

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AMPHENOL CORP.,
Petitioner

v.

PPC BROADBAND, INC.,
Patent Owner

Case No. IPR2023-01363
Patent No. 9,008,483

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

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I. INTRODUCTION

The disputes in this proceeding have shifted significantly post-institution. In its Preliminary Response (“POPR”), Patent Owner’s (“PO”) primary argument focused on the types of cables routed within the claimed apparatus. *See* POPR, 10-25 (disputing that Holmberg includes a “storage panel positioned to store three types of cables”). Petitioner’s Preliminary Reply (“Prelim. Reply”) pointed out that PO took the opposite position in parallel litigation, having there insisted that the cables do not structurally limit the claims. Prelim. Reply, 2-3. At institution, the Board preliminarily accepted PO’s litigation position that “the recited cable types” are not “structural limitations.” ID, 20-21.

In its Response (“POR”), PO no longer argues that Holmberg fails to teach any specific cable types or cable couplings, focusing instead—and exclusively¹—on motivation to combine. The POR insists that no POSITA would equip Holmberg’s splice tray 230 with a hinged connection, alleging (1) that Holmberg was designed

¹ The POR does not allege that the proposed combinations fail to teach any specific claim element. Nor did PO’s expert, Dr. Eldering, identify any missing elements. Ex. 1023, 18:4-31:9. Although Dr. Eldering did refer counsel to his opinion regarding cable types and their couplings (*Id.*, 28:14-29:13), that opinion was in his original declaration submitted in support of the POPR. The POR does not advance this argument or cite Dr. Eldering’s original declaration.

to *prevent*, rather than ease, access to the back of the splice tray and (2) that fibers would be damaged if a hinged splice tray were opened in the field. POR, 1-2, 21-64. Each of these allegations turns on fundamental misunderstandings of Holmberg.

Underlying PO's theory that Holmberg seeks to prevent access, PO alleges a fundamental distinction between the '483 Patent's NID² and Holmberg's mid-span box, arguing that the former seeks to *promote* access and the latter seeks to *prevent* access. POR, 13, 27-28, 42 (arguing that "a POSITA would not be motivated to open or provide easier access to the rear side of Holmberg's spice tray 230"). This purported distinction between Holmberg's mid-span box and the '483 Patent's NID turns critically Dr. Eldering's analysis. Yet Dr. Eldering's understanding of Holmberg is simply wrong. He critically conflated Holmberg's discussion of the prior art with its description of the inventive mid-span box relied upon in the Proposed Grounds. Properly interpreted, Holmberg has the same need as the '483 Patent for easy access to connect and disconnect new subscribers.

Turning to PO's theory that splice tray 230 could not swing open on a hinge without damaging the stored fibers, PO again misunderstands Holmberg's teachings. PO and its expert paint a picture, including via figure annotations, of an installed splice tray 230 with taut fibers wrapped around the retaining mechanisms, incapable

² Adopting PO's nomenclature, the Reply uses NID and DIB interchangeably.

of being removed without damaging stored fibers. POR, 44-63. In fact, Holmberg's splice tray is specifically designed to retain cable slack when installed, allowing its easy removal.

Finally, PO challenges the motivations related to dependent claims 2—replacing Holmberg's splice holders with adapters—and dependent claim 10—adding Cowan's fiber clips. In each case, PO overlooks and/or misunderstands key teachings in the references.

II. A POSITA WOULD HAVE BEEN MOTIVATED TO COMBINE THE PRIOR ART AS PROPOSED

A. The POR Critically Misunderstands Holmberg

The POR's primary argument alleges a fundamental distinction between the '483 Patent's NID and Holmberg's mid-span box. POR, 5-13 (comparing enclosures and alleging that only NIDs are designed to provide technicians easy access for terminating service to end subscribers), 21-44 (alleging mid-span enclosures like Holmberg are, by their nature, designed to *prevent* easy access). PO argues that “unlike [Holmberg's] mid-span” box, NIDs terminate fiber directly to end customers and are, accordingly, “designed to allow easy access and connection to the terminated fibers to be able to connect and disconnect new subscribers as needed.” POR, 13; *see also id.*, 42 (“[A] POSITA would not be motivated to open or provide easier access to the rear side of Holmberg's spice tray 230[.]”).

This purported distinction between Holmberg's box and the '483 Patent's NID turns critically on Dr. Eldering's interpretation of Holmberg. Indeed, the POR repeatedly cites to Dr. Eldering in support of its argument that a POSITA would be motivated to block, rather than ease, access to Holmberg's splice tray. *See* POR, 8 (alleging Holmberg was "designed to restrict access"), 13 (arguing that, unlike Holmberg's box, the '483 Patent's NID is designed to provide easy access to connect and disconnect new subscribers), 21 ("Holmberg was intentionally designed to block or restrict [] access to the rear side of the splice tray 230[.]"), 23-24 (alleging that Petitioner ignored the "significant differences between NIDs . . . and Holmberg's mid-span" box and incorrectly assumed that "more convenient access . . . would be desirable . . . in Holmberg"). This alleged distinction does not find express support in Holmberg. Indeed, for the embodiments relied upon in the Proposed Grounds, Holmberg says nothing about preventing a technician from repeatedly accessing both sides of its splice tray 230, e.g., to add, remove, or fix connections. Instead, Dr. Eldering appears to interpret Holmberg based on his general understanding of mid-span enclosures.

On cross examination, Dr. Eldering alleged that Holmberg teaches a traditional topology in which Holmberg's mid-span enclosure is separated from the end subscribers by a separate "drop terminal" or other additional unit. Ex. 1023, 40:18-41:5 (claiming "the Holmberg device performs the function of routing cables

to a form of a drop terminal that . . . may contain splitters or other elements to provide the final routing to the subscriber”). He testified that it was “Holmberg’s intent” to rely on “an additional unit . . . to bring the signal finally to each individual unit in the home” and that this understanding is based on his “experience at Alcatel where the products we developed had, in fact, that functionality.” *Id.*, 42:2-10; *see also id.*, 42:11-43:13 (testifying that Holmberg retains an intermediate device between its mid-span enclosure and end subscribers and that no such intermediate box exists between the ‘483 Patent’s NID and end subscribers).

Finally, Dr. Eldering confirmed that Holmberg’s system would, like the ‘483 Patent’s NID, require an ability to easily connect and disconnect end subscribers, but he contended this functionality would be provided by the intermediate drop terminal he assumes of Holmberg’s system:

Q. It's true that the multiunit dwellings served by Holmberg would require an ability to connect and disconnect new subscribers as needed, isn't it?

A. Yes. And that ability is typically provided by the drop terminal that Holmberg describes or a drop interface box such as the '483.

