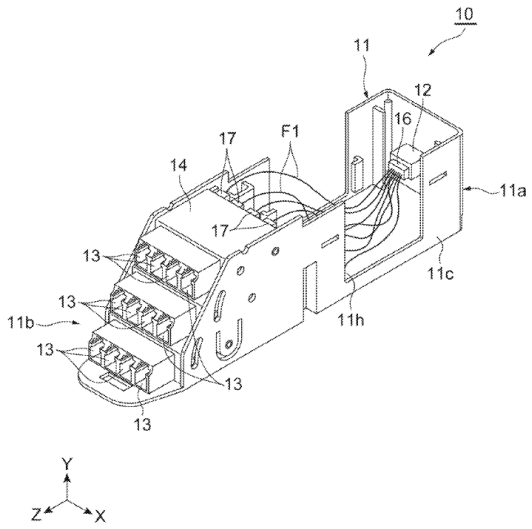
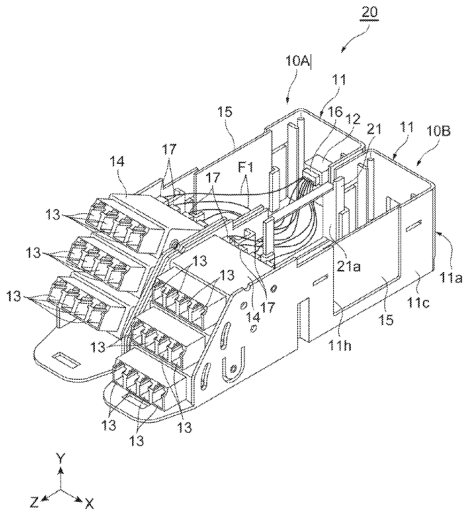


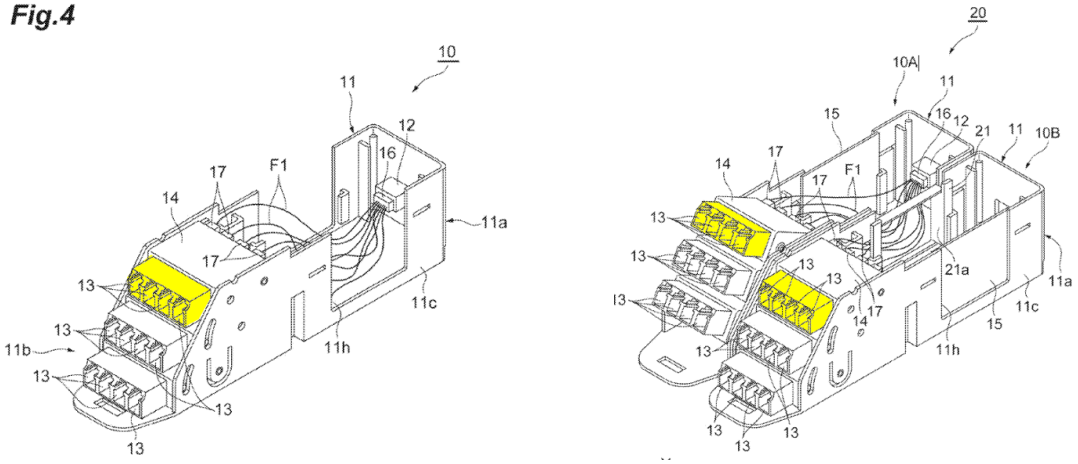
Fig.5



EX1004, Figs. 4-5; EX1003 ¶120. Module 10 comprises one unit. Module 20 comprises two coupled units 10A and 10B. EX1004, 7:25-27. Fukui explains that the coupled units can be treated as "one body." EX1004, 9:2-3.

Fukui's disclosure meets both proposed constructions in the litigation. EX1003 ¶¶122-27.

PO's construction. The width Fukui's modules 10 and 20 accommodate one and two quad LC receptacles modules (yellow), respectively, as recited in PO's construction.



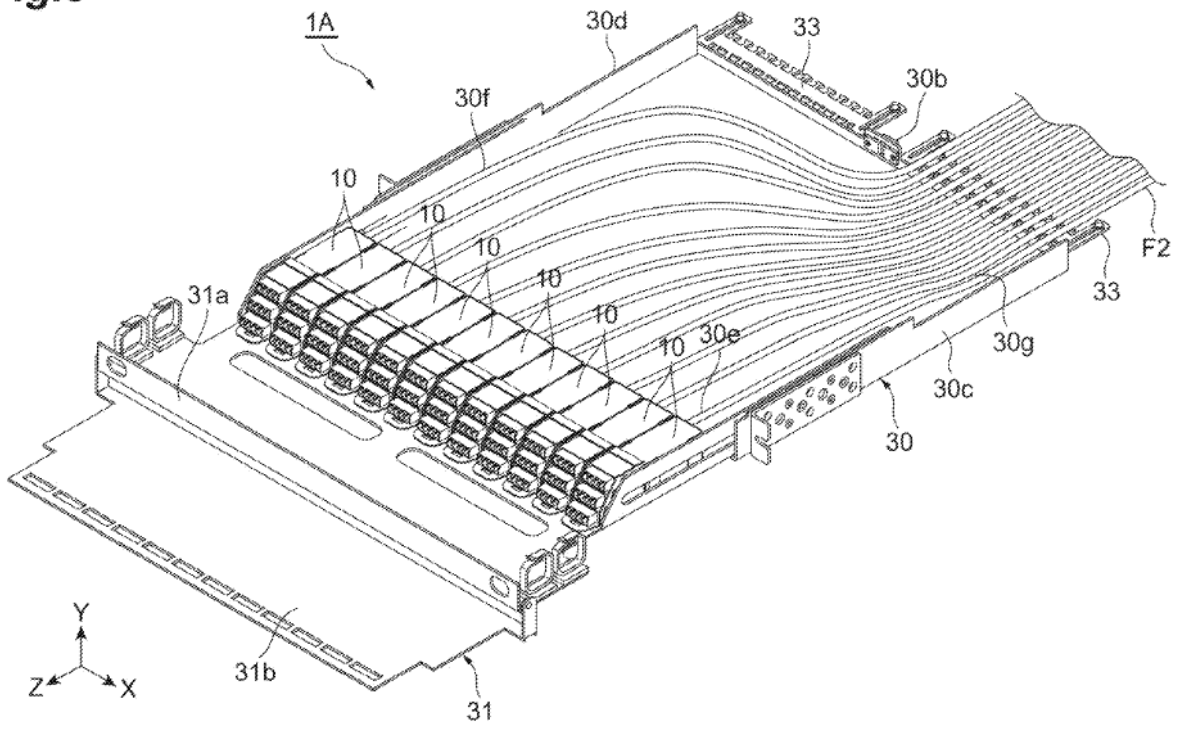
EX1004, 5:34-36 (explaining the four receptacles are "made into one body", i.e., one receptacle module."); EX1003 ¶¶123-24. If PO argues the height of Fukui's modules accommodates additional receptacles, that does not distinguish Fukui because the claim and PO's own construction states a limitation about the width, not the height.

CommScope's construction. The width of module 10, by definition, one times the width of module 10. *See* EX1004, Fig. 4; EX1003 ¶125. The width of module 20 is two times the width of module 10 because module 20 comprises two modules 10A and 10B. EX1004, 7:25-29, 8:3-6, Fig. 5; EX1003 ¶125. Module 20 does not include an additional amount such as a rail. Fukui's system has no rails. *See* EX1004, Figs. 4-9. Fukui's modules are all "evenly divisible" by the width of

module 10. EX1003 ¶125. For example, the width of module 20 / the width of module 10 = 2, and there is no remainder for rails as there was in Sedor. EX1003 ¶125.

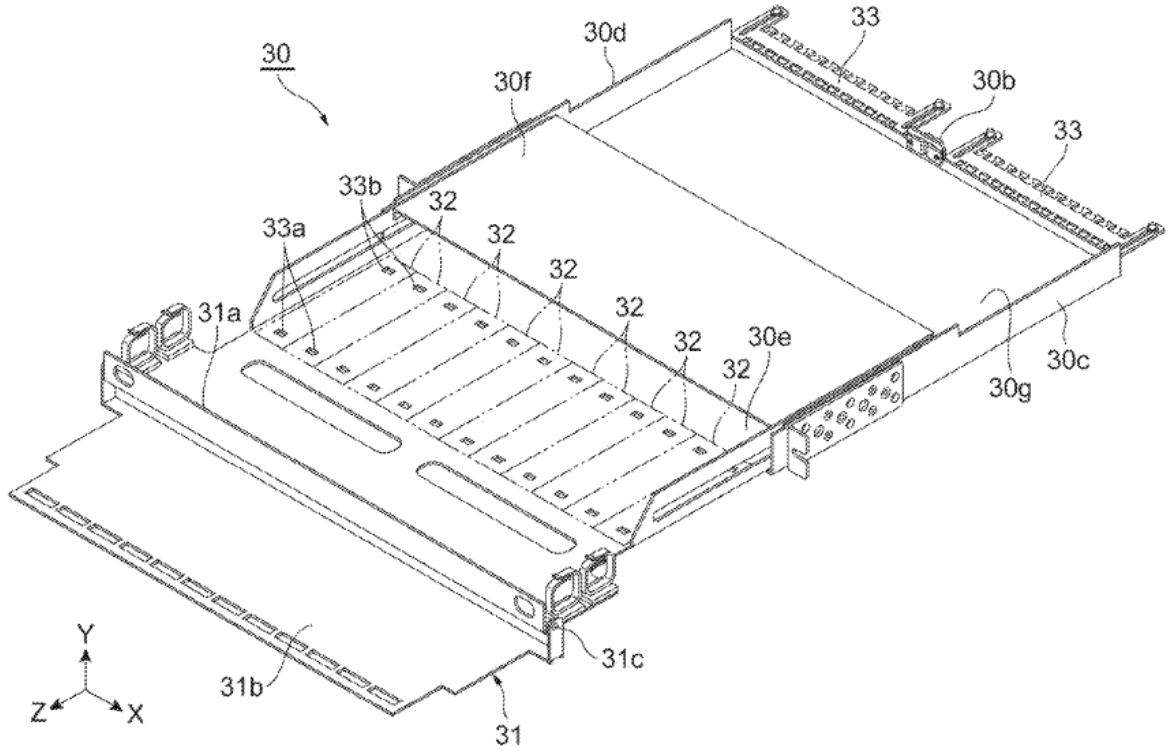
If PO argues the width of module 20 includes a space between the coupled modules 10A and 10B, that does not distinguish Fukui. EX1003 ¶¶129-144. First, PO's construction only requires the relevant number of receptacle modules. Second, Fukui's describes 10A and 10B are "fixed to each other," not spaced apart. EX1004, 10:13-14. Fukui's figures also show there is no room to space apart the coupled modules 10A and 10B when installed in the tray. EX1003 ¶¶131-33. Figure 8 shows no space between adjacent modules 10 (the lines merge together):

Fig.8



EX1004, Fig. 8. Modules 10A and 10B have the "same" shape as module 10. EX1004, 7:28-29, 8:3-6. Thus, when two coupled units 10A and 10B are installed in the tray, there is no room to space apart the modules. Figure 9 also shows no room to space apart adjacent modules that are coupled together. There is no extra space between adjacent areas:

Fig.9



EX1004, Fig. 9; EX1003 ¶¶131-33. Third, even if the width of module 20 includes a space between the coupled modules 10A and 10B, it would be obvious to remove such a space. EX1003 ¶¶134-147. Fukui never describes any need to space apart the coupled modules. A POSITA could easily make this modification (to the

extent any modification is even needed) by making the modules slightly larger to eliminate any extra space. EX1003 ¶¶142. A POSITA would also have been motivated to remove unnecessary spaces to (1) make it easier to align the modules during installation, (2) make the coupled modules more rigid, and (3) protect the fiber inside the modules from damages if anything enters a gap between the modules. EX1003 ¶¶137-141.

5. Element 1D

Element 1-D recites a *"fastener"* for securing the cassettes. Fukui's modules have hooks 11i, 11j for securing Fukui's modules to holes 33a, 33b in Fukui's tray. 8:52-56. Figures 2 and 9 shows this:

Fig.2

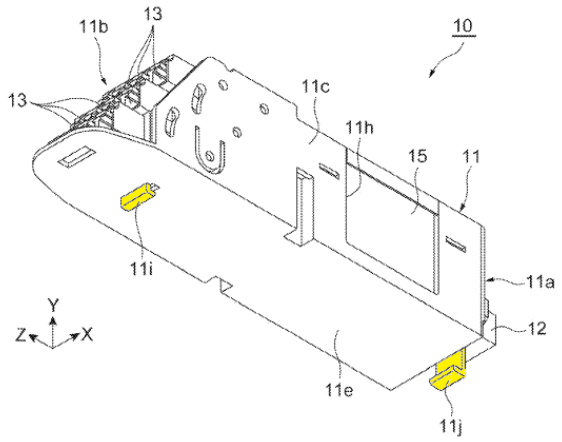
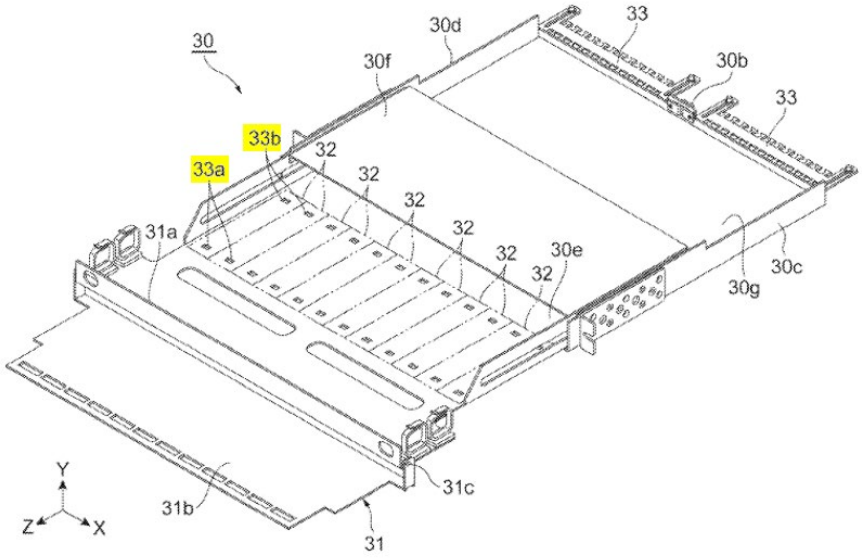
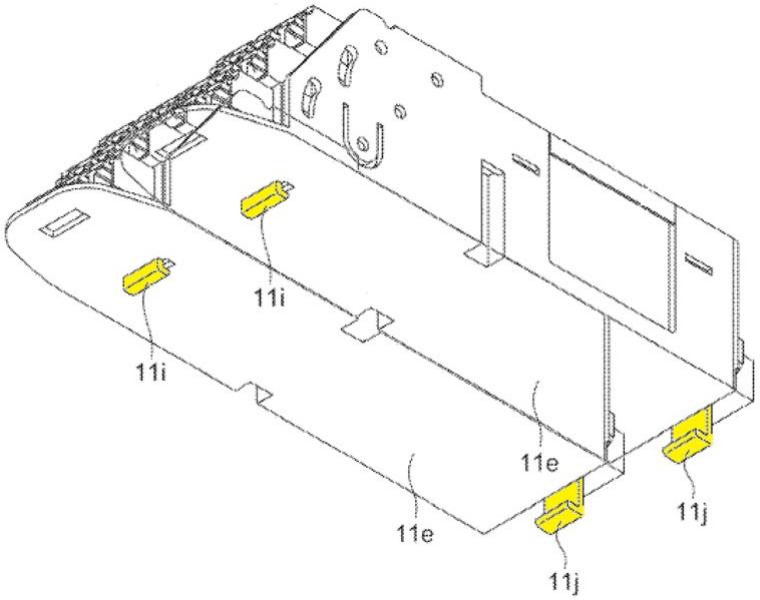


Fig.9



EX1004, Figs. 2, 9; EX1003 ¶¶146-47. Fukui's modules are removable and can be exchanged. EX1004, 3:65 ("easily removed"), 9:18-21 ("exchanging the module"); *see also* EX1004, 10:31-35, 4:38-43.

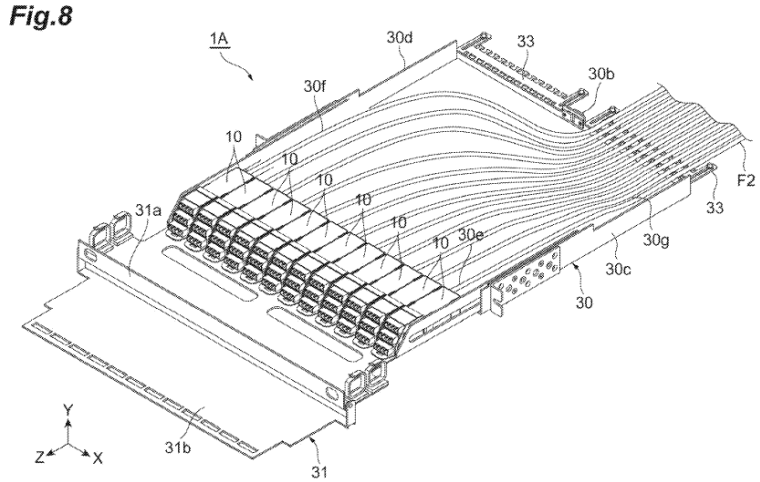
Because Fukui's module 20 is constructed from two modules 10, module 20 has the same hooks. EX1004, 7:27-29, 8:3-6, Figs. 4-5.

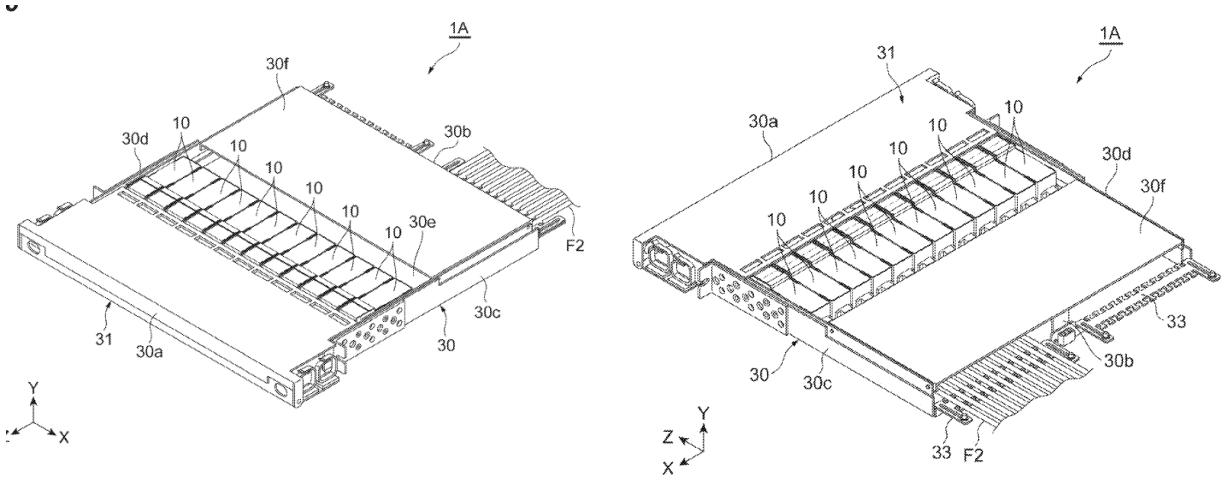


EX1003 ¶147.

6. Element 1E

Fukui's Figure 6-8 show that the outer side edges of the modules are *"directly adjacent"* as recited in this element:

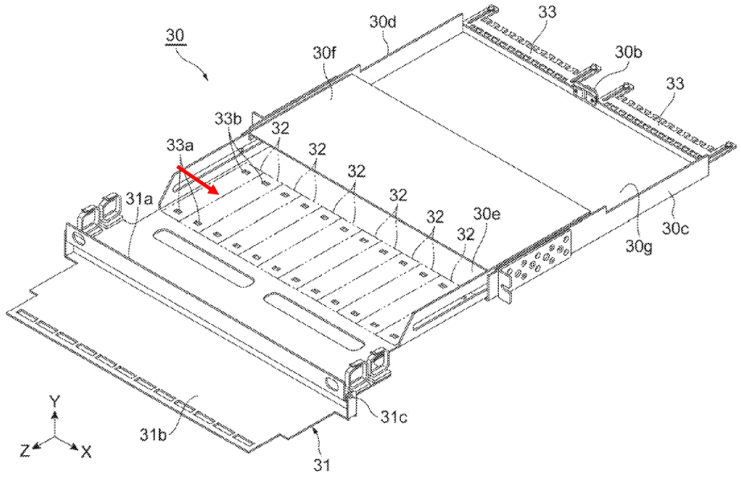




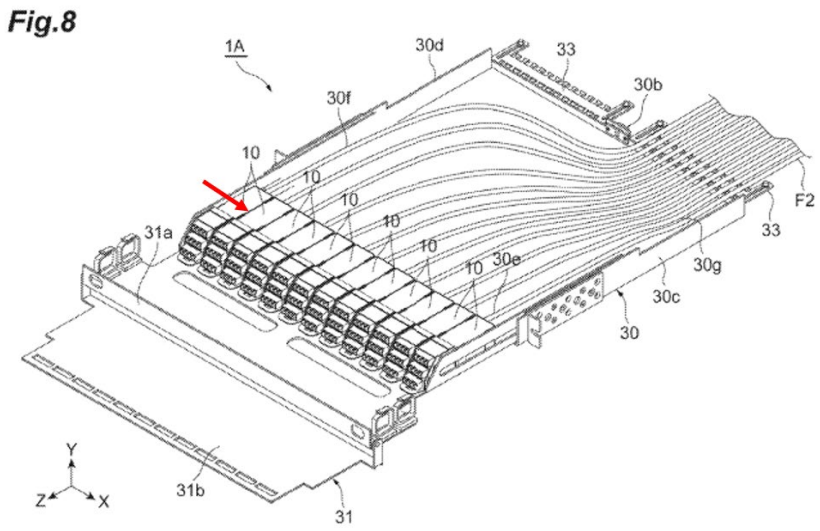
EX1004, Figs. 6-8, 4:36-37 ("adjacent lateral walls"); EX1003 ¶¶149-50.

Fukui also meets the constructions proposed by both parties in the litigation. EX1003 ¶¶151-54. Fukui's modules meet the language *"almost touching or touching"* recited in both constructions. Figure 9 shows the areas (32) for placing the modules touch each other:

Fig.9



EX1004, Fig. 9; EX1003 ¶152. Figures 8 show the modules touch when installed those areas 32:



EX1004, Fig. 6; EX1003 ¶152. The sides of adjacent modules come together to a single black line with no gaps showing the modules touch. *Id.* Fukui's modules also have no "*intervening strcuture"* as recited in the constructions because, as shown in Figure 9 above, the modules attach directly to the tray bottom (via holes 33). EX1004, 8:45-56.

B. Claim 2

Figures 8-9 shows Fukui's tray is "*dimensioned to receive at least twelve standard width units side by side"* as recited in Claim 2:

Fig.9

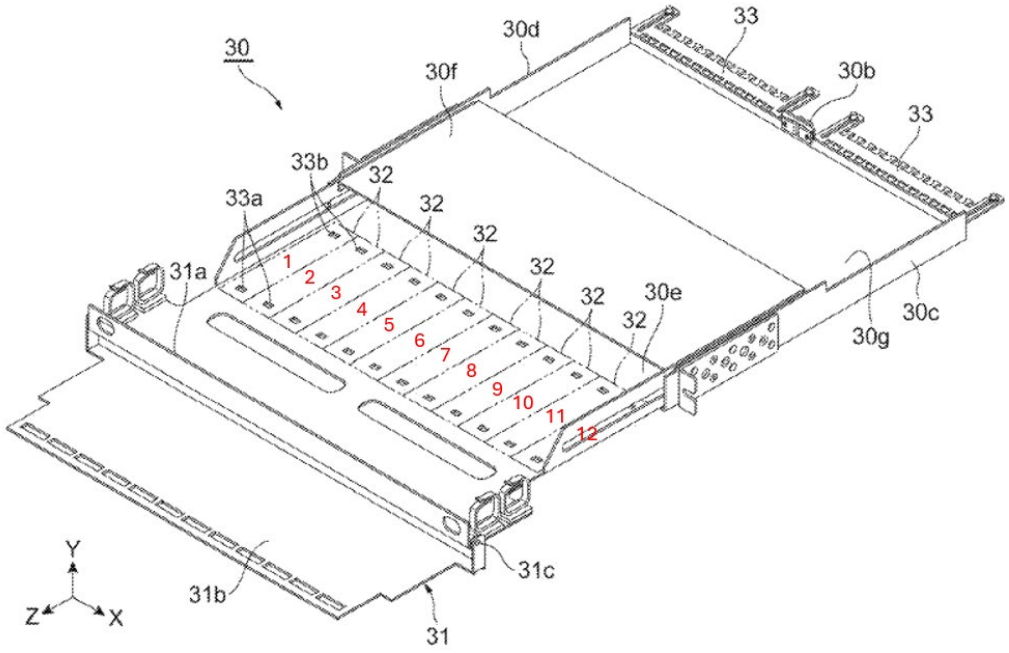
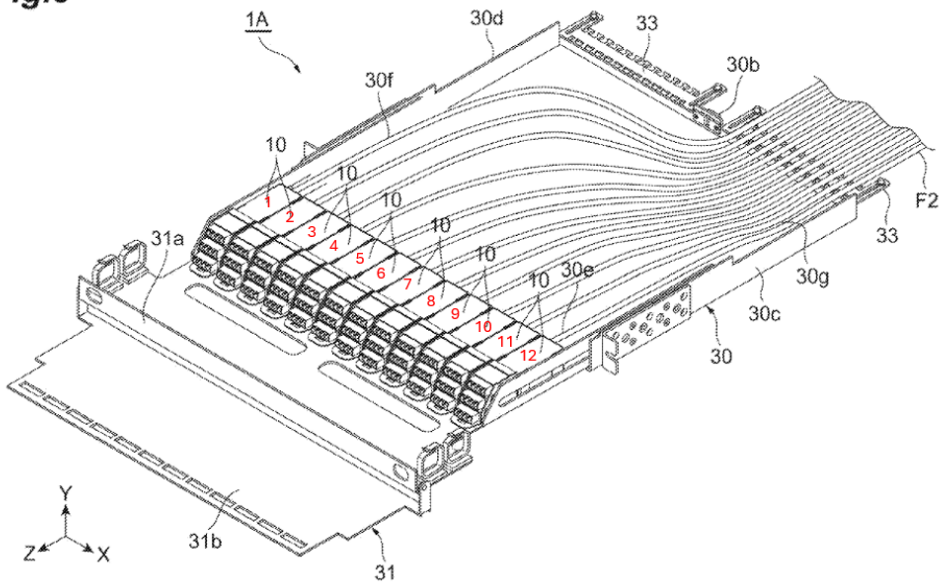

30
30d
33
30f
30b
33
33b
33a
32
32
32
32
32
32
30e
31a
1
2
3
4
5
6
7
8
9
10
11
12
30g
30c
Y
Z
X
31b
31c
31

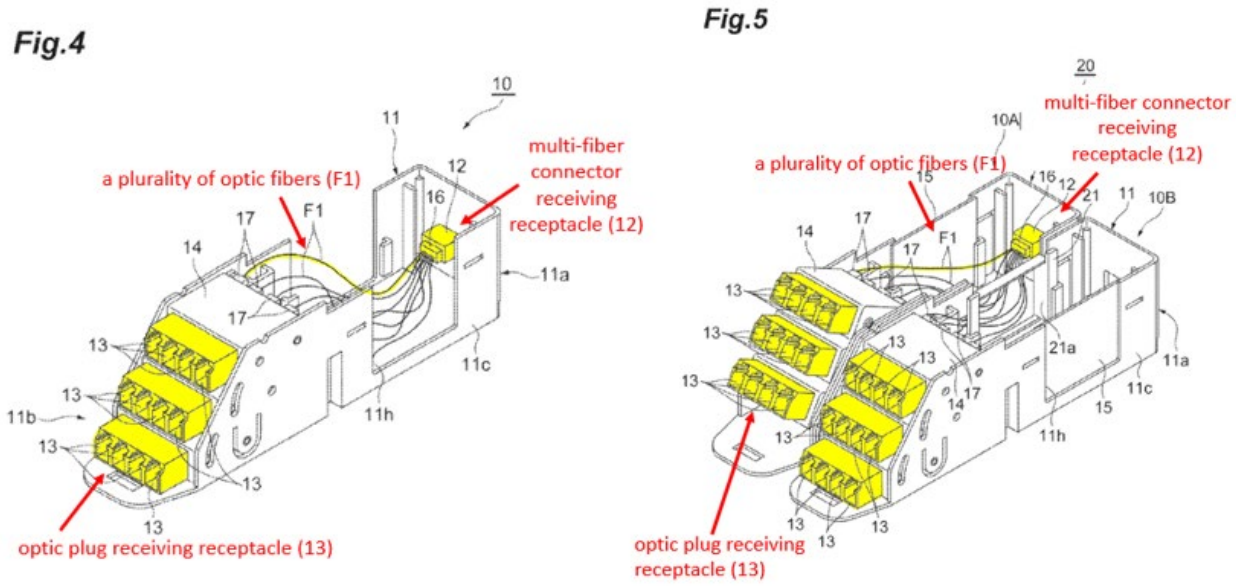
Fig.8


1A
30d
33
30f
30b
10
10
10
10
10
10
10
10
1
2
3
4
5
6
7
8
9
10
11
12
31a
30e
F2
33
30g
30c
30
Y
Z
X
31b
31

EX1004, Figs. 8-9; EX1004, 9:35-43 ("For example, in the case of the conversion module 10, up to 1 tierx12 rows of the modules 10, that is, 144 single-core optical connector adapters 13 in total are housed in 1 U size."); EX1003 ¶156.

C. Claim 3

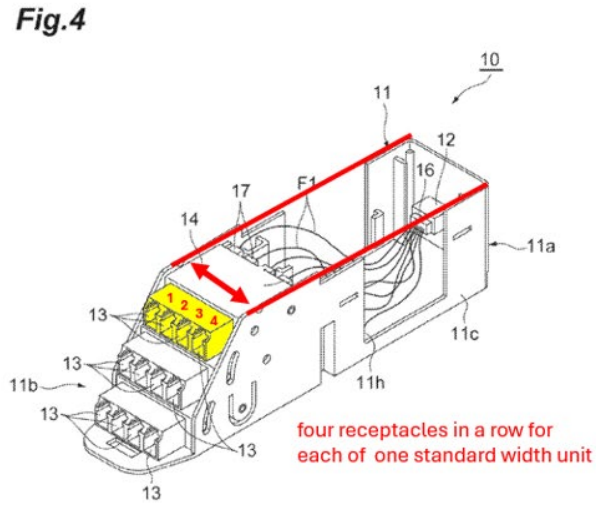
Figures 4-5 show that Fukui's modules have the *"receptacles"* and *"plurality of optic fibers"* recited in Claim 3:

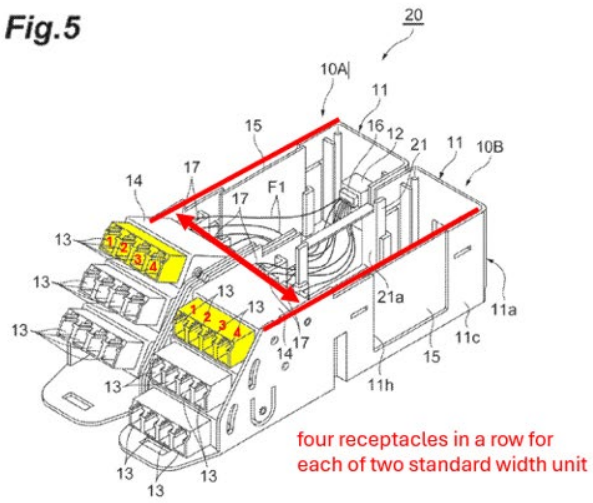


EX1004, Figs. 4-5; 4:66-5:4, 5:12-27, 6:33-48; EX1003 ¶¶158-59.

