

Patent Owner's Demonstratives

**AMPHENOL CORP.,
v.
PPC BROADBAND, INC.,**

**Patent No. 9,008,483 B2
IPR2023-01363**

December 16, 2024

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Amphenol v. PPC
IPR2023-01363
PPC EX-2009

The '483 Patent – Claim 1

(12) **United States Patent**
Larsson et al.

(10) **Patent No.:** **US 9,008,483 B2**

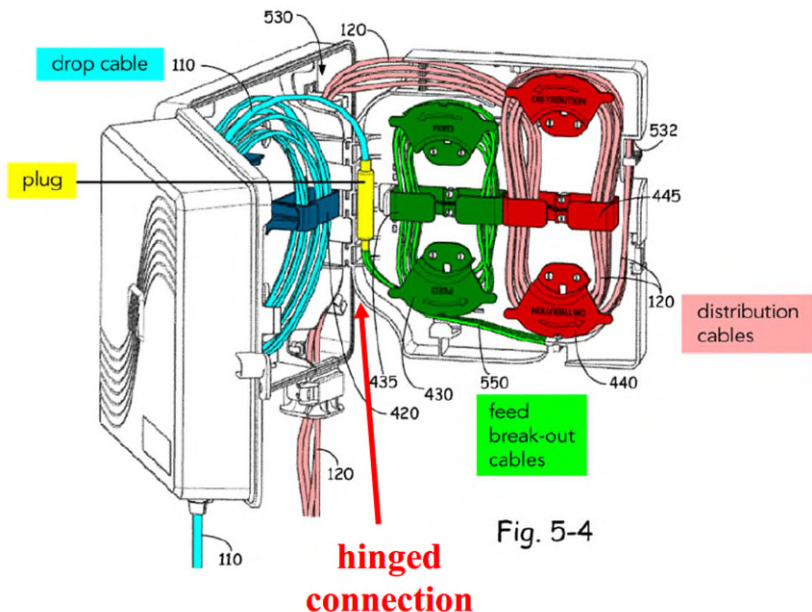
(45) **Date of Patent:** **Apr. 14, 2015**

(54) **OPTICAL FIBER CABLE DROP INTERFACE BOX**

(58) **Field of Classification Search**

CPC G02B 6/4452-6/4455

USPC 385/135

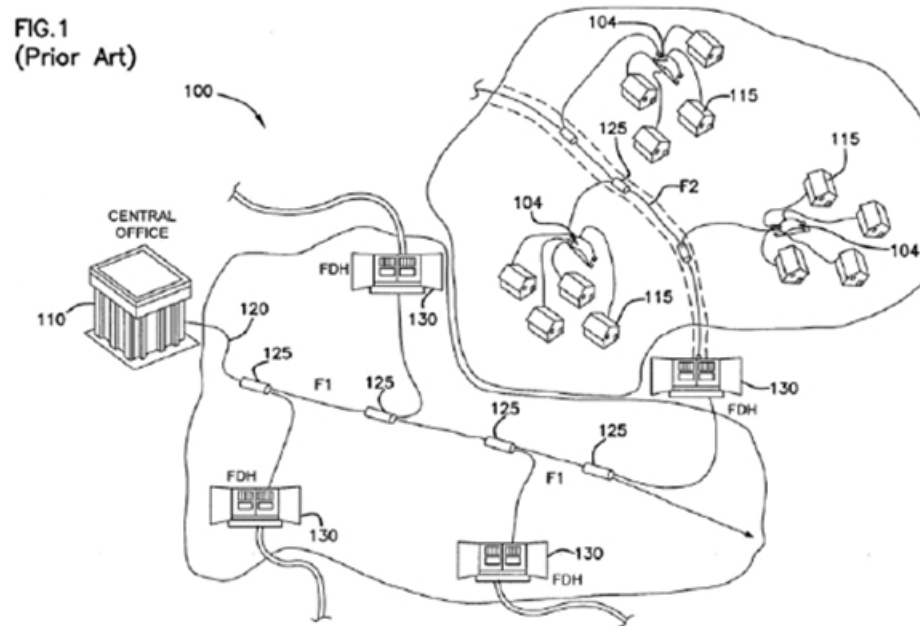


1. A drop interface box configured to be mounted to a structure and to receive a drop cable from an optical fiber service provider distribution point and a plurality of distribution cables which distribute the optical fiber service, the drop interface box comprising:

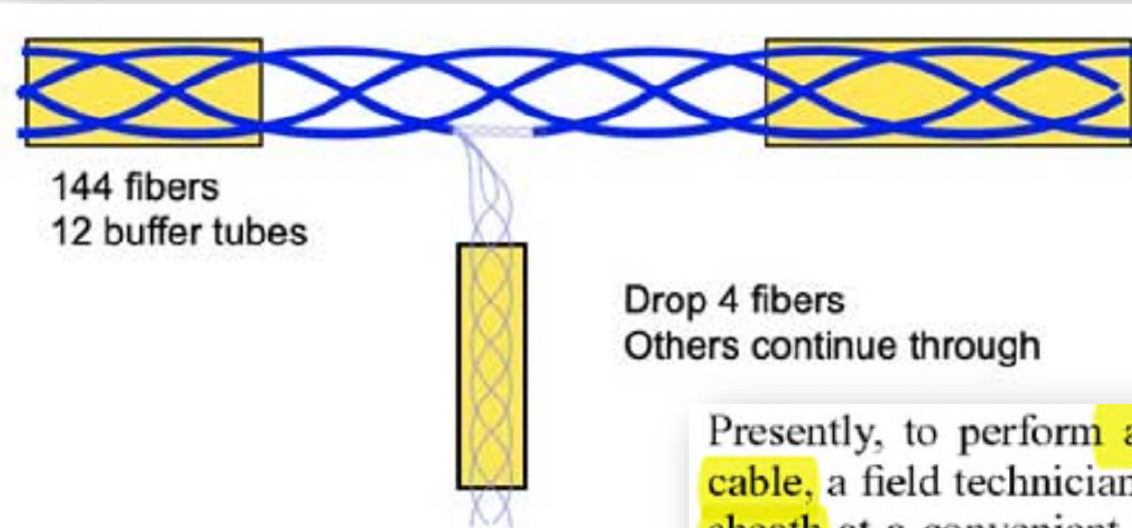
a fiber storage panel having a hinged connection to the base unit on a side opposite the hinged connection of the cover to the base unit such that the fiber storage panel is moveable relative to the base unit and configured to be stored between the base unit and the cover, the fiber storage panel having first spools positioned to store a plurality of feed break-out cables coupleable to the drop cable, the fiber storage panel further having second spools positioned to store a plurality of distribution cables coupleable to the plurality of feed break-out cables.