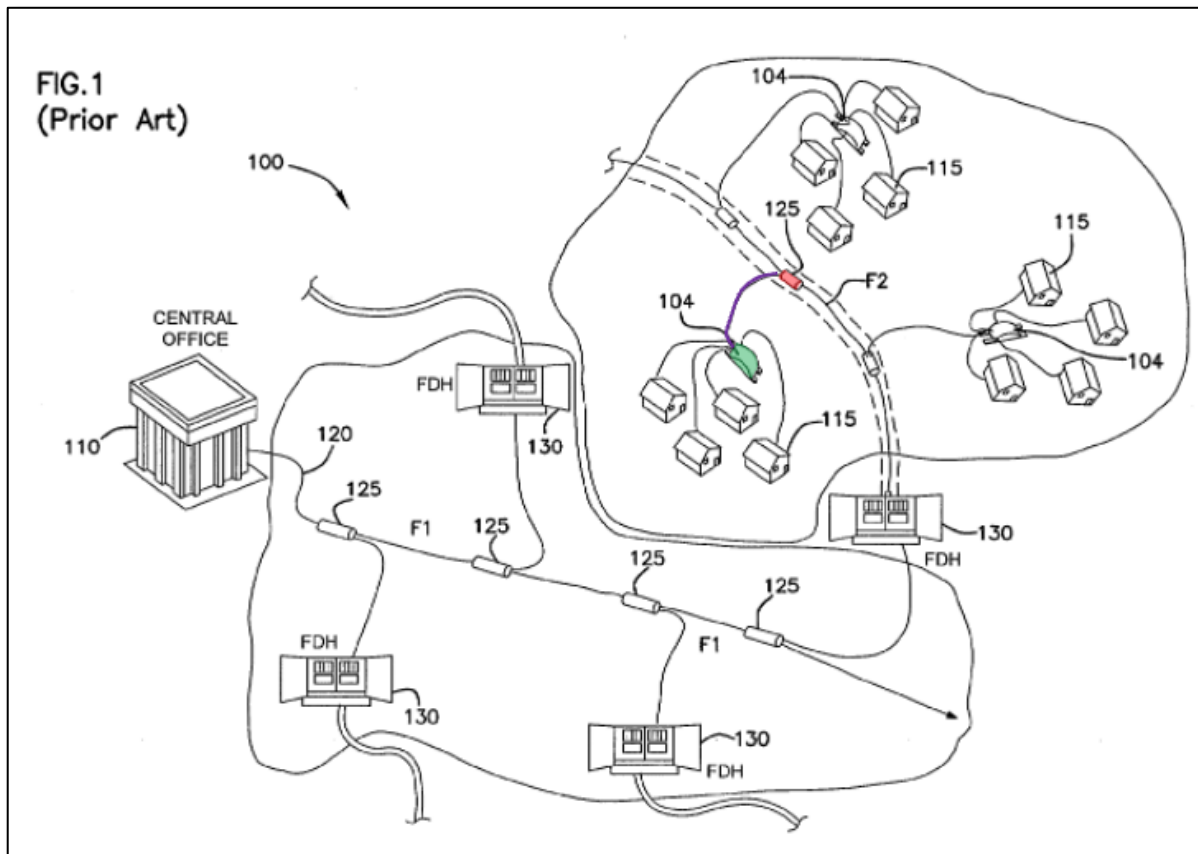
Id., 49:4-11.

As set forth in the next section, there is no intermediate drop terminal in Holmberg’s system. Dr. Eldering critically conflated Holmberg’s discussion of the

prior art with its description of the inventive mid-span box relied upon by the Proposed Grounds.

1. *Holmberg, Like the '483 Patent, Directly Terminates Fiber to End Subscribers and Requires Easy Access to Connect and Disconnect Those Subscribers*

Like the '483 Patent's NID, Holmberg terminates fiber directly to end subscribers. Dr. Eldering contends that "Holmberg [] impl[ies] the use of a subsequent device for the management and the routing of the final optical signal to the subscriber, which Holmberg refers to as the drop terminal 104." Ex. 1023, 44:16-45:3. But drop terminal 104 is described by Holmberg *only* in the Background section as a component of *traditional* network topologies utilizing mid-span access enclosures. Ex. 1004, [0006] (teaching that prior art networks used **mid-span access locations 125** (or "break-out locations") to **connect** the main cable to "**drop terminals 104**" that terminate fiber to subscriber locations); Ex. 1033, ¶5 (a POSITA would understand Fig. 1 and the corresponding disclosure describes traditional mid-span access topologies). This topology—labeled "prior art"—is depicted in Fig. 1 below:



Ex. 1033, ¶¶3-5 (discussing the same).

Separately, Holmberg teaches that fiber optic networks can “extend into multi-dwelling units such as apartment building and condominiums” via a separate cable 150. Ex. 1004, [0007], Fig. 2. In such an arrangement, multiple “wall boxes” connect to cable 150 to terminate fiber directly to the residents of the building:

Within the multi-dwelling unit 152, *branch cables/fibers are optically coupled to the fibers of the cable 150 at optical coupling locations* (e.g., fusion splices, mechanical splices or connectorized optical couplings). The optical coupling locations can be *enclosed within one or more wall boxes* that are typically equipped with doors/covers that

can be opened to provide easy access to the optical coupling locations. The *wall boxes are typically provided at different floors* of the multi-dwelling unit with each wall box *having optical coupling locations corresponding to a plurality of different subscribers* (e.g., each resident on a given floor).

Id. (emphases added). Holmberg's Detailed Description makes clear that its embodiments do not target the Fig. 1 topology in which mid-span locations are connected to separate drop terminals before delivering service to homes. Instead, Holmberg's enclosures are "wall boxes" designed to deliver fiber service directly to end subscribers in a multi-unit dwelling:

The present disclosure relates generally to *wall boxes configured to be easily mounted at mid-span locations* along the length of a fiber optic telecommunications cable. It is preferred for wall boxes in accordance with the principles of the present disclosure to be used *for indoor applications such as multi-dwelling units*, or commercial buildings *where a plurality of subscribers is located*.

Id., [0034] (emphases added); Ex. 1033, ¶6.

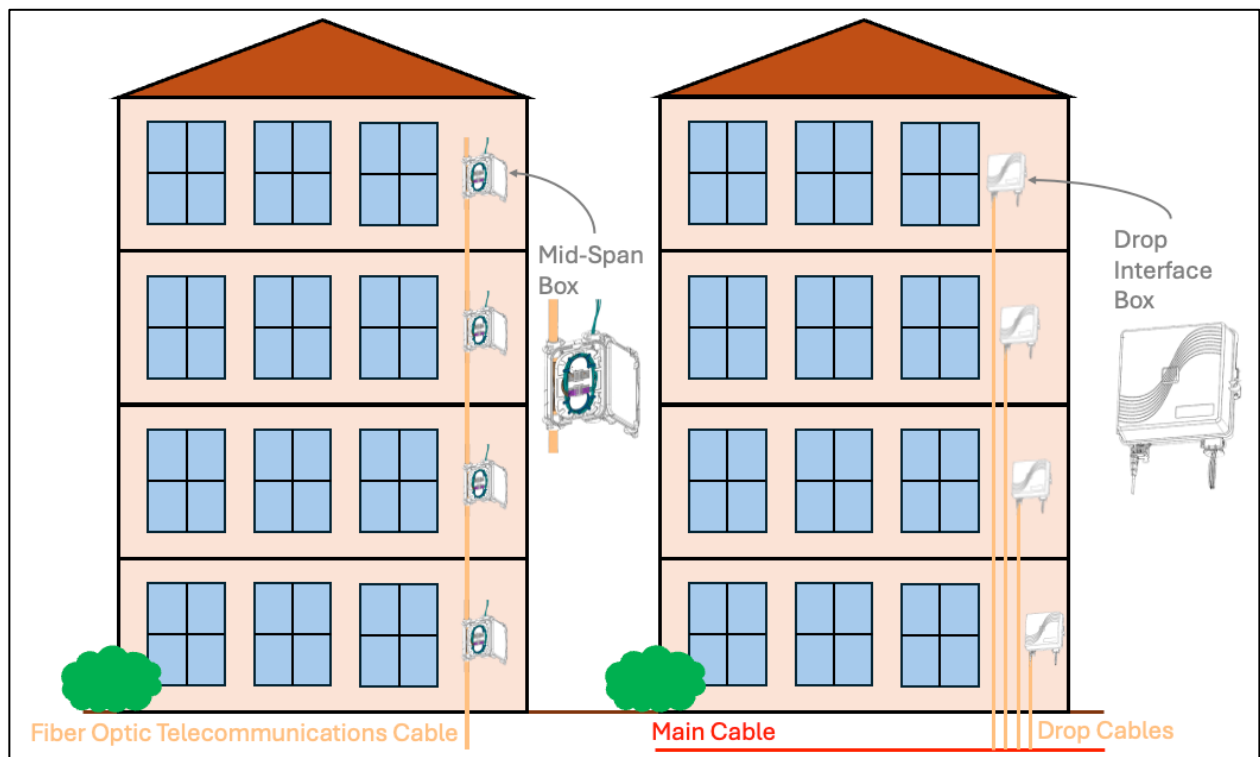
Like Holmberg, the '483 Patent describes enclosures designed to deliver fiber service directly to subscribers within a multi-dwelling unit:

DIB 100 mounts at a desired location of a premises 130, which will typically be a multi-dwelling . . . type of premises in which multiple individual living spaces or units are included in a single larger building. . . . Inside of DIB 100, drop cable 110 is split into feeder breakout cables 550 (shown in FIG. 5-4) and converted into multiple distribution cables

120 which are connected in or to the individual units or locations 125 of premises 130.