D. Claim 4

Figures 4-5 also show that Fukui's modules have the claimed *"four"* receptacles side by side in a rows for *"each standard width unit"* as recited in claim 4:



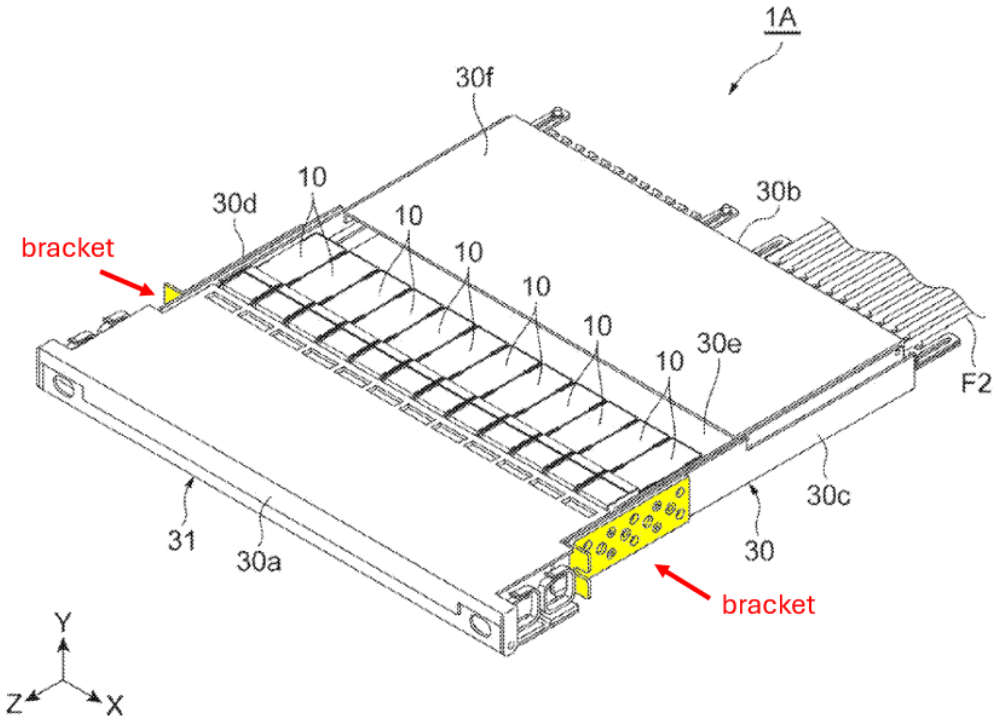


EX1004, Fig. 4-5, 5:24-36; EX1003 ¶¶161. Each module 10 (single or coupled) has "four single-core optical connector adapters" (13) side-by-side in three tiers. EX1004, 5:31-33, 7:27-29. Any of the three tiers meets the claim.

E. Claim 5

Fukui system is for a "19-inch *rack*" as recited in Claim 5. EX1004, 9:30-32. Figure 6 shows the mounting brackets:

Fig.6

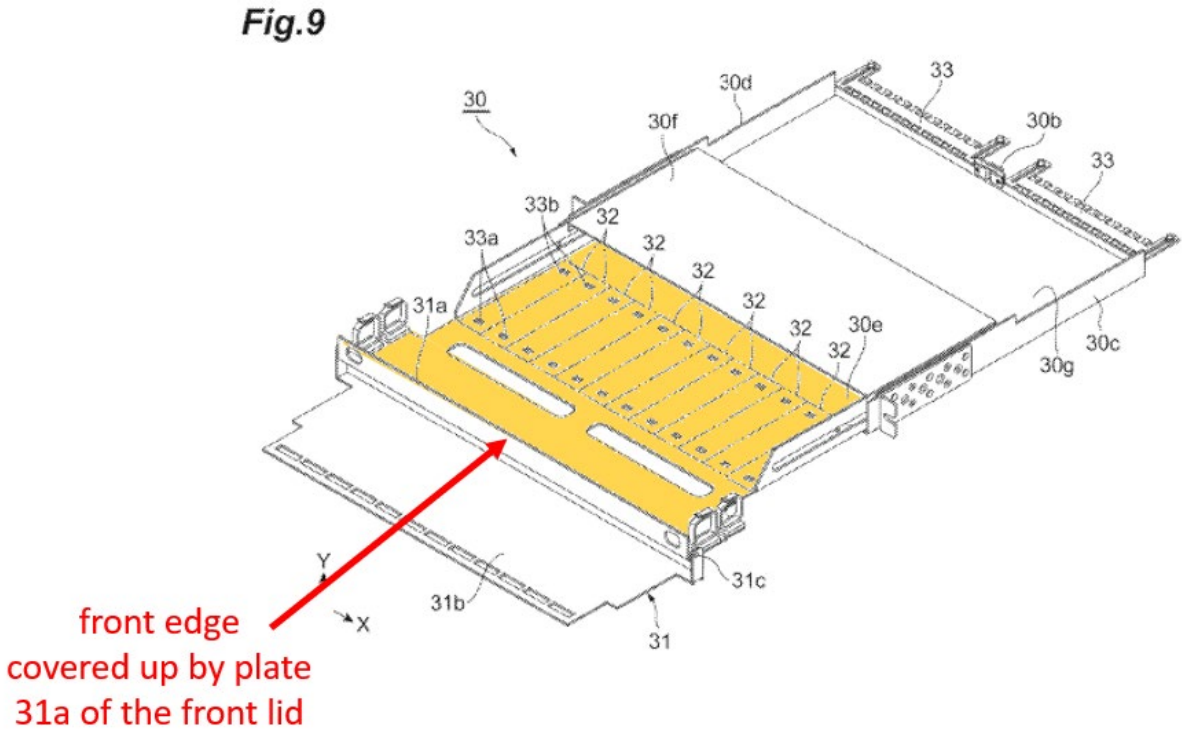


The bracket on the left side is partially covered up, but a POSITA understands it matches the right bracket. EX1003 ¶163.

F. Independent Claim 8

1. Preamble

Fukui discloses a method of organizing a tray. Fukui's tray is bottom panel 30e as explained for Element 1-B. Fukui's tray has a plurality of areas (32), below, for organizing the modules, including different numbers and combinations of the modules such as "up to" twelve modules 10 or a "combination" of modules 10 and 20. EX1004, 8:45-56, 9:35-44. Fukui's tray (panel 30e) has a front edge as recited in the preamble:



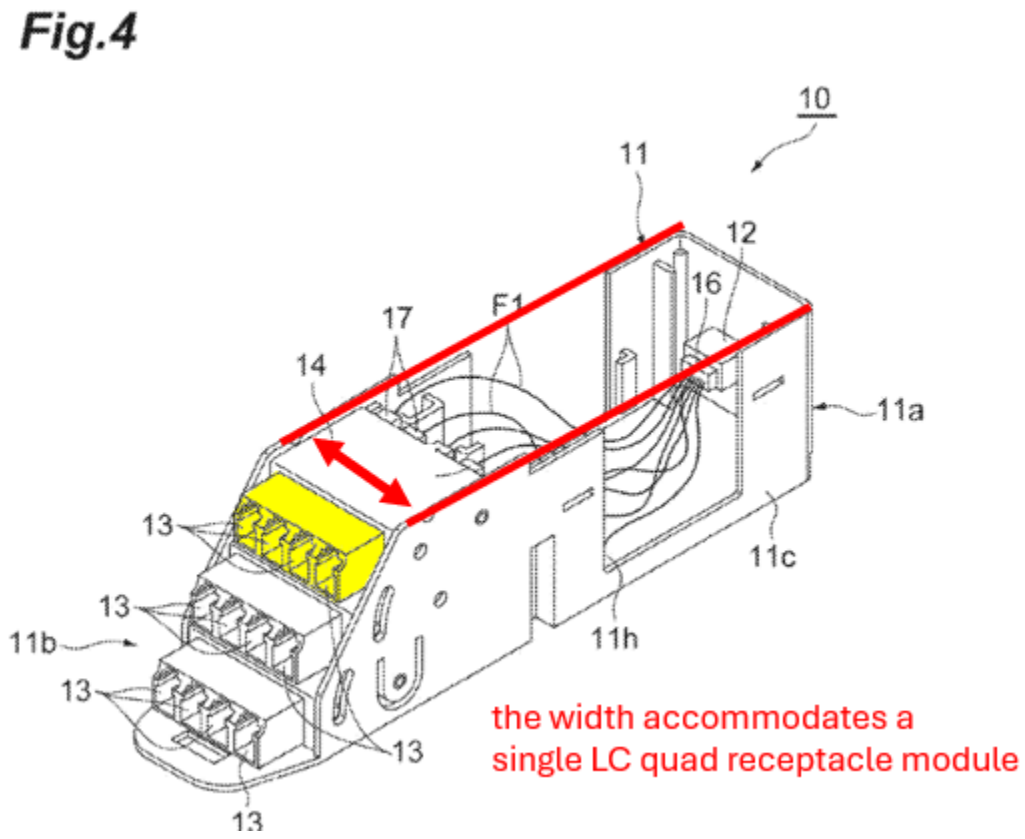
EX1004, Fig. 9; EX1003 ¶167. Fukui's tray (panel 30e) is part of a *fiber interconnect system* as recited in the preamble. Fukui's modules on the tray have fiber optic receptables on the front and rear with fibers (F1) interconnecting them. *See supra* at Claim 3; EX1003 ¶¶165-68.

2. Element 8A

"defining a standard with unit…."

Element 1-C explains that the Fukui's standard width unit is the width of module 10. Fukui defined the width of module 10 in Figures 1-4. Fukui further performed the step of defining module 10 as the relevant width unit by making it the "unit" for Fukui's larger modules and making it the unit for the twelve areas on Fukui's tray. EX1004, 7:26-27-29, 7:67-8:6, Figs. 5, 9; EX1003 ¶170.

The width of Fukui's modules 10 also meets PO's proposed construction in the litigation. PO proposes that "standard width unit" means "a unit of width that accommodates a single receptacle module, such as a LC Quad (SC Duplex) technology footprint comprising four connectors." EX1011 at 5. The width of Fukui's module 10 accommodates a single LC quad receptable module comprising four receptacles:



EX1004, Fig. 1, 5:34-36 (explaining the four adapters in each row are "made into one body," i.e., a quad LC adapter like PO's preferred embodiment).

> **"…wherein a width of the front edge is substantially evenly divisible by said standard width unit."**

The width of Fukui's tray has twelve evenly space areas (32) where each area accommodates one of Fukui's modules 10 (Fukui's standard width unit).

Fig.9

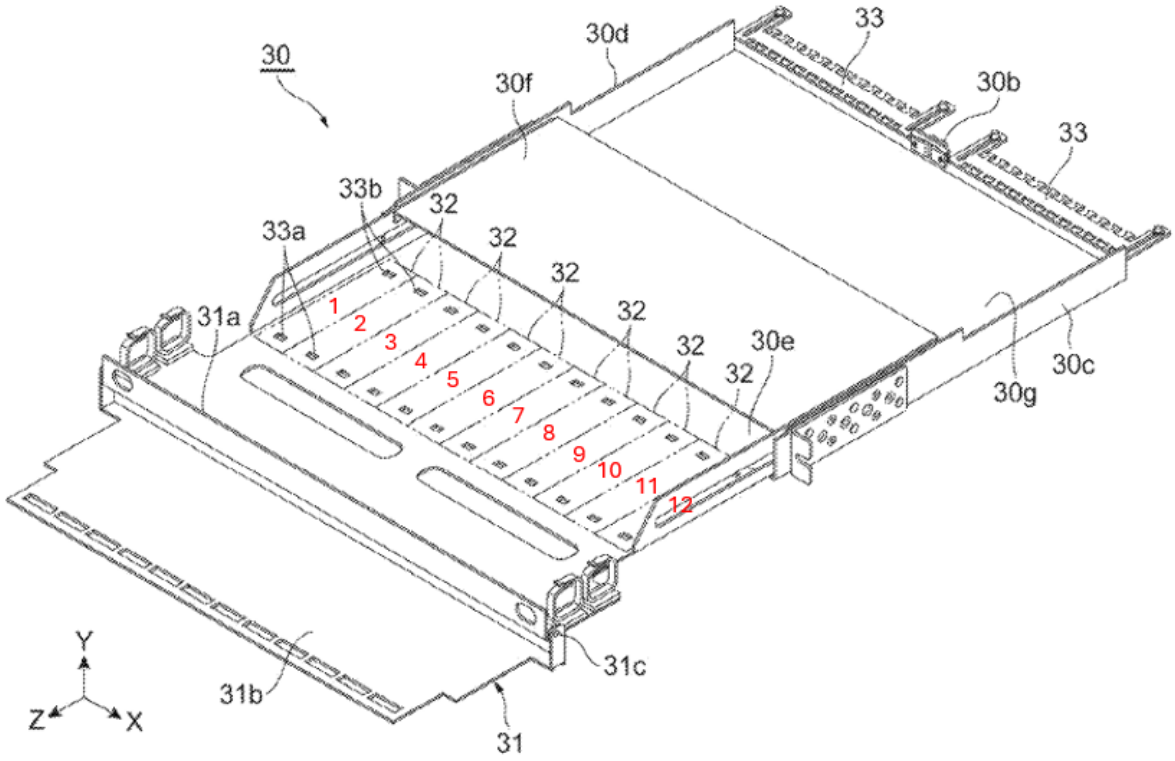
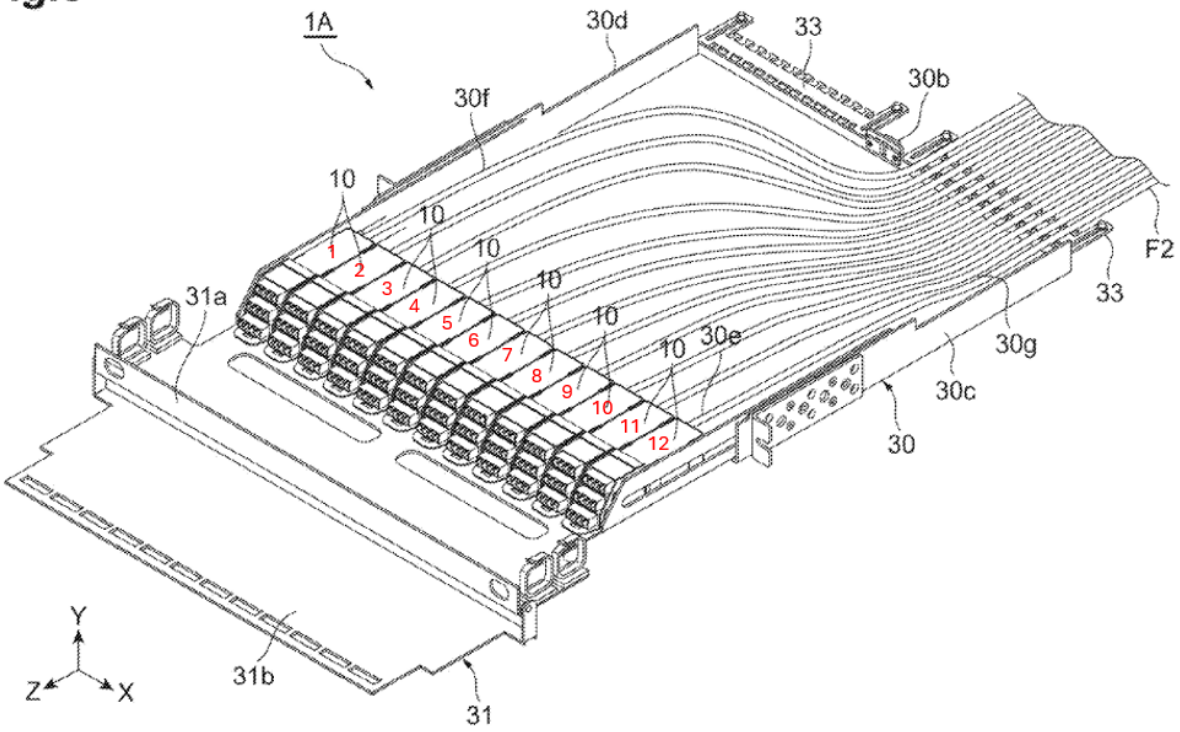
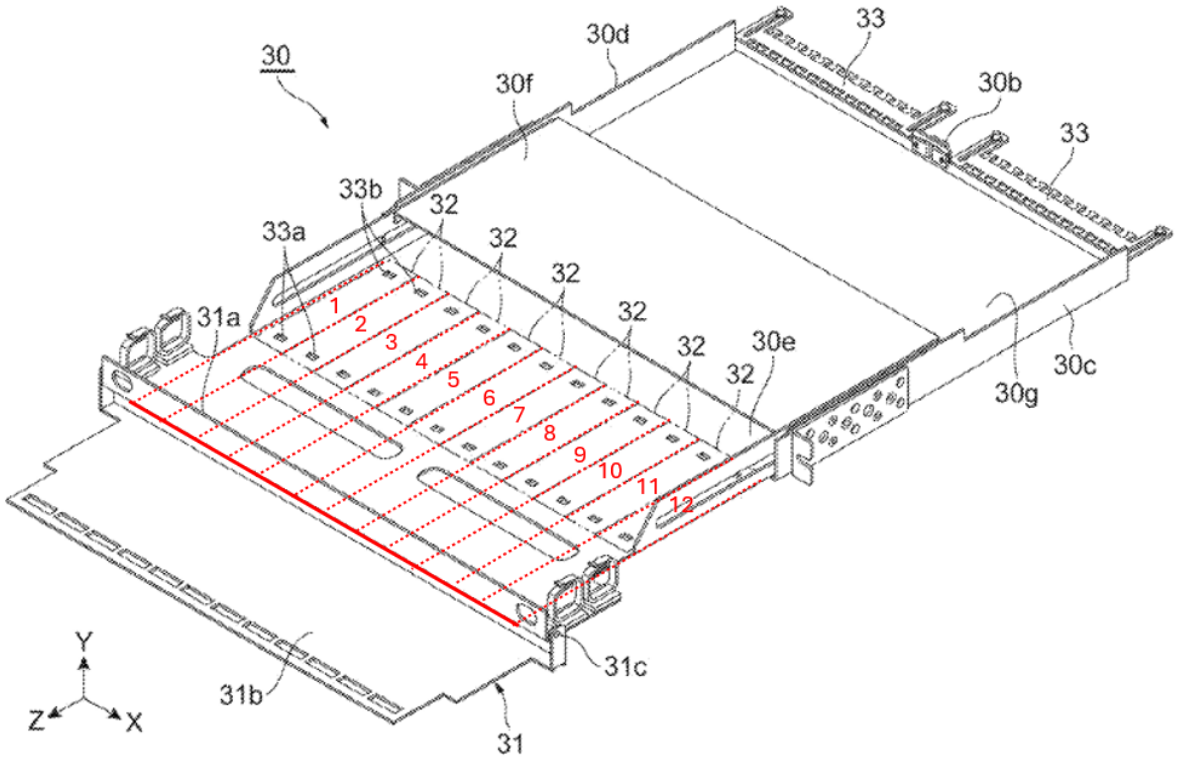


Fig.8



EX1004, Figs. 8-9; EX1003 ¶171. Likewise, a width of the front edge of Fukui's is evenly divisible by the Fukui's standard width unit:

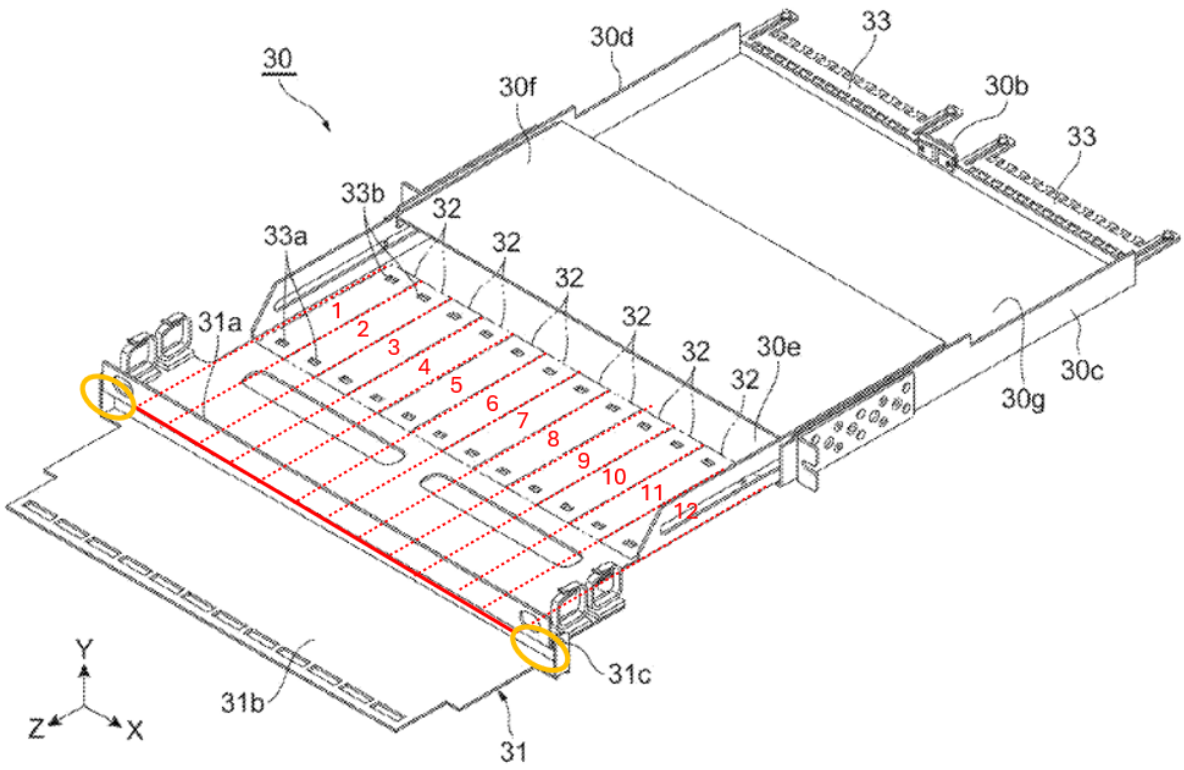
Fig.9



EX1004, Fig. 9; EX1003 ¶171. There are no gaps (remainders) between each of the twelve standard width units. EX1003 ¶171.

If PO argues there is some excess space on the right and left side of annotated width of the front edge of the tray (orange circled below), that does not distinguish Fukui under PO's own proposed construction. EX1003 ¶¶172-73.

Fig.9



Patent Owner's own proposed construction in the litigation for "substantially" evenly divisible expressly allows that "there may be some excess space between a cassette and an end of the front edge of the tray." EX1011, 17.[8] PO's own preferred embodiment has excess space on the side. Figure 4A shows the excess space on one side:

[8] Because the PTAB cannot resolve indefinite issuses as applied to infringement, CommScope adopted Patent Owner's construction of "substantially" evenly divisible for this IPR.

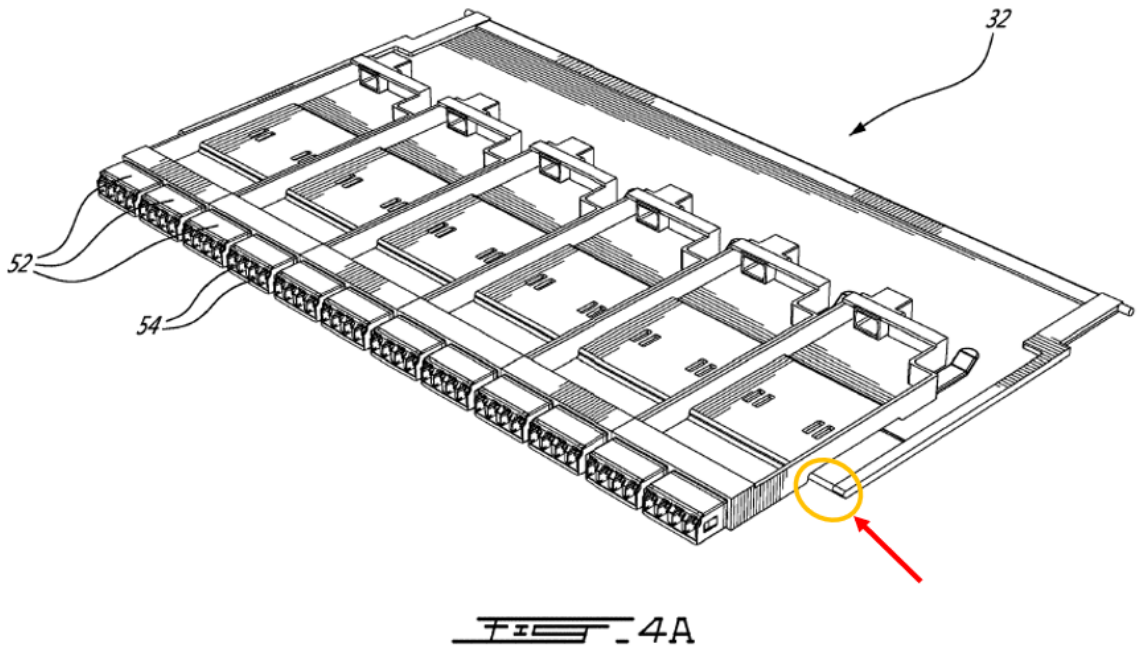
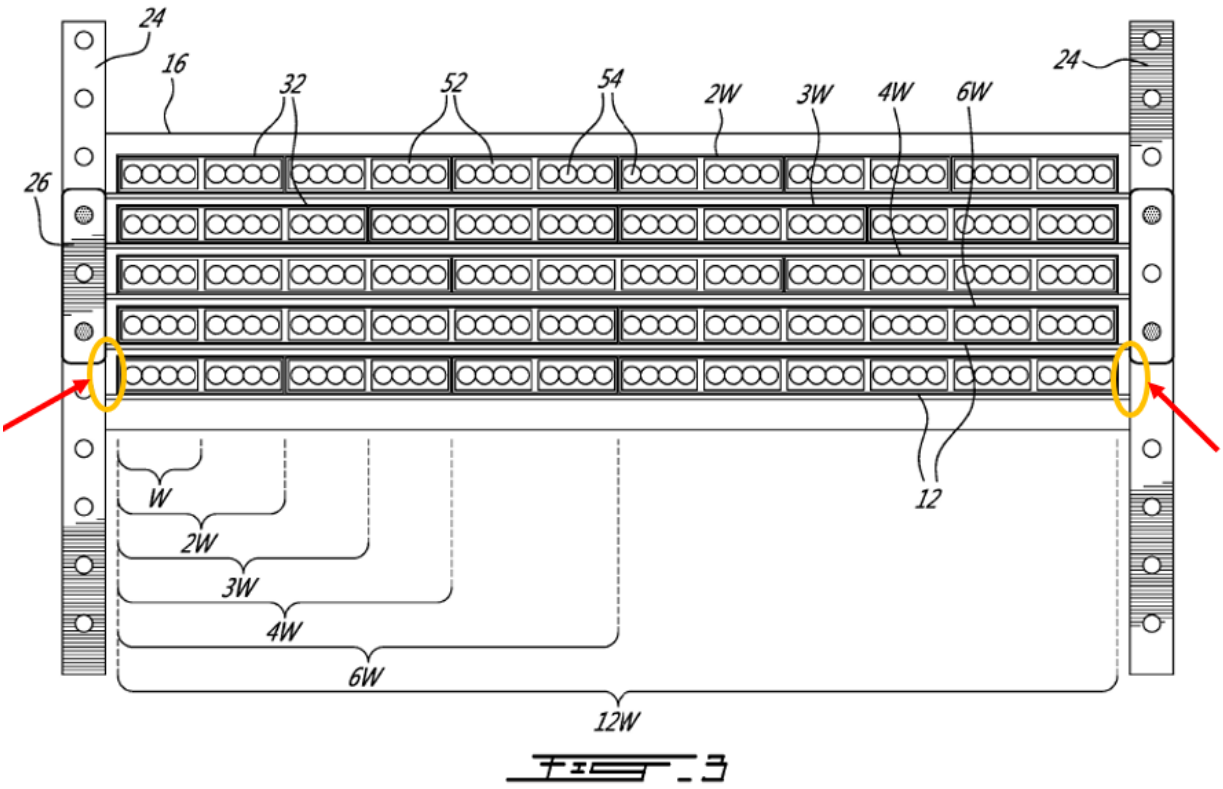


Fig. 4A

EX1001, Fig. 4A; EX1003 ¶174. Figure 3 shows the excess space also occurs on the other side:



EX1001, Fig. 3; EX1003 ¶174.

3. Element 8B

"selecting a plurality of cassettes for installation on the tray…"

Fukui expressly discloses selecting a "plurality of conversion modules." EX1004, 8:18. Fukui gives the examples of "up to" twelve modules 10, "up to" six modules 20, or a "combination." EX1004, 9:35-43, *see also* EX1004, 8:17-24; EX1003 ¶175.

"…from a set of cassettes having a plurality of different widths as measured between respective outer side edges thereof…"

Fukui's modules 10 and 20 have different widths as shown in Figures 4-5:

Fig.4

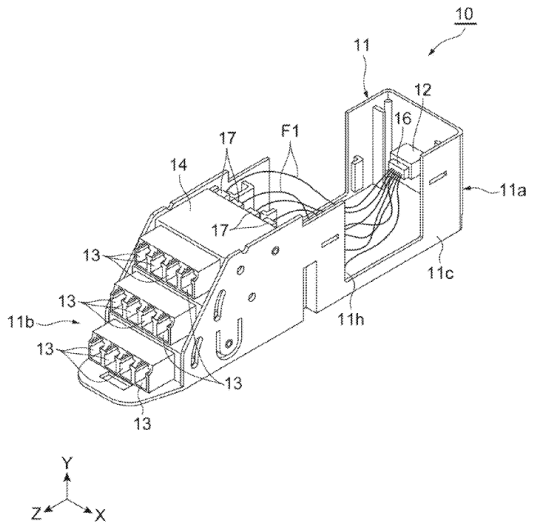
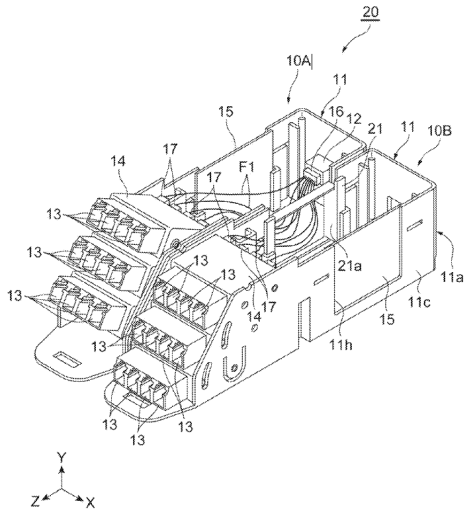


Fig.5



EX1004, Figs. 4-5, 7:25-29; EX1003 ¶177. The width of module 20 is two times the width of module 10. *Id.*

"…wherein each of said different widths is evenly divisible by said standard width unit"

Fukui's standard width unit, as explained above, is the width of module 10. *See* Element 1C. The width of each of Fukui's modules is evenly divisible by the width of module 10 because each of Fukui's modules is either one module 10 or a number of modules 10 coupled together. EX1003 ¶179. For example, Fukui's module 10 is "one" standard width unit and Fukui's double module 20 is "two" standard width units. *Id.*

Fukui's disclosure is similar to PO's preferred embodiment. In PO's preferred embodiment, the width of each cassette is evenly divisible by the standard width unit embodiment because each cassette is an "integer multiple" of standard width unit. EX1001, 3:49. Fukui modules are also integer multiples of

Fukui's standard width unit because each module is a "number" of unit modules 10 coupled together (e.g., 2, 3, 4). EX1004, 8:1-6 ("the number of the coupled unit modules… plurality of coupled unit modules…the required number of the same shape unit modules").

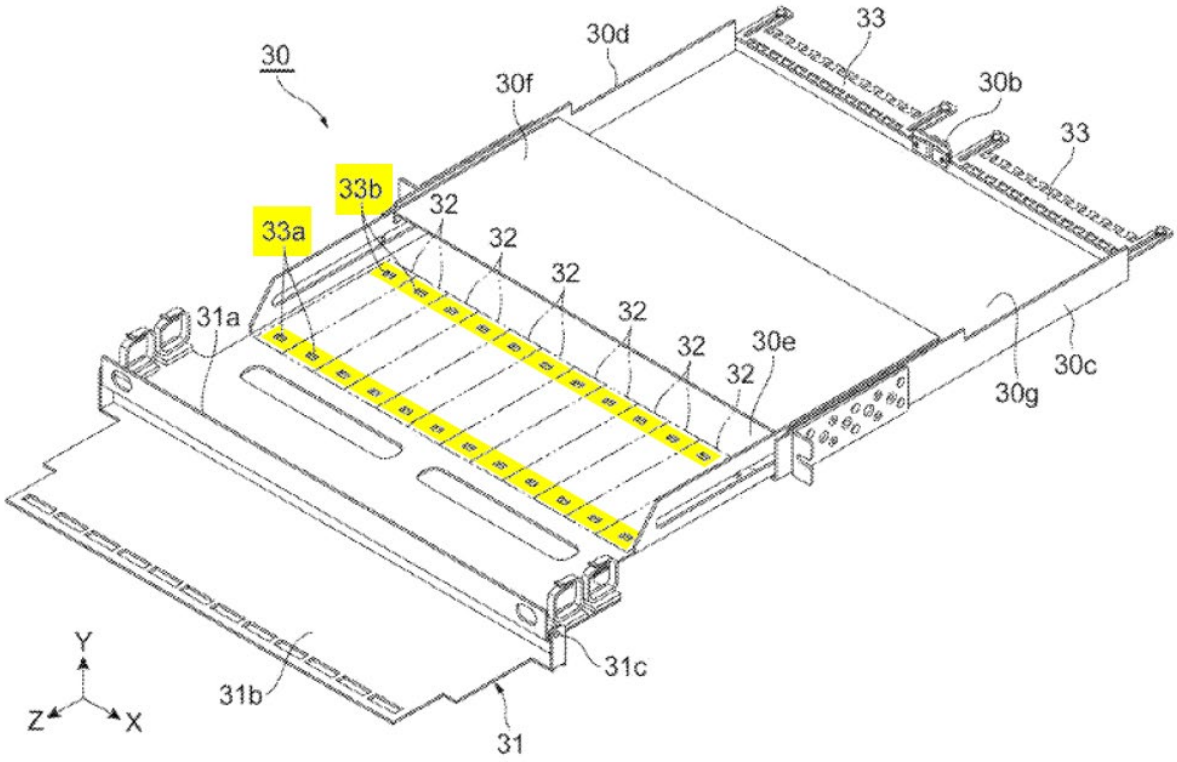
Even if Patent Owner argues the width of Fukui's larger modules (e.g., 20) includes some additional width or is not exactly evenly divisible, a POSITA would still find the claims invalid as obvious for the same reasons stated for Element 1-C. Even if there is a tiny space when the modules 10 are coupled, a POSITA would have found it obvious to make the coupled modules without any such tiny space such that, for example, module 20 is exactly two modules 10. *Supra* at Element 1C.