Fiber Optic Network

Holmberg FIG. 1
Prior Art Fiber Optic Network

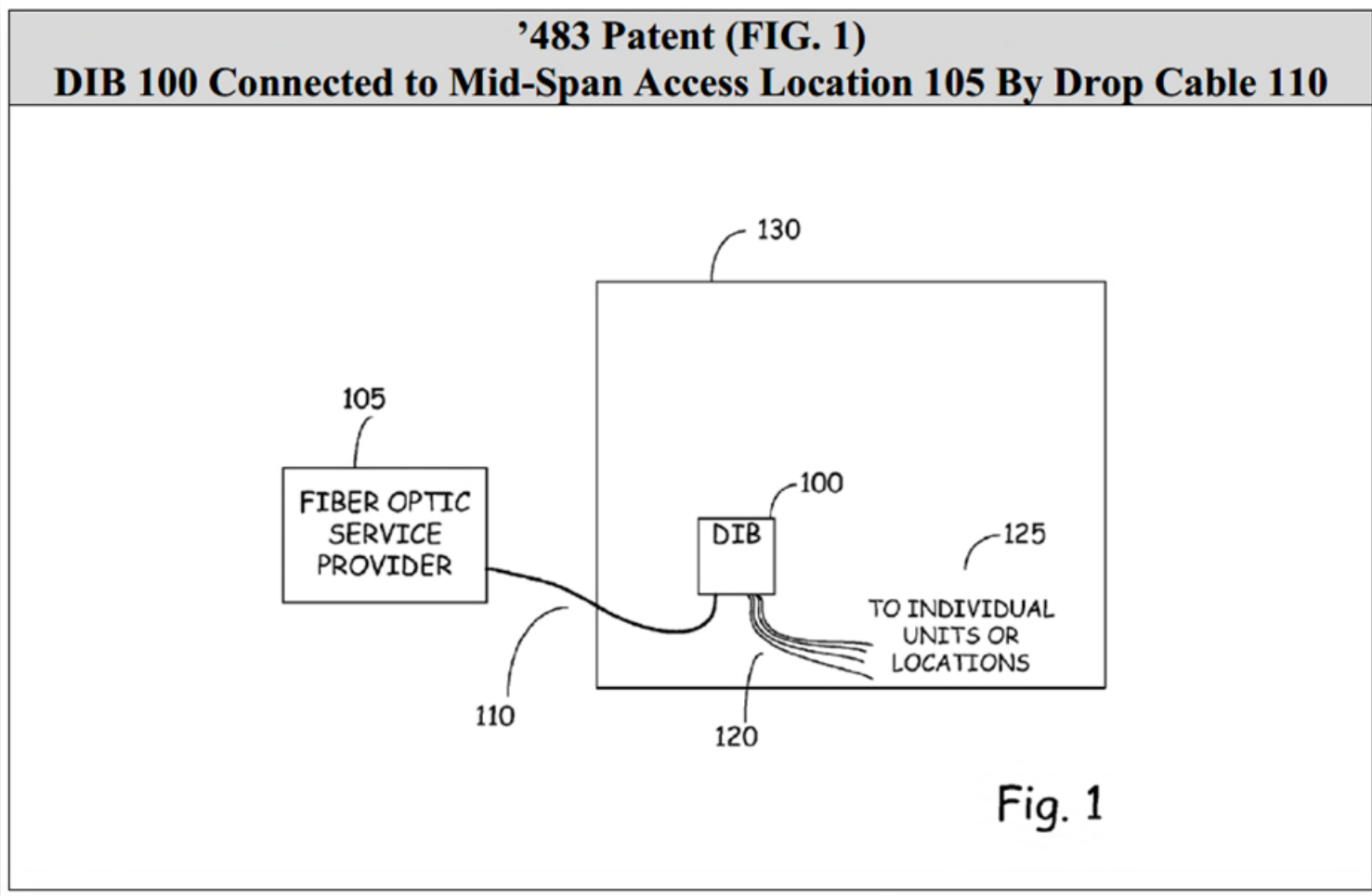


Mid-Span Access (Break-Out) Locations



Presently, to perform a mid-span access of a distribution cable, a field technician first removes a section of the cable sheath at a convenient location along an installed distribution cable. Once the sheath is removed, the technician gains access to pre-selected optical fibers through the cable sheath, severs the accessed optical fibers and withdraws a useable length of the terminated optical fibers from the distribution cable. The useable length of the terminated optical fibers provides the field technician with sufficient length to splice one or more optical fibers of a cable comprising a lesser amount of optical fibers than the distribution cable (typically referred to as a “drop cable”) to the pre-selected optical fibers of the distribution cable. After splicing is completed,

Drop Interface Box (DIB)/Network Interface Device (NID)

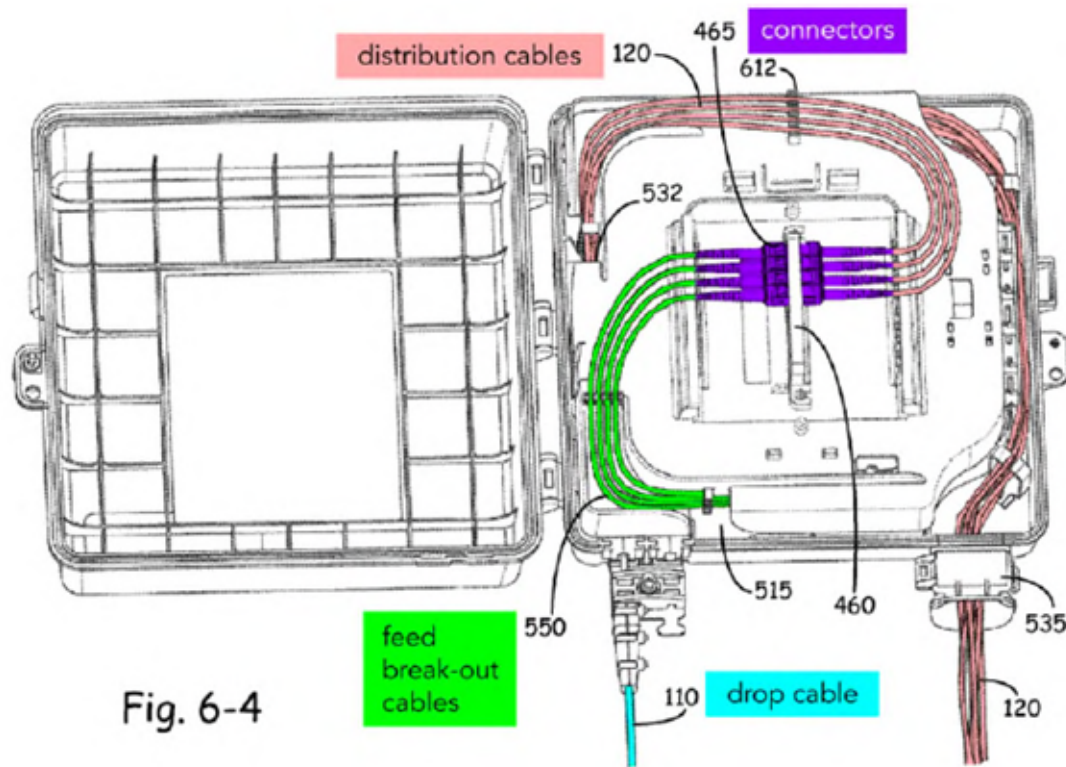


POR 11-14; '483 Patent Title, Abstract, 1:15-28, 1:39-42, 1:46-49, 2:3-6, 3:17-31, 3:58-61, 4:58-62, 5:21-23, FIG. 1.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Drop Interface Box (DIB)/Network Interface Device (NID)