Ex. 1001, 3:19-22. A POSITA would have understood that, for larger multi-dwelling units, multiple NIDs would be used. Ex. 1033, ¶7 (explaining that the '483 Patent's enclosures, like Holmberg's, could serve separate floors of a large apartment complex).

A POSITA would have understood that the “mid-span” feature of Holmberg's enclosure—its ability to terminate some fibers and pass through others—simply permits mounting multiple wall boxes on the same telecommunications cable that feeds a multi-dwelling unit. Ex. 1033, ¶¶7-8 (noting the '483 Patent's NID cannot pass through fibers). Thus, the key distinction between Holmberg's pass through wall box and the '483 Patent's NID is whether one or more than one input cable is required to service the multi-dwelling unit. This distinction is illustrated below:



A POSITA would have understood that Holmberg's mid-span wall box (left) allows for fiber service to be delivered using only a single cable, while the '483 Patent's NID (right) has no pass through capacity and must use separate drop cables for each NID. *Id.*

In sum, Holmberg's enclosure—like the '483 Patent's NID—directly terminates fiber to subscribers in a multi-dwelling unit, and PO's expert admitted that serving multi-dwelling units requires an ability to easily connect and disconnect new subscribers. Ex. 1023, 49:4-11. A POSITA would thus understand Holmberg demands the same easy access to remove, add, and/or fix end subscriber connections as the '483 Patent NID. Ex. 1033, ¶¶7-8.

2. *Connecting and Disconnecting Customers Requires Easy Access to Splice Tray 230*

A POSITA would have understood that accessing Holmberg's splice tray 230 is required to modify end subscriber connections. Ex. 1033, ¶¶9-19. Enclosures such as Holmberg's were well known to be reconfigurable after initial installation and were designed with that reconfigurability in mind. *Id.* (providing an overview of literature describing the need to repeatedly access fiber enclosures). Indeed, PO appears to concede this point, acknowledging that there are "instance[s] after installation that . . . splice tray 230 . . . needs to be removed." POR, 62-63.

As set forth in the prior section, Holmberg was designed to directly terminate fiber service to end subscribers in a multi-dwelling unit such as an apartment building. The need to reconfigure connections after initial installation was especially important in these highly variable deployments where customers are added and removed regularly. Ex. 1033, ¶¶13-16 (discussing the need to account for significant changes in subscriber counts, which demands the ability to reconfigure connections). As even PO's expert concedes, serving fiber to a multi-dwelling unit requires easy access to reconfigure connections. Ex. 1023, 49:4-11.

3. *Holmberg is not Designed to Prevent Repeated Splice Tray Access*

The POR insists Holmberg intended to block repeatedly accessing splice tray 230, relying on three distinct Holmberg teachings. First, the POR argues that

“fasteners 276” are intended to “intentionally restrict[] access to the rear side of the splice panel 230.” POR, 37, 38, 57. Second, the POR points to Holmberg’s alternate embodiment that limits access to certain technicians. *Id.*, 38-39. Third, the POR argues that Holmberg intended to block technicians from re-entering the cavity to avoid inadvertently damaging pass through fibers and disturbing downstream customers. *Id.*, 8, 13, 28, 37-38. In fact, a POSITA would not interpret these teachings to suggest that Holmberg intended to *prevent* access.

Regarding fasteners 276, they are simply screws. Ex. 1033, ¶20. As PO’s expert admits, those four screws are removed by unscrewing them. Ex. 1023, 69:25-70:3. Demonstrating their removable nature, Dr. Eldering proposed that “one or two of the screws” could be used during installation to temporarily hold splice tray 230 in place while the technician splices fibers. *Id.*, 60:20-61:18. A POSITA would have understood, as Dr. Eldering appears to understand, that fasteners 276 are just normal screws, easily removed as needed. Ex. 1033, ¶¶20-22. The use of easily removable screws does not, as POR insists, suggest that Holmberg intended to limit or restrict access to the splice tray. *Id.* Instead, it is simply the chosen mechanism to hold the tray in place, accommodating easy removal as needed. *Id.*

Turning to Holmberg’s alternative embodiments that restrict splice tray access to certain technicians (POR, 38-39), these teachings also contradict PO’s main point. First, these embodiments confirm that additional security mechanisms were known

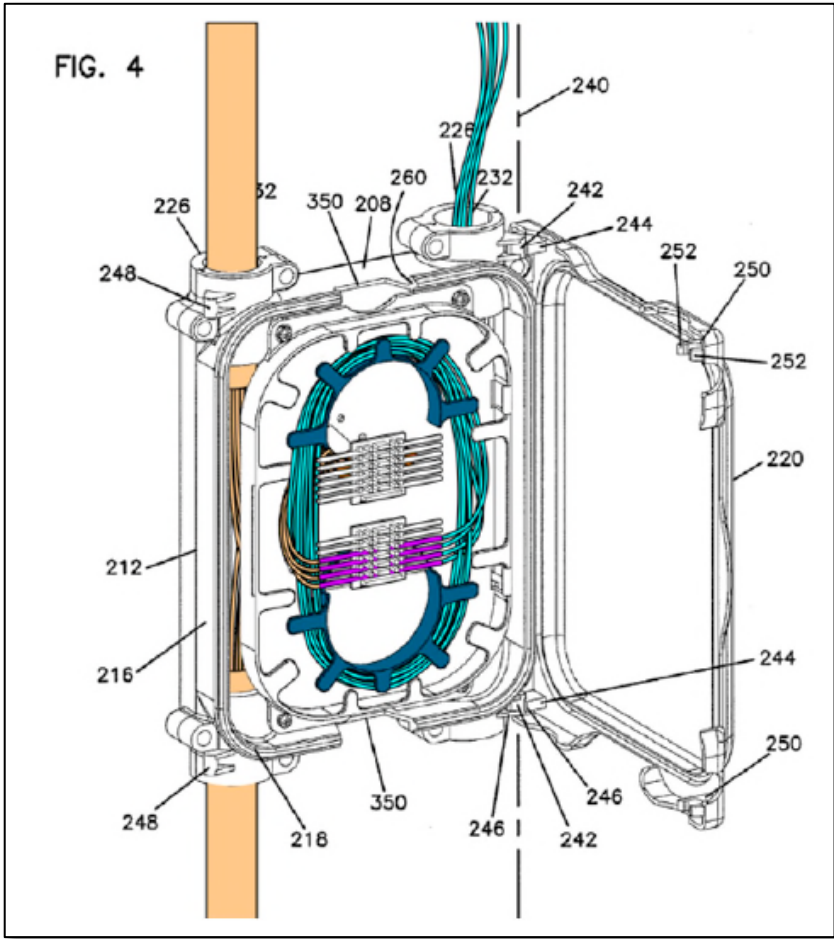
for restricting access to splice tray 230. Those known mechanisms do not exist in the embodiments cited in the Proposed Grounds, strongly suggesting Holmberg did not intend to restrict access in this way. Indeed, there were many security mechanisms known in the art for securing fiber enclosures, limiting or preventing access. Ex. 1033, ¶¶23-27 (describing locks and welded enclosures). Yet Holmberg chose to secure splice tray 230 only with easily removable screws. *Id.* Second, *Holmberg's* alternative embodiments confirm that, even when security mechanisms are deployed for restricting access, the boxes must retain accessibility to *some* technicians. *Id.*

Finally, the need to avoid damaging pass through fibers does not, as PO insists (POR, 8, 13, 28, 37-38), suggest that Holmberg intended to restrict access to splice tray 230. Indeed, caution must be paid to avoid damaging fibers or splices in any fiber enclosure. Ex. 1033, ¶28. As PO's expert admitted, this is a risk for downstream customers of any enclosure. Ex. 1023, 34:23-36:1 (disagreeing that service interruptions are a risk only for enclosures with pass through fibers). A POSITA would understand that caution must be paid when entering all fiber enclosures and that the goal is to provide intuitive and easy access to well trained technicians. Ex. 1033, ¶¶28-30 (explaining that training technicians to exercise caution avoids service disruptions due to fiber damages).