4. Element 8C

"releasably securing said selected cassettes…"

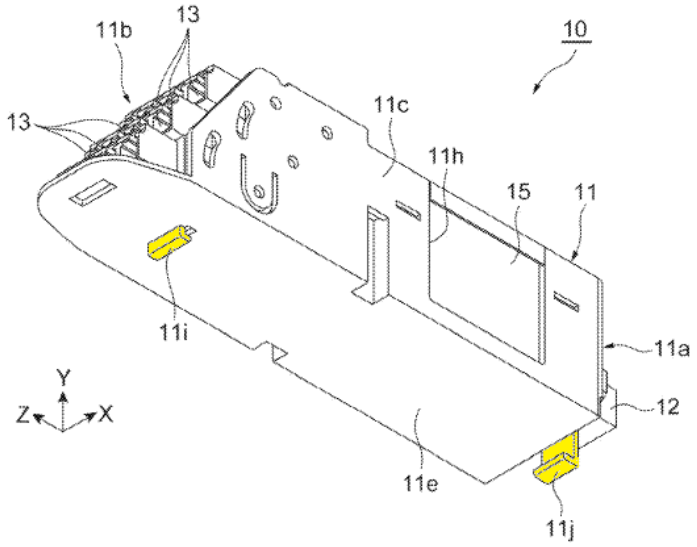
Fukui's tray has a plurality of areas (32) with holes (33a, 33b) for releasably securing Fukui's modules:

Fig.9



EX1004, Fig, 9, 8:52-56; EX1003 ¶182. Fukui's module 10 has hooks (11i, 11j) on the bottom to "engage" the holes:

Fig.2



EX1004, Fig. 2, 8:52-56; EX1003 ¶182. Because Fukui's module 20 is constructed from two of Fukui's module 10, module 20 has the same hooks. EX1004, 7:27-29, 8:3-6, Figs. 4-5; EX1003 ¶182. Fukui explains that the modules can be "exchanged" (i.e., one module released and another secured) and "easily removed." EX1004, 9:18-29, 9:66-10:1, 10:33-35, 3:8-11.

"…along the front edge of the tray"

Fukui discloses or renders obvious this claim element for the same reasons discussed above in Element 1-C. *See also* EX1003 ¶183.

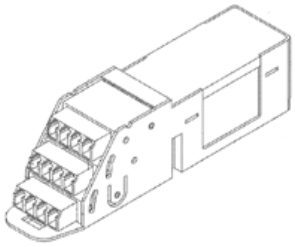
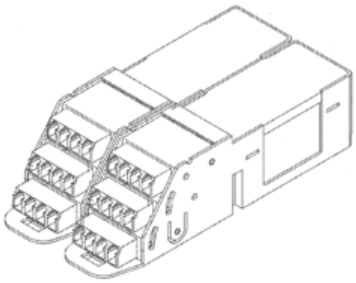
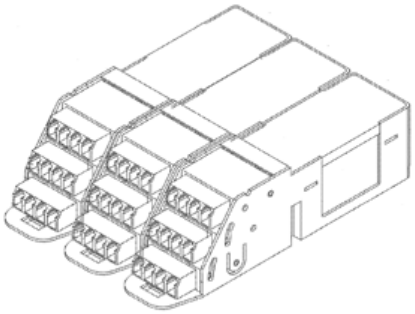
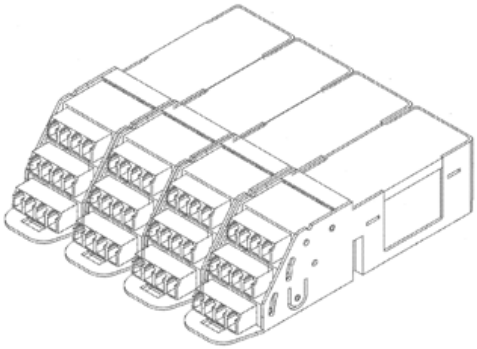
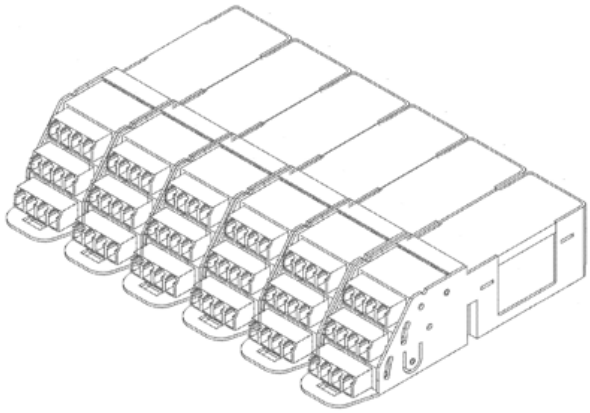
5. Element 8D

Fukui discloses this claim language for the same reason discussed for Element 1-E.

G. Claim 9

Fukui teaches to couple a "number" of unit modules 10 to form larger size modules to support cables with larger numbers of cores. EX1004, 8:1 ("number of the coupled unit modules"), 8:5-6 ("the required number of the same shape unit modules are prepared"). Module 10 comprises one unit module to support a cable with 12 cores. EX1004, Fig. 1. Module 20 comprises two unit modules to support a cable with 24 cores. EX1004, Fig. 5, 7:25-27. Fukui also teaches to expand further to support larger sizes "such as" 36 cores and 48 cores according to "the number of coupled unit modules." EX1004, 7:67-8:3. The "number" of coupled unit module is three to support 36 cores, and the number of coupled unit modules is four to support 48 cores. Fukui lists 36 and 48 cores as "such as" examples, which allows for further expansion. Fukui broadly teaches that any "plurality of coupled unit modules" can be treated together so long as "the required number of the same shape unit modules are prepared," which includes preparing six coupled unit module. EX1004, 8:1-6; EX1003 ¶185. Thus, Fukui teaches one, two, three, four, and any plurality (e.g., six) of coupled unit modules to support cables with 12, 24, 36, 48, and any "various" number of cores. EX1004, 3:27-28, 4:2-3, 4:42-43, 9:58-59, 10:4-6, 10:34-35; EX1003 ¶185.

Here is demonstrative showing the different numbers of modules coupled together:

Single (12 core) module 10	Double (24 core) module 20
	
Triple (36 core) module	**Quadruple (48 core) module**
	
Six (72 cores) module	
	

EX1003 ¶186.

If Fukui disclosure to couple six unit modules is not sufficiently express, a POSITA would it obvious based on Fukui itself. Fukui itself discloses a "plurality" of coupled unit modules, which includes six coupled unit modules.

EX1004, 8:2-3. Fukui itself teaches to support a "number" of coupled of unit modules, which also includes six coupled unit modules. EX1004, 7:67-8:6.

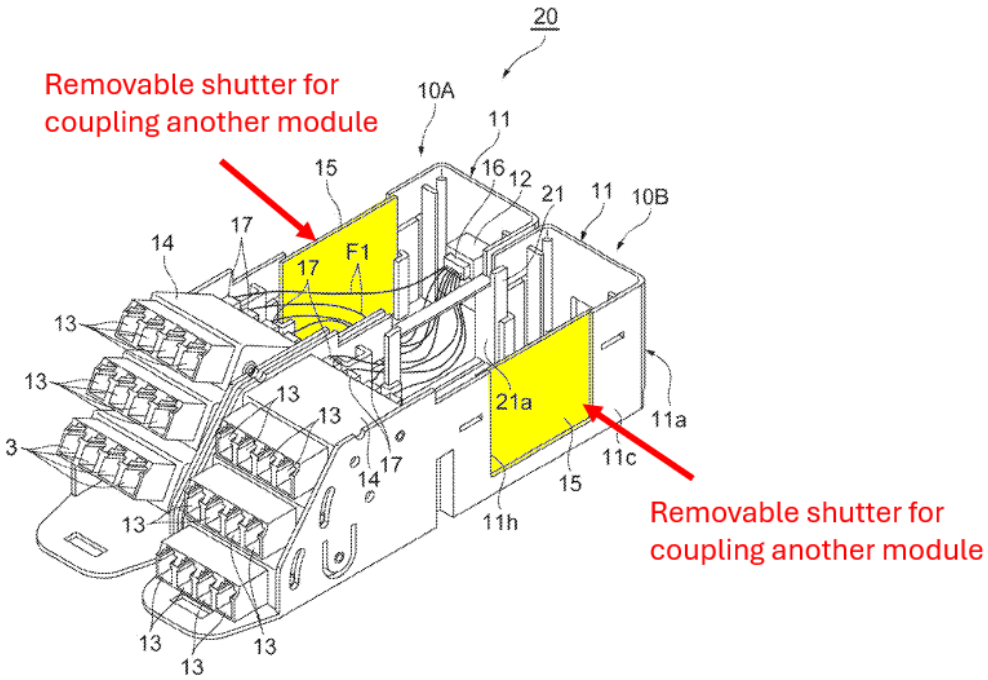
Motivation. A POSITA would be motivated to coupled six unit modules to support cables with 72 cores (which requires 6 x 12 core unit modules 10).[9] Fukui broadly teaches to support the "various" number of cores, which includes 72 cores. EX1004, 3:27-28, 4:2-3, 4:42-43, 9:58-59, 10:4-6, 10:34-35; EX1003 ¶188; EX1032, 4:35-38.

Reasonable expectation of success. Fukui's already discloses the functionality to couple six unit modules. The coupled units each have detachable shutter on the other side for further expansion.

---

[9] A POSITA would also be motivated to coupled six unit modules to more easily support two cables with 36 cores. Because each coupled unit module 10 has a space for rear connector, multiple cables can be plugged into the coupled unit modules. Fukui is concerned with "reducing the work" by combing functionality. EX1004, 9:18-29. By coupling six unit modules, the worker would only needs to install one six unit module for both cables instead of two three unit modules for each cable.

Fig.5



EX1004, Fig. 5; EX1003 ¶189. Fukui's already teaches expanding to 48 cores (four coupled unit modules). When four unit modules are coupled, the outer coupled units each would also an additional detachable shutter on the outer side to add two more coupled unit for a total of six coupled units. EX1003 ¶189.

H. Claims 10-11

Fukui discloses selecting "up to" twelve individual modules 10 (same width) or a "combination" of module 10 and the larger module 20 (different widths). EX1004, 9:35-44; EX1003 ¶¶191-94. Figures 6-8 illustrate selecting twelve modules 10 (same width). EX1004, Figs. 6-8. Fukui's alternatively explains that "a part or all" of the modules in the figures may be larger module 20, including at least one of each module 10 and 20. EX1004, 8:17-24.

I. Claim 12

The analysis for claim 9 shows that Fukui discloses coupling different numbers of unit modules 10 (e.g., one, two, three, four, etc.), which discloses the claimed three cassette sizes. *See also* EX1003 ¶196.

A POSITA would also find this claim obvious in view of Fukui itself. *Motivation*. A POSITA would have been motivated to select three different sizes of modules to simultaneously support cables with three different numbers of "cores," e.g., 12, 24, and 36 cores. EX1003 ¶198. Fukui itself discloses the need to support "various" number of cores, including 12, 24, and 36. EX1004, 3:27-28, 4:2-3, 4:42-43, 9:58-59, 10:4-6, 10:34-35. *Reasonable expectation of success*. No new functionality is needed. Fukui's existing tray and areas 32 already can support three different number of coupled unit modules, e.g., one (white), two (orange), and three (green):

Fig.8

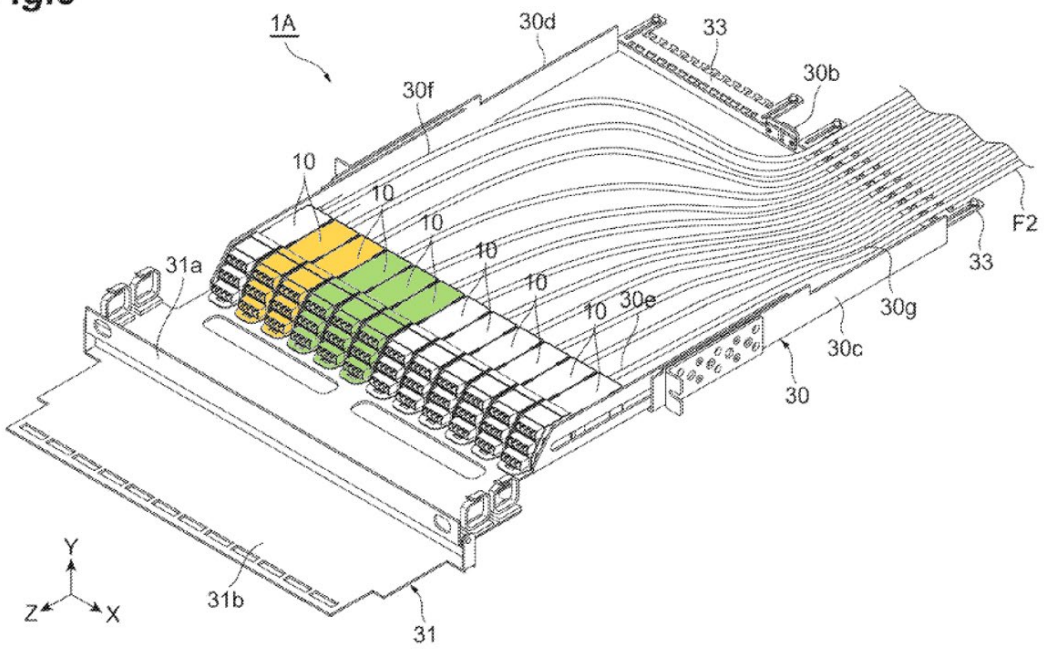
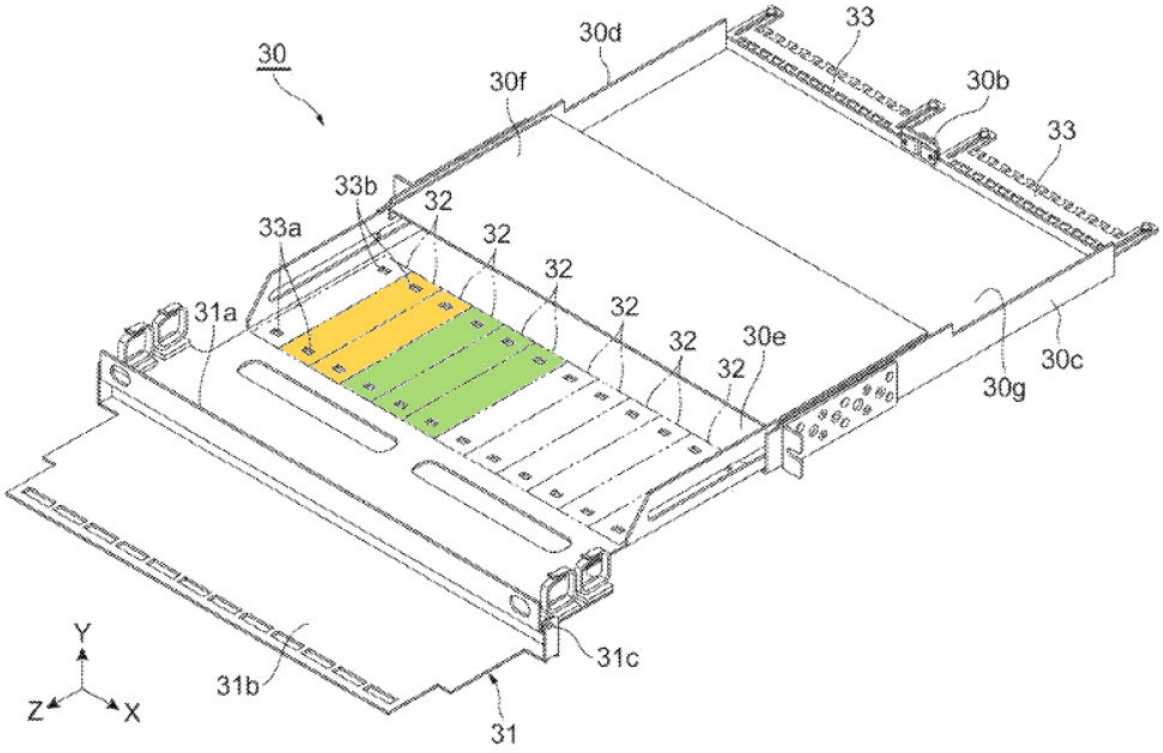


Fig.9

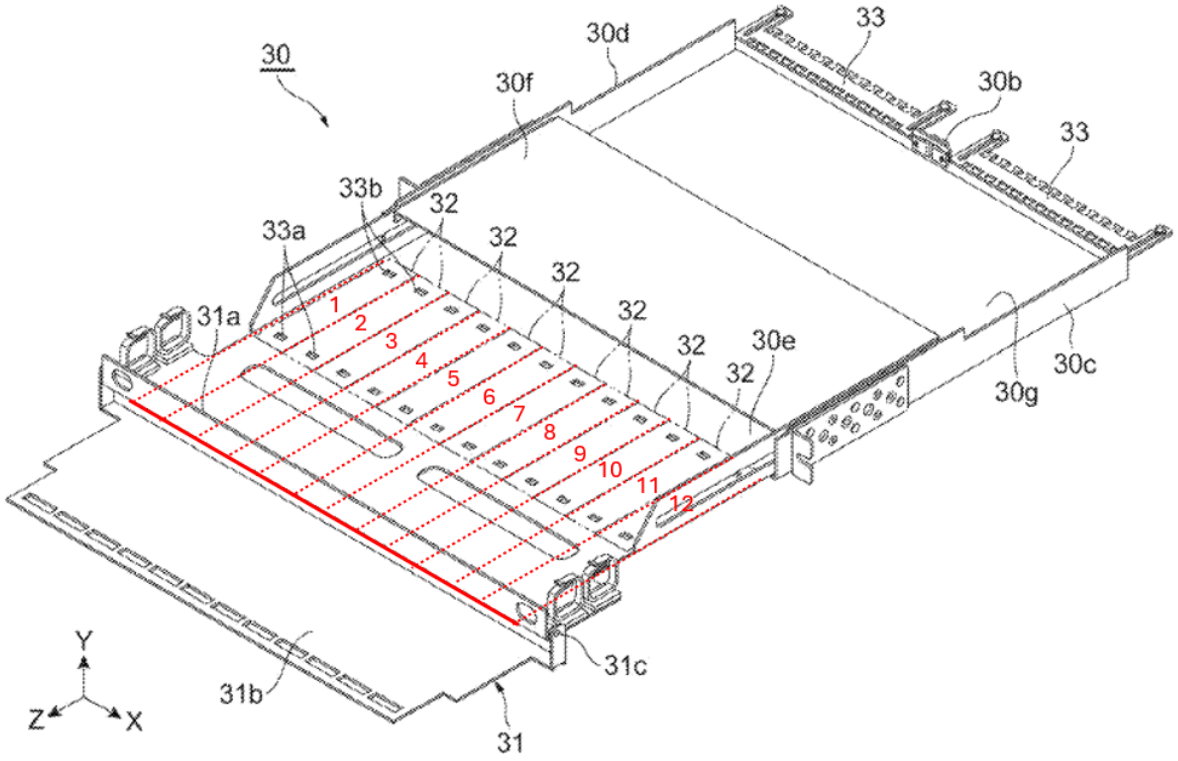


EX1003 ¶198.

J. Claim 13

Fukui discloses this claim for the same reasons discussed for Element 8A. Figure 8 shows the width of the front edge of Fukui's tray is evenly divisible by a maximum of twelve standard width units and does not include a thirteenth standard width unit:

Fig.9



EX1004, Fig. 9; EX1003 ¶200.

Ground 2: Fukui anticipates Claims 8-13

Ground 1 addressed the second set of claims (8-13) together with the first set of claims (1-5) because it is unclear whether PO will reinterpret its position on the

scope of the "along" the front edge of the tray limitation that implicates CommScope's obviousness arguments for both sets. If PO does not reinterpret its position, Fukui also anticipates 8-13. Claims 8-13 do not require the other elements discussed for obviousness (e.g., a top wall). Ground 1 shows Fukui discloses each and every element of claims 8-13 if PO does not reinterpret its position on "along" the front edge of the tray.

Ground 3: Sauter alone renders Claims 1-5, 8, 10-13 obvious

A. Independent Claim 1

At least under the interpretation and application of the claims adopted by the Patent Owner Sauter alone discloses or renders obvious each element of claim 1.

1. Preamble

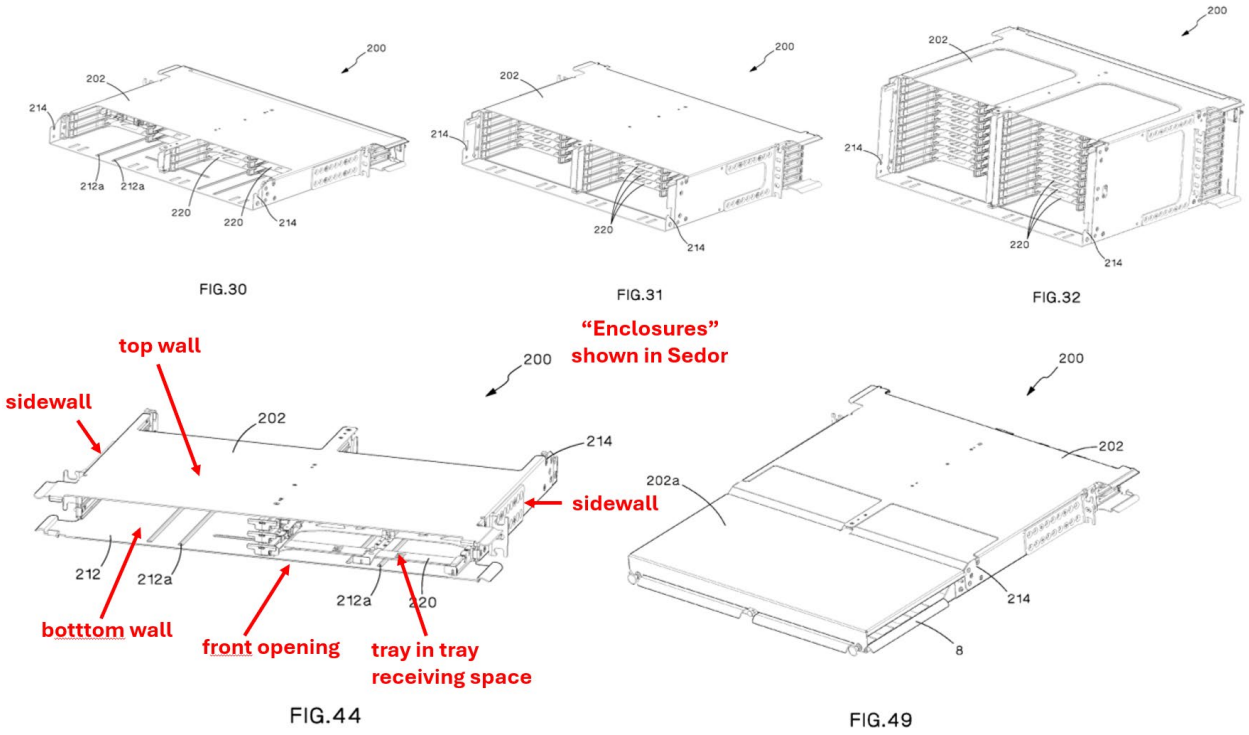
If limiting, Sauter discloses the preamble. Sauter discloses a modular fiber optic cassette system. Figures 1-16 of Sauter illustrate embodiments of a modular EX1006 at Figs. 1-16, 1:5-6 ("a fiber optic cassette system"); 4:1-4; EX1003 ¶¶208-209.

2. Element 1A

Sauter discloses Element 1A because Sauter discloses cassettes and sliding trays that can be disposed "within an enclosure." Sauter explains cassette-based systems include "an enclosure within which are installed one or more fiber optic trays." EX1006 1:25-28; 3:62-64 ("…used within a given enclosure…."); 4:1-28;

4:32-34; 6:39-40; 9:40-44; 10:4-5 ("…trays 1510 can be stacked within the enclosure 1508."); EX1003 ¶¶210-211.

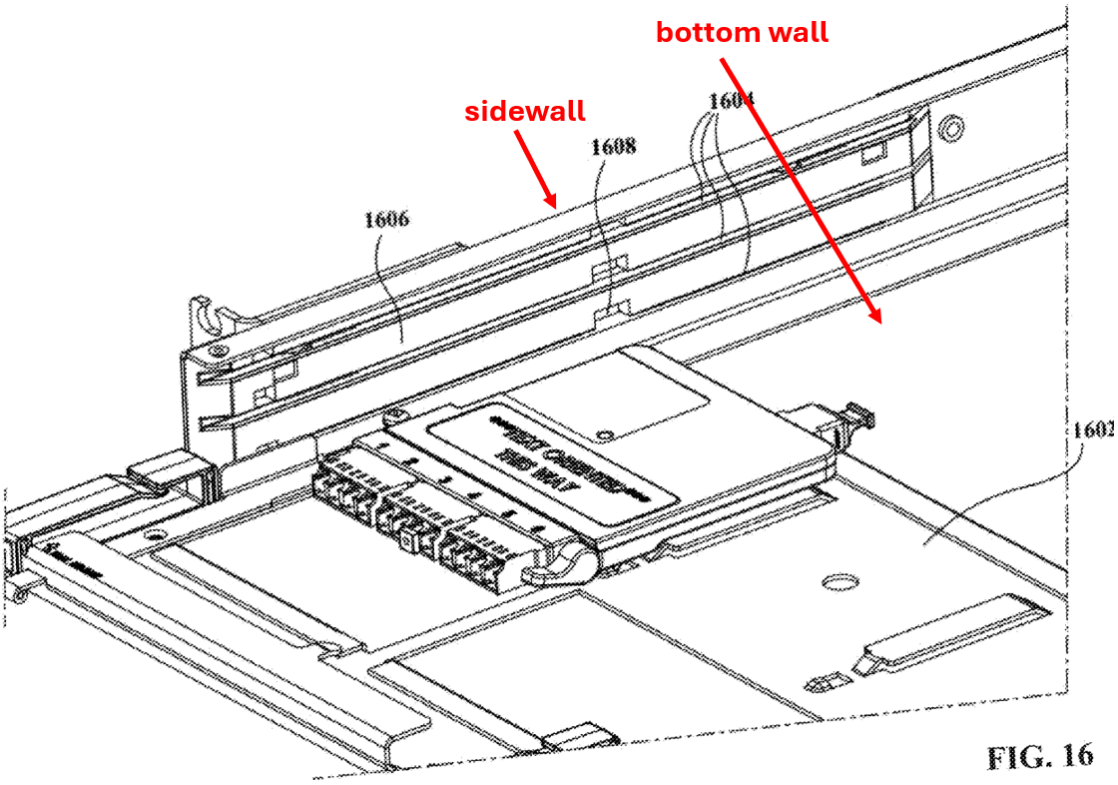
A POSITA understands that "an enclosure" includes a top wall, bottom wall, and side walls that define a case or box to enclose the trays. See, for example, EX1005 which illustrates "enclosures" for receiving stacks of trays. EX1005 at Figs. 30-32, 44-50; 1:13-15; 3:1-41; 13:5-7; EX1003 ¶212.



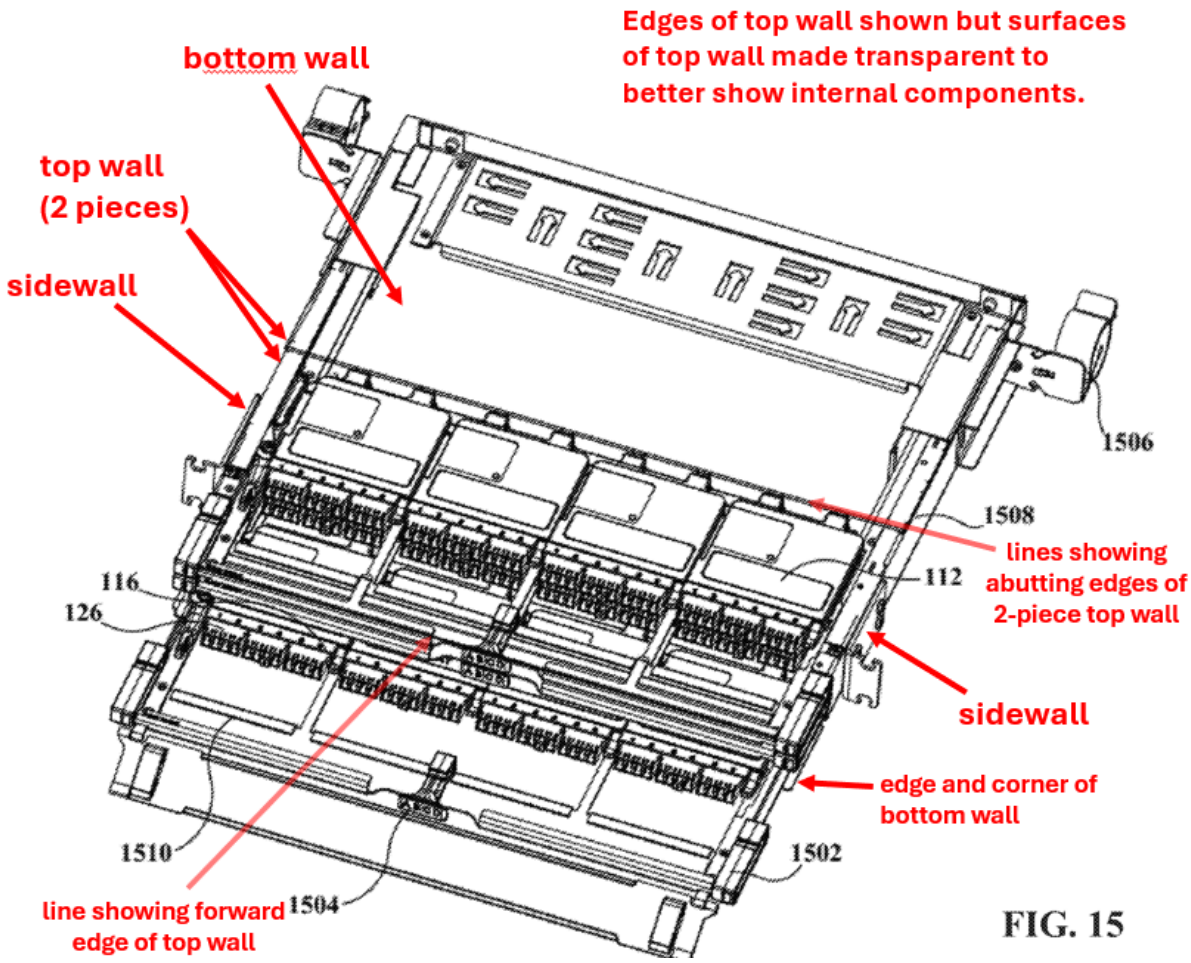
EX1005 Figs. 30-32, 44, 49.