'483 Patent FIG. 4-1 (Annotated)
Hinged Storage Panel 405 – Front Side 410



The '483 Patent – Claim 1

(12) **United States Patent**
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(10) **Patent No.:** **US 9,008,483 B2**

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(54) **OPTICAL FIBER CABLE DROP INTERFACE BOX**

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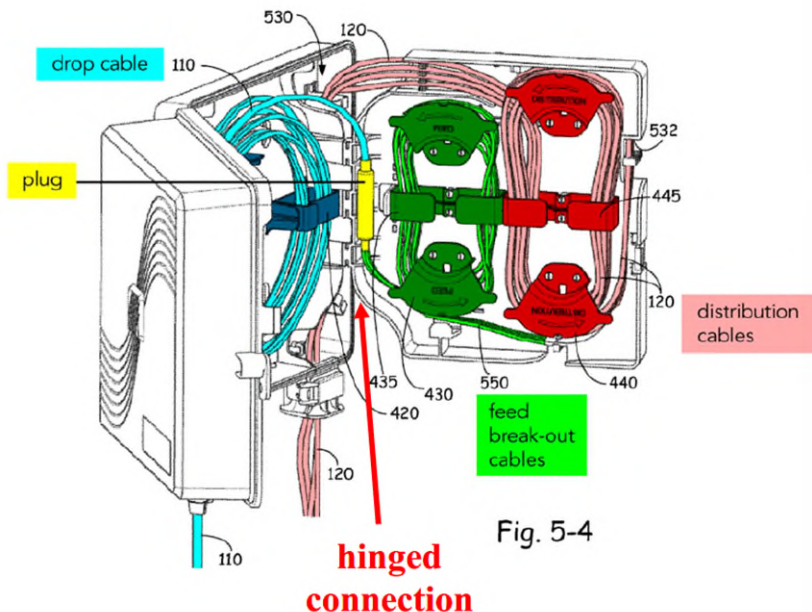


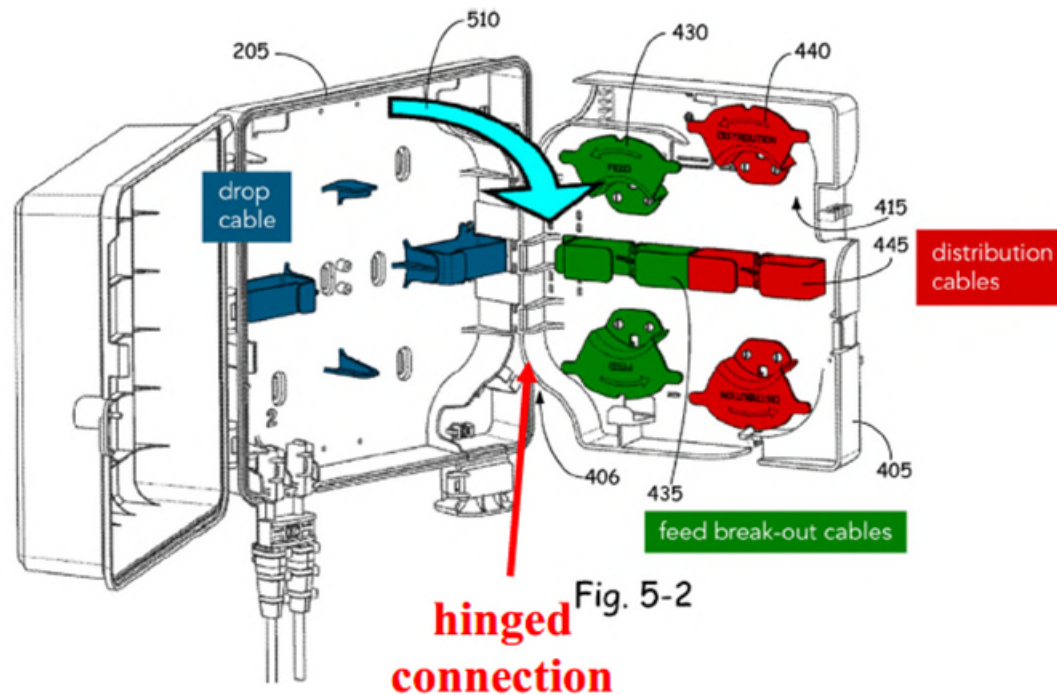
Fig. 5-4

1. A drop interface box configured to be mounted to a structure and to receive a drop cable from an optical fiber service provider distribution point and a plurality of distribution cables which distribute the optical fiber service, the drop interface box comprising:

a fiber storage panel having a hinged connection to the base unit on a side opposite the hinged connection of the cover to the base unit such that the fiber storage panel is moveable relative to the base unit and configured to be stored between the base unit and the cover, the fiber storage panel having first spools positioned to store a plurality of feed break-out cables coupleable to the drop cable, the fiber storage panel further having second spools positioned to store a plurality of distribution cables coupleable to the plurality of feed break-out cables.

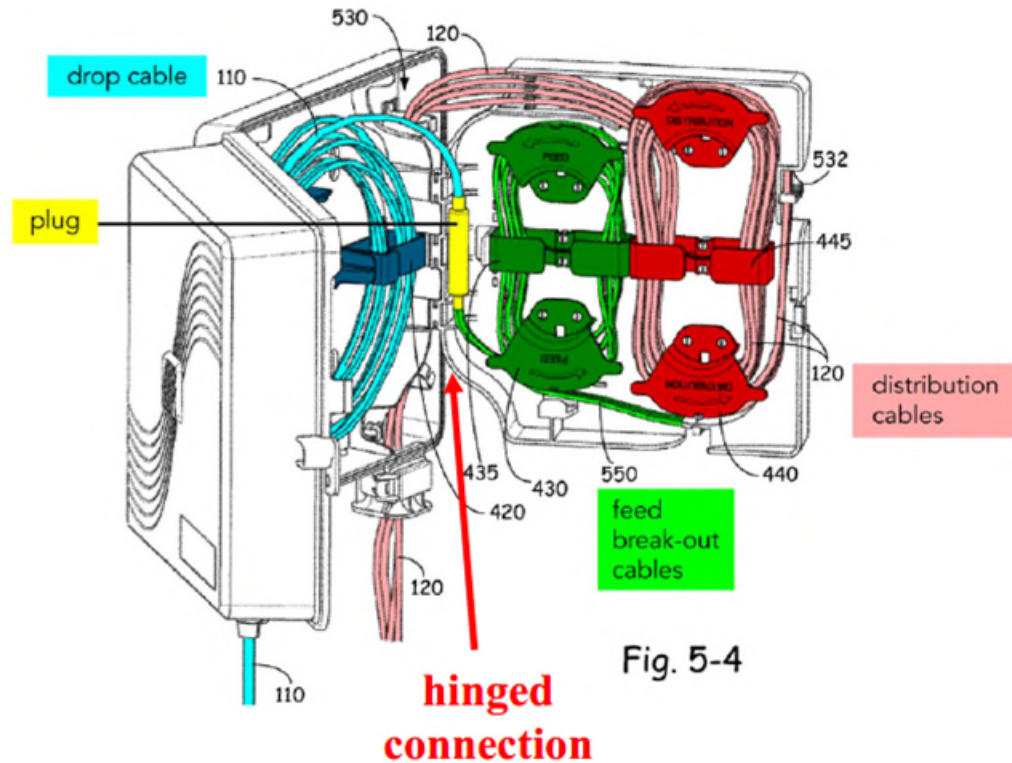
The '483 Patent – Hinged Storage Panel

'483 Patent FIG. 5-2 (Annotated)
Routing 510 of Drop Cable 110 To Storage Panel 405 Near Hinge 406