4. *Connecting and Disconnecting Customers Demands Access to the Rear of Splice Tray 230*

Patent Owner suggests splice tray 230 might not require technician removal because repairs might be made without accessing the rear of splice tray 230. POR, 37. In support, it alleges that Petitioner's expert, Dr. Kiaei, admitted splice tray opening 296 allows for repairs without removing the tray. *Id.* (citing Ex. 2006, 59:9-60:11). Patent Owner is incorrect. Dr. Kiaei merely confirmed that fibers are routed from the back side of splice tray 230 to the front side through opening 296. As the POR concedes, this occurs during initial installation. POR, 35-36. He said nothing about whether this small opening could support subsequent repairs without removing the tray.

Having now considered that specific question, Dr. Kiaei disagrees that opening 296 could support the required reconfigurations without removing tray 230. Ex. 1033, ¶¶31-32. There is no teaching or suggestion in Holmberg that opening 296 would provide sufficient access to spooled fibers on the back side of splice tray 230, nor would a POSITA expect to gain sufficient access through this opening. *Id.* PO's own annotated Fig. 4 shows that the (teal) distribution fibers block access to opening 296 after the initial installation process completes:



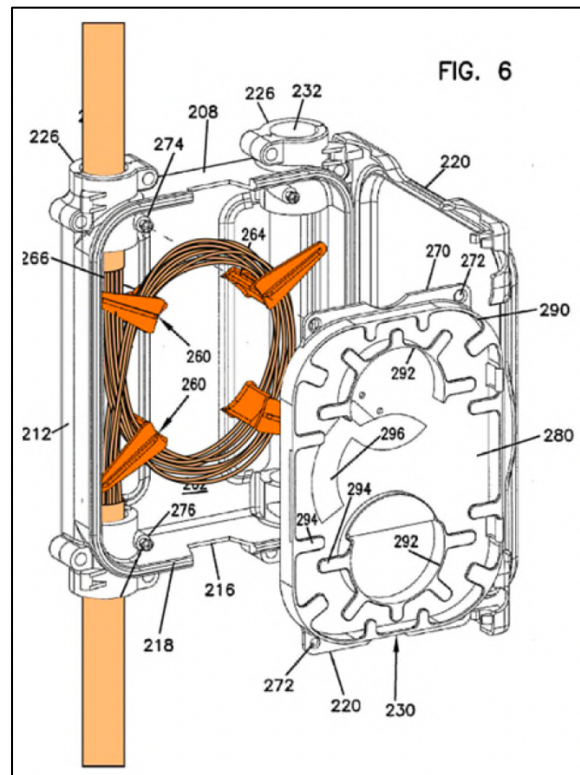
Id. (explaining that opening 296 exists underneath the teal fibers on the front side of splice tray 230, which would have made any post-installation access difficult, if not impossible).

B. PO's Expert Identified a Need in Holmberg's Enclosure That is Satisfied by the Proposed Hinged Connection, Bolstering the Motivation to Combine

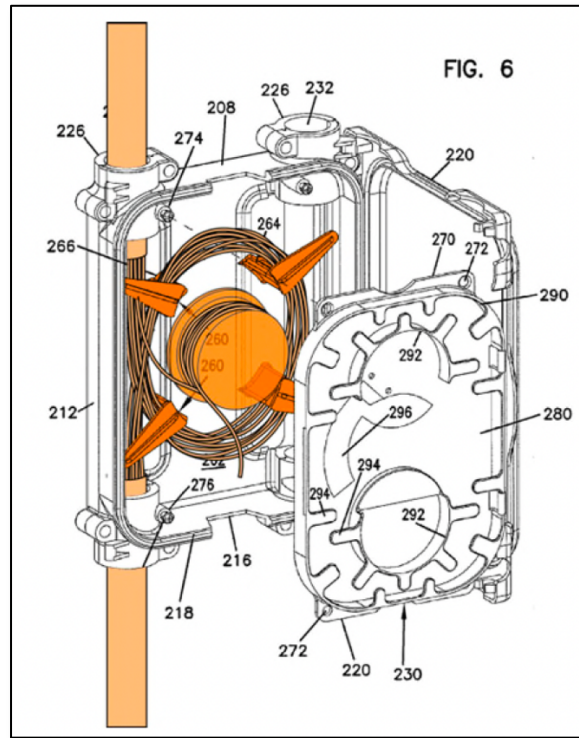
As set forth in the Petition, a POSITA would have been motivated to modify Holmberg's splice tray 230 with a hinged connection pursuant to Battey, improving convenience and the ease with which a technician can access the tray (and fibers

behind the tray). Petition, 40-44. Dr. Eldering identified a weakness in Holmberg's native structure that makes the initial installation inconvenient and difficult. A POSITA would have recognized that adding a hinge, as the Petition proposes, solves this weakness in Holmberg's process. Ex. 1033, ¶¶33-41. Accordingly, Dr. Eldering's testimony bolsters the case for modifying Holmberg as proposed.

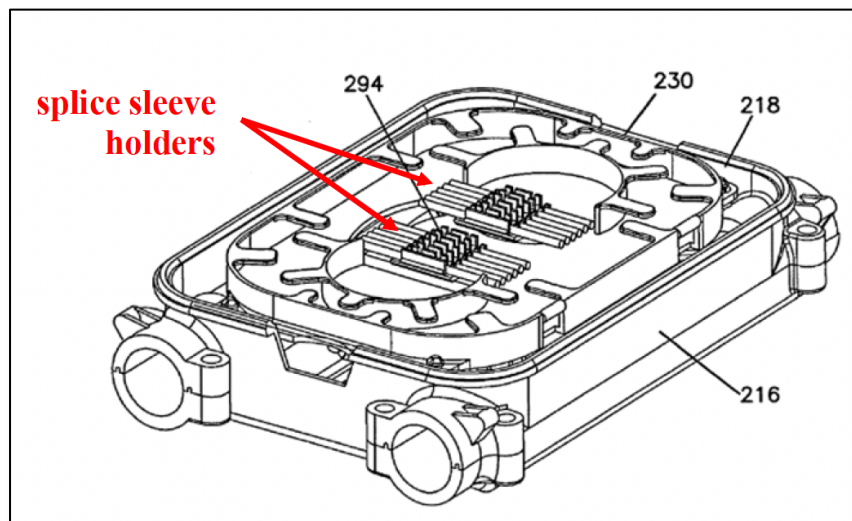
For context, the POR summarizes Holmberg's installation process. First, as shown the POR's annotated Fig. 6, the main cable's fibers have their jacket removed and are looped around bend radius limiters 264. POR, 31-32.



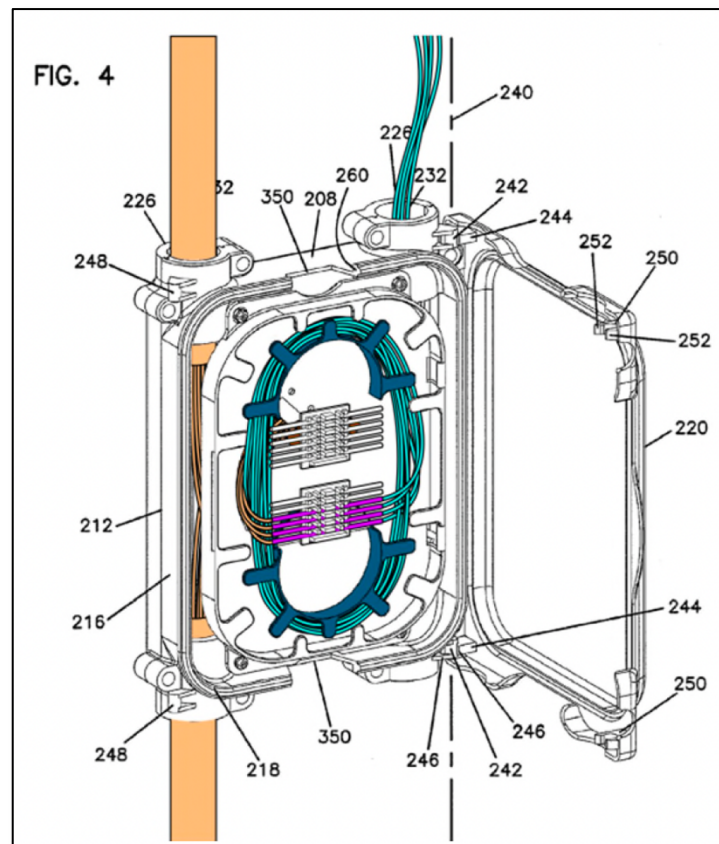
Second, as illustrated below, selected fibers are cut and spooled around spool structure 298 on the back side of splice tray 230. POR, 33-34.