Figures 15 and 16 of Sauter show an enclosure that satisfies Element 1A. EX1006 at 3:1-3; Figs. 15, 16; EX1003 ¶213. The enclosure is element 1508. It is easy to see the opposed side walls and bottom wall of the enclosure in Figures 15 and 16. The top wall is more difficult to see, but it is there. The top wall in the

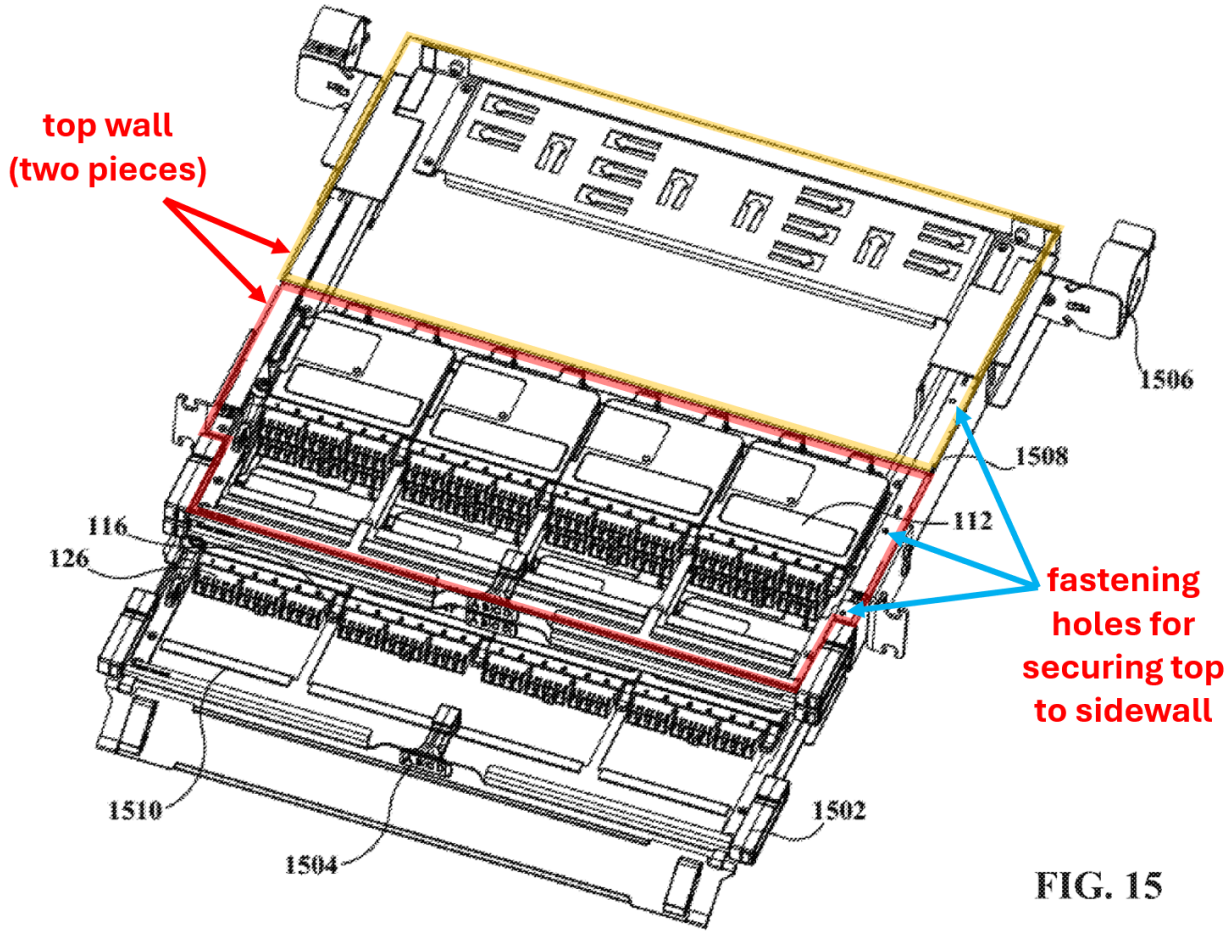
figure has been made transparent to reveal internal components. Yet Fig. 15 still shows the edges of a two-piece top wall and fastener holes to secure the top wall to the sidewall. EX1003 ¶213.



EX1006, Fig. 16.



EX1006, Fig. 15.



EX1006, Fig. 15.

The drawings originally filed by Sauter with his application included greyscale shading that helped to identify certain structures. See, e.g., EX1013 at 37, 38, Figs. 15, 16 (below). The shading in original Figs. 15 and 16 corroborate that a POSITA would understand Sauter's enclosure includes top and bottom walls. EX1003 ¶¶214-215.

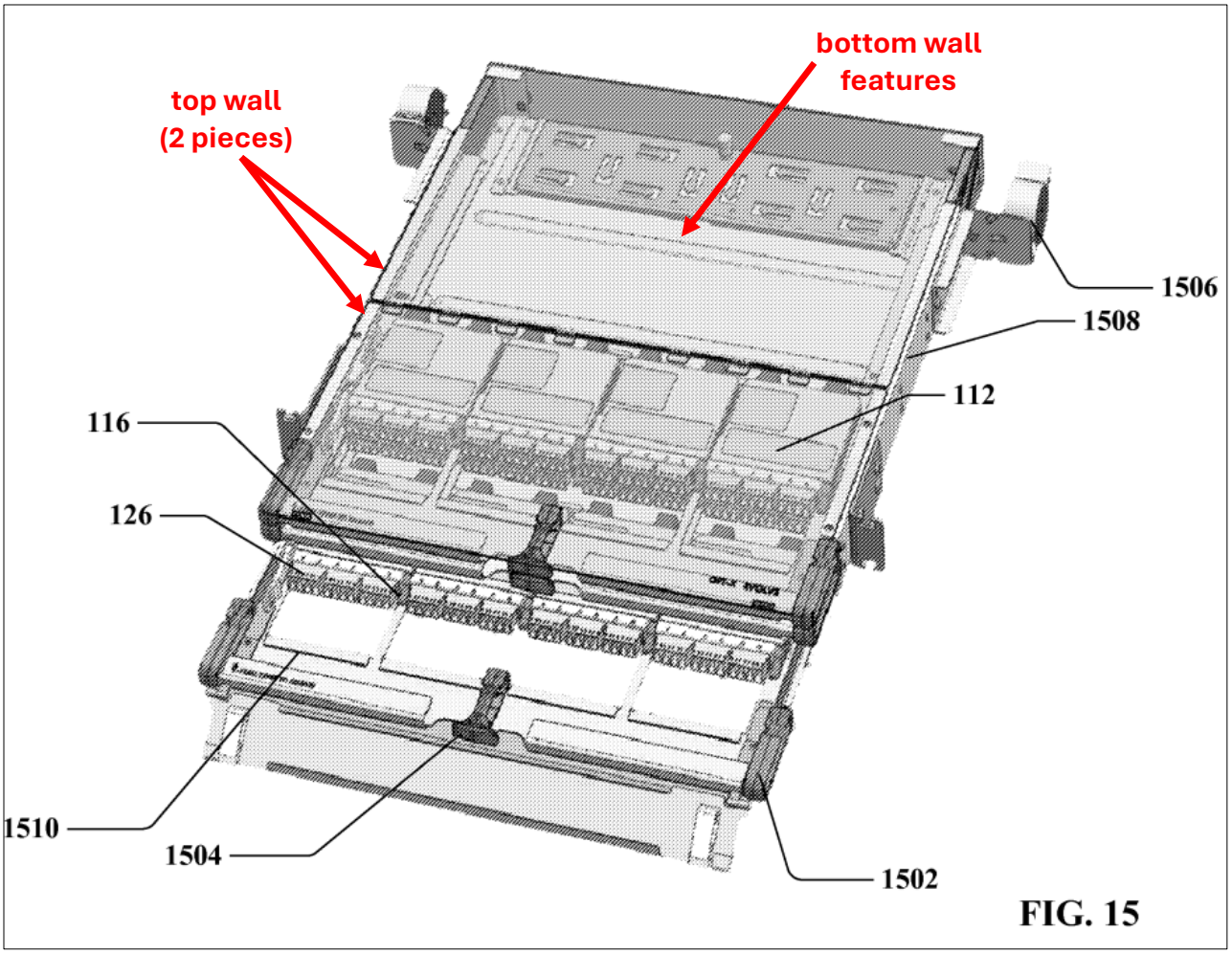


Figure 15 as originally filed by
Sauter included greyscale shading.

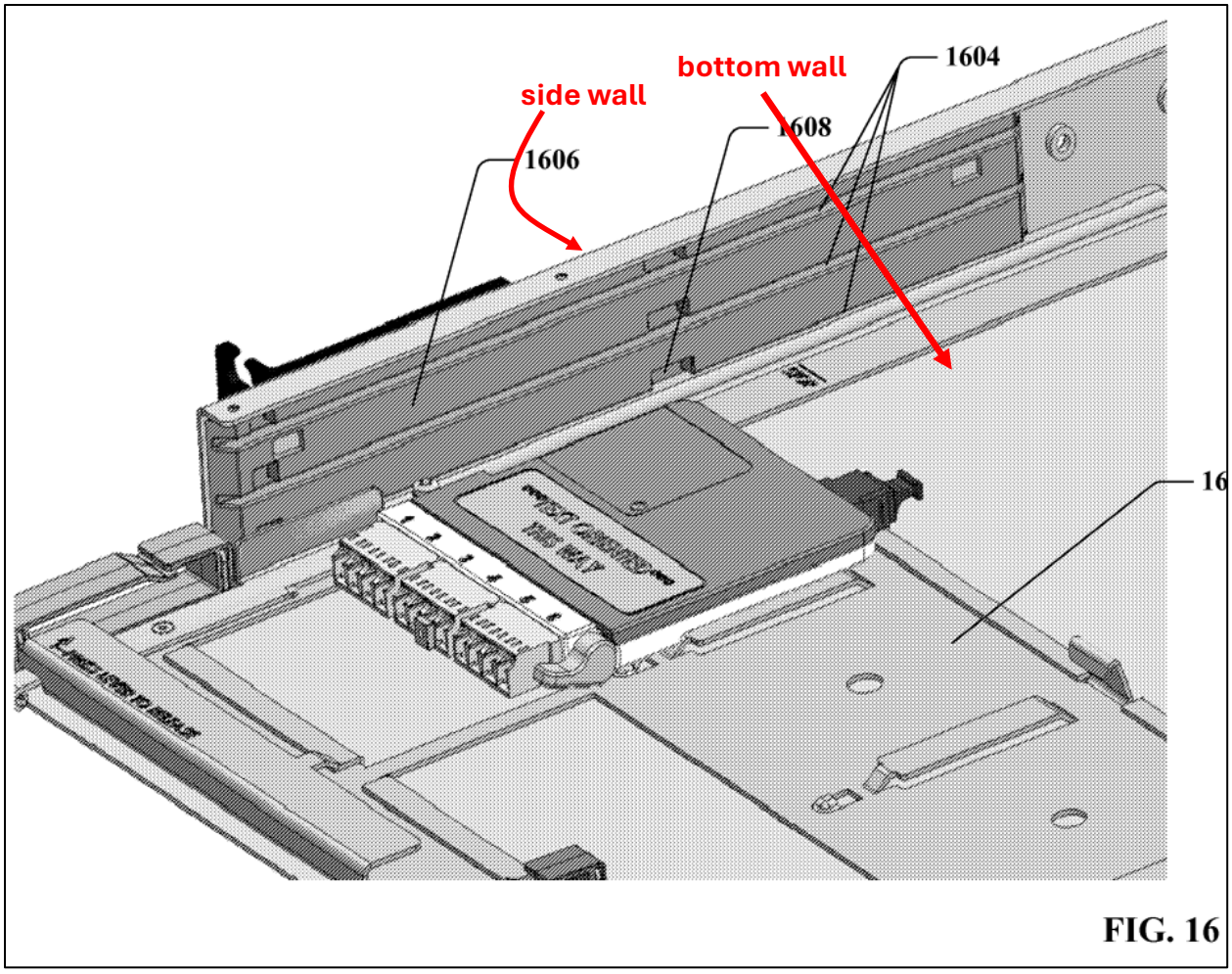


Figure 16 as originally filed by
Sauter included greyscale shading.

Alternatively, including top/bottom walls on Sauter's enclosure would have been obvious. It was well-known that optical fibers are inherently fragile. It would have been obvious to protect the fiber optic components within Sauter's enclosure by including top and bottom walls to surround the components above and below, which would protect the components from inadvertent damage. EX1003 ¶216. Adding simple, flat walls to the top and/or bottom of the enclosure would have

been well within the skill level of a POSITA. A POSITA would have a reasonable expectation of success because it requires only a simple mechanical connection that could be secured with screws. Sauter already includes suggested fastener hole locations for making the connection. EX1003 ¶216.

3. Element 1B

Sauter discloses trays (e.g., trays 102, 502, and 1510), that slide into a tray receiving space within an enclosure that meet all limitations of Element 1B. See, e.g., EX1006 at Abstract; 1:54-58; 4:1-28; 2:44-45; Figs. 1-5, 7-8, 11, 15-16; 10:4-5. EX1003 ¶¶217-218.

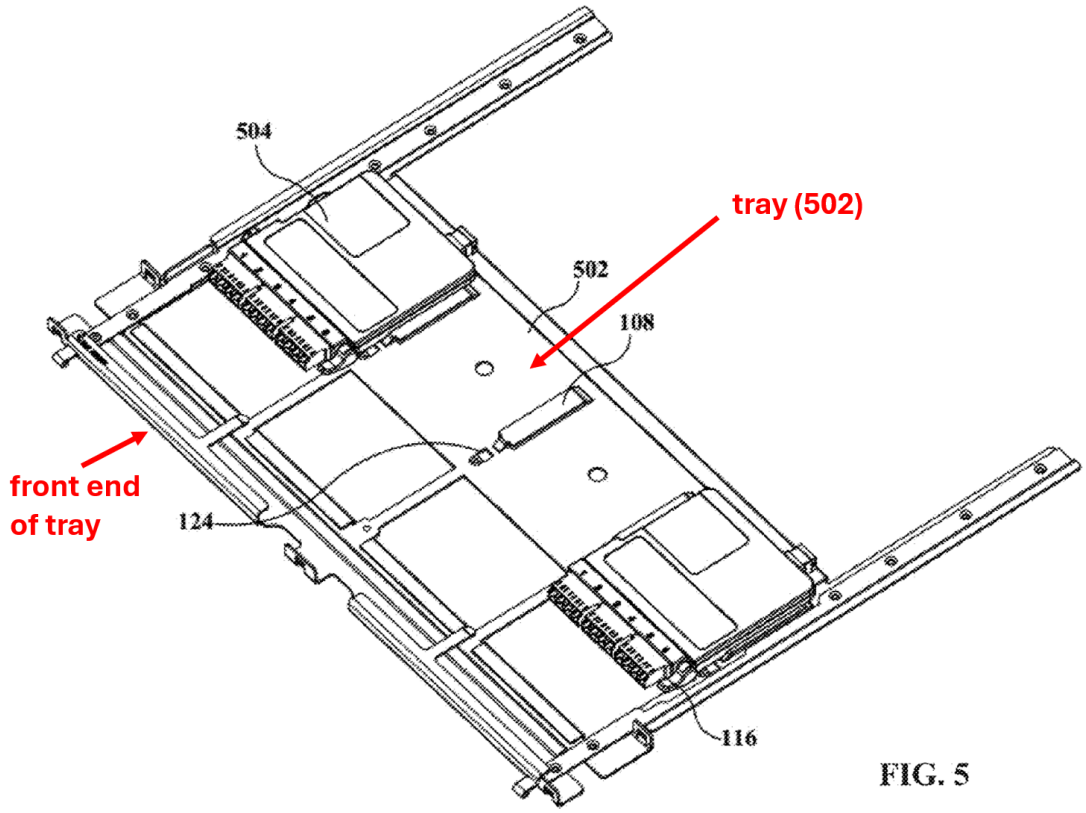


FIG. 5

Figs. 15 and 16 of Sauter show how the trays are slideably received by the enclosure in a stored position completely within the enclosure or in an accessible position as claimed.

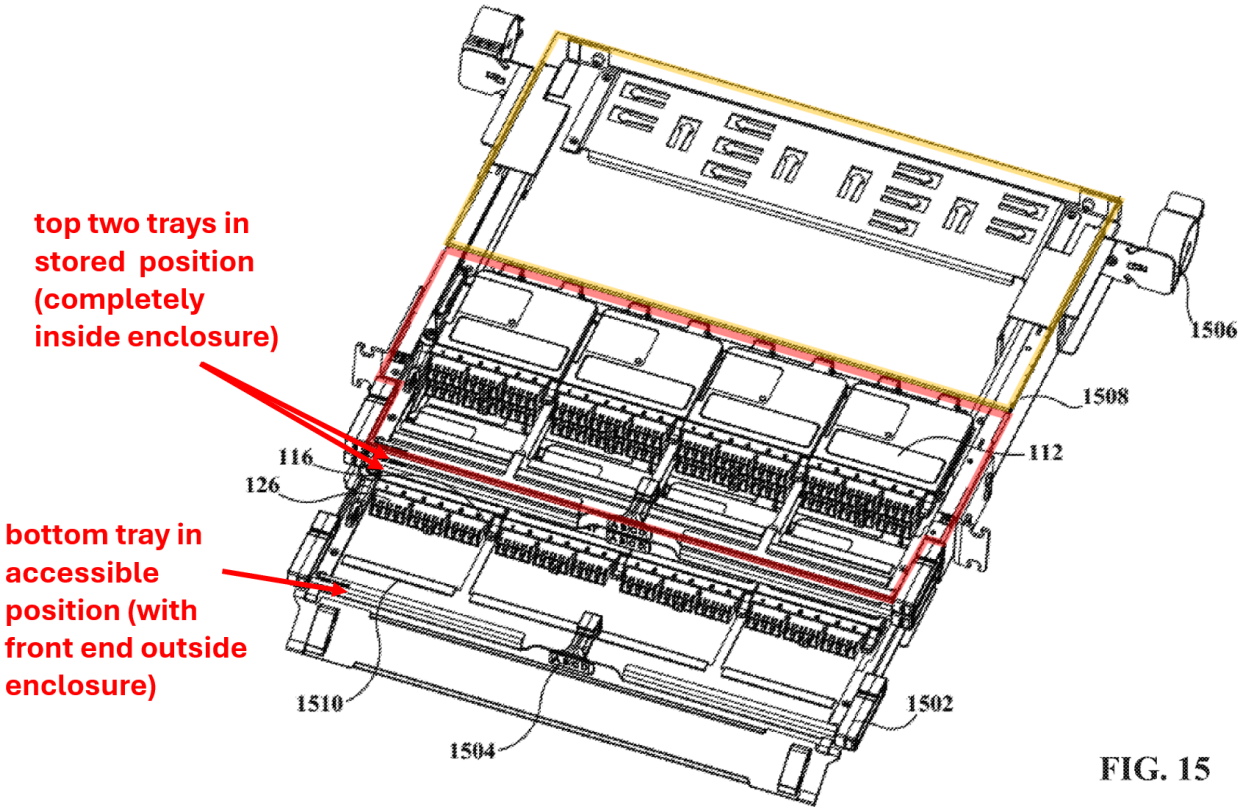
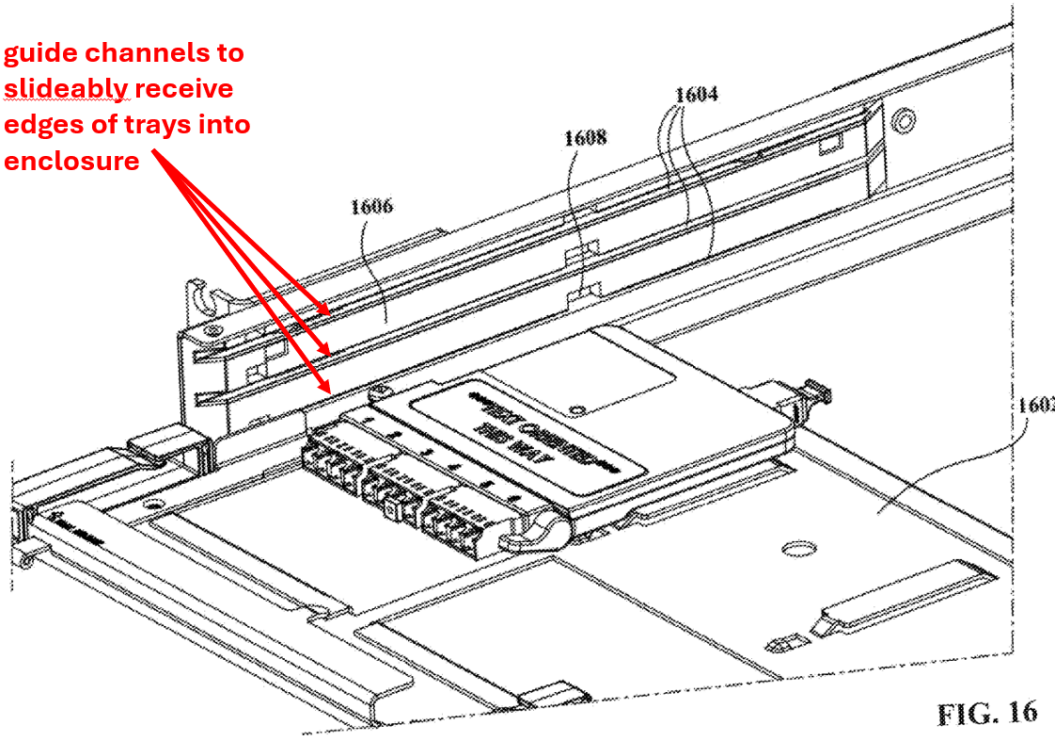


FIG. 15

EX1006 at Fig. 15.

The enclosure incorporates guide channels in the sidewalls to slideably receive edges of trays. EX1006 at 10:21-28; Fig. 16; EX1003 ¶219.



Element 1B is Obvious in light of Sauter for the Same Reasons as Element 1A

If Sauter does not disclose a top or bottom wall and thus cannot receive a tray "completely within" the tray receiving space, adding such top/bottom walls would have been obvious for the same reasons given under Element 1A. EX1003 ¶220.

4. Element 1C

"a set of fiber optic cassettes"

Sauter discloses a set of fiber optic cassettes. EX1006 at Figs. 2-3, 5-16; 4:32-34 ("Example tray 102 is designed to hold multiple fiber optic cassettes"); see also 1:5-9 ("cassettes of different sizes"). See, e.g., single-gang cassettes 112, 504 and double-gang cassette 110.

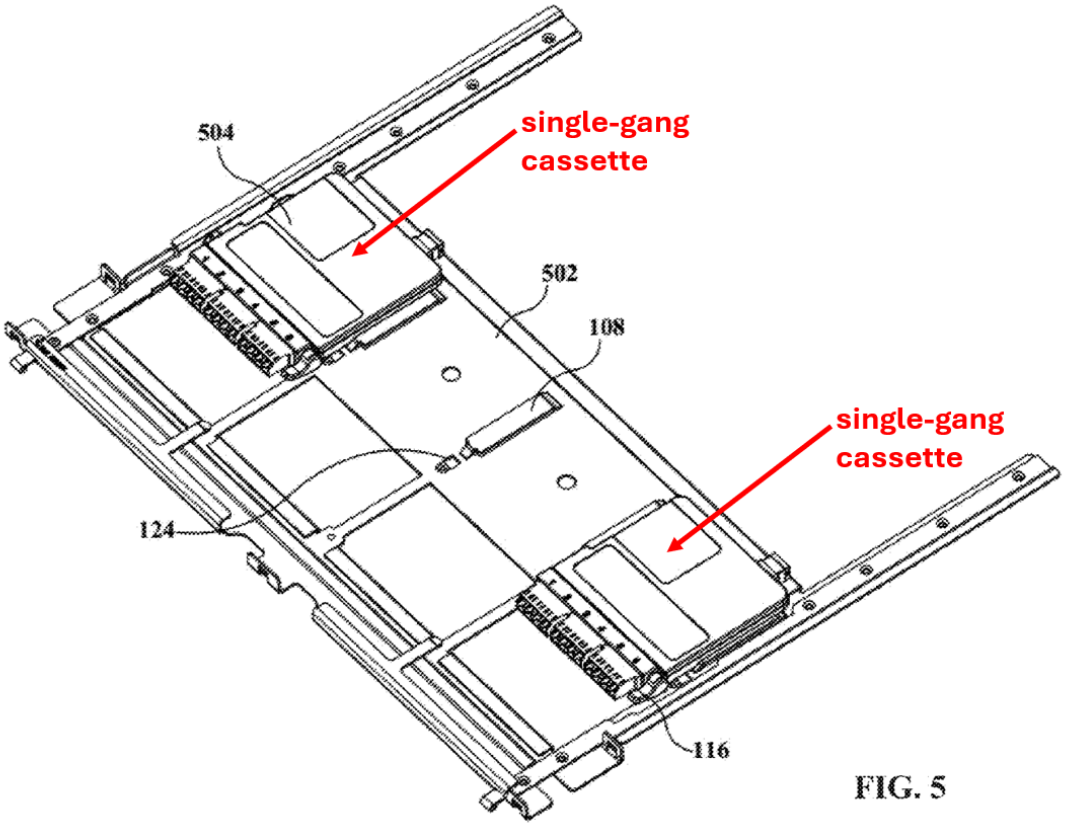


FIG. 5

EX1006 at Fig. 5; see also 2:44-45; 6:42-44. Sauter discloses that multiple cassettes of different sizes can be mounted on the same tray simultaneously. EX1006 at 1:54-58; 4:7-13; 5:1-17; EX1003 ¶221-223.

"a selected plurality of the cassettes arrangeable side by side"

Each of Figs. 2, 3, 5, 7, 8, 11, and 15 in Sauter show that selected cassettes in Sauter's system are arrangeable side by side along the trays.

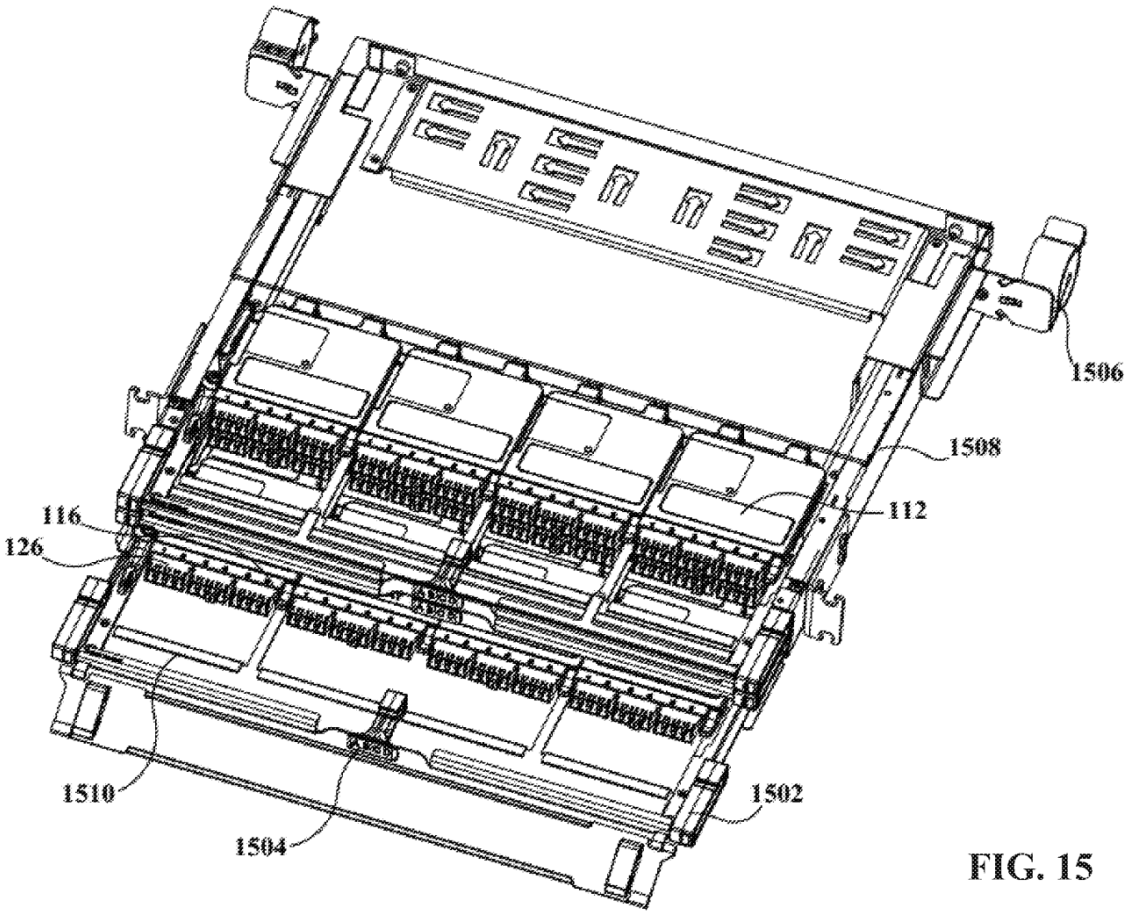

1506
1508
112
116
126
1510
1504
1502

FIG. 15

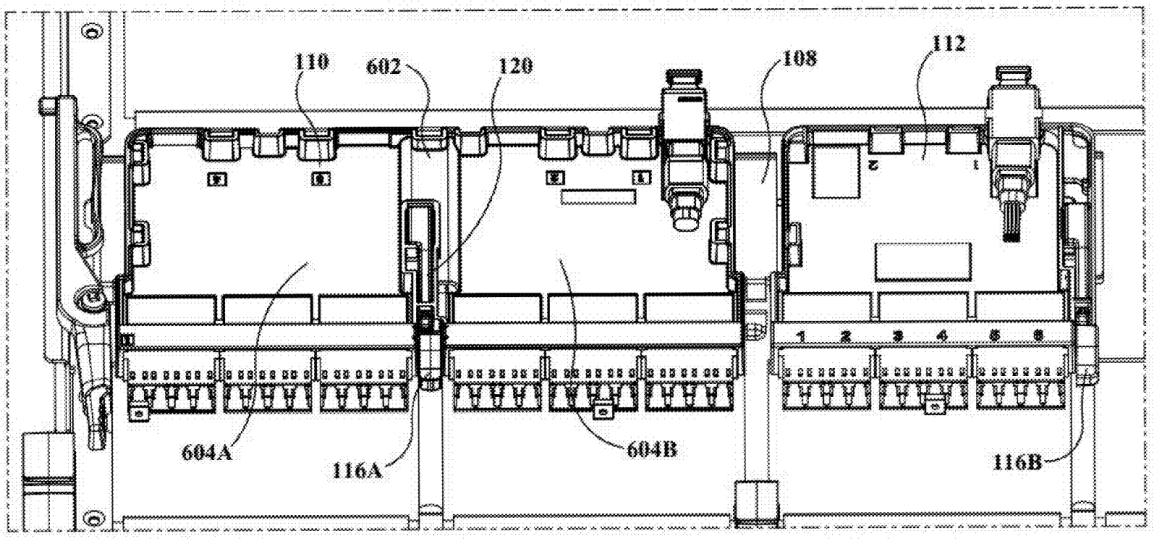

110
602
120
108
112
604A
116A
604B
116B

FIG. 7

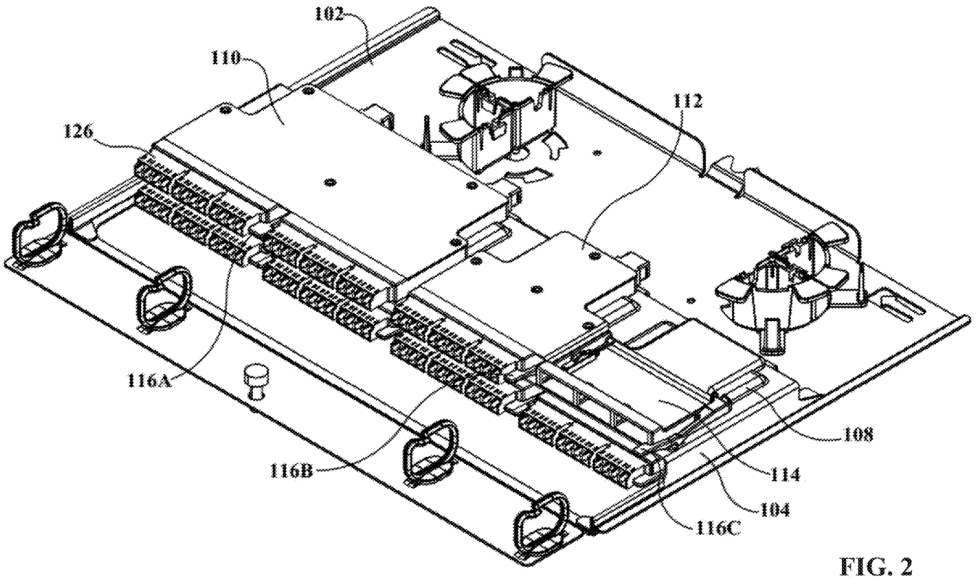


FIG. 2

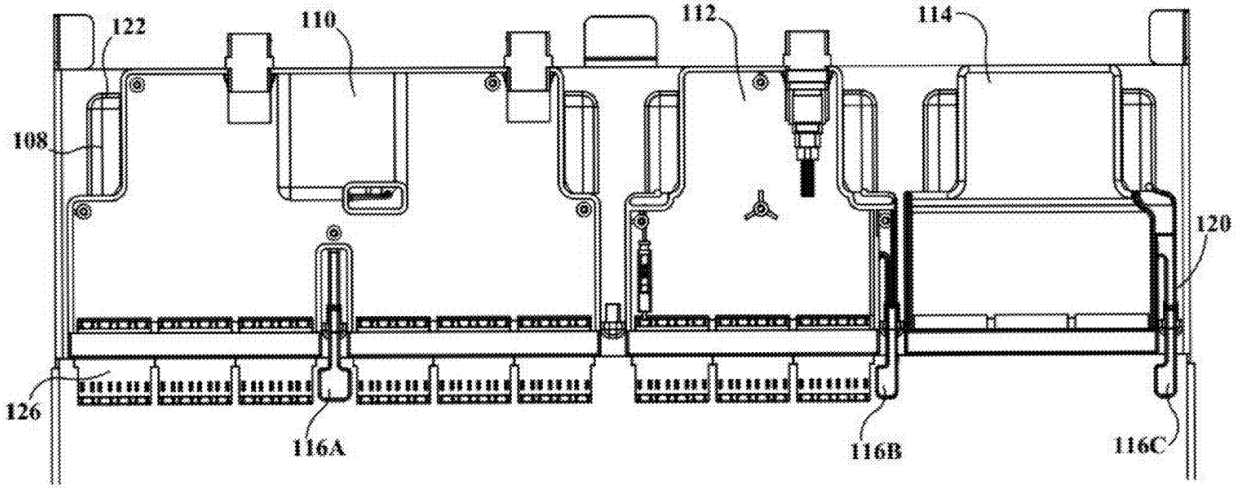


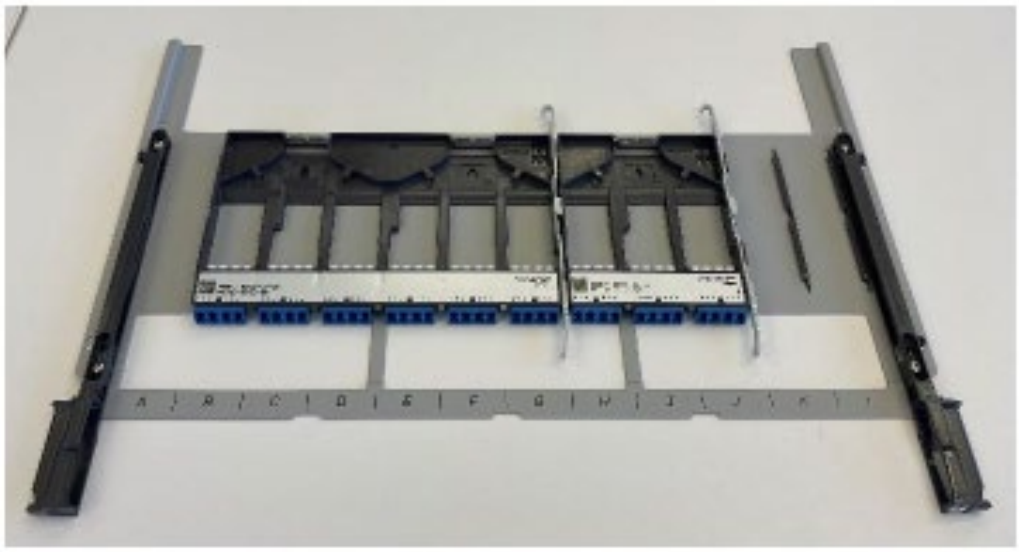
FIG. 3

EX1006 at Figs. 15, 7, 2, and 3; 6:42-56; 5:60-6:29; 8-29-9-39; 5:36-59; 9:40-62; 7:3-36 EX1003 ¶¶224-226. Any combination of cassettes can be selected, limited only by the available number of bays in the tray. EX1006 5:12-17.