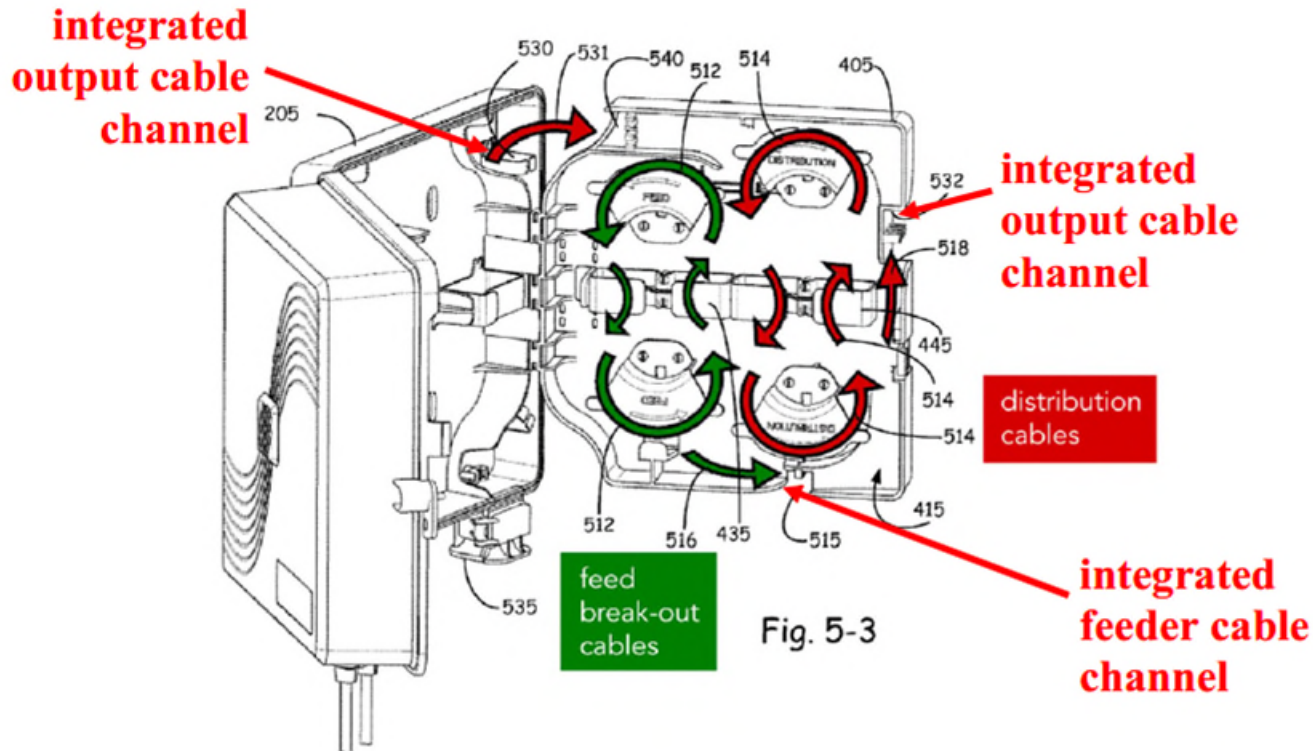
The '483 Patent – Hinged Storage Panel

'483 Patent FIG. 5-4 (Annotated)
Hinged Storage Panel 405 – Rear Side 415



The '483 Patent – Hinged Storage Panel

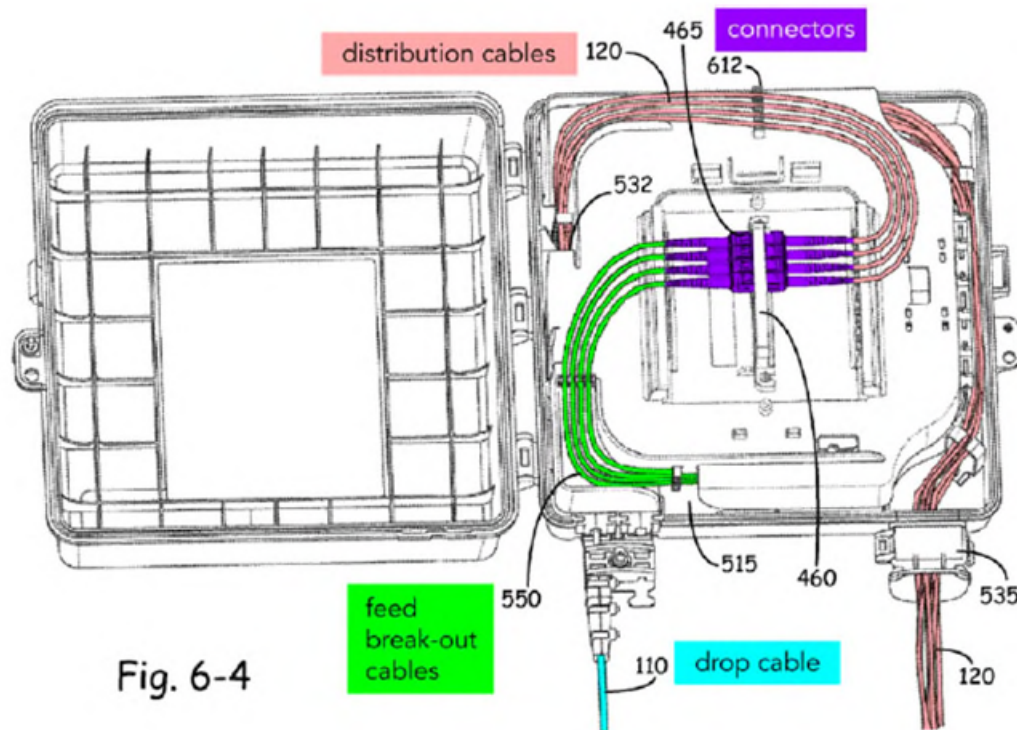
'483 Patent FIG. 5-3 (Annotated)
Integrated Cable Channels 515, 530, 532