Third, when a cut fiber is ready to be spliced, it is routed through opening 296 of splice tray 230, spliced to an output fiber, and the spliced connection is placed in splice sleeve holder 294 (shown below). POR, 35.

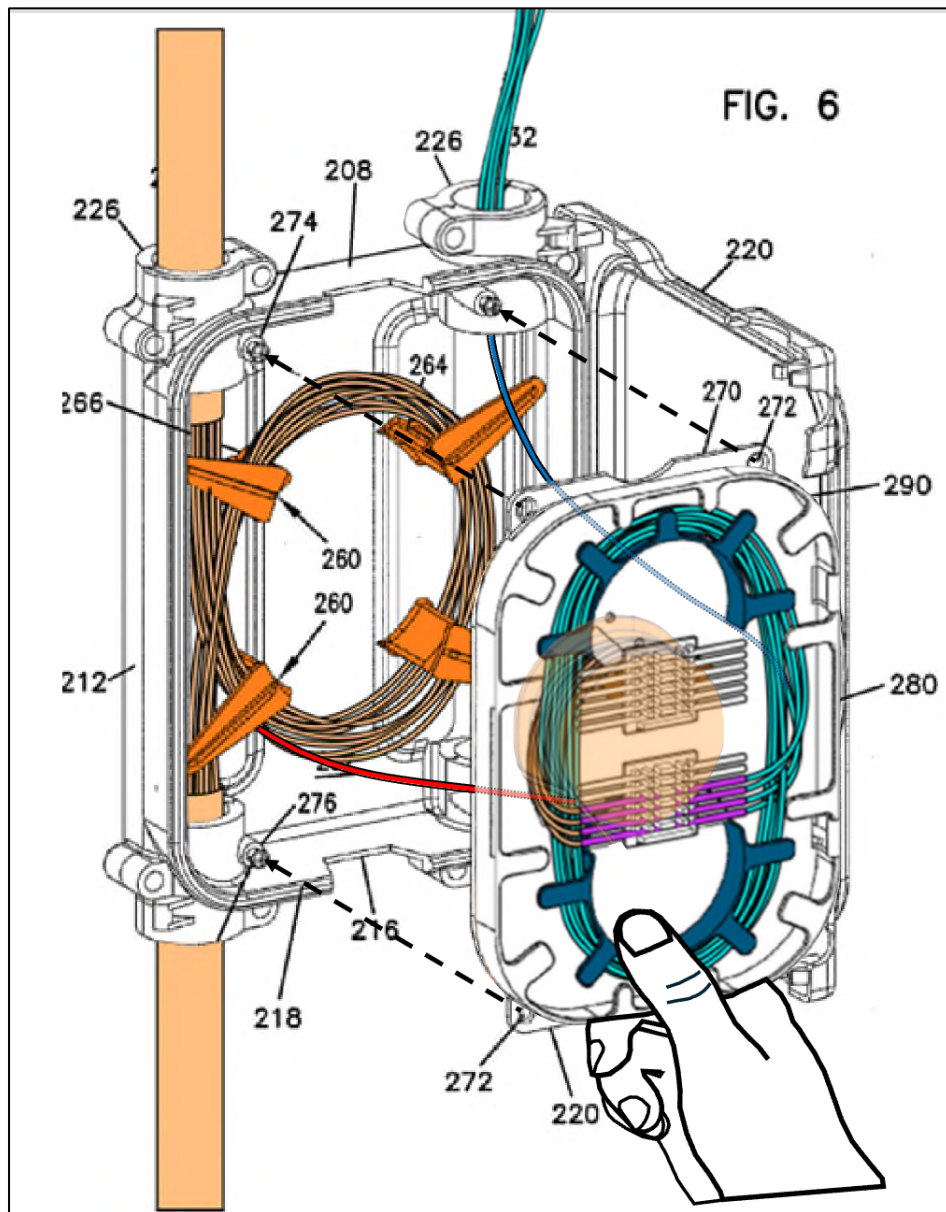


Fourth, after the fibers have been routed, spliced, and their splices secured, the output fibers (teal) are wrapped around the storage fingers on the front side of splice tray 230. POR, 36-37. Then, as illustrated below, the (teal) output fibers are routed out of the enclosure and the splice tray is secured to the back of the box with the four fasteners 276. *Id.*



Importantly, the process described above (prior to securing the tray with fasteners 276) occurs with a floating splice tray 230. There is no mechanism in Holmberg to hold splice tray 230 in place while all these routing and splicing steps are performed. When asked how the technician deals with the floating tray during

installation, Dr. Eldering speculated, a “technician [might] use one hand to hold the splice tray” while routing fibers. Ex. 1023, 53:4-54:9. This arrangement is depicted in the following annotated figure:



Ex. 1033, ¶38. While occupying one hand with the tray may work for the initial steps, the technician cannot reasonably accomplish the splicing operation with only

one hand. Ex. 1023, 60:22-25 (admitting that “it would be . . . much easier to operate [the splicing machine] with two hands”); Ex. 1033, ¶39 (confirming field technicians generally require two hands to splice fibers). When asked how a technician could complete process with no mechanism to hold splice tray 230, Dr. Eldering suggested the technician might let the splice tray hang or even use fasteners 276 to temporarily hold the tray in place:

A. [A] POSITA at the time would understand that that's likely not to be particularly heavy so that it would probably be fine to allow the splice tray to hang while the fusion splices -- or excuse me. While the splicing is performed with the piece of equipment.

Or again, in the alternative, once the fibers are prearranged, the technician might -- I mean, might envision putting one or two of the screws in presumably to hold the splice tray in place while everything was completed[.]

Ex. 1023, 60:20-61:15.

A POSITA would not accept letting the tray hang as a viable option. As the POR repeatedly stresses, fibers are delicate and subject to damage. A POSITA would understand that hanging the tray's weight on a select few fibers risks damaging those fibers. Ex. 1033, ¶40.

Turning to temporarily securing the tray with two screws, this creates effectively the same structural support as Battey's hinge in the proposed combination. *Id.*, ¶41. That is, either two screws or a hinge act as a third hand for

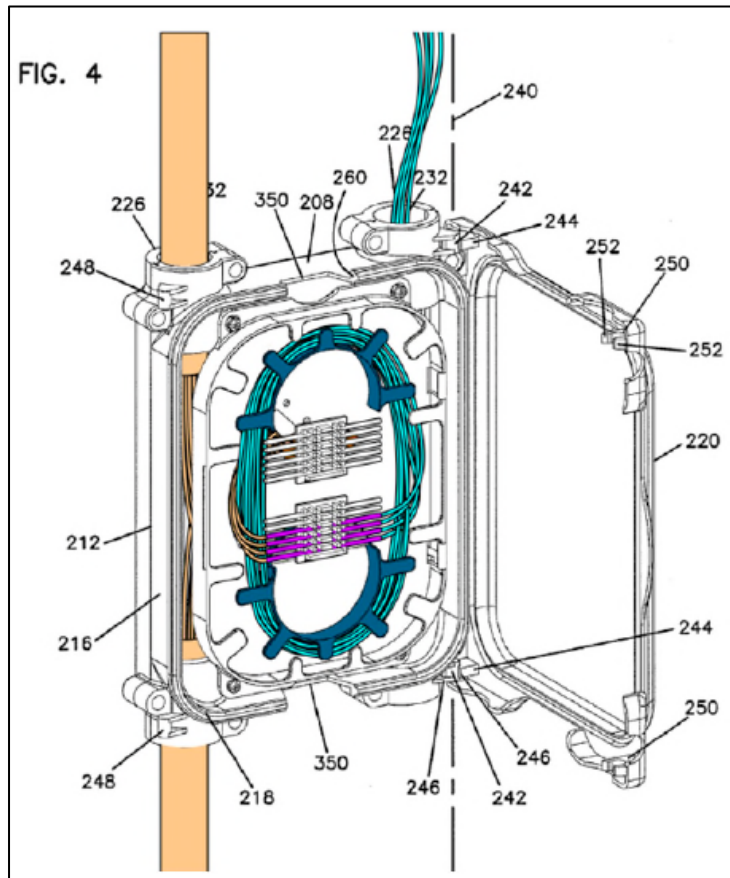
the technician, keeping the tray elevated and allowing the technician to use both hands on the installation tasks. *Id.* There is a significant benefit of using a hinge, however. The hinge, unlike two screws, allows a technician to access both sides of the tray without tools. *Id.* There would be a significant convenience benefit to providing easy access to both sides, e.g., to accommodate repeatedly routing individual cut fibers from the back to the front (i.e., through opening 296) for splicing. *Id.*

In sum, Dr. Eldering's description of Holmberg's installation process identified a problem that adding a hinge solves, bolstering the case for modifying Holmberg as proposed.