"cassettes arrangeable … along said tray front end"

Under Patent Owner's application of this limitation, Sauter's cassettes are arranged "along said tray front end." EX1003 ¶¶231-232. PO has accused a

product just like Sauter that places the cassettes set back from the front edge or end of the tray by finger access windows.



EX1012, 10.

As shown in Figs. 5 and 15, Sauter's cassettes when mounted on a tray are not on "the tray front end." EX1003 ¶227. Instead, the cassettes are arranged set back from the tray front end. As seen in the figures, Sauter's cassettes are arranged on forward rectangular openings formed in the bottom surface of tray. The openings themselves are set back from the front end of the tray.

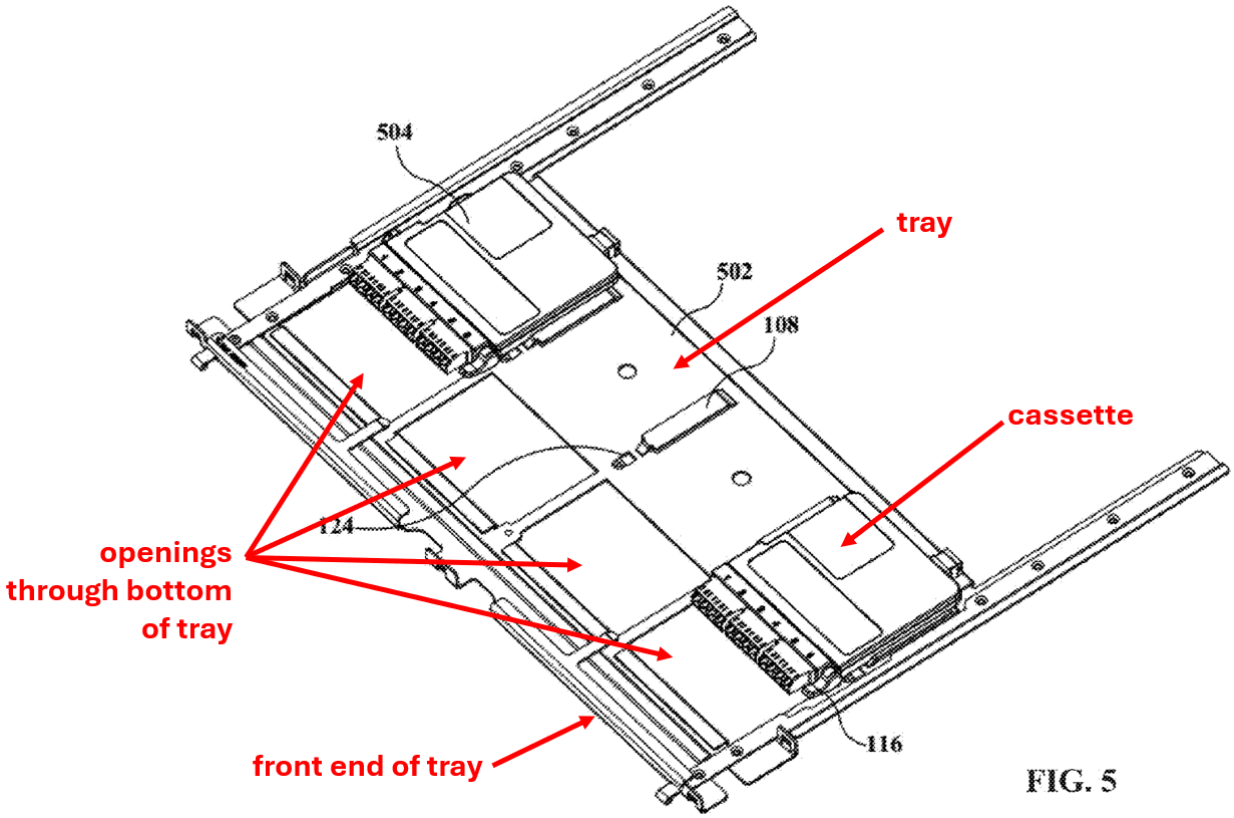


FIG. 5

A POSITA would recognize the openings exist to facilitate accessing the connector locations when inserting or removing connectorized cables. EX1003 ¶228; see also EX1014 at Fig. 28 (tray openings 222), 7:11-15; see also EX1015 at 1:46-51; Fig. 2A (access openings 136, 138); 4:61-62; Fig. 6A; 6:40-43. The openings shown in Sauter allow the user to get finger access both above and below a connector when inserting or withdrawing it. EX1003 ¶228.

It would have been obvious to alter Sauter by mounting the cassettes on the front end of the tray. One would have been motivated to do so to improve the accessibility of the connection locations at the front of the cassettes and also to minimize the risk of damaging optical fiber components when sliding trays in and

out of the enclosure. EX1003 ¶229. Mounting the cassettes on the front end of the tray makes their connection locations quicker and easier to reach. EX1003 ¶229.

A POSITA would have had a reasonable expectation of success mounting the cassettes on the front end of the trays. Doing so would only require shifting the guide rails and aperture in the tray forward to the front end of the tray. EX1003 ¶230. Sauter already shows how this can be done. In Fig. 1, the upper row of cassette are positioned on the very front edge of the upper tray layer.

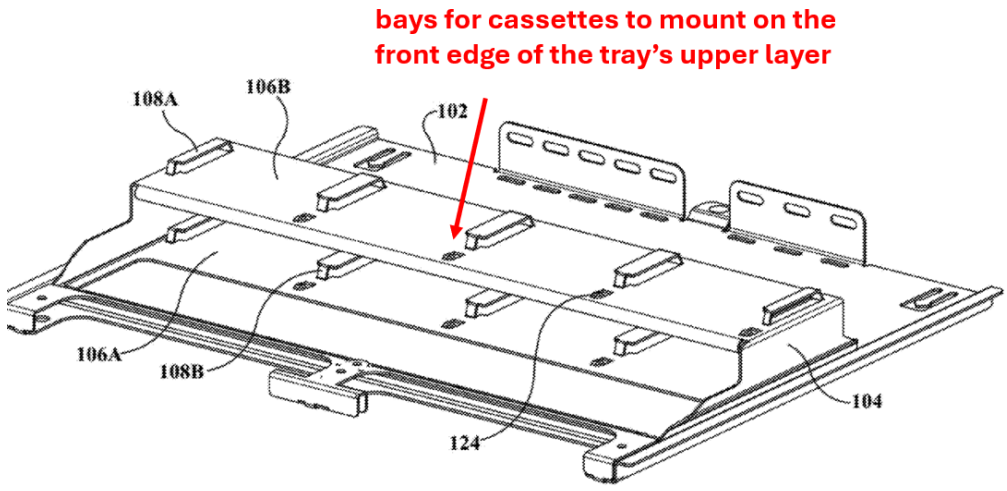


FIG. 1

EX1006 at Figs. 1, 2.

"wherein each of said cassettes comprises a plurality of optic plug receiving receptacles arranged side by side in a row along a front thereof"

The adapters 126 aligned side-by-side in a horizontal row at the front of Sauter's cassettes are fiber optic plug receiving receptacles. See, e.g., Figs. 2, 9, and 11 below:

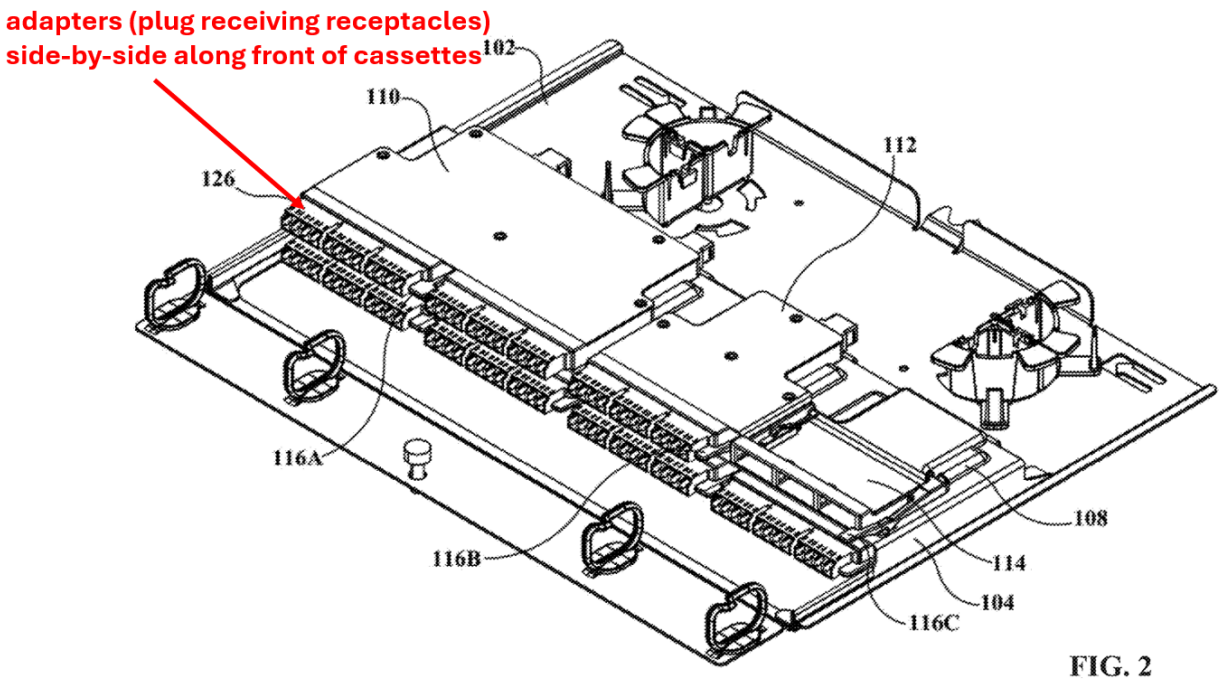

adapters (plug receiving receptacles)
side-by-side along front of cassettes
102
110
112
126
116A
116B
108
114
104
116C

FIG. 2

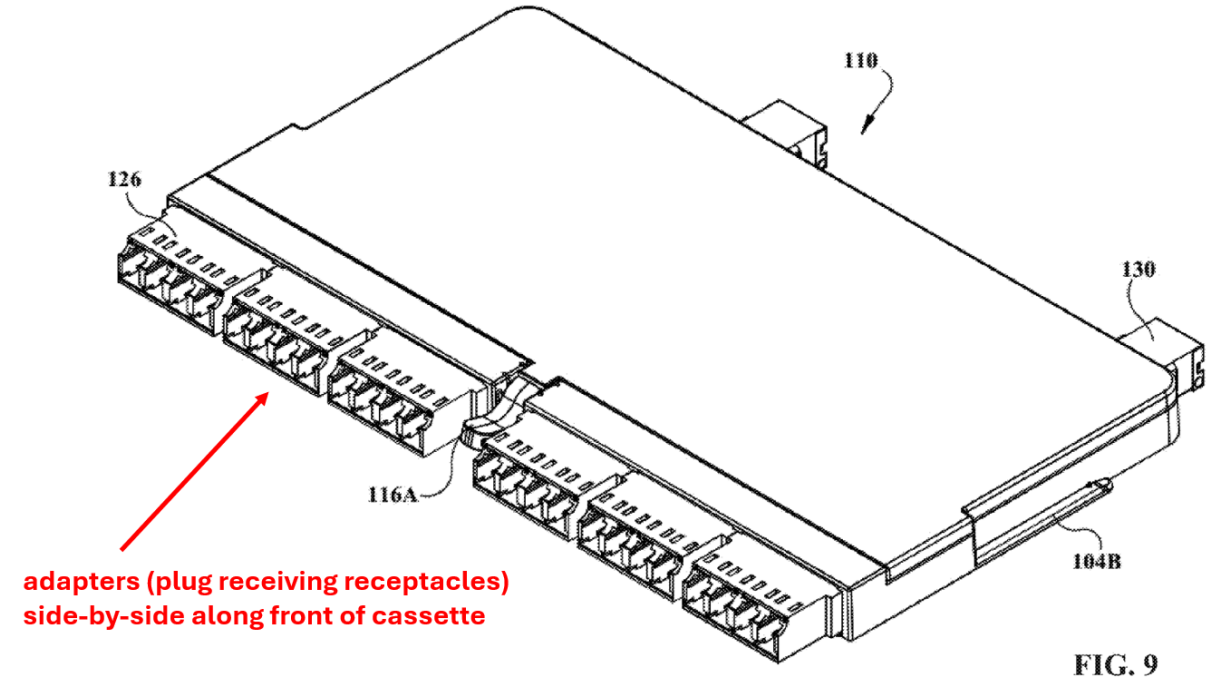

110
126
130
116A
104B
adapters (plug receiving receptacles)
side-by-side along front of cassette

FIG. 9

adapters (plug receiving receptacles)
side-by-side along front of cassettes

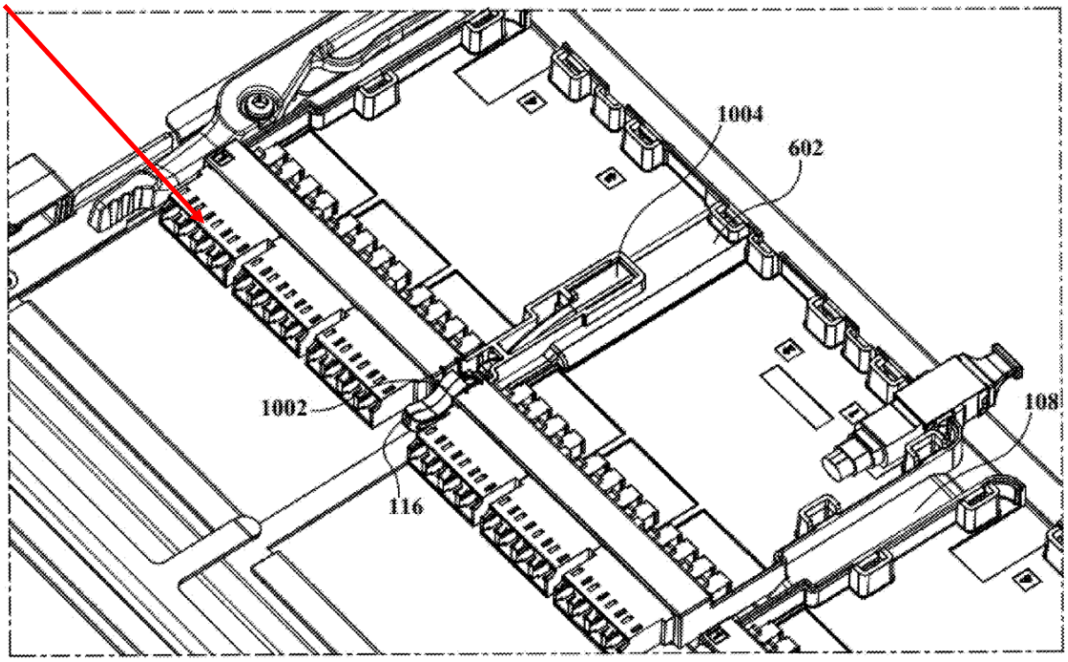


FIG. 11

See also EX1006 at Figs. 3, 5-7, 10, 13, 15-16; 8:4-6; 8:7-28; EX1003 ¶233.

"a first [second] of said set of cassettes comprising a first [second] cassette width as measured between outer side edges thereof of one of one, two, three, four and six standard width units"

At least under Patent Owner's interpretation, Sauter's sets of single-gang, double (or dual)-gang, three-gang, and multi-gang cassettes satisfy these limitations. Patent Owner asserts this limitation means a "cassette width as measured between outer side edges thereof that accommodates one of one, two, three, four, or six receptacle modules" and that a "standard width unit" means "a unit of width that accommodates a single receptacle module, such as a LC Quad (SC Duplex) technology footprint comprising four connectors." EX1011 at

Exhibit A, pp. 7, 1. As shown in Sauter's Fig. 7, the single-gang cassette 112 has a width that accommodates **three** quad LC adapter modules. EX1006, Fig. 7. Therefore, according to Patent Owner this is an example of a first cassette having a first cassette width as measured between outer side edges thereof of **three** standard width units. EX1003 ¶234.

Sauter describes that the larger cassettes (dual-, three-, multi-gang cassettes) are wider than the single-gang cassettes by multiple factors. EX1006 at 4:50-61 ("multi-gang cassettes are wider than single-gang cassettes by multiple factors (e.g., a dual-gang cassette is approximately twice as wide as a single-gang cassette…"). The double-gang cassette accommodates six quad LC connector module. Under Patent owner's interpretation, therefore, the "double-gang" cassette 110 is an example of a cassette having a width of **six** standard width units. EX1003 ¶235.

Even if being multiples of a standard width unit is actually about the mathematical relationship of the actual width dimensions of the cassettes, not merely the number of modules they can accommodate, Sauter's cassettes disclose this relationship. Sauter discloses cassettes that are a multiple in size relative to each other. EX1006 at 4:50-61 ("twice as wide"). When the latching mechanism 120 of the double-gang cassette is positioned along the right-hand side of the cassette (as taught by Sauter at 7:48-60; 1:64-2:1; EX1003 ¶236), the width of the

double-gang cassette mathematically equals twice the width of the single-gang cassette. The figures below illustrate what Sauter is teaching at 7:48-60. EX1003 ¶236.

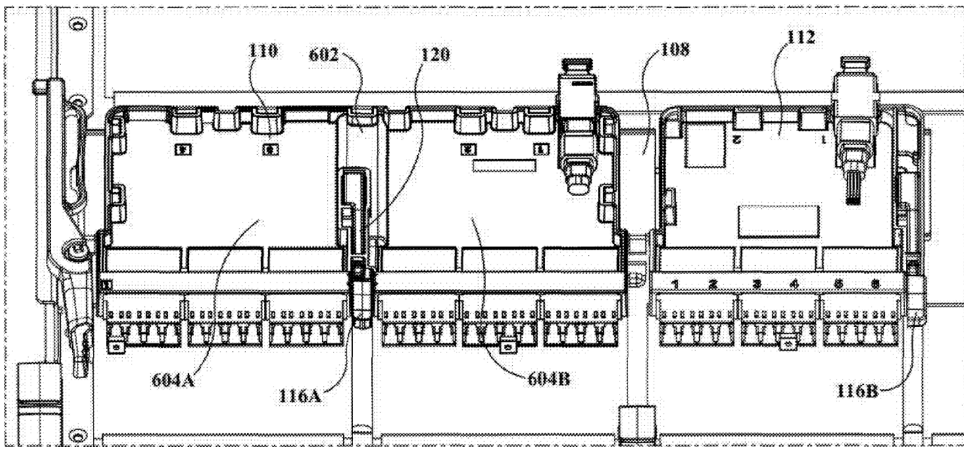
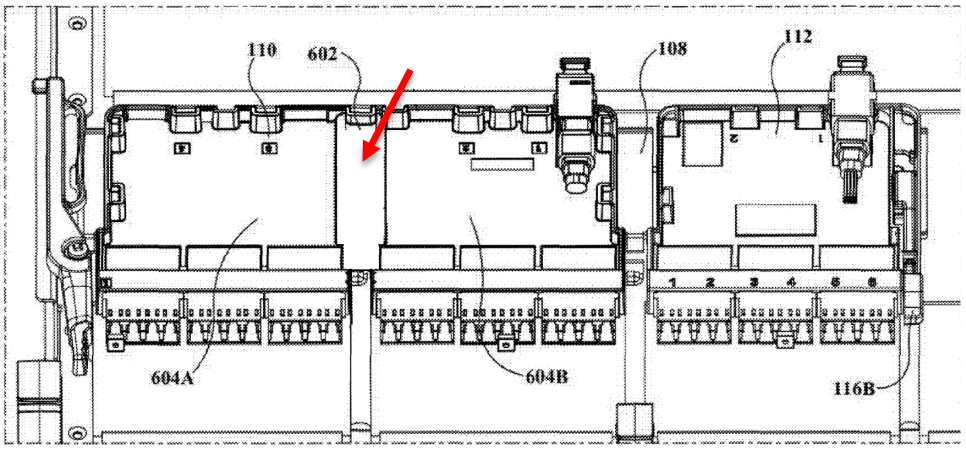
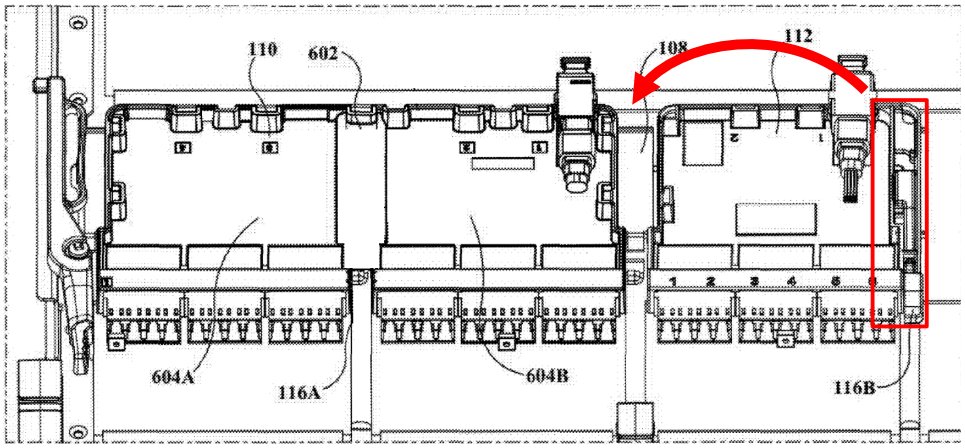
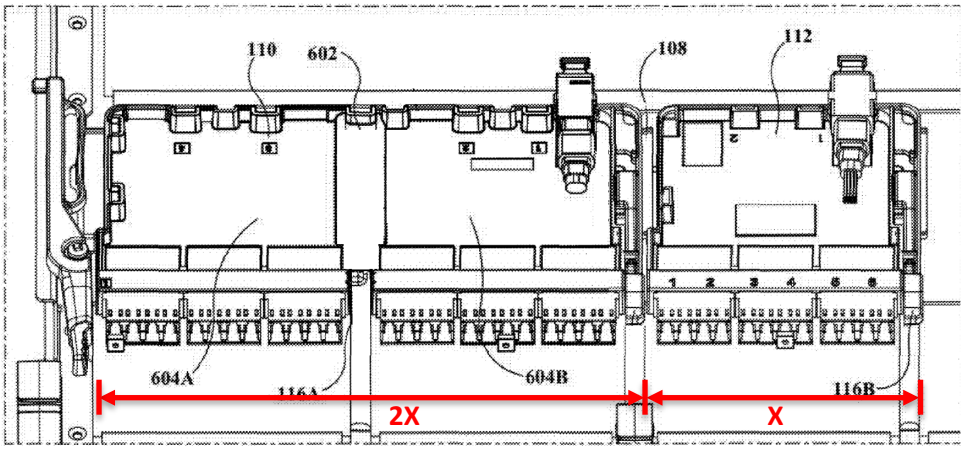
Fig. 7 as shown in Sauter (with latching mechanism 120, 116A in the middle of cassette 110)	
Fig. 7 without middle latching mechanism 120 (including without release latch 116A)	

Fig. 7 indicating latch mechanism along right side of cassette 112 that Sauter teaches can be duplicated onto right side of cassette 110.	
Fig. 7 with latching mechanism located along right hand side of cassette 110 as taught by Sauter at 7:54-56.	

With this alternative taught by Sauter, cassette 110 mathematically equals twice the width of cassette 112, not merely "approximately" twice the width of cassette 112. EX1003 ¶236.

When the widths of the cassettes are multiples of each other, the width of each multi-gang cassette such as a double-gang cassette will be an exact multiple of any width unit that divides evenly into the width of the single-gang cassette. For example, if a standard width unit is chosen as 1/3 the width of the single-gang

cassette 110, then the double-gang cassette will be equal to 6 times the standard width unit without any additional amount. The double-gang cassette will be evenly divisible by 1/3 the width of the single-gang cassette. EX1003¶237.

5. Element 1D

Sauter's cassettes include a fastener which is latching mechanism 120 and rails 404 that cooperate with apertures 124 and rail guides 108 on the tray to removably secure Sauter's cassettes to the tray. EX1006 at 5:60-6:14; 6:15-29; see also Figs. 1-2, 4-8, 10-14, 16; 4:4-11; 4:46-50; 4:13-25; 4:61-67; 8:63-66; 9:3-27; 6:16-29; 7:47-60; 8:37-49; 9:63-10:3; EX1003¶¶238-241.

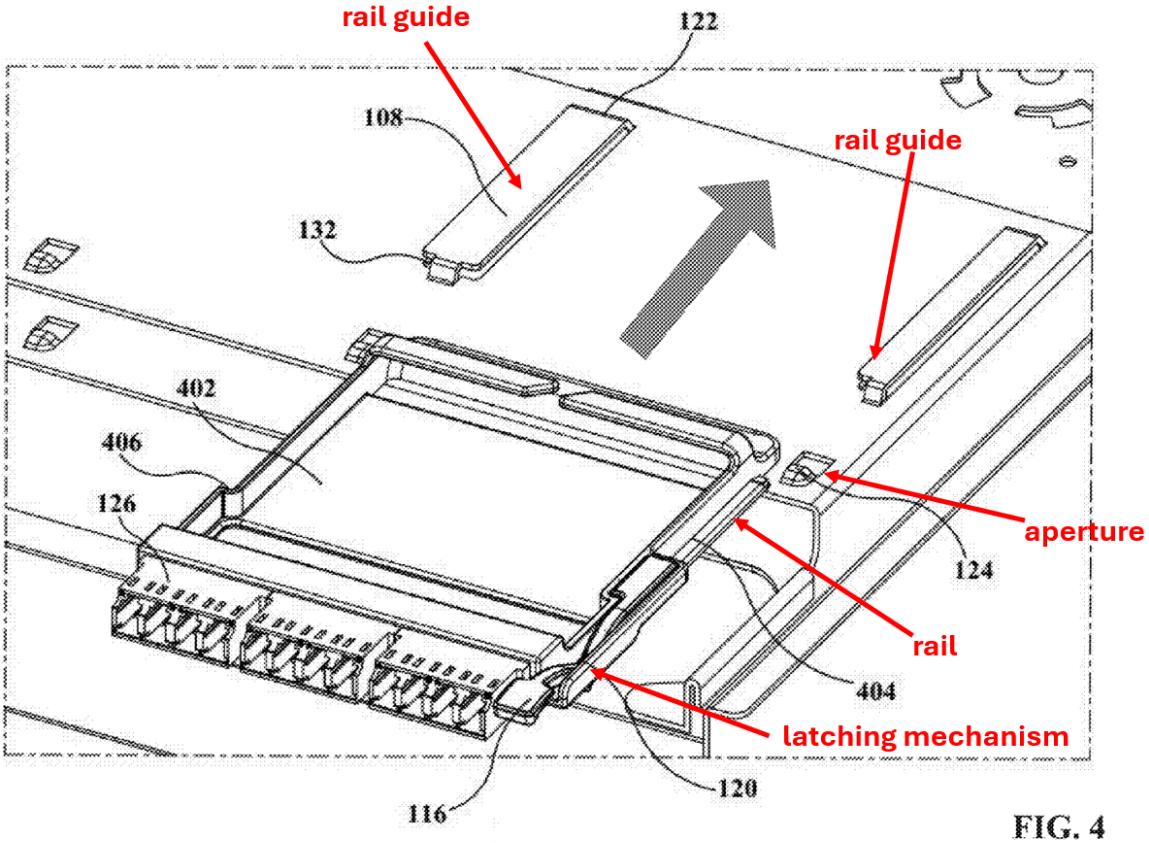


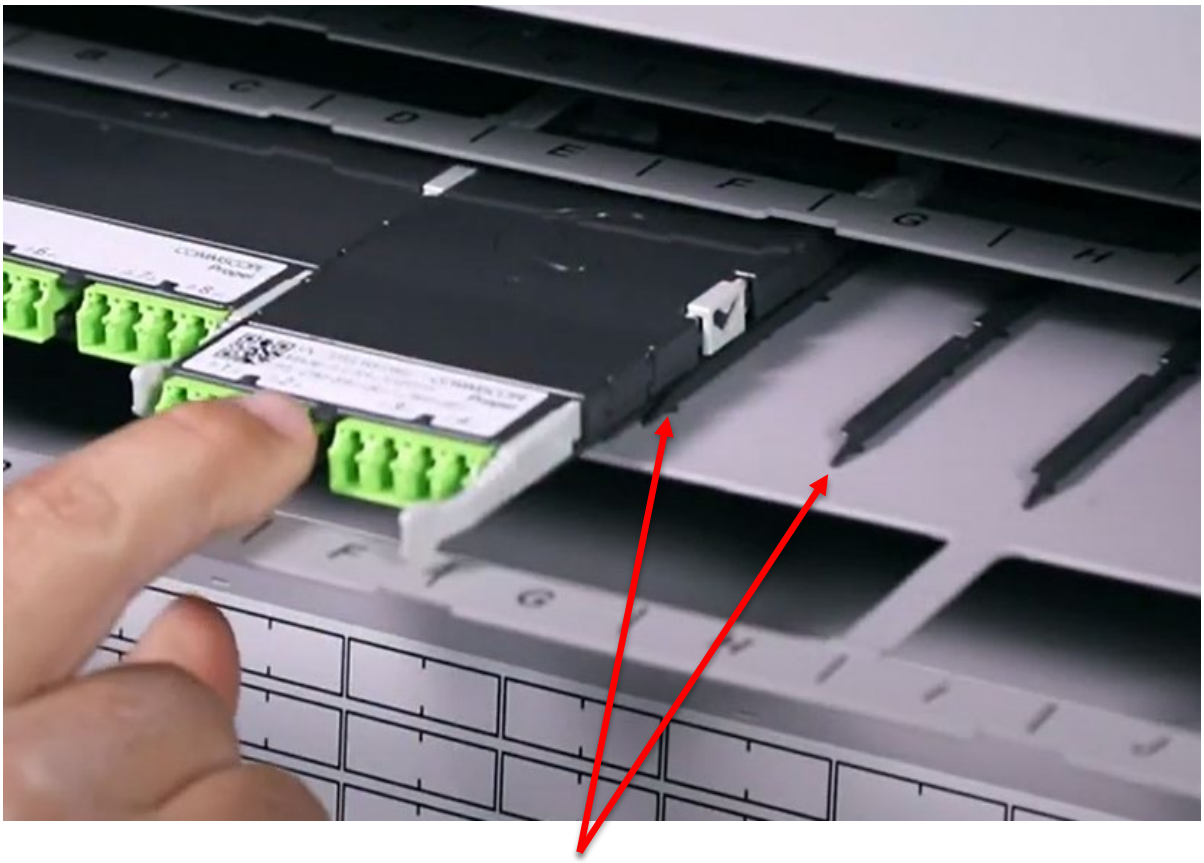
FIG. 4

Latching mechanism 120 and rails 404 on cassette are an example of a fastener that fit into rail guides 108 and aperture 124 on tray to releasably secure cassettes to tray.