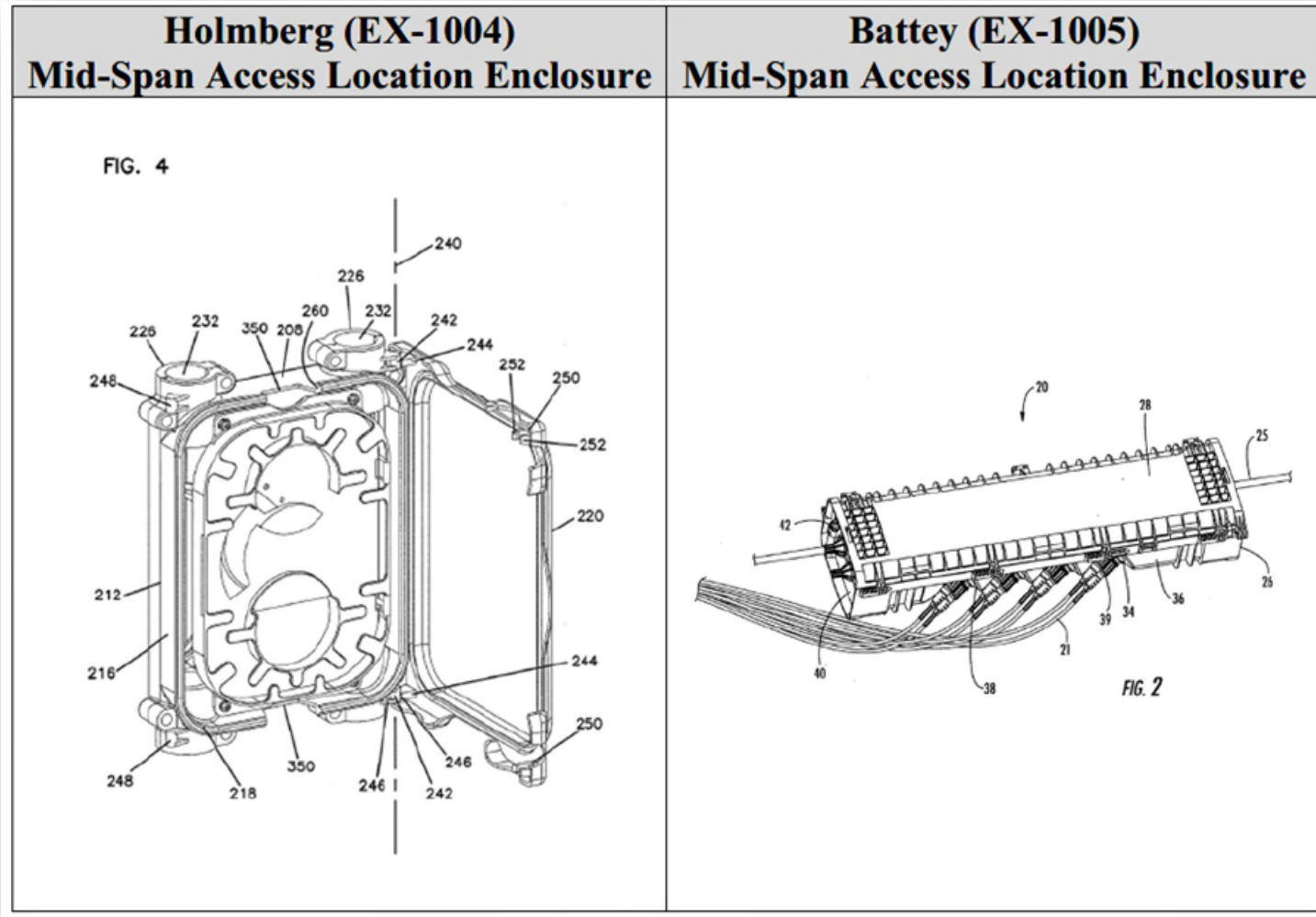
The '483 Patent – Hinged Storage Panel

'483 Patent FIG. 4-1 (Annotated)

Hinged Storage Panel 405 – Front Side 410 – Transition Channels 515, 532



Holmberg & Battey - Mid-Span Access (Break-Out) Locations



POR 7-8, 28-30, 40, n.5; SR 3-4; Holmberg Title, Abstract, ¶¶ [0008], [0034], [0037], FIG. 4; Battey ¶¶ [0006], [0009], [00010], [0036], FIG. 2.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Holmberg & Battey - Mid-Span Access (Break-Out) Locations

● Petitioner is **wrong**

— Holmberg and Battey Are Not DIB's

Specifically, both *Holmberg* and the '483 Patent are directed towards “a drop interface box (DIB) for interfacing between an optical network service provider's heavy jacketed drop cable and optical distribution cables at a premises.” '483 Patent, 2:3-6; *Holmberg*, [0003]-[0004], [0006], [0034]-[0035], [0051]-[0053], Figs. 1-2, 6. As such, *Holmberg* is in the same field of endeavor as the '483 Patent. *Dec.*, ¶¶55-57.

[0008], [0025], [0027]. Specifically, both *Battey* and the '483 Patent are directed towards “a drop interface box (DIB) for interfacing between an optical network service provider's heavy jacketed drop cable and optical distribution cables at a premises.” '483 Patent, 2:3-6; *Battey*, [0005], [0008], [0025], [0027], [0030]. As such, *Battey* is in the same field of endeavor as the '483 Patent. *Dec.*, ¶¶58-60.

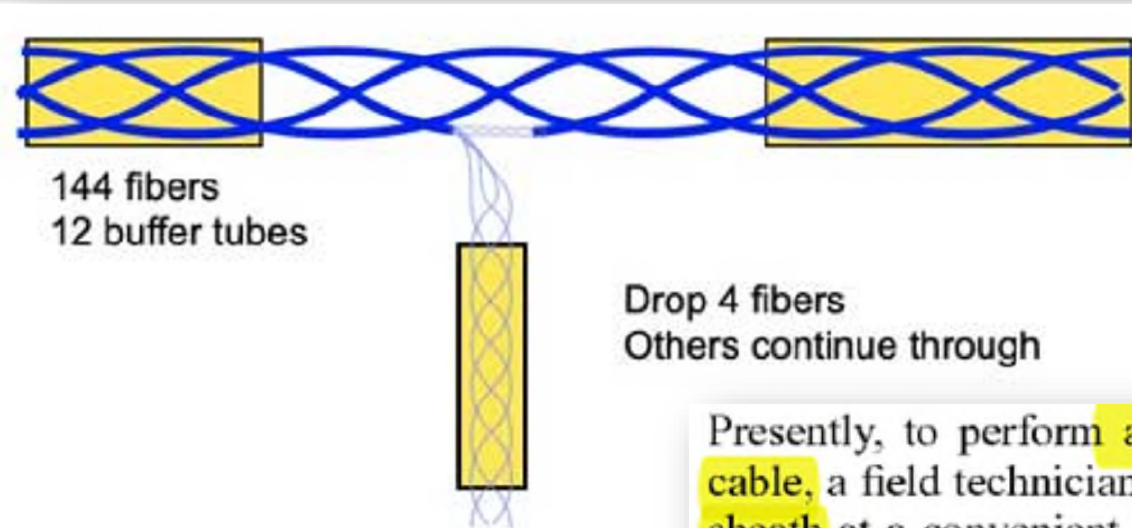
Drop Interface Box (DIB)/Network Interface Device (NID)

● Holmberg

- Mid-span access (break-out) locations 125 distinguished from drop terminals 104

[0006] Referring to FIG. 1, the network 100 includes a plurality of break-out locations 125 at which branch cables are separated out from main cable lines. Breakout locations can also be referred to as tap locations, drop cable locations, splice locations or branch locations. Branch cables can also be referred to as drop cables, drop lines, breakout cables or stub cables. Branch cables are often connected to drop terminals 104 that include connector interfaces for facilitating coupling the fibers of the branch cables to a plurality of different subscriber locations. Breakout locations are often