C. Holmberg's Splice Tray is Designed to Create and Accommodate Slack

PO insists that Holmberg's splice tray 230 could not be hinged without risking damaging fibers. POR, 44-63. The first half of this discussion is a red herring. PO spends seven pages highlighting unclaimed design features in the '483 Patent (e.g., cable plugs, cable channels, etc.), insisting that, without such features, hinged panels cannot be used without risking fiber damage. POR, 45-52. But PO misunderstands Holmberg and never wrestles with the fact that its box uses slack storage that renders such features unnecessary. The next five pages describe Holmberg's installation

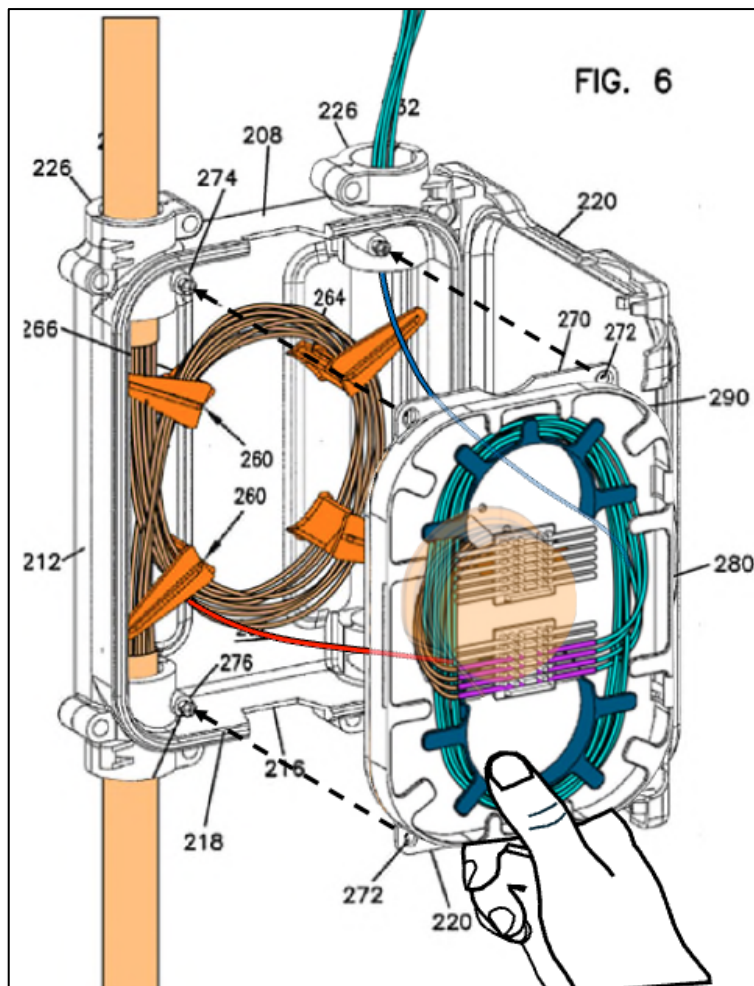
process, concluding with the following image, purportedly representing a set of cables, routed, spliced, and stored in Holmberg's enclosure:



POR, 56. PO observes that the fibers are clamped in place at openings 232 in the enclosure base. *Id.*, 57. From this alleged post-installation state, PO argues that splice tray 230 cannot be moved from its secured position without “unspooling the stored fibers.” *Id.*, 57.

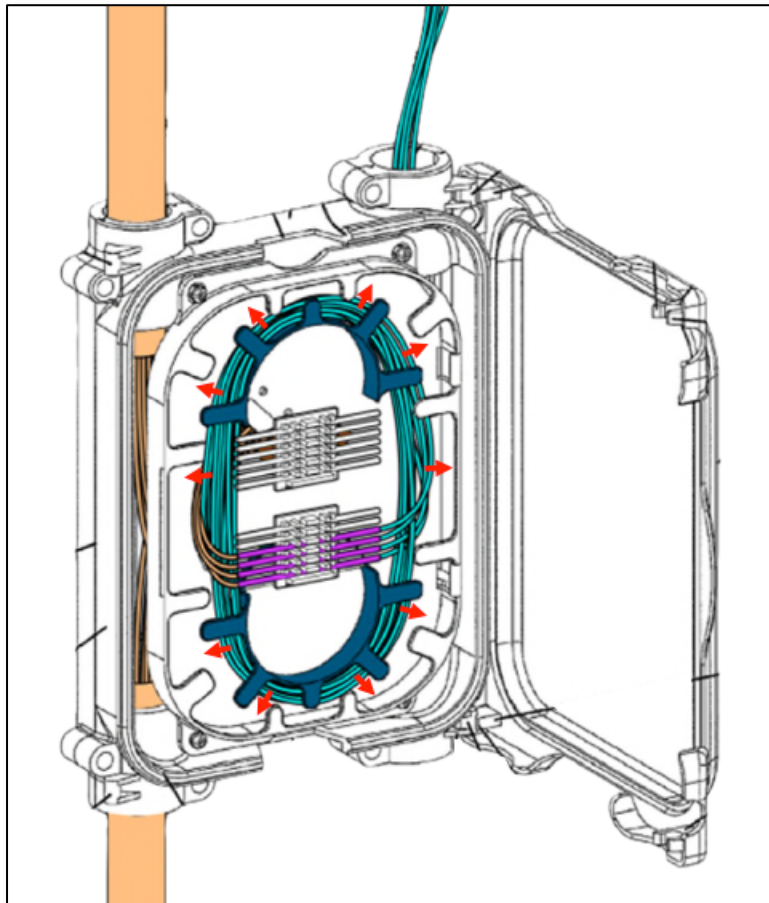
Underlying PO’s entire argument is an assumption that the stored fibers are spooled tightly around their retaining mechanism—as depicted in PO’s annotations—when the splice tray is secured in place. In fact, they are not. As

discussed above, Holmberg's design requires a technician to hold splice tray in one hand as the routing, spooling, and splicing operations are performed. As a result, the splice tray will be some distance away from its final mounting location while these operations are performed. The annotated figure below shows that hand-held location, which is set away from the base:

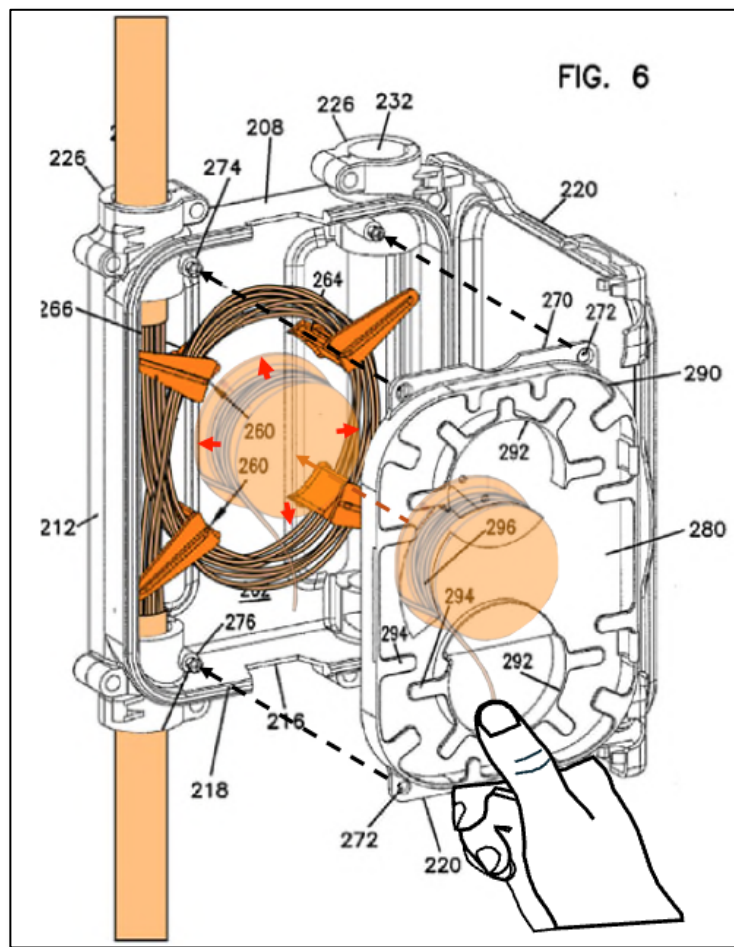


Ex. 1033, ¶¶42-43 (explaining the dotted black lines depict the path splice tray 230 follows from a working location to a final secured location). When the splice tray is moved from this hand-held working location to the secured location, there is