6. Element 1E

During prosecution of this claim language, the Patent Owner repeatedly stated very specifically that the term "directly" when modifying "adjacent" excluded arrangements that included "any intervening structures" such as an intervening "rail." EX1002 at 135, 188. Therefore, Patent Owner asserts that the "directly adjacent" limitation in this claim means "an outer side edge of each of said selected cassettes is almost touching or touching, without any intervening structure, an outer side edge of at least one other selected cassette." EX1011 at p. 15).

Patent Owner is accusing of infringement a system that has rails on the tray that only partially separate the cassettes. In other words: (a) the accused system has rails on the tray that are not as tall as the accused cassettes, (b) the rails are not as deep as the cassettes and (c) the accused cassettes at least partially overlap the rails. See, e.g., EX1012 at pp. 10, 12; EX1016 at pp. 27, 20, Figs. 26-28, 17, 18 (illustrating rails on tray compared to cassettes); EX1029 (screen capture of Propel instructional video at https://www.youtube.com/watch?v=_agZJP5tZWc at 1:55)(showing cassette being mounted on rails):



The accused tray includes rails that:
(a) are shorter than the cassettes,
(b) are not as long as the cassettes, and
(c) are at least partially overlapped by the

EX1003 ¶¶242-245.

At least under Patent Owner's proposed construction and application of this term, Sauter discloses this limitation. The rail guides in Sauter only partially separate adjacent cassettes when the cassettes are mounted to the tray, leaving some side portions of adjacent cassettes that are almost touching each other. The rail guides in Sauter are not as tall as the cassettes. The rail guides on the tray are not as long as the cassettes (i.e., the rail guides do not extent to the front of the

cassettes). The cassettes at least partially overlap the rail guides on the tray. EX1003 ¶246. See, for example, Sauter at Figs. 5, 16, 13, and Fig. 8:

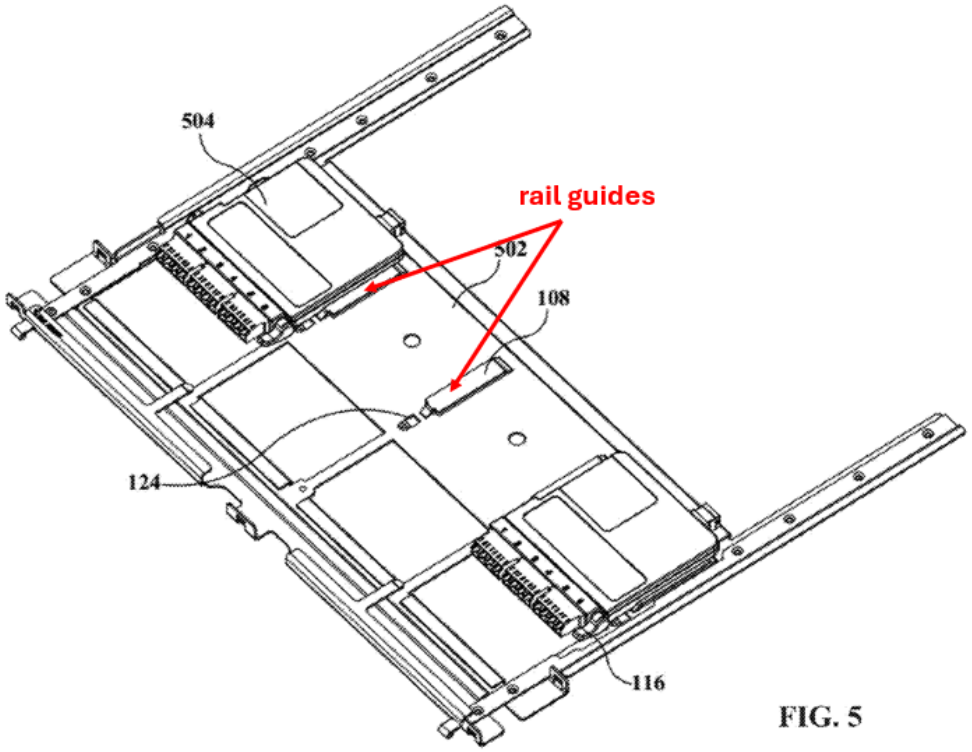


FIG. 5

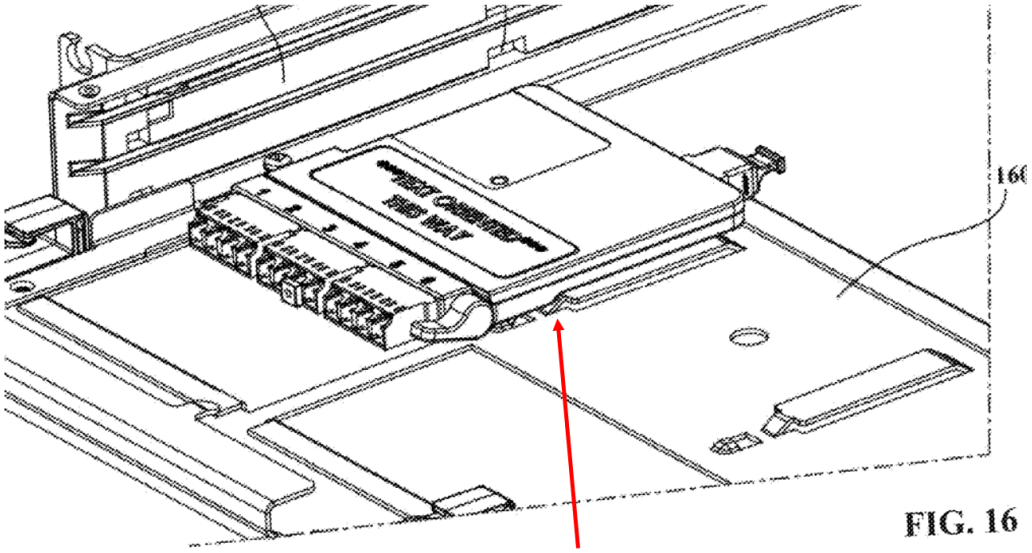


FIG. 16

The rail guides on tray are not as tall as the cassettes.
The cassettes at least partially overlap the rail guides.
The rail guides only partially separate adjacent cassettes.

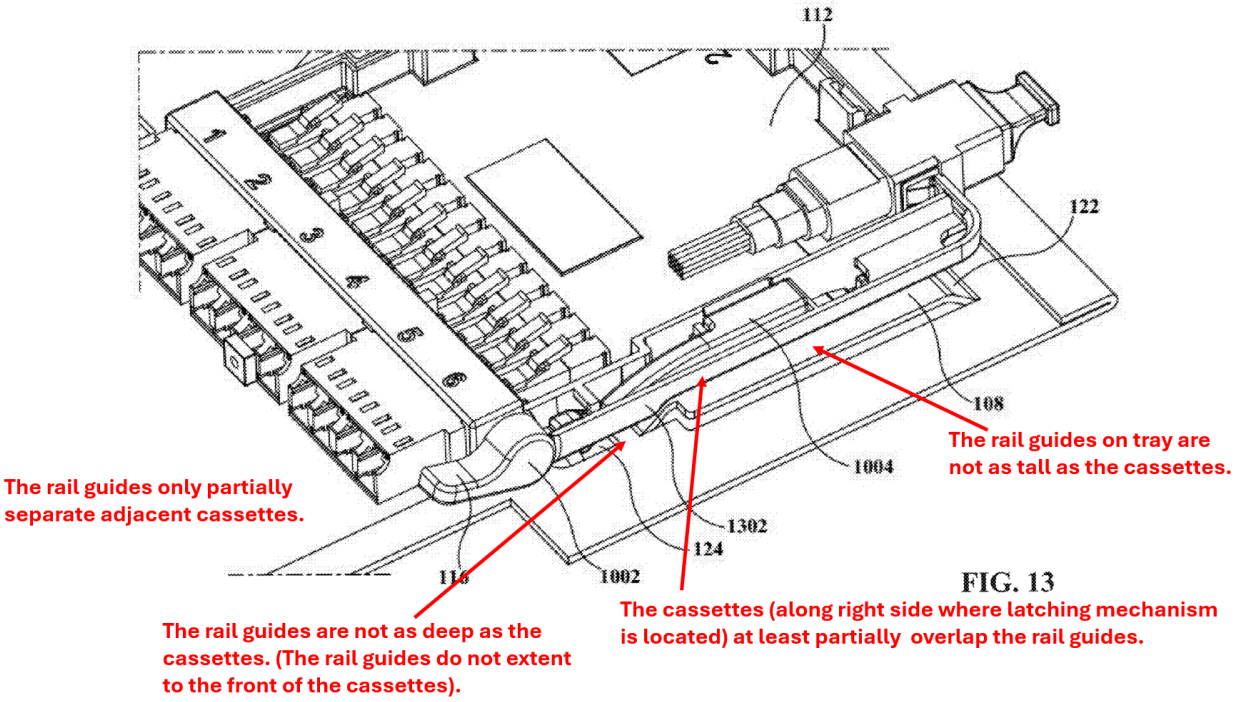


FIG. 13

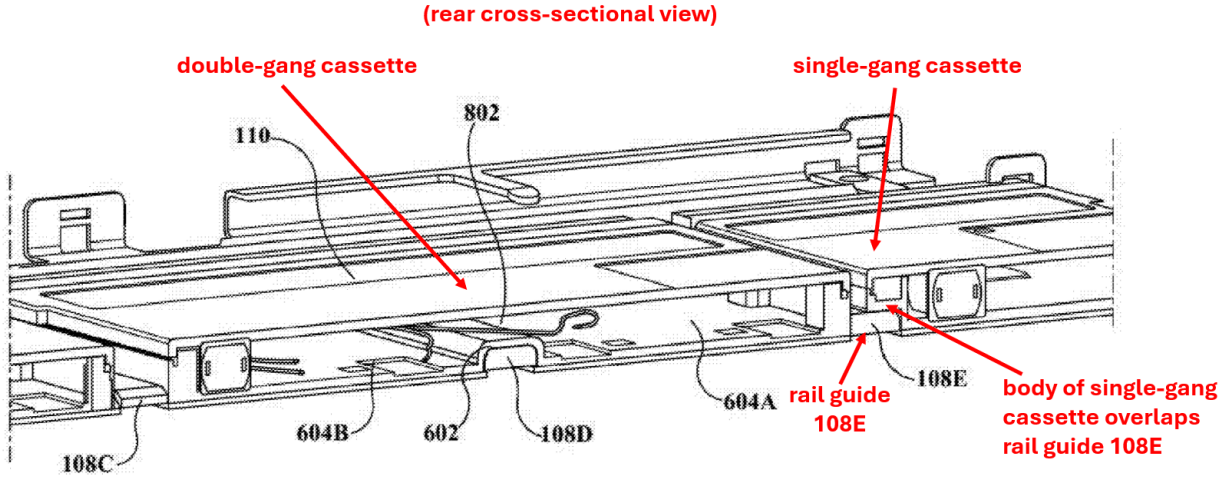


FIG. 8

EX1003 ¶246.

The figures in Sauter show that portions of the sides of the cassettes are almost touching. See for example, Fig. 15 (annotated below):

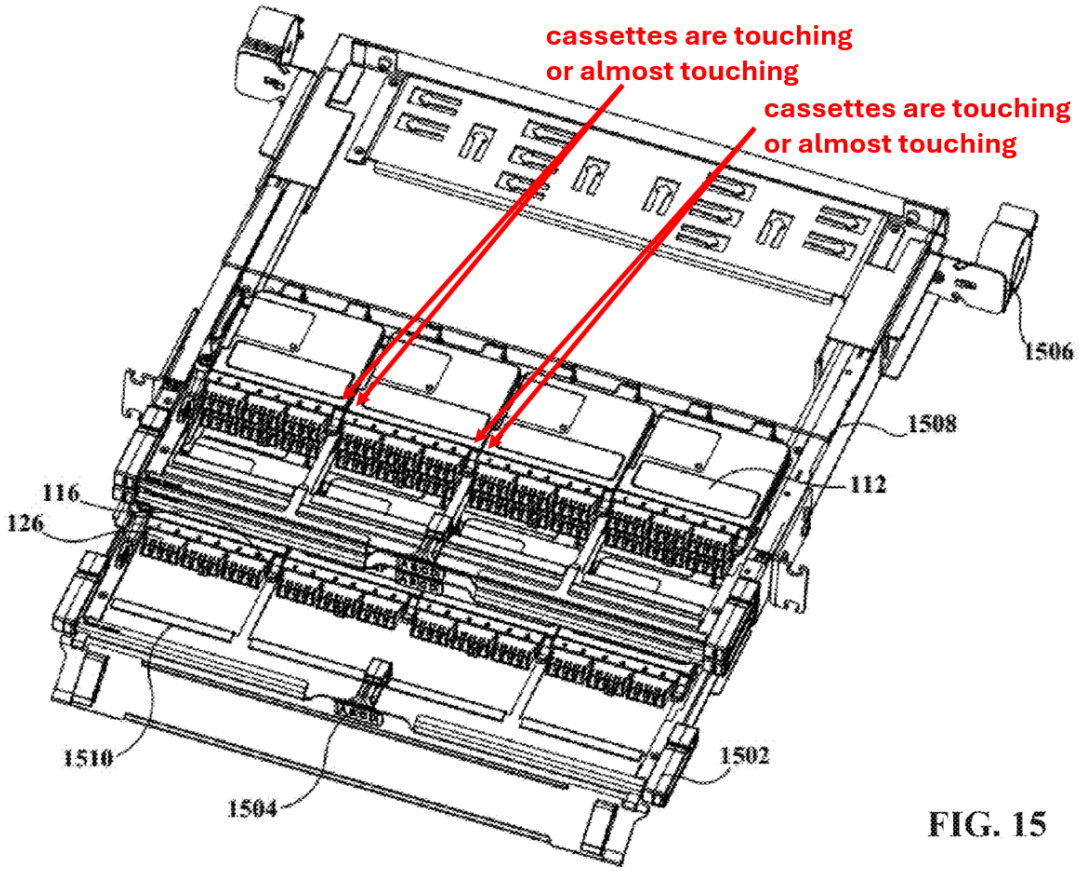
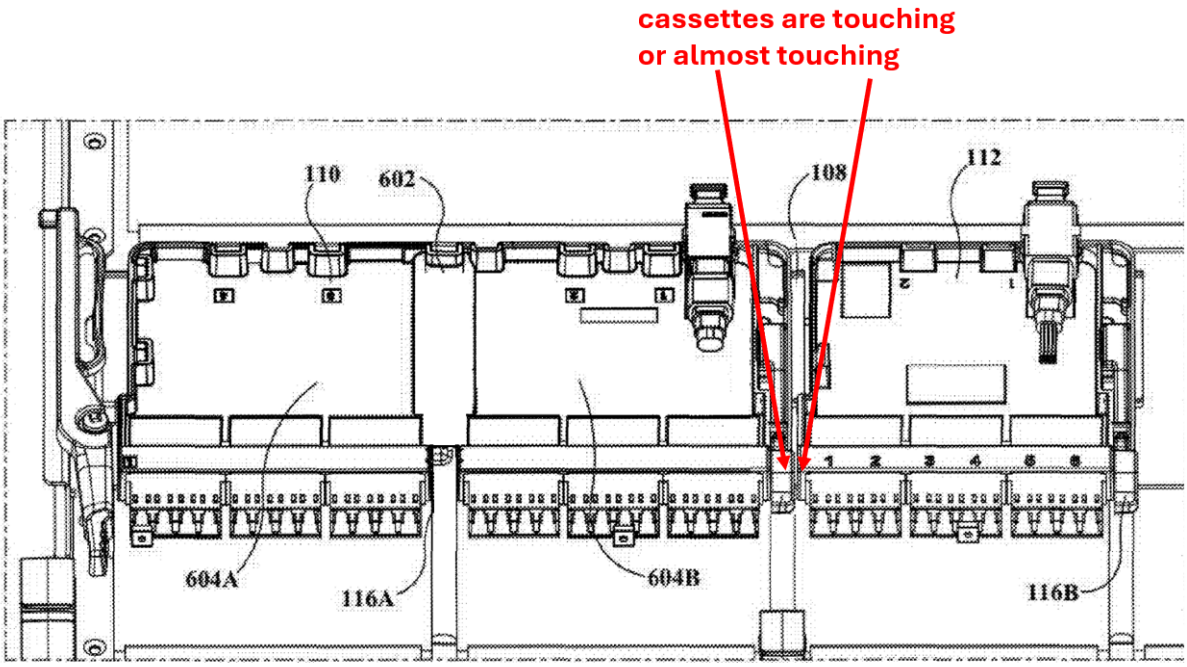


FIG. 15

EX1006 Fig. 15; EX1003 ¶¶246-247.

In addition, as explained above, Sauter teaches to place the latching mechanism of a double-gang cassette on the right side of the cassette, instead of in the middle of the cassette. The resulting modification of Fig. 7 figure would look like this in which the right side of the double-gang cassette is touching or almost touching the single-gang cassette:



EX1003 ¶248.

Therefore, at least under Patent Owner's proposed construction and application of this claim limitation, Sauter discloses this limitation because even though Sauter includes rail guides on the tray that partially separate the cassettes, there remain other side edge portions of adjacent cassettes that are almost touching. EX1003 ¶248.

B. Claim 2

Sauter's tray has a width dimensioned to receive at least twelve standard width units side by side. If the standard width unit is considered 1/3 the width of a single-gang cassette, and the trays accommodate four such cassettes, then the tray

that is dimensioned to receive at least 12 standard width units side by side. See EX1006 at Fig. 15, 3, 2; EX1003 ¶250.

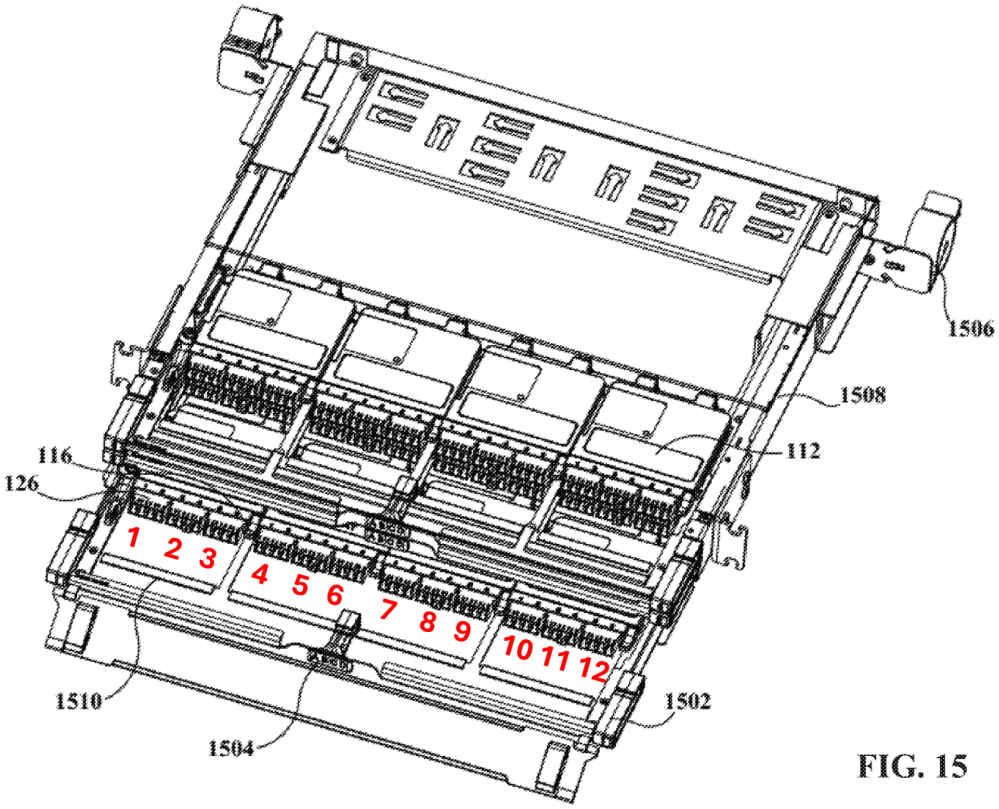


FIG. 15

See also Figs. 2 and 3, annotated below:

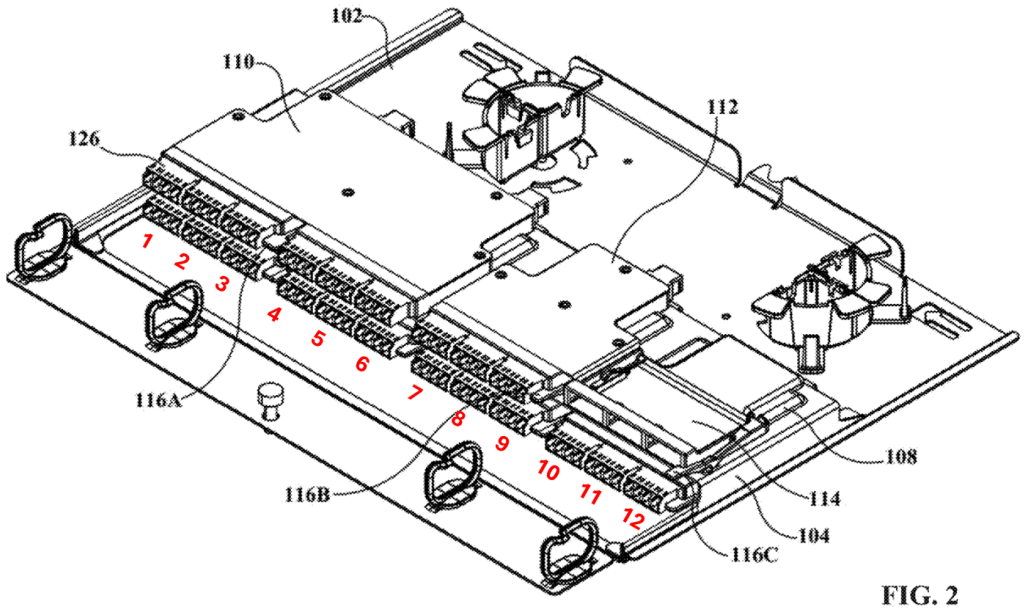


FIG. 2

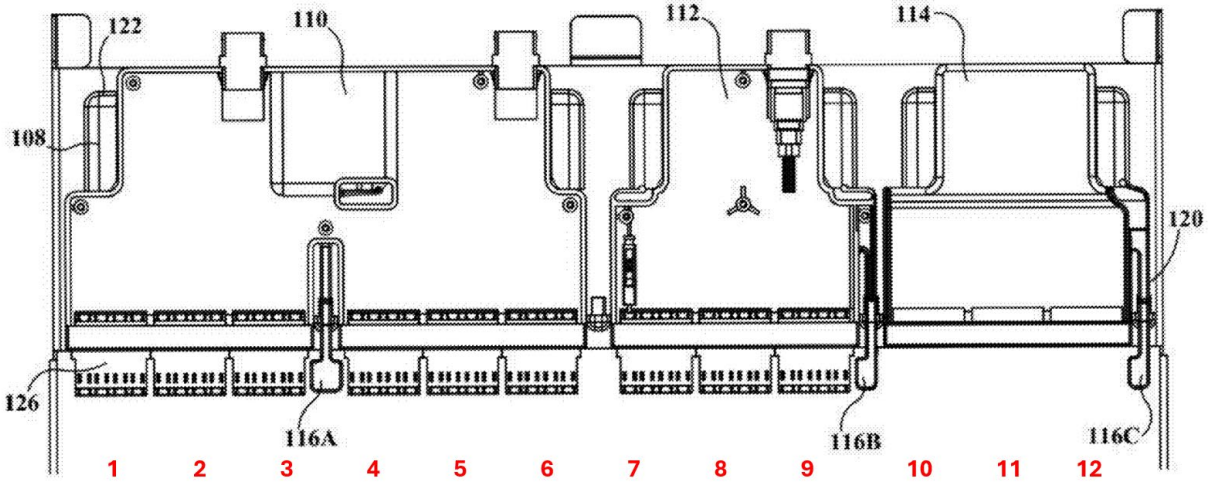


FIG. 3

C. Claim 3

Sauter discloses that his cassettes include an interfacing connector 130 at the rear of the cassettes in a connector receptacle which is a multifiber connector receptacle and that fibers from the multifiber connector and receptacle can be

connected to the rear side of the adapter receptacles 126 at the front of the cassettes. See EX1006 at 8:4-28, Figs. 10, 7, 6, 13 EX1003 ¶251.

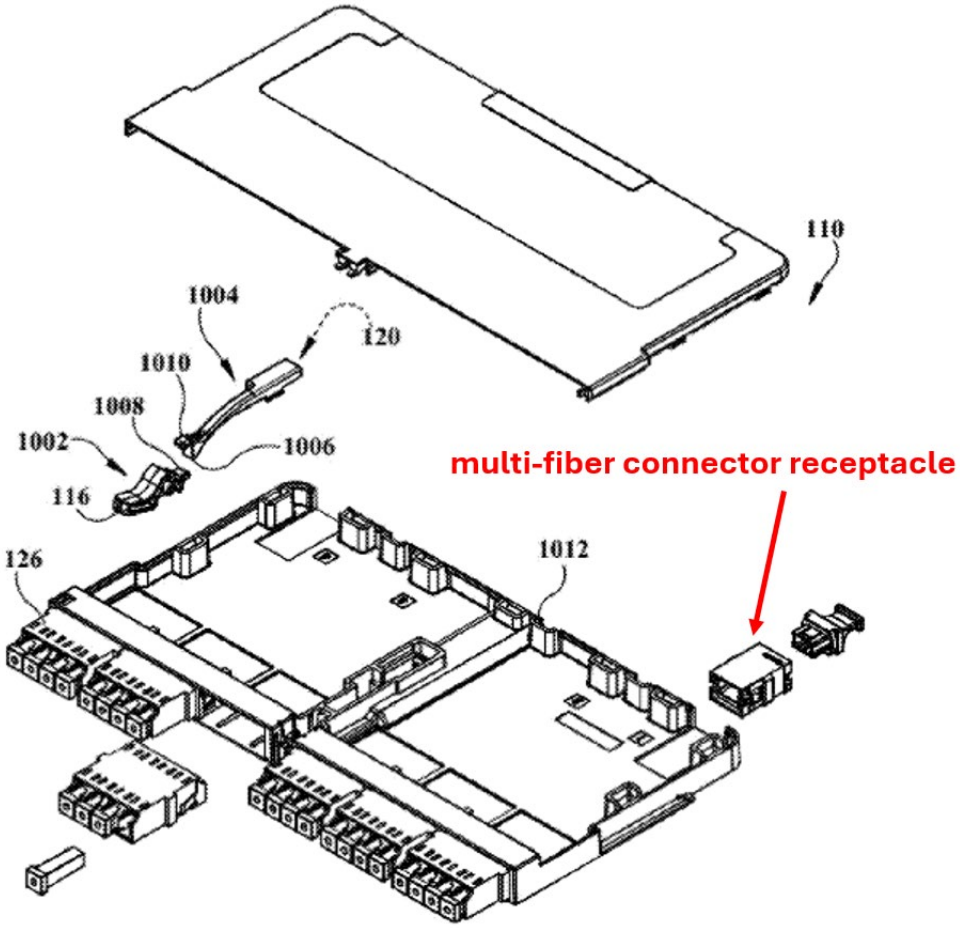


FIG. 10

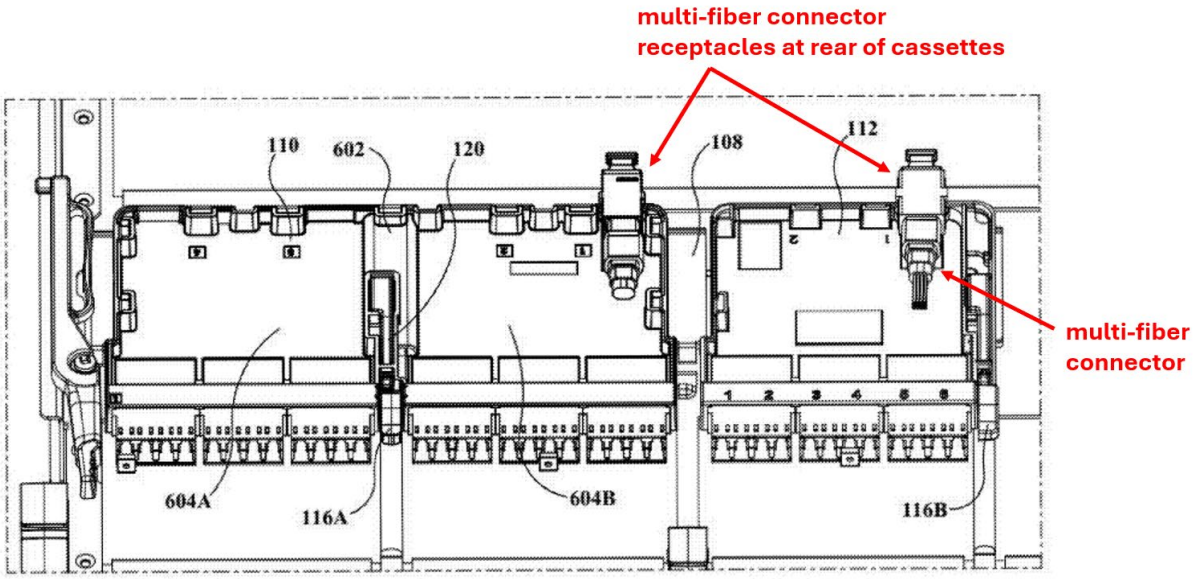

multi-fiber connector receptacles at rear of cassettes
110
602
120
108
112
multi-fiber connector
604A
116A
604B
116B

FIG. 7

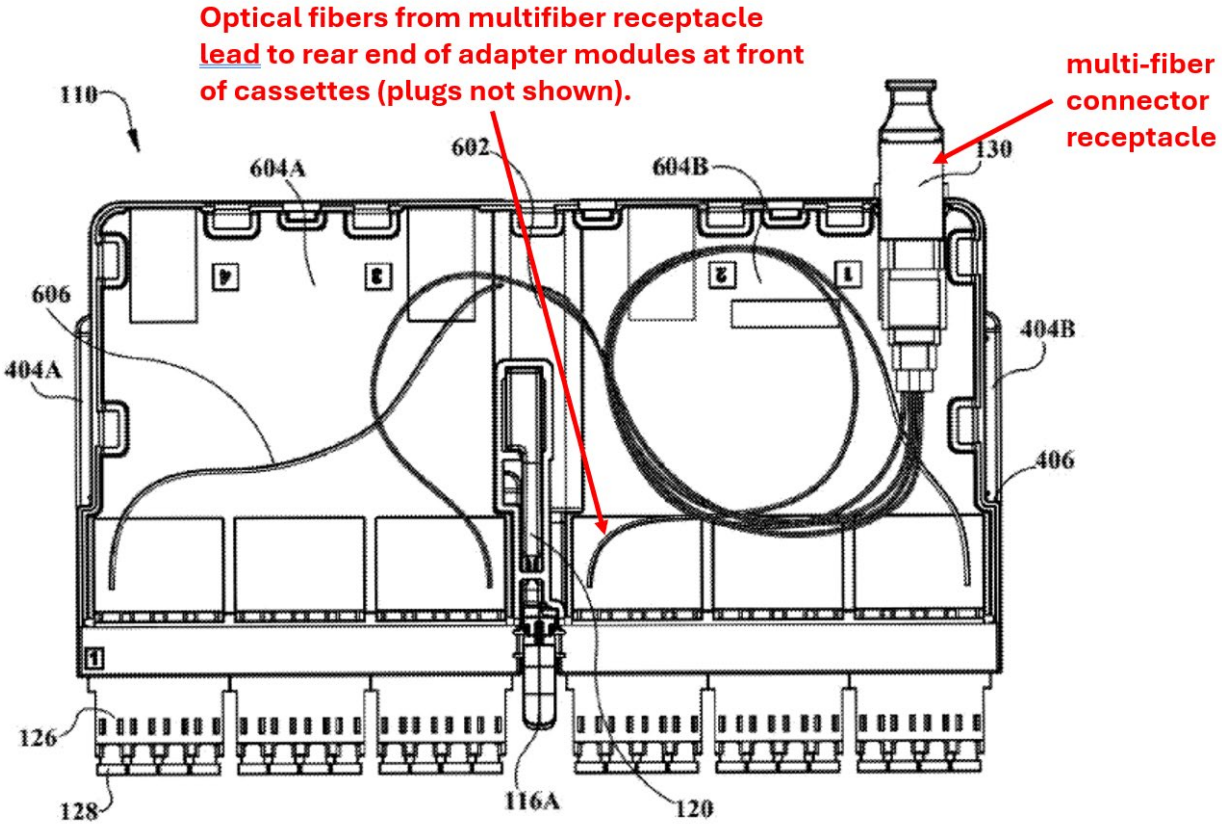

Optical fibers from multifiber receptacle lead to rear end of adapter modules at front of cassettes (plugs not shown).
multi-fiber connector receptacle
110
602
604A
604B
130
606
404B
404A
406
126
128
116A
120

FIG. 6

D. Claim 4

Sauter's cassettes include quad LC adapter modules along a front of each cassette. Each quad LC adapter module includes four fiber optic plug receiving receptacles arranged side by side in a row, and there is one quad adapter module in a cassette for each standard width unit of the cassette. EX1003 ¶252; EX1006 at Figs. 7, 10, 13 and 8:4-36.