Mid-Span Access (Break-Out) Locations



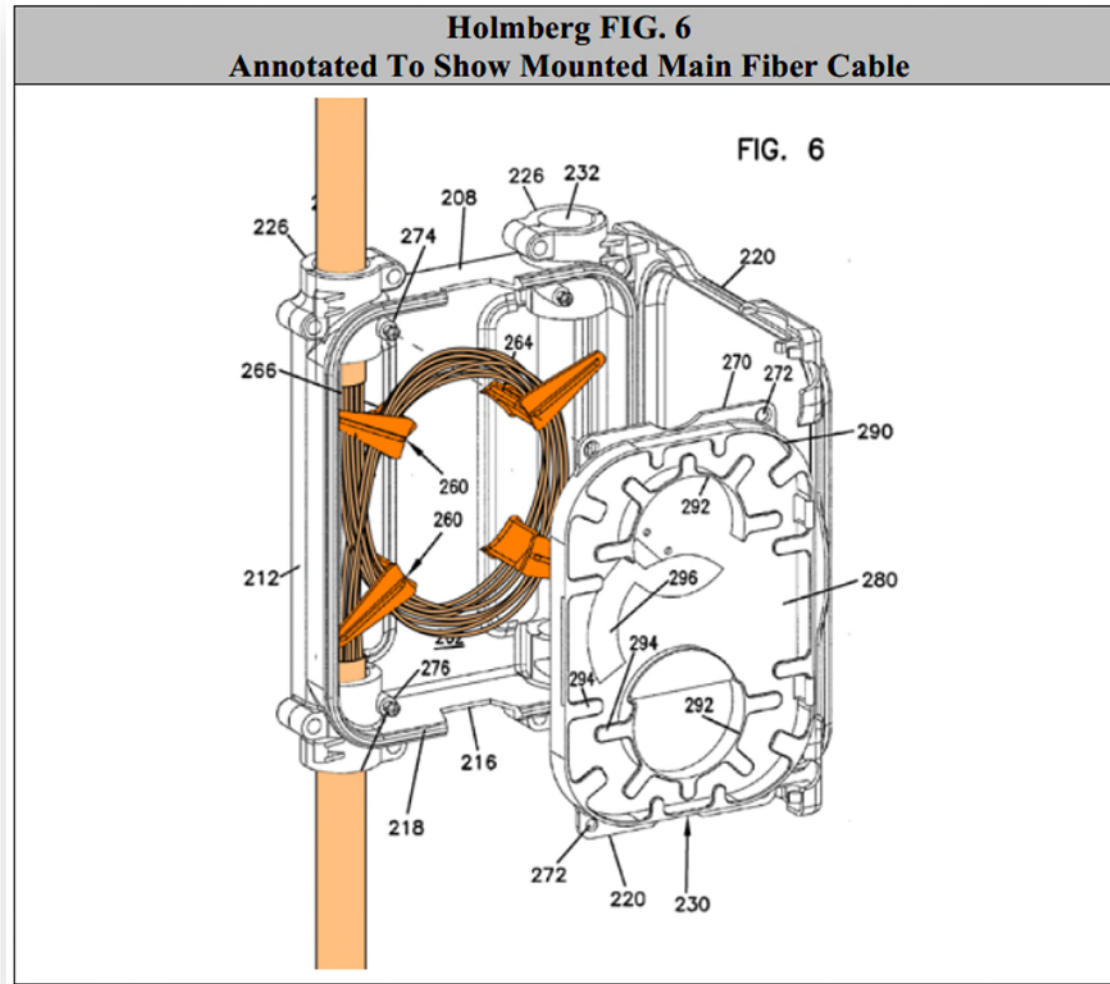
Presently, to perform a mid-span access of a distribution cable, a field technician first removes a section of the cable sheath at a convenient location along an installed distribution cable. Once the sheath is removed, the technician gains access to pre-selected optical fibers through the cable sheath, severs the accessed optical fibers and withdraws a useable length of the terminated optical fibers from the distribution cable. The useable length of the terminated optical fibers provides the field technician with sufficient length to splice one or more optical fibers of a cable comprising a lesser amount of optical fibers than the distribution cable (typically referred to as a “drop cable”) to the pre-selected optical fibers of the distribution cable. After splicing is completed,

Holmberg & Battey - Mid-Span Access (Break-Out) Locations

fibers of the distribution cable. After splicing is completed, the mid-span access location is typically covered using an enclosure designed to protect the splices and the exposed section of the distribution cable. This time consuming pro-

20 without the need for entering the closure 20. Since the connection closure 20 does not have to be entered to connect, disconnect or reconfigure drop cables 21, additional drop cables can be connected without disturbing the previously installed drop cables 21 or the contents of the connection closure 20, particularly the relatively delicate connectorized optical fibers 23 and the splice connections between the optical fibers of the distribution cable 25 and the connectorized optical fibers 23.

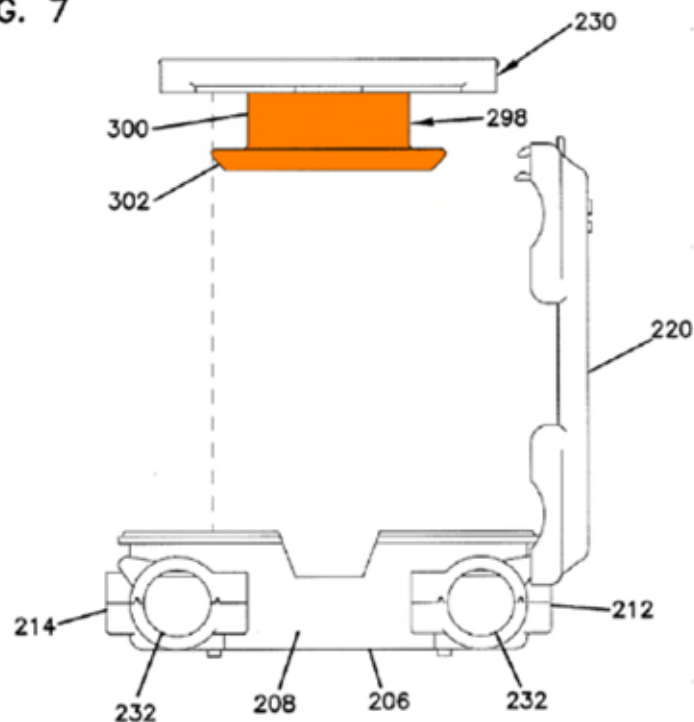
Holmberg – Unhinged and Stationarily Fastened Splice Tray