necessarily slack created around the securing mechanisms that retain the stored fibers. *Id.* In the case of Holmberg's stored output fibers (teal), the following figure shows—via red arrows—how that extra fiber creates slack around the retaining fingers (navy) on the front side of the splice tray:



Id. (discussing the same). Similarly, extra fiber creates slack around spool 298 (orange) on the back side of the splice tray:



Id., ¶44 (discussing the same).

Holmberg expressly accommodates this slack with structural mechanisms. *Id.*, ¶45. On the front side, in addition to the outwardly projecting fingers (annotated navy in the above figure), Holmberg includes alternating “[f]iber retention fingers . . . [that] project inwardly from the perimeter wall 290.” Ex. 1004, [0043]. PO’s expert admitted that these opposing (and alternating) retention fingers prevent loose fiber from “spill[ing] out,” ensuring the “fiber stays in that splice tray.” Ex. 1023, 72:23-74:20. Similarly, on the back side, “spool structure 298 [] includes an annular

flange 302 . . . [that] assists in retaining fibers spooled about the spool 300 from sliding off the end of the spool.” Ex. 1004, [0044].

Based on the mechanics of Holmberg’s installation process and Holmberg’s express design features that account for and accommodate slack, a POSITA would have understood that fibers are not tightly wound around their retaining mechanisms when splice tray 230 is secured against the base. Ex. 1033, ¶¶45-46. Instead, moving the tray from a working location to its secured location creates slack. *Id.* And that slack allows the tray to be moved away from its secured location (e.g., to add, remove, or repair connections) without risking strain or damage. *Id.* PO is simply wrong to suggest that splice tray is mounted with fibers tightly wound around their retaining mechanisms and unable to be removed without unspooling the fibers. *Id.*

PO advances a number of additional arguments toward the end of this section. First, PO takes aim at the Petition’s reliance on Battey and Castonguay as evidence that using hinged connections for splice trays or fiber storage panels was known in the art. POR. 59-62. With respect to Battey, PO simply ignores that Battey unquestionably does teach a hinged splice tray—the teaching on which Petitioner relied—and seeks to distract with a discussion about *other* un-hinged fiber storage structures in Battey. POR, 59. As the Board correctly observed at institution, that Battey’s shelf does not include fiber does not defeat the combination because the Petition did not propose bodily incorporating the shelf into Holmberg. ID, 22-23.

The POR provides the Board no reason to find otherwise in its Final Written Decision. Turning to Castonguay, PO similarly seeks to distract from Dr. Kiaei's straightforward discussion of Castonguay's hinged transition panel 54. *See* Ex. 1003, ¶39. The POR spends three pages discussing other structures in the reference that are not hinged, and provides no substantive analysis of panel 54.

PO's final argument in this section insists that, when a technician needs to access the back of the tray, a POSITA would be motivated to fully remove splice tray 230, rather than open it on a hinge. POR, 62-63 (citing Battey and Castonguay for their teachings that a panel could be completely removable, rather than hinged). As discussed above, given the additional convenience benefits realized by the hinge arrangement, including by acting as a third hand during installation, a POSITA would not have preferred total removal over hinged access. Ex. 1033, ¶¶47-48.

III. Claim 2: A POSITA Would Have Been Motivated to use Blankenship's Adapters in Place of Holmberg's Splice Tray Holders

Challenging the Petition's proposal that a POSITA would have been motivated to use Blankenship's adapters in lieu of Holmberg's splice tray holders, the POR argues (1) that the Petition failed to explain where Blankenship's adapter would be placed in Holmberg and (2) that Holmberg already teaches adapters in a different location, rendering the proposed combination superfluous. POR. 65-71.

Starting with (1), PO's feigned confusion over the specifics of the proposed combination is easily rejected. The Petition identified one, and only one, coupling between feed break-out cables and distribution cables—splicing mounted within splice sleeve holder 294. *See* Petition, 27-28, 49, 55-56, 58 (expressly identifying splice sleeve holder 294). For Claim 2, the Petition proposed “modify[ing] Holmberg-Batley to utilize an adapter bracket holding one or more brackets to couple a plurality of feed break-out cables to a plurality of distribution cables.” *Id.*, 65-66. There is no suggestion in the Petition that Blankenship's adapter would be located anywhere other than the location of Holmberg's splice sleeve holder 294, which it replaces in the combination. Nor does PO suggest where else this replacement might occur. Given the straightforward nature of the proposed combination, replacing one specific type of coupling with another, and the lack of any suggestion that this replacement would change the coupling location, this argument should be rejected.

Turning to (2), PO points to alternative Holmberg embodiments in which adapters are located on the top cover. POR, 65-71. Based on the existence of adapters in a separate embodiment, PO argues that a POSITA would not have been motivated to add adapters to Holmberg's splice tray because Holmberg already proposes adapters located elsewhere. *Id.*, 70 (“With an effective adapter mounting solution already in place in Holmberg, a POSITA would not be motivated to look to any other

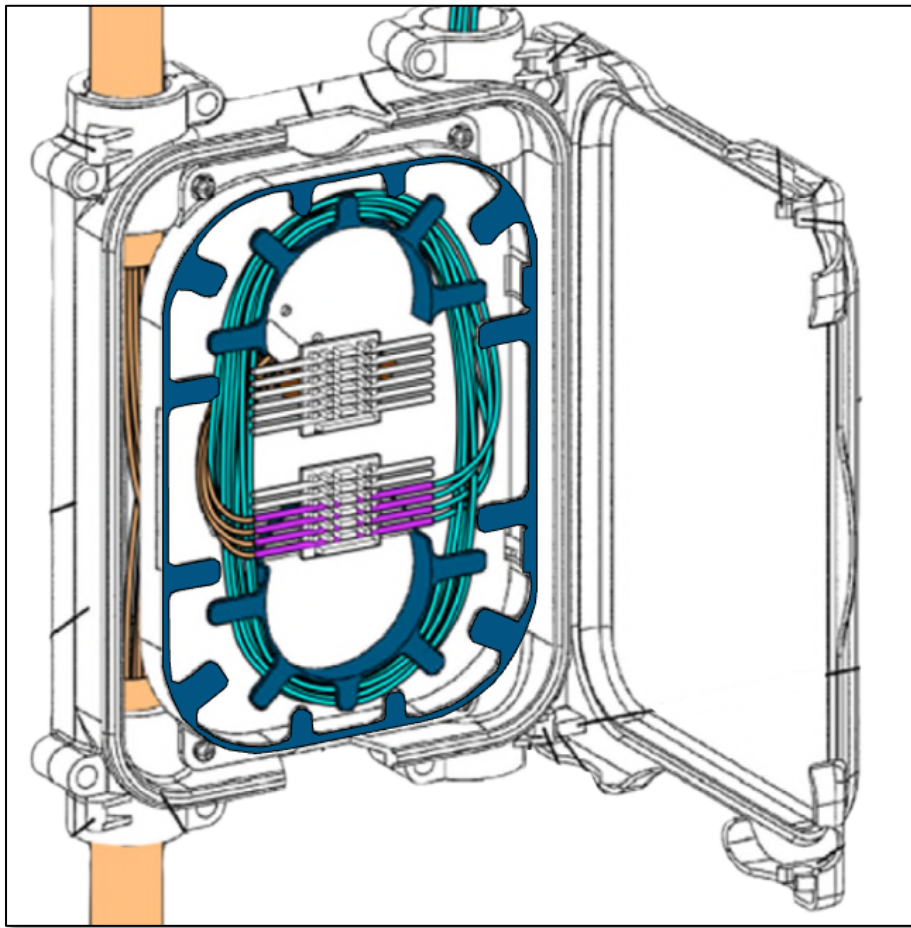
adapter mounting solutions, such as Blankenship's adapter bracket 66, nor would a POSITA see any reason to incorporate Blankenship's adapter bracket into the Holmberg solution, let alone place the adapter bracket on the storage panel as claimed."). Fatally, the POR fails to acknowledge that these adapters in certain other Holmberg embodiments do not serve the same function as the adapters in the proposed combination. As PO's expert admitted, Holmberg's external cover-mounted adapters replace its splice tray, but are in fact used in conjunction with splice tray 230. Ex. 1023, 75:18-79:5. A POSITA would have understood that the benefits of replacing Holmberg's splicing (on splice sleeve holder 294) with a pre-connectorized adapter apply to the combination regardless of whether there is an additional, separate adapter on the outer cover of the enclosure. Ex. 1033, ¶49.