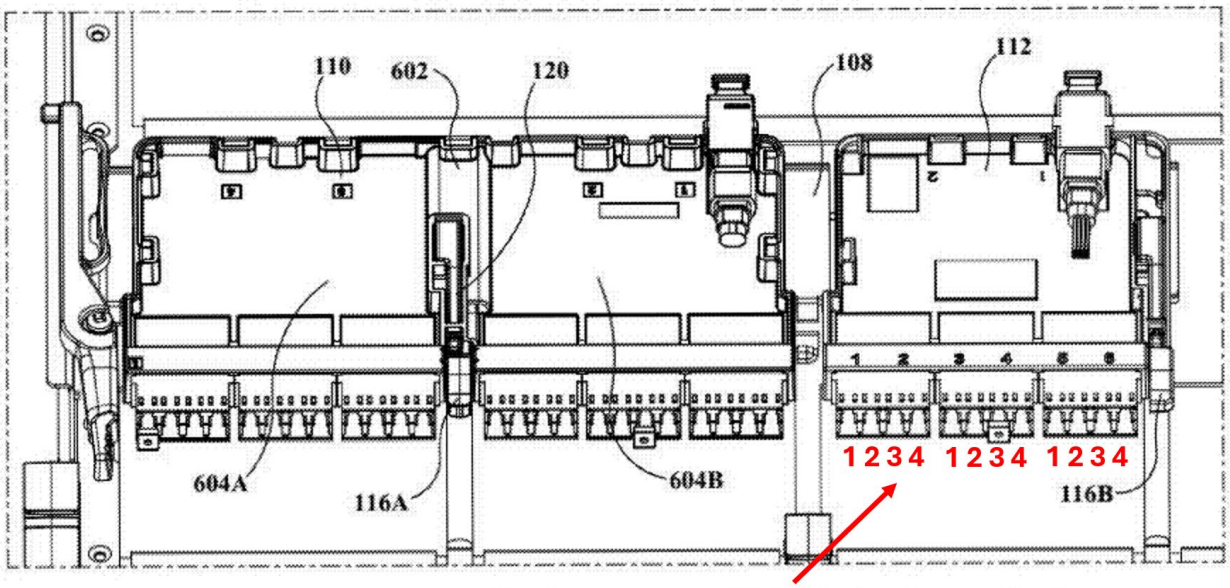


FIG. 7

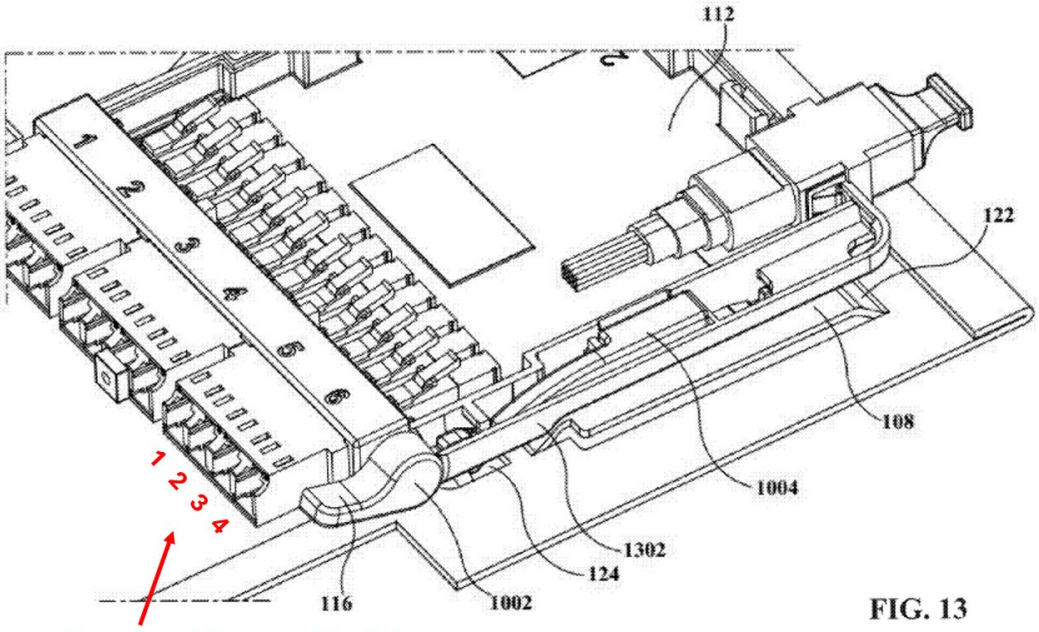


FIG. 13

Adapter modules each include four plug receiving receptacles side by side.

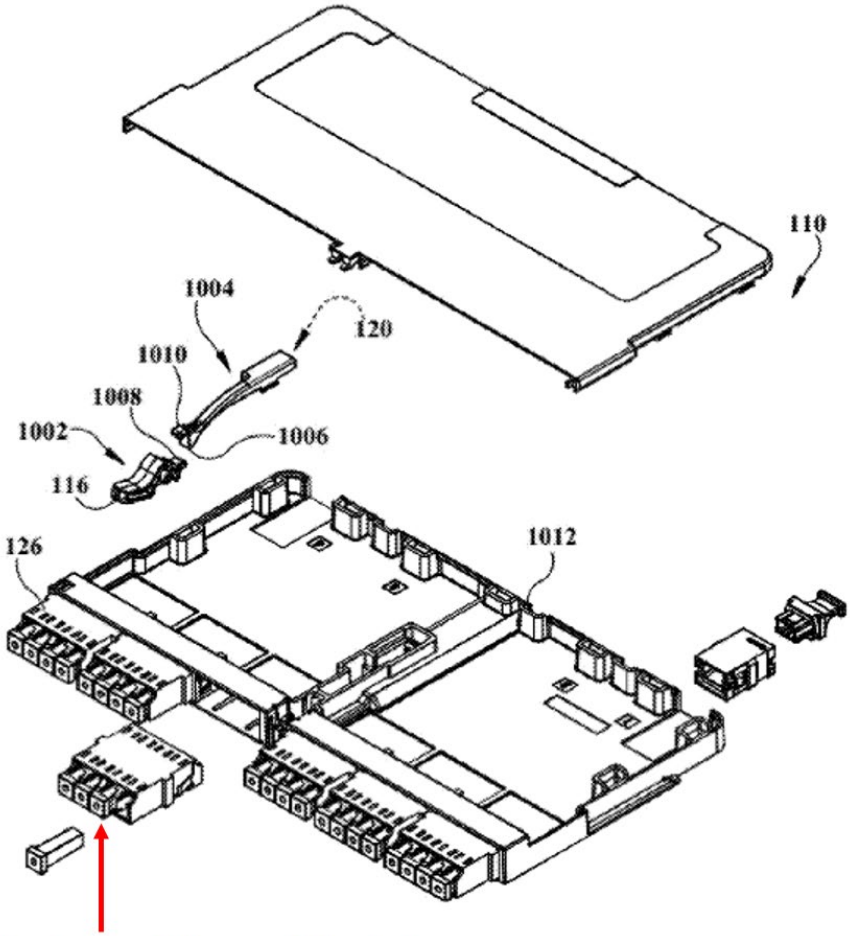


FIG. 10

E. Claim 5

Sauter discloses a pair of mounting brackets for securing the enclosure to a rack. See, e.g., Figs. 15, 16; EX1003 ¶¶253-254.

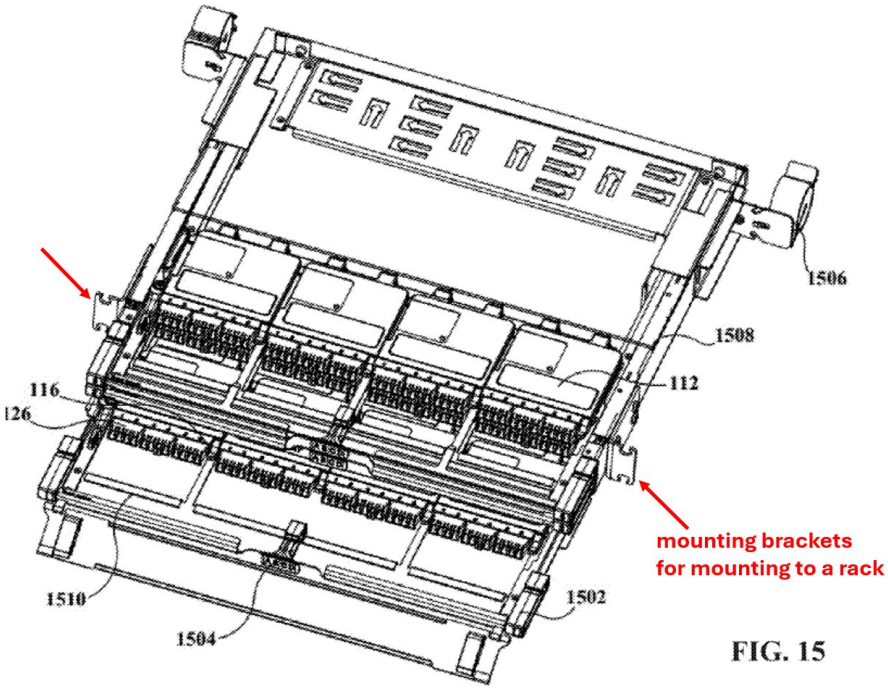

1506
1508
112
116
126
mounting brackets
for mounting to a rack
1510
1504
1502

FIG. 15

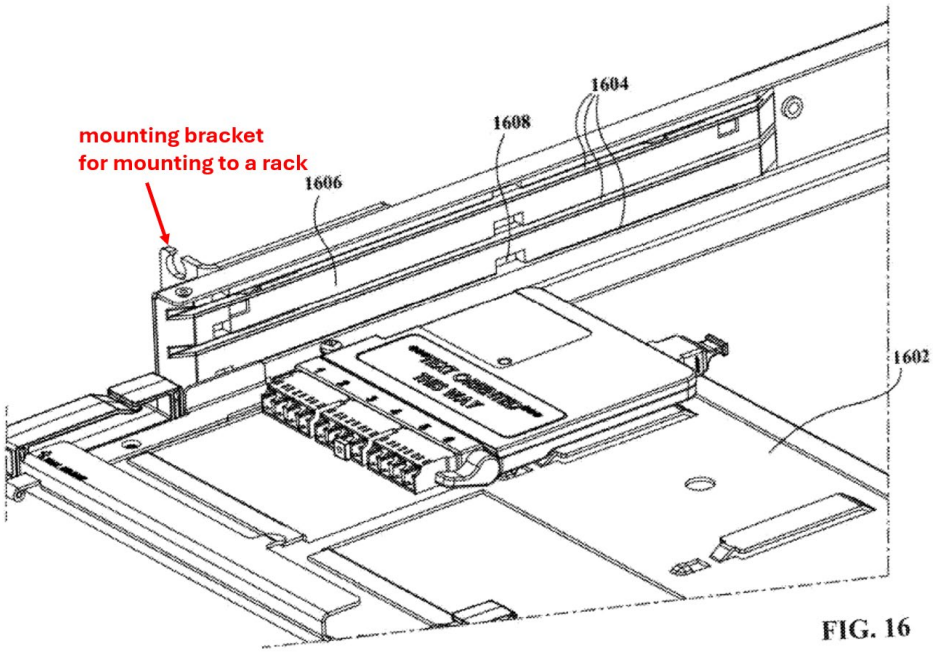

mounting bracket
for mounting to a rack
1606
1608
1604
1602

FIG. 16

F. Independent Claim 8

1. Preamble

Sauter discloses a method for organizing a tray comprising a front edge in a fiber optic interconnect system. Sauter discloses organizing trays (e.g., trays 102, 502, and 1510) that slide into a tray receiving space within an enclosure of a fiber optic interconnect system. See, e.g., EX1006 at Abstract; 1:54-58; 4:1-28; 2:44-45; Figs. 1-5, 7-8, 11, 15-16; 10:4-5; 1:23-28; 4:25-28; 4:29-40; 8:4-20; EX1003 ¶¶255-257.

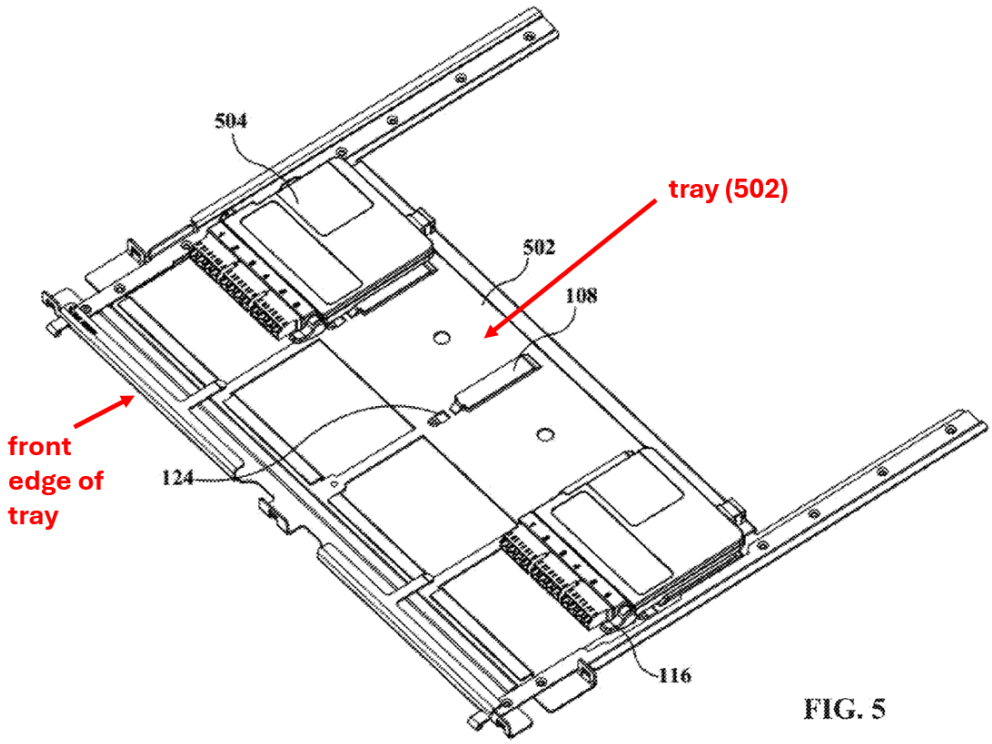


FIG. 5

2. Element 8A

Sauter discloses this element. As explained above with respect to Element 1C, which is reincorporated here by reference, Sauter's single-gang cassettes each

have a width of **three** standard width units. A standard width unit, in this instance would inherently be defined as one third of the width of a single-gang cassette. Three units per cassette times four cassettes in a tray, means the tray front edge is evenly divisible by and fits twelve standard width units. See, e.g., EX1006 at Figs. 15, 5, 3, 2, 1; 6:42-51; 4:50-54; Figs. 15, 7; EX1003 ¶¶258-260. See Figure 5 of Sauter annotated below:

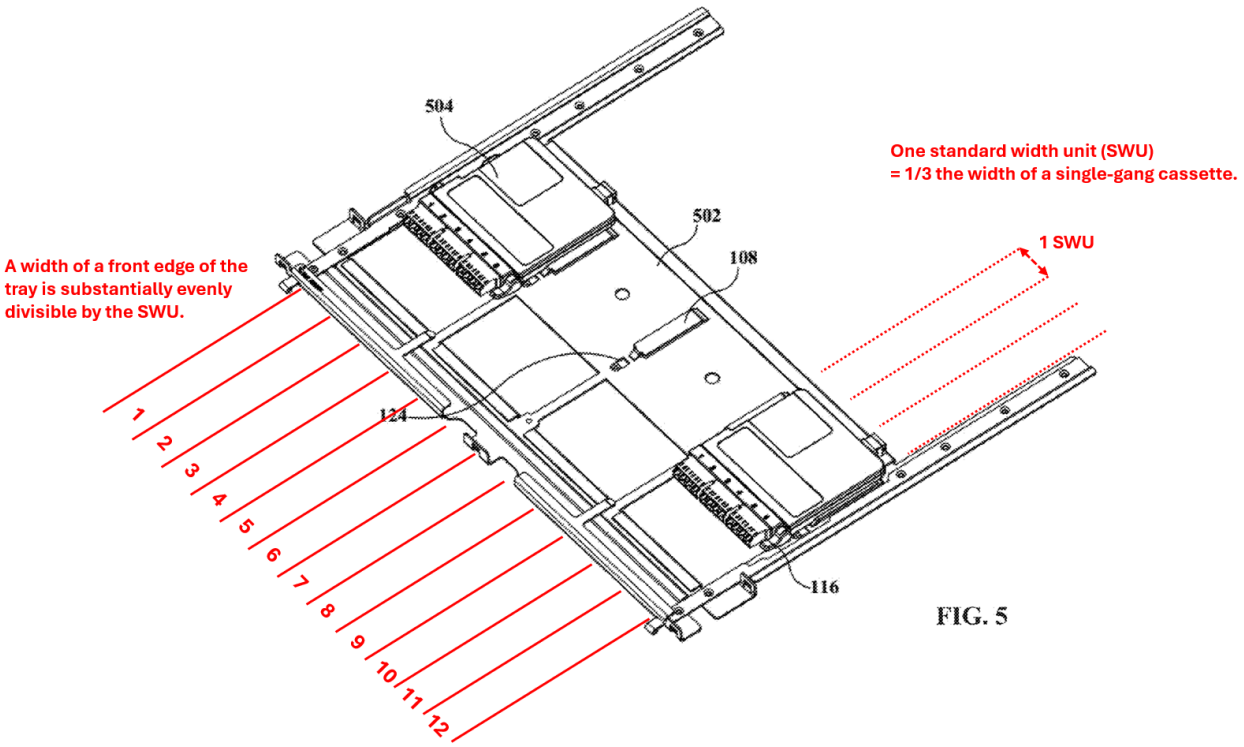


FIG. 5

3. Element 8B

Sauter teaches this limitation. Sauter teaches to select a plurality of cassettes with different widths for installation on the same tray. Sauter's single-gang cassette, double-gang cassette, triple-gang cassette and other multi-gang cassettes

all have different widths. EX1003 ¶261; see also EX1006 at 10:63-11:15; 6:42-51; 4:7-14; 9:49-56: 9:60-62.

In addition, for the same reasons given above with respect to the cassette size limitations recited in claim element 1C (which are incorporated here by reference), Sauter discloses that two different cassette widths are evenly divisible by said standard width unit. In the present example, the standard width unit is defined to be one third of the width of a single-gang cassette. As addressed above with respect to element 1C, when the double-gang cassette is configured as taught by Sauter with the latching mechanism located along the right-hand side of the cassette (see EX1006 at 7:48-60, 1:64-2:1), its width is equal to twice the width of the single-gang cassette. Being twice the width of the single-gang cassette means the double-gang cassette is also evenly divisible by the standard width unit. Dividing the width of the double-gang cassette by one third the width of the single-gang cassette yields exactly six, with no remainer. It is evenly divisible. EX1003 ¶262.

4. Element 8C

Sauter discloses releasably securing said selected cassettes to the tray for the same reasons given above with respect to claim Element 1D. EX1003 ¶¶263-264.

As discussed above for Element 1C, in Sauter the cassettes are not secured on the front "edge" of the tray. "The front edge of the tray" is found at the same

location identified above for "the front end of the tray." As set forth above for Element 1C, at least under Patent Owner's interpretation and application of "along the front edge of the tray," Sauter teaches this limitation.

Further, as discussed above with respect to Element 1C, securing the cassettes on "the front edge of the tray" would have been obvious in light of Sauter by itself.

5. Element 8D

This limitation is taught by Sauter for all the same reasons that Element 1E is taught by Sauter.

G. Claim 10

This limitation is taught by Sauter. For example, as shown in Fig. 15, all the selected cassettes can have the same width. EX1006 Fig. 15; EX1003 ¶267.

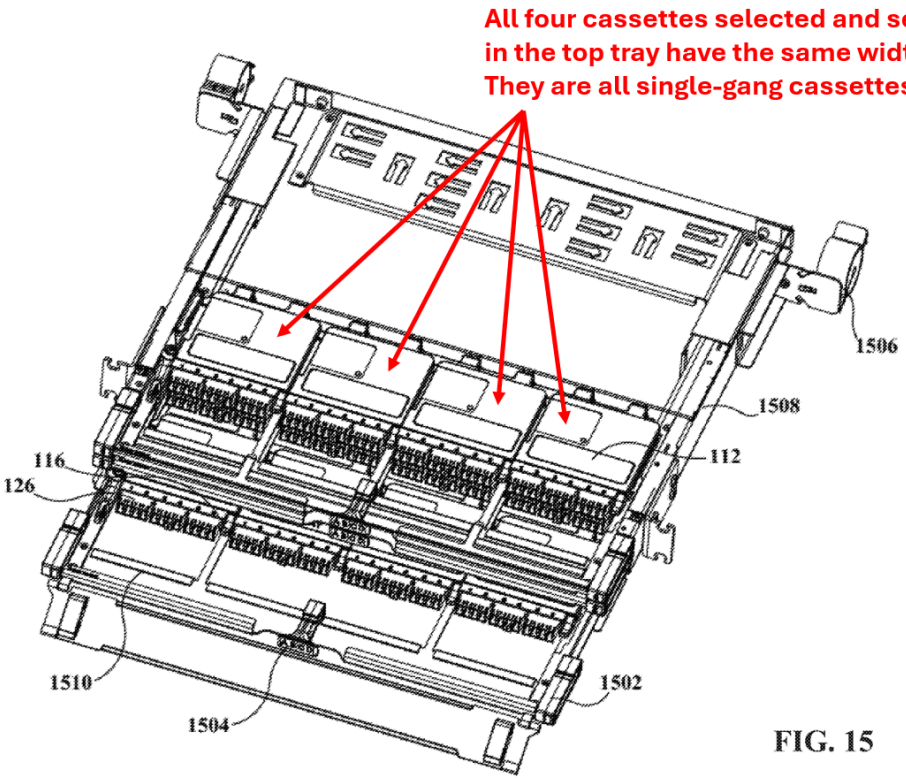


FIG. 15

See also Fig. 5 of Sauter and its description at 6:42-56.

H. Claim 11

Sauter discloses this limitation. For example, Sauter discloses that both single-gang and double-gang cassettes can be selected and installed on the same tray simultaneously. See, for example, EX1006 at 5:12-17; 9:49-63; 4:7-14; Fig. 5; 6:42-56; EX1003 ¶268. See also Figs. 15, 7, 8, 11, 17.

I. Claim 12

In addition to the single-gang and dual-gang cassette sizes, Sauter discloses a three-gang cassette and additional "multi-gang" cassettes. See, e.g., EX1006 at 4:50-61; 7:38-47; 5:12-17.

There is a limited amount of space to receive cassettes on the same tray. Selecting a three-gang cassette only leaves enough room in a single layer of cassettes for one additional single-gang cassette. However, all three sizes of the exemplary cassettes that Sauter teaches could fit on the same tray if the tray were a two tier tray as shown, for example, in Fig. 1 of Sauter that defines multiple rows of cassettes bays (lower row 106A and upper row 106B) on one tray for a total of eight bays capable of receiving eight single-gang cassettes or the equivalent number of multi-gang cassettes. EX1006 Fig. 1; EX1003 ¶270.

If Patent Owner argues that all three cassette sizes must be positionable simultaneously within the same row of cassettes then this claim would still be obvious as discussed below.

J. Claim 13

This limitation is disclosed by Sauter for the same reasons as discussed above with respect to Dependent Claim 2. As shown in Figs. 15, 2, and 3 annotated below, the width of the front edge of Sauter's tray is evenly divisible by a maximum of twelve standard width units. EX1003 ¶272.

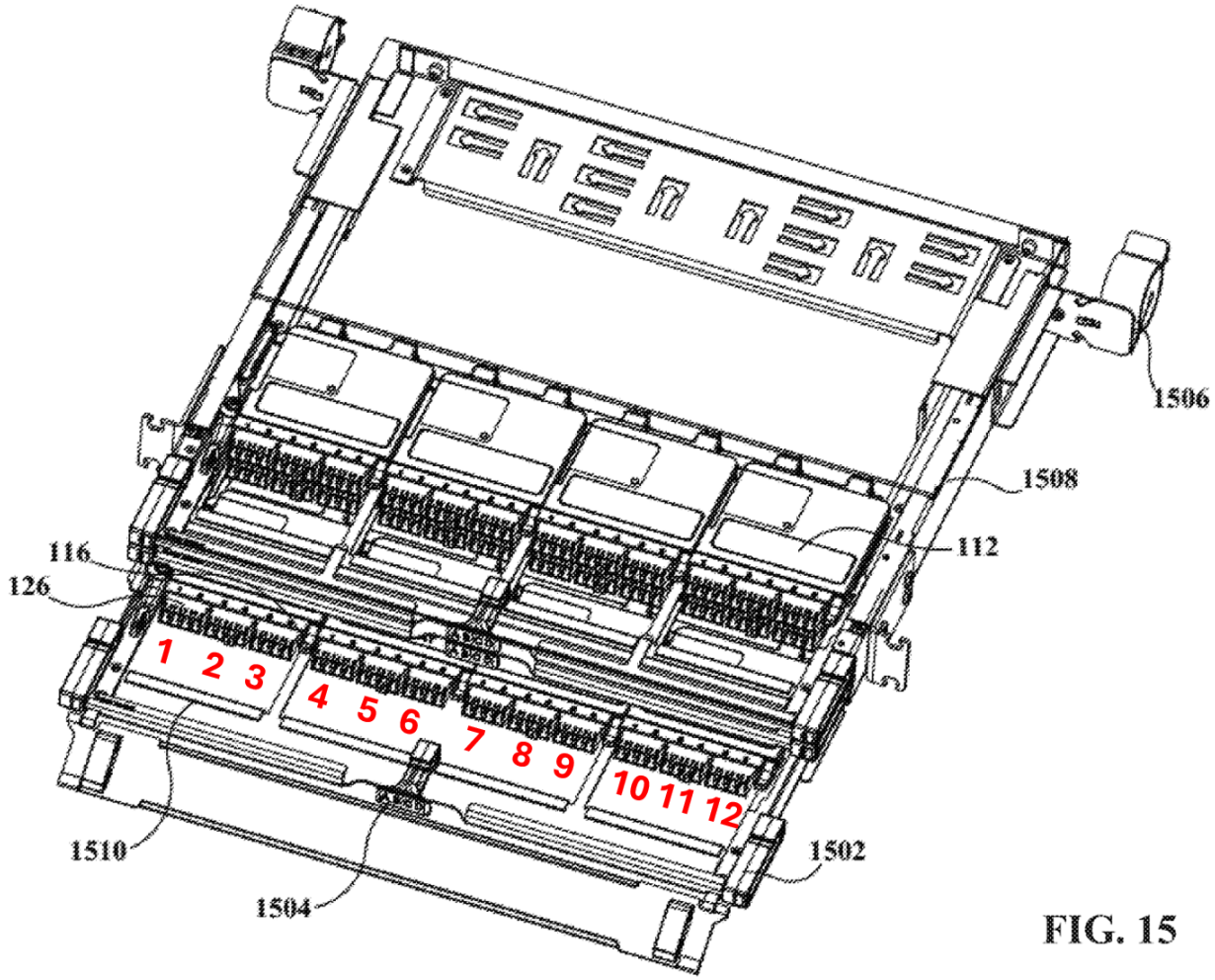


FIG. 15

See also Figs. 2 and 3, annotated below:

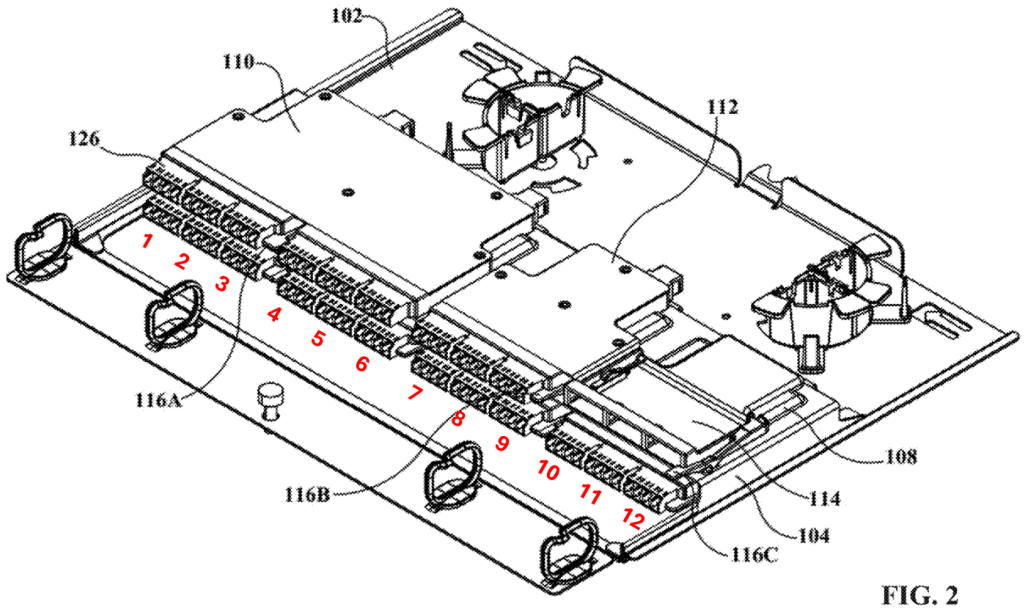


FIG. 2

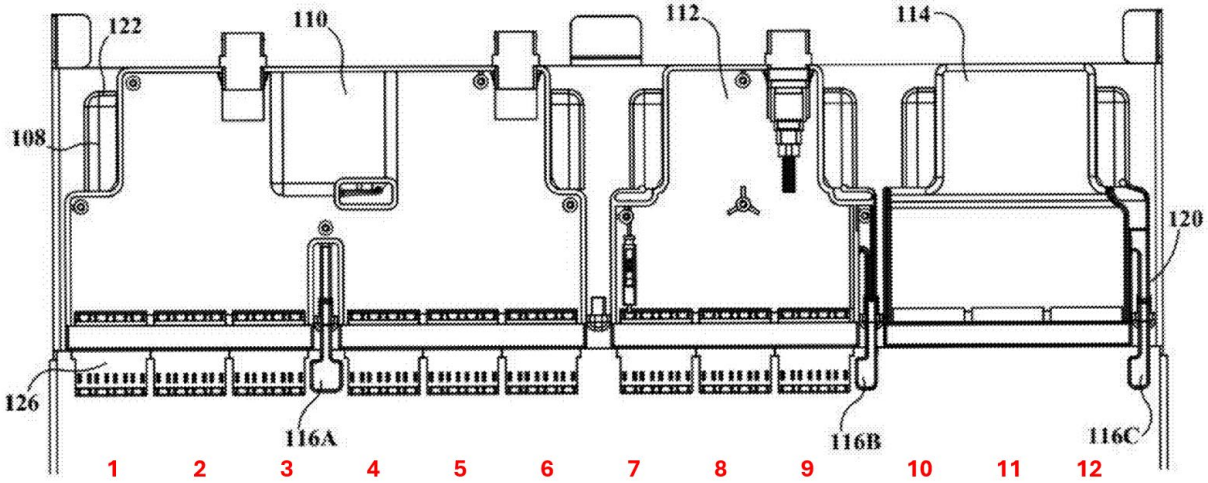


FIG. 3

Ground 4: Sauter in light of Fukui renders Claims 1-5, 8, 10-13 obvious

A. Claims 1-5, 8, 10-11, 13

1. "directly adjacent"

If PO asserts that because of the rail guides on Sauter's tray, Sauter's cassette side edges are not "directly adjacent," then Sauter in light of Fukui

(EX1004) renders these claims obvious. It would have been obvious to use the cassette fastening features from Fukui on Sauter's cassettes, eliminating any rail guides on Sauter's tray. EX1003 ¶273.

Fukui shows that fiber optic cassettes of varying widths can be secured to a tray without rails or rail guides on the tray. Fukui shows that cassettes (called modules 10, 20 in Fukui) can be releasably secured to a tray using hooks that protrude from the bottom face of the cassette housing. EX1004 at 8:52-56; Figs. 2, 9; EX1003 ¶274.