Holmberg – Unhinged and Stationarily Fastened Splice Tray

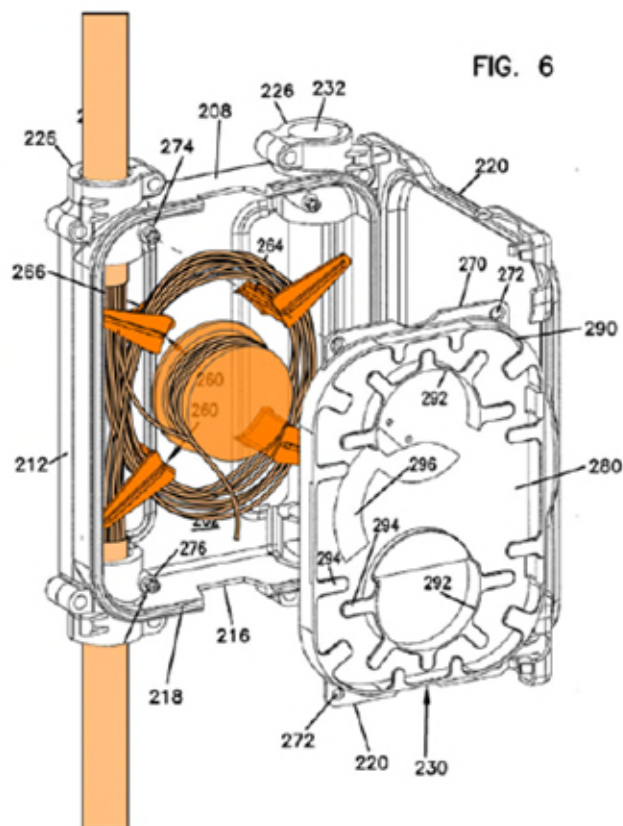
Holmberg FIG.6 (Annotated)
Terminated Fiber Spooled On Spool Structure 298

FIG. 7



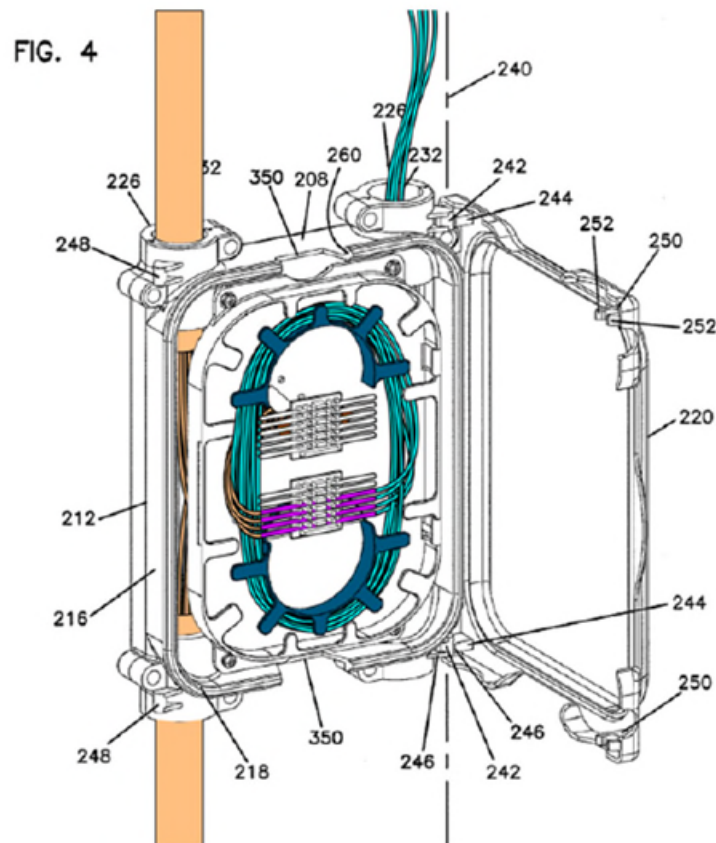
Holmberg – Unhinged and Stationarily Fastened Splice Tray