IV. Claim 10: A POSITA Would Have Been Motivated to Exchange Some Ease of Installation for Additional Security with Cowan's clips—Holmberg Makes this Exact Tradeoff with Fiber Retention Members 292

The Petition proposed that a POSITA would have been motivated to replace or supplement Holmberg's cable retention members 260 with Cowen's clips 292, to, among other things, "improv[e] security, particularly during installation" that results from Cowen's full retention of the fibers, ensuring they do not become unsecure even when loosely wrapped. Petition, 87-88. The POR argues that the proposed combination overly complicates installation, and that no POSITA would have been willing to make that tradeoff. POR. 71-79. PO is wrong.

As an initial point, when combinations implicate tradeoffs, the law recognizes that many design decisions exchange certain benefits for certain other detriments and that this does not defeat obviousness. *Corephotonics, LTD. v. Apple Inc., et al.*, No. 2020-1961, 2021 WL 4944471, at *6 (Fed. Cir. Oct. 25, 2021) (“it is a commonplace fact that design decisions entail making tradeoffs among multiple objectives”) (citing *Allied Erecting and Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016) which explains that “[a] given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine”). Further, “[i]t’s not necessary to show that a combination is the *best* option, only that it be a *suitable* option.” *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380 (Fed. Cir. 2023).

Here, Holmberg itself proposes precisely the tradeoff implicated by the proposed combination. Namely, Holmberg uses opposing (and alternating) fiber retention fingers (annotated navy) on the front side of splice tray 230:



Ex. 1033, ¶50. PO's expert admitted that using such an arrangement of retention structures complicated installation:

Q. Is it more difficult to route the output fibers around this depicted retaining mechanism with the addition of the inward facing fingers than it would be if only the outwardly facing fingers existed?

A. Well, it's certainly going to take a tad more dexterity on the part of the technician[.]

Ex. 1023, 74:22-75:3. And PO's expert also testified that this additional complexity is a tradeoff for additional security, ensuring that fibers stay within the confines of the splice tray. *Id.*, 72:23-74:20. Petitioner's expert agrees that Holmberg's splice

tray 230 utilizes a fiber retaining structure that complicates installation in exchange for more securely retaining the installed fibers. Ex. 1033, ¶50. Like Holmberg's own tradeoff that accepts inconvenience for security, a POSITA would willingly accept installation complexity imposed by Cowen's clips in exchange for the additional fiber retention security those clips provide. *Id.*

V. CONCLUSION

For the reasons set forth in the Petition and above, the Challenged Claims should be cancelled.

Respectfully submitted,

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COUNSEL FOR PETITIONER

APPENDIX OF EXHIBITS

Exhibit 1001	U.S. Patent No. 9,008,483 (“’483 Patent”)
Exhibit 1002	Prosecution History for the ’483 Patent (“’483 FH”)
Exhibit 1003	Declaration of Dr. Sayfe Kiaei (“Dec”)
Exhibit 1004	U.S. Patent Application Publication No. 2009/0202214 to Holmberg et al. (“Holmberg”)
Exhibit 1005	U.S. Patent Application Publication No. 2008/0112681 to Battey et al. (“Battey”)
Exhibit 1006	U.S. Patent No. 6,721,484 to Blankenship et al. (“Blankenship”)
Exhibit 1007	U.S. Patent No. 8,965,168 to Cowen et al. (“Cowen”)
Exhibit 1008	U.S. Patent No. 7,346,253 to Bloodworth et al. (“Bloodworth”)
Exhibit 1009	U.S. Patent No. 7,539,388 to Mertesdorf et al. (“Mertesdorf”)
Exhibit 1010	U.S. Patent Application Publication No. 2005/0276562 to Battey et al. (“Battey ’562”)
Exhibit 1011	U.S. Patent No. 8,121,458 to Barth et al. (“Barth”)
Exhibit 1012	U.S. Patent No. 8,009,954 to Bran de Leon et al. (“Bran de Leon”)
Exhibit 1013	U.S. Patent No. 4,792,203 to Nelson et al. (“Nelson”)
Exhibit 1014	International Publication No. WO 2010/040256 to Castonguay et al. (“Castonguay”)
Exhibit 1015	U.S. Patent No. 7,088,893 to Cooke et al. (“Cooke”)
Exhibit 1016	PPC’s Preliminary Infringement Contentions (“PPC Infringement Contentions”)
Exhibit 1017	PPC v. Times Fiber (D. Del.), Dkt. 43, Stipulation to Stay Litigation (“Stipulation”)
Exhibit 1018	“Trending at the PTAB: When to Ask Court for Litigation Stay,” March 30, 2023 (“Stay Article”)
Exhibit 1019	PPC v. Charles (D. Del.), Dkt. 22 (“Scheduling Order”)
Exhibit 1020	June 2023 District Court Time to Trial Statistics (“Trial Stats”)
Exhibit 1021	Joint Markman Brief
Exhibit 1022	Tech Tutorial
Exhibit 1023	Transcript of Deposition of Dr. Eldering 8-20-2024
Exhibit 1024	Donald J. Sterling, Jr. <i>Technician’s Guide to Fiber Optics</i> . Fourth Edition. 2004. (“Sterling”)
Exhibit 1025	International Publication No. WO 2005/091038 to Vo et al. (“Vo”)
Exhibit 1026	International Publication No. WO 2010/036549 to Desard et al. (“Desard”)

Exhibit 1027	International Publication No. WO 2010/093794 to Bradea et al. (“ <i>Bradea</i> ”)
Exhibit 1028	U.S. Patent No. 5,249,253 to Franckx et al. (“ <i>Franckx</i> ”)
Exhibit 1029	John Crisp and Barry Elliott. <i>Introduction to Fiber Optics</i> . Third edition. 2005. (“ <i>Crisp</i> ”)
Exhibit 1030	Eric. R. Pearson. <i>The Complete Guide to Fiber Optic Cable System Installation</i> . 1997. (“ <i>Pearson</i> ”)
Exhibit 1031	Affidavit of Nathaniel E Frank-White. Fiber Optic Association, Inc. captures from the Internet Archive (“ <i>FOA</i> ”)
Exhibit 1032	31EE-202BS Fiber Optic Enclosure from Westell. May 2005. (“ <i>Westell</i> ”)
Exhibit 1033	Supplemental Declaration of Dr. Sayfe Kiaei

CERTIFICATION OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(c)(1), the undersigned certifies that the foregoing Petitioner's Reply to Patent Owner's Response contains 5,349 words, exclusive of the table of contents, certificate of service, certificate of word count, and appendix of exhibits.

Dated: September 6, 2024

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COUNSEL FOR PETITIONER

CERTIFICATE OF SERVICE ON PATENT OWNER
UNDER 37 C.F.R. § 42.105

Pursuant to 37 C.F.R. §§ 42.6(e) and 42.105, the undersigned certifies that on September 6, 2024, the foregoing Petitioner's Reply to Patent Owner's Response was served via electronic filing with the Board and via Electronic Mail on the following practitioners of record for Patent Owner:

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