Fig.2

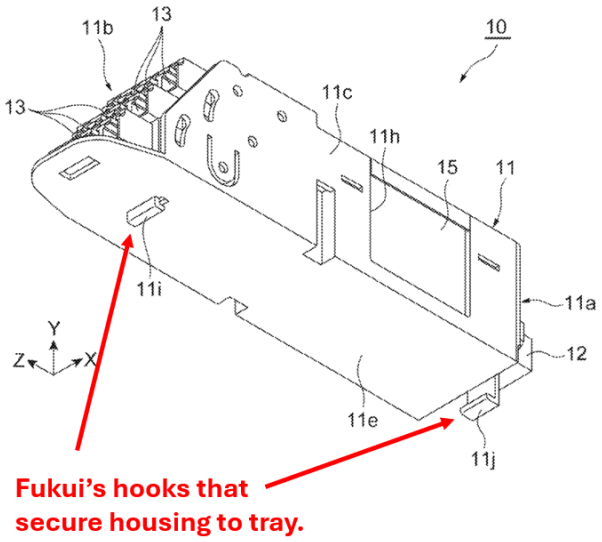
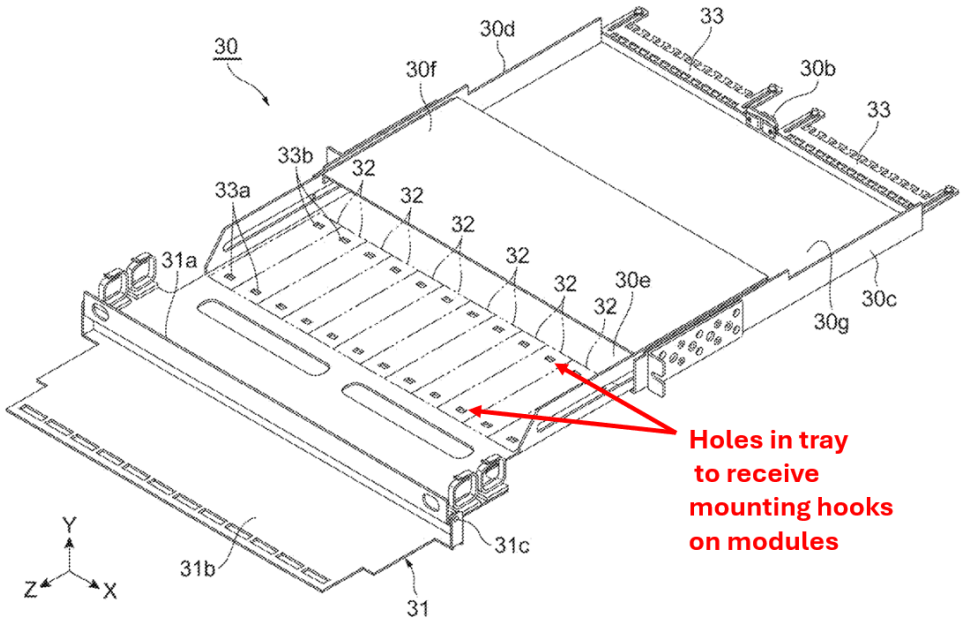


Fig.9



EX1004 Fig. 9 (showing holes in tray for hooks).

Without seeing Fukui, during prosecution the examiner mistakenly said that rails on the tray in Sedor were "essential" and ""necessary" to affix modules to the tray. EX1007 at 184; EX1003 ¶275. The examiner was not aware that Fukui taught an alternative.

A POSITA would have been motivated to use the mounting technique taught by Fukui (hooks and holes) in Sauter system for multiple reasons. First, each cassette could be made narrower by eliminating the portion devoted to the rails/latch mechanism and instead using hooks. EX1003 ¶276.

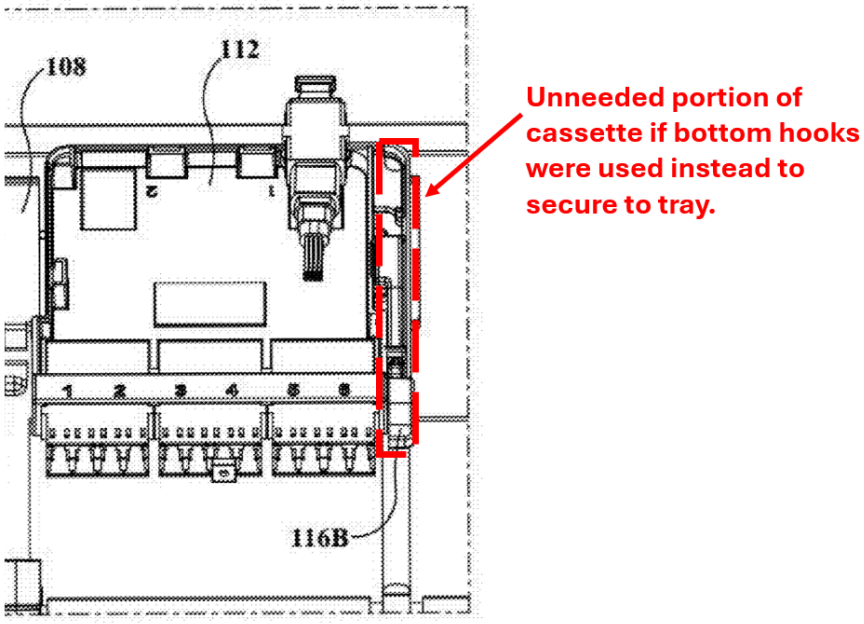


FIG. 7

Second, this modification would free up space within Sauter's cassettes. EX1003 ¶276. Sauter's use of rail guides on the tray requires Sauter to sacrifice interior space within each multi-gang cassette to create "clearance areas 602" that span over intermediate, unused rail guides on the tray. See EX1006 at Fig. 8, 7:19-28; EX1003 ¶276. By contrast, Fukui's hook approach needs no clearance areas. EX1003 ¶276. Third, making narrower cassettes can relax the bending requirements on fibers closest to the sides of the tray. EX1003 ¶276. Fibers connected to the cassettes must bend sideways to be routed into channels that typically run along the sides of a rack. Mounting narrower cassettes closer to the middle of the tray means the fiber connection locations closest to the sides of the

tray will have more room to bend 90 degrees side-ways, protecting the fibers from over-bending. EX1003 ¶276.

A POSITA would be further motivated to make this modification based on the similarity in the cassette design approach of Sauter and Fukui. EX1003 ¶277. Both teach to make fiber cassettes of different widths in the same tray, and both teach to make the larger cassette widths using multiples of a smaller cassette size. These similarities would have motivated a POSITA following Sauter to look also to Fukui's features for mounting the cassettes to the tray. EX1003 ¶277.

A POSITA would have a reasonable expectation of success. EX1003 ¶278. Sauter's technique already relies on holes/apertures (called "locking apertures 124") in the tray that receive tabs (1006) on the cassettes when mounting the cassettes to the tray. EX1006 at Figs. 4, 12, 14, 1.

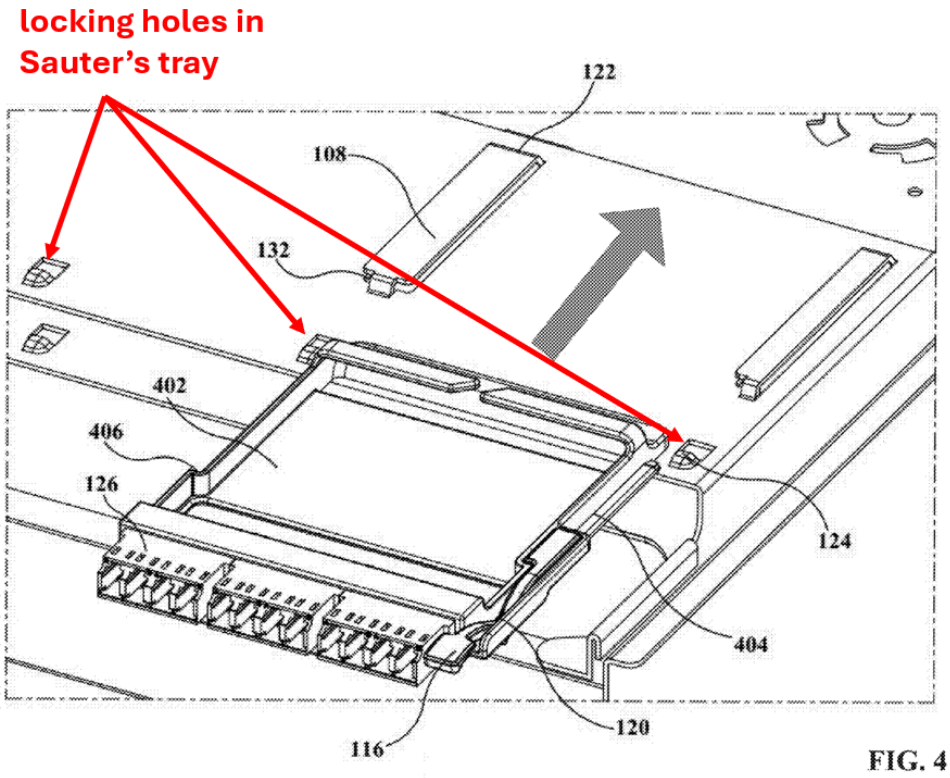


FIG. 4

That Sauter already relied on tray holes to mount cassettes demonstrates that a POSITA would have had a reasonable expectation of success making holes for hooks as taught by Fukui. EX1003 ¶278.

All the remaining limitations in claims 1 and 8 would still be satisfied. The recited "fastener for removeably securing each of said cassettes to said tray" would no longer be Sauter's latch and rail mechanism, but would, instead be the hooks as by Fukui.

B. Size limitations: Elements 1C, 8B

If Patent Owner argues that Sauter does not satisfy the cassette width size limitations of the claims, then the combination of Sauter in light of Fukui renders

the claims obvious. Similar to Sauter's "multi-gang" cassettes, Fukui discloses creating larger width fiber modules by coupling together multiple smaller modules. This is facilitated by the mounting features (i.e., the hooks and holes) that secure the modules to the tray in Fukui. For the reasons discussed above it would have been obvious to incorporate these mounting features from Fukui into Sauter's cassettes and tray, and when Fukui's mounting features are used instead of Sauter's rails/rail guides/latch, the resulting cassettes, would be exact multiples in width of the smallest gang cassette. EX1003 ¶279.

Specifically, Fukui teaches to form a pattern of holes in the tray that have a pitch equal to the width of the smallest module. See Fukui at Fig. 9 (holes 32a and 32b); EX1003 ¶280. Using this mounting technique on Sauter's cassettes would result in Sauter's cassettes being like Fukui's in that they are exact multiples in width of the smallest "single-gang" cassette. EX1003 ¶280. A POSITA would be motivated and expect success for the same reasons discussed above under the "directly adjacent" claim limitation.

C. Claim 12

Sauter in view of Fukui also renders obvious claim 12 directed to a third cassette size. Sauter already discloses that there can be more than two cassette sizes. Sauter discloses a three-gang cassette and additional "multi-gang" cassettes. See, e.g., EX1006 at 4:50-61; 7:38-47; 5:12-17; EX1003 ¶281.

There is a limited amount of space to receive cassettes on the same tray. If the claim requires all three different sizes of cassettes to be secured to the tray side-by-side within the same row, then Sauter in light of Fukui renders this claim obvious. Fukui teaches cassettes having narrower widths, such as module 20 that accommodates the width of **two** quad LC adapter modules. (Sauter's accommodates three.) A POSITA would have found it obvious to modify Sauter so that the "single-gang" cassette had a width that would accommodate only two quad LC adapter modules, instead of three. EX1003 ¶¶282-283. Thus, as modified, the single-gang cassette would include eight receptacle ports (not twelve), a "dual-gang" cassette would include sixteen receptacle ports (not twenty-four), and a "three-gang" cassette would include twenty-four receptacle ports (not thirty-six). EX1003 ¶283.

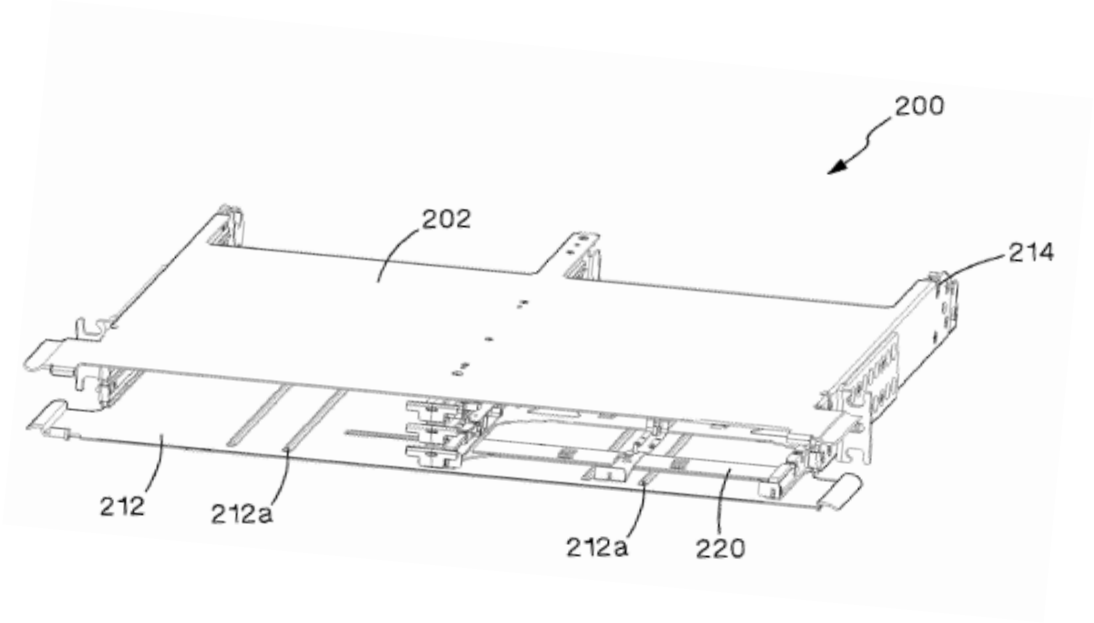
Sauter's use of the generic term "gang" which refers to a set of items grouped together, itself suggests that the base number in one "gang" does not have to be twelve. Sauter's use of the term suggests to define a group, and then create multiples of that number. If a "gang" were based on a group of eight receptacles, then one could position all three sizes of cassette in a single row on Sauter's tray. EX1003 ¶283. The standard width unit in this case would be one half the single-gang (8 port) cassette width, and each cassette size would still be an exact multiple of that standard width unit as already taught by Sauter. EX1003 ¶283.

A POSITA would be motivated to make a single "gang" in Sauter equal to eight receptacles to match BASE-8 systems. EX1003 ¶284. It was known that newer "parallel" fiber cable systems were migrating to grouping and using fibers in connectors and cables into groups of **eight**, not twelve. See, e.g., EX1030 at ¶¶0003-0005, ¶0045; see also EX1031 ¶¶0020-0027; and EX1032 4:20-43 (describing multi-fiber connector ferrule that may terminate eight optical fibers); EX1003 ¶284. BASE-8 systems would have motivated a POSITA to make the "gang" taught by Sauter to be eight receptacles wide (as shown, for example, in Fukui's module 20) to make most efficient use of available cassette space and fiber infrastructure (i.e., avoid leaving some fibers or cassette capacity dark). EX1003 ¶285. No new functionality would be needed. The components would function the same way, just fewer of them (only two adapter modules, not three). EX1003 ¶286.

Ground 5: Either of Grounds 3 or 4 in further light of Sedor renders Claims 1-5, 8, 10-13 obvious

A. Element 1A

Adding a top and/or bottom wall to Sauter's enclosure as recited in Element 1A, would have been obvious in view of Sedor. EX1003 ¶288. Sedor discloses a "high density fiber enclosure" (200). Sedor at 7:33-34; Fig. 44; EX1003 ¶289.



The enclosure includes a top (202), bottom (212), and side walls with a tray 220 received completely within. EX1005 7:32-35; see also Figs. 1A-3, 30, 31, and 32; EX1003 ¶290.

For all the reasons and motivations given above regarding the Fukui reference under Ground 1 (e.g., for added protection), it was obvious to modify Sauter's "enclosure" to include top and bottom walls satisfying Element 1A. EX1003 ¶292.

B. Elements 1C: "…cassettes…arrangeable… along said tray front end" and Element 8C: "…securing said selected cassettes along the front edge of the tray"

Positioning cassettes on the tray front end/edge would be obvious in further view of Sedor which shows this, e.g., in Figs. 7-12. EX1003 ¶292.

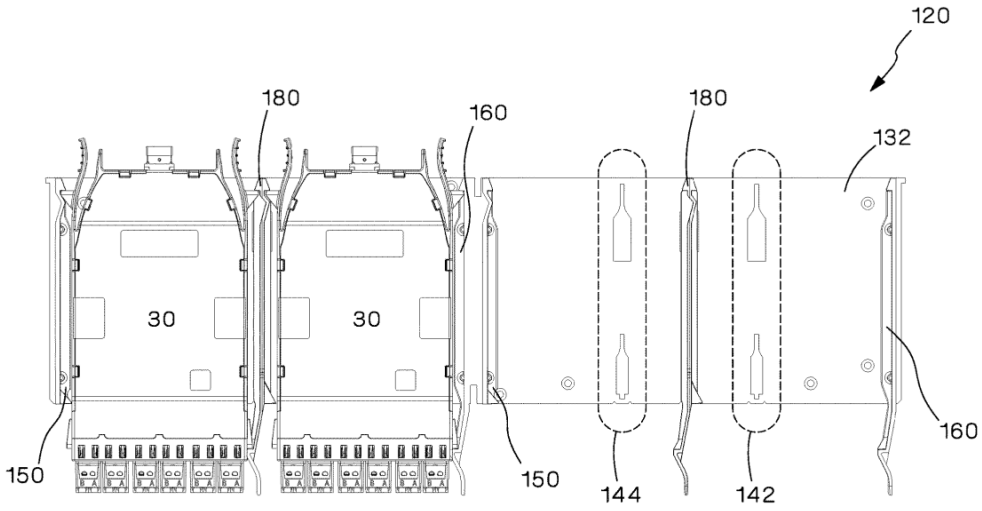


FIG.7

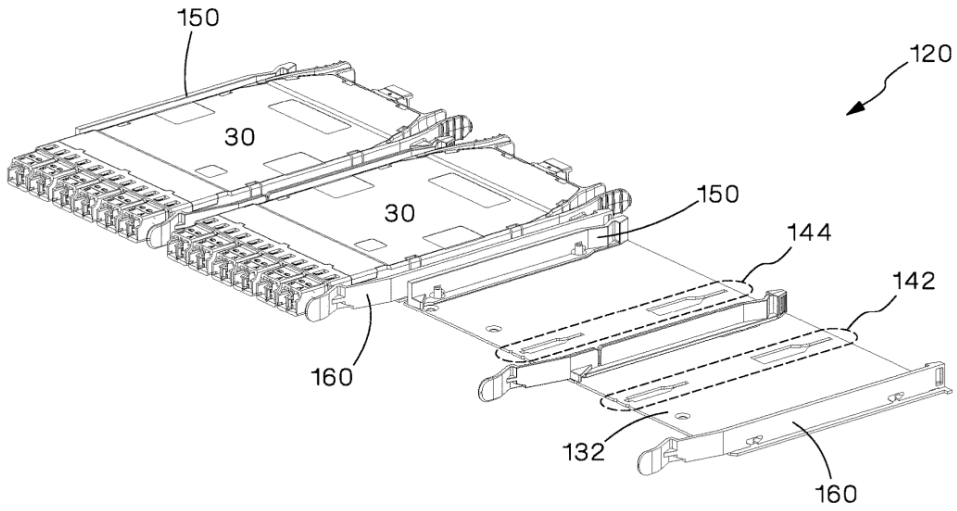


FIG.8

EX1005, Figs. 7-8. For the same reasons given above that it was obvious based on Sedor to modify Fukui to position the cassettes on the tray front end (e.g., to

improve access to connector locations), it was also obvious based on Sedor to position Sauter's cassettes on the front end of Sauter's tray. EX1003 ¶292.

C. Claim 12

Sauter teaches a third cassette size, specifically a "three-gang cassette" size. However, Sauter's tray is not wide enough to receive all three cassette sizes simultaneously, unless the "gang" were reduced from twelve ports, to eight ports. Sedor teaches a fiber cassette with a width of eight LC connector ports. EX1003 ¶293. See, for example, Sedor's cassette 40 in Figs. 9 and 10:

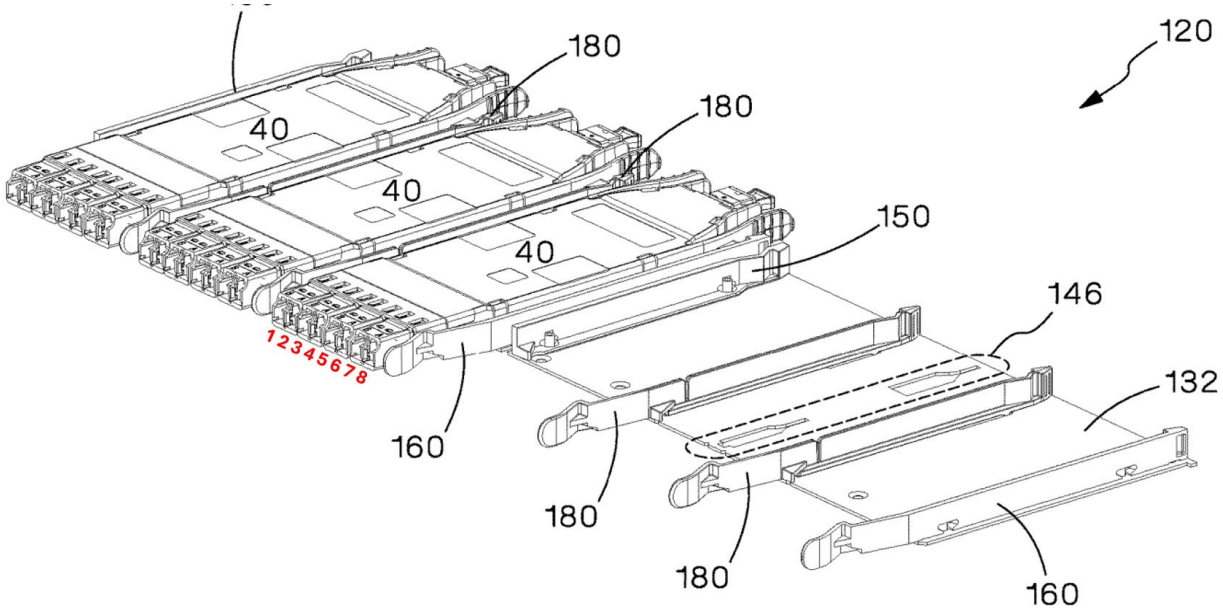


FIG.10

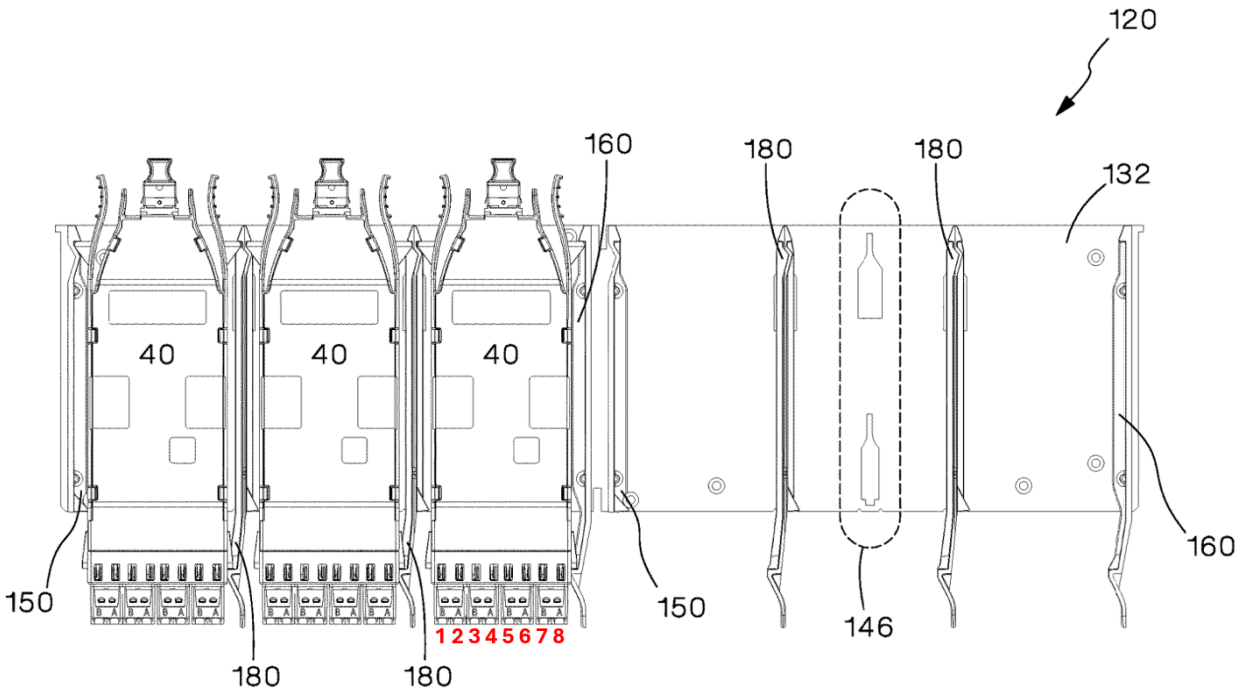


FIG.9

It would have been obvious in light of Sedor to modify Sauter's "gang" to be the width of eight LC ports instead of twelve LC ports. EX1003 ¶294. A POSITA would be motivated and expect success making this change for the reasons given above regarding Sauter plus Fukui for claim 12 (e.g., for use in BASE-8 systems). EX1003 ¶294.

Using 8-port "gangs," all three sizes of Sauter's cassettes can fit within a single row on Sauter's tray, and each would still be an exact multiple of a standard width unit (one half the width of the 8-port single-gang cassette). EX1003 ¶295.

Conclusion

There is at least a reasonable likelihood claims 1-5, 8-13 are invalid.

Respectfully submitted,

Dated: July 26, 2024

By: /Samuel A. Hamer/

Philip P. Caspers, Reg. No. 33,227
Samuel A. Hamer, Reg. No. 46,754
Capella Tower, Suite 4200
225 South Sixth Street
Minneapolis, MN 55402
shamer@carlsoncaspers.com
Phone: 612.436.9615
Fax: 612.436.9605

Claims Listing Appendix

U.S. Patent No. 11,435,542
Challenged Claims 1-5, 8-13

Designation	Claim 1
Preamble	1. A modular fiber optic cassette system, the system comprising:
Element 1A	a case comprising a top and a bottom wall and two opposed side walls, each of said sidewalls attached between respective side edges of said top and bottom wall, said walls together defining a tray receiving space there between and a forward edge of each said wall together defining an opening to said tray receiving space;
Element 1B	at least one tray slideably received within said tray receiving space for movement between a stored position wherein said tray is completely inside said tray receiving space and an accessible position wherein a front end of said tray is in front of said opening and outside of said tray receiving space;
Element 1C	a set of fiber optic cassettes, a selected plurality of the cassettes arrangeable side by side along said tray front end wherein each of said cassettes comprises a plurality of optic plug receiving receptacles arranged side by side in a row along a front thereof, a first of said set of cassettes comprising a first cassette width as measured between outer side edges thereof of one of one, two, three, four and six standard width units and a second of said cassettes comprising a second cassette width as measured between outer side edges thereof different from said first cassette width and one of one, two, three, four and six standard width units; and
Element 1D	a fastener for removeably securing each of said cassettes to said tray;
Element 1E	wherein when arranged on the tray an outer side edge of each of said selected cassettes is directly adjacent an outer side edge of at least one other selected cassette.
Claim 2	2. The modular fiber optic cassette system of claim 1, wherein said tray has a width dimensioned to receive at least twelve standard width units side by side.

Claim 3	3. The modular fiber optic cassette system of claim 1, wherein each of said cassettes comprises a multi fiber connector receiving receptacle arranged on a rear thereof and a plurality of optic fibers, one of said optic fibers interconnecting a respective one of said optic plug receiving receptacles with said multi fiber connector receiving receptacle.
Claim 4	4. The modular fiber optic cassette system of claim 1, wherein each of said cassettes comprises four fiber optic plug receiving receptacles arranged side by side in a row along a front thereof for each standard width unit.
Claim 5	5. The modular fiber optic cassette system of claim 1, wherein said system is for mounting in a rack and further comprising a pair of mounting brackets, one of said brackets attached to each of said sidewalls on either side of an outside of said case, said mounting brackets for securing said case to the rack.
Designation	**Claim 8**
Preamble	8. A method for organising a tray comprising a front edge in a fiber optic interconnect system, the method comprising:
Element 8A	defining a standard width unit wherein a width of the front edge is substantially evenly divisible by said standard width unit;
Element 8B	selecting a plurality of cassettes for installation on the tray from a set of cassettes having a plurality of different widths as measured between respective outer side edges thereof, wherein each of said different widths is evenly divisible by said standard width unit; and
Element 8C	releasably securing said selected cassettes along the front edge of the tray;
Element 8D	wherein when arranged on the tray an outer side edge of each of said selected cassettes is directly adjacent an outer side edge of at least one other selected cassette.
Claim 9	9. The method for organising a tray of claim 8, wherein said set of cassettes comprises cassettes comprising widths of one, two, three, four and six standard width units.
Claim 10	10. The method for organising a tray of claim 8, wherein said selected cassettes all comprise the same width.

Claim 11	11. The method for organising a tray of claim 8, wherein said selected cassettes comprise a first cassette having a first width and a second cassette having a second width different from said first width.
Claim 12	12. The method for organising a tray of claim 11, wherein said selected cassettes further comprise a third cassette comprising a third width different from said first width and said second width.
Claim 13	13. The method for organising a tray of claim 8, wherein the width of the front edge is substantially evenly divisible by a maximum of twelve (12) of said standard width units.

Petitioner Exhibit List

Number	Description
EX1001	U.S. Patent No. 11,435,542 (the challenged patent)
EX1002	Prosecution history of U.S. Patent No. 11,435,542
EX1003	Declaration of Dr. Stephen Ralph
EX1004	U.S. Patent No. 10,101,551 ("Fukui")
EX1005	U.S. Patent No. 10,215,944 ("Sedor)"
EX1006	U.S. Patent 9,690,064 ("Sauter")
EX1007	Prosecution history of U.S. Patent No. 10,795,107
EX1008	EIA Standard, Cabinets, Racks, Panels, and Associated Equipment (EIA/ECA-310-E)
EX1009	International Standard, Part 20: Type LC connectors Family (IEC 61754-20)
EX1010	U.S. Patent Publication No. 2014/0099064 ("Fabrykowski")
EX1011	Joint Claim Construction Chart from co-pending litigation
EX1012	Exhibits D, E, and F filed by Plaintiff Belden with its Complaint for Patent Infringement in the matter of Belden Canada ULC v. CommScope, Inc. et al., 1:23-cv-00810 (D. Del. Jul. 27, 2023)
EX1013	Prosecution history of U.S. Patent 9,690,064 ("Sauter")
EX1014	U.S. Patent No. 9,690,065 ("Wiltjer")
EX1015	U.S. Patent No. 9,250,409 ("Blackwell")
EX1016	CommScope's user manual
EX1017	U.S. Patent No. 7,509,015
EX1018	U.S. Patent No. 9,008,485
EX1019	U.S. Patent No. 9,075,216
EX1020	U.S. Patent Publication No. 2016/0062050
EX1021	U.S. Patent No. 8,712,206
EX1022	Product literature for Leviton: FIBER SYSTEMS, Enclosure and Panel Selection Guide
EX1023	Product literature from Corning: EDGE™ HD Solutions
EX1024	Product literature from Panduit: HD Flex Fiber Cabling System
EX1025	WO2010148325A1
EX1026	NL2008155C2 ("Laarveld") (English translation)
EX1027	Declaration certifying translation of NL2008155C2
EX1028	NL2008155C2 ("Laarveld") (original in Dutch)

EX1029	Screen capture of Propel instructional video at https://www.youtube.com/watch?v=_agZJP5tZWc at 1:55)(showing cassette being mounted on rails)
EX1030	U.S. Patent Publication No. 2017/0192191
EX1031	U.S. Patent Publication No. 2017/0153406
EX1032	U.S. Patent No. 8,873,922
EX1033	Prosecution history of U.S. Patent No. 11,656,422

CERTIFICATION UNDER 37 CFR § 42.24(d)

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petition for *Inter Partes* Review totals 13,519 words per Microsoft Word word count tool, which complies with requirement of 14,000 words allowed under 37 CFR § 42.24(a)(i).

Respectfully submitted,

Dated: July 26, 2024

By: /Samuel A. Hamer/

Philip P. Caspers, Reg. No. 33,227
Samuel A. Hamer, Reg. No. 46,754
Capella Tower, Suite 4200
225 South Sixth Street
Minneapolis, MN 55402
shamer@carlsoncaspers.com
Phone: 612.436.9615
Fax: 612.436.9605

CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4)(i) *et seq.* and 42.105(b), the undersigned certifies that on July 26, 2024 a complete and entire copy of this PETITION FOR INTER PARTES REVIEW OF UNITED STATES PATENT NO. 11,435,542 PURSUANT TO 35 U.S.C. §§ 311–319, 37 C.F.R. § 42 and all supporting exhibits were provided by Federal Express, to the Patent Owner by serving the correspondence address of record as follows:

Belden Canada ULC
C/o Lavery, De Billy, LLP
Hugh Mansfield
1 Place Ville Marie, Suite 4000
Montreal, QC H3B 4M4
CANADA

Dated: July 26, 2024

/Samuel A. Hamer /

Philip P. Caspers, Reg. No. 33,227
Samuel A. Hamer, Reg. No. 46,754
Capella Tower, Suite 4200
225 South Sixth Street
Minneapolis, MN 55402
shamer@carlsoncaspers.com
Phone: 612.436.9615
Fax: 612.436.9605