Holmberg FIG.6 (Annotated)
Terminated Fiber Spooled On Spool Structure 298

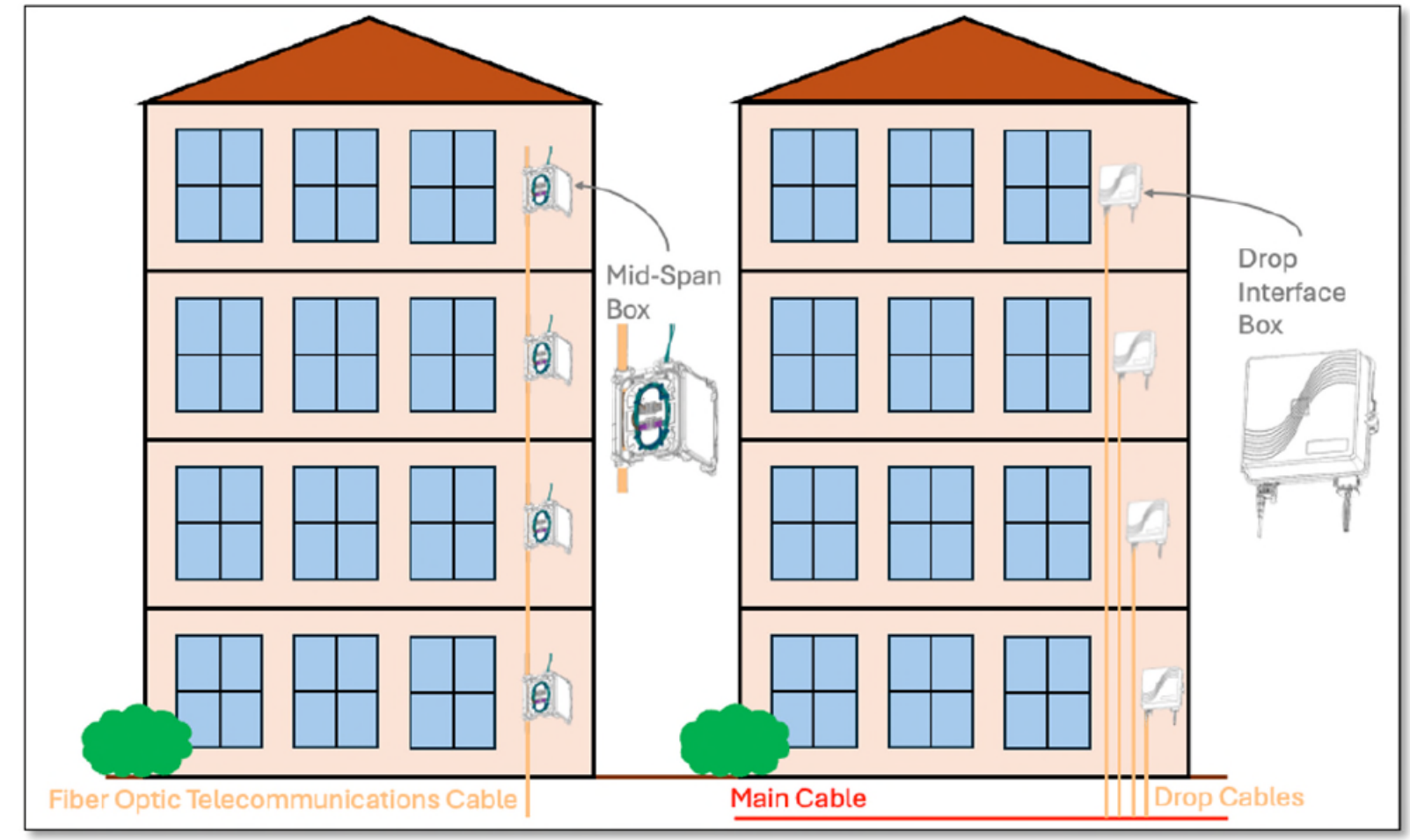


Holmberg – Unhinged and Stationarily Fastened Splice Tray

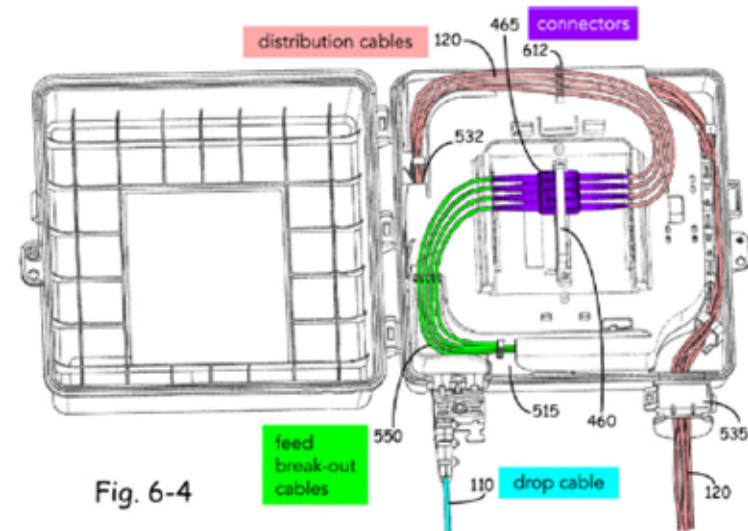
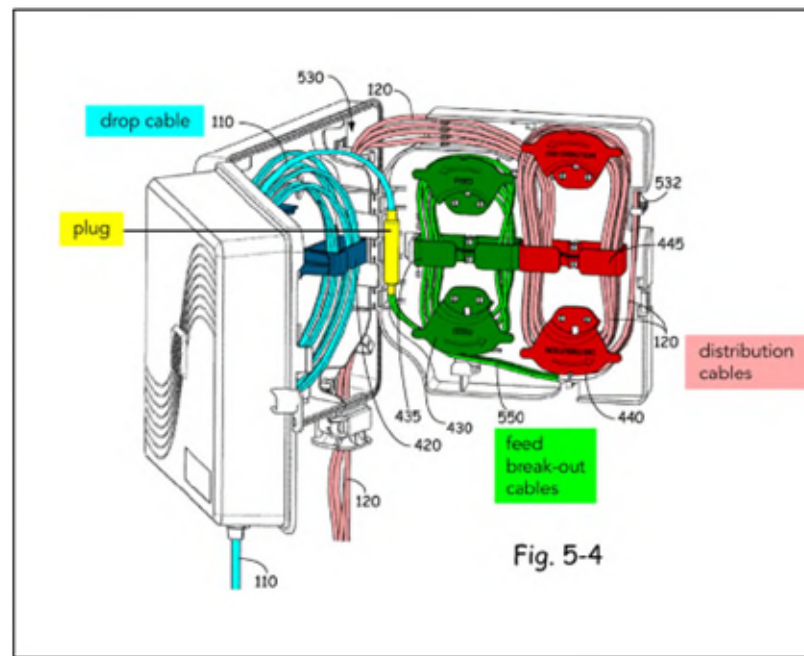
Holmberg FIG.6 (Annotated)
Main Cable Fiber Spliced To Output Fiber



Petitioner Reply Arguments – No Evidentiary Support



Petitioner Reply Arguments – No Evidentiary Support



Petitioner Reply Arguments – Contradicted By Its Expert

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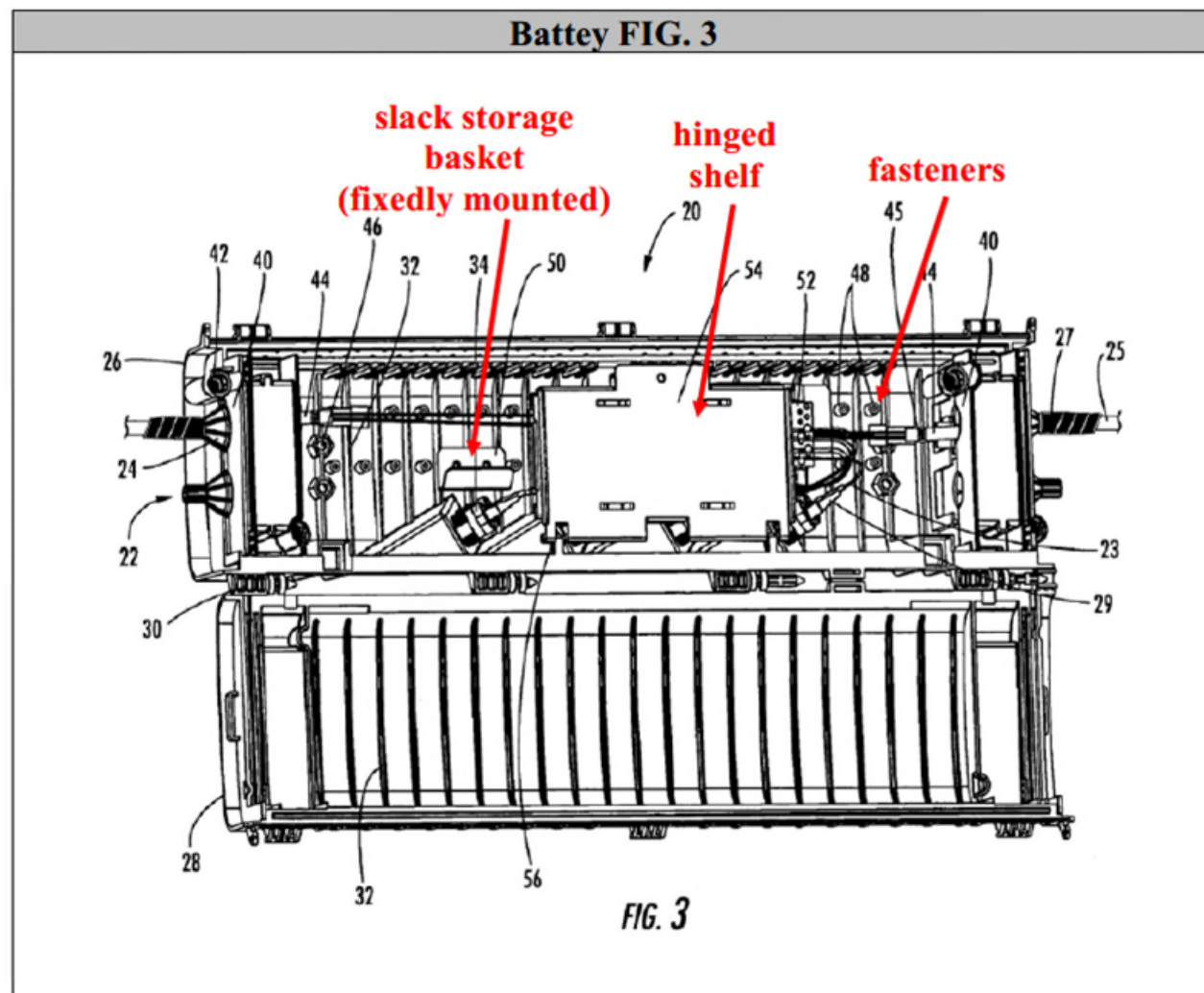
1 Q. Is it your opinion that Holmberg's
2 splice tray 230 that is held by the removable
3 screws, is it your opinion that that splice tray is
4 easily removable?

5 MR. HART: Object to form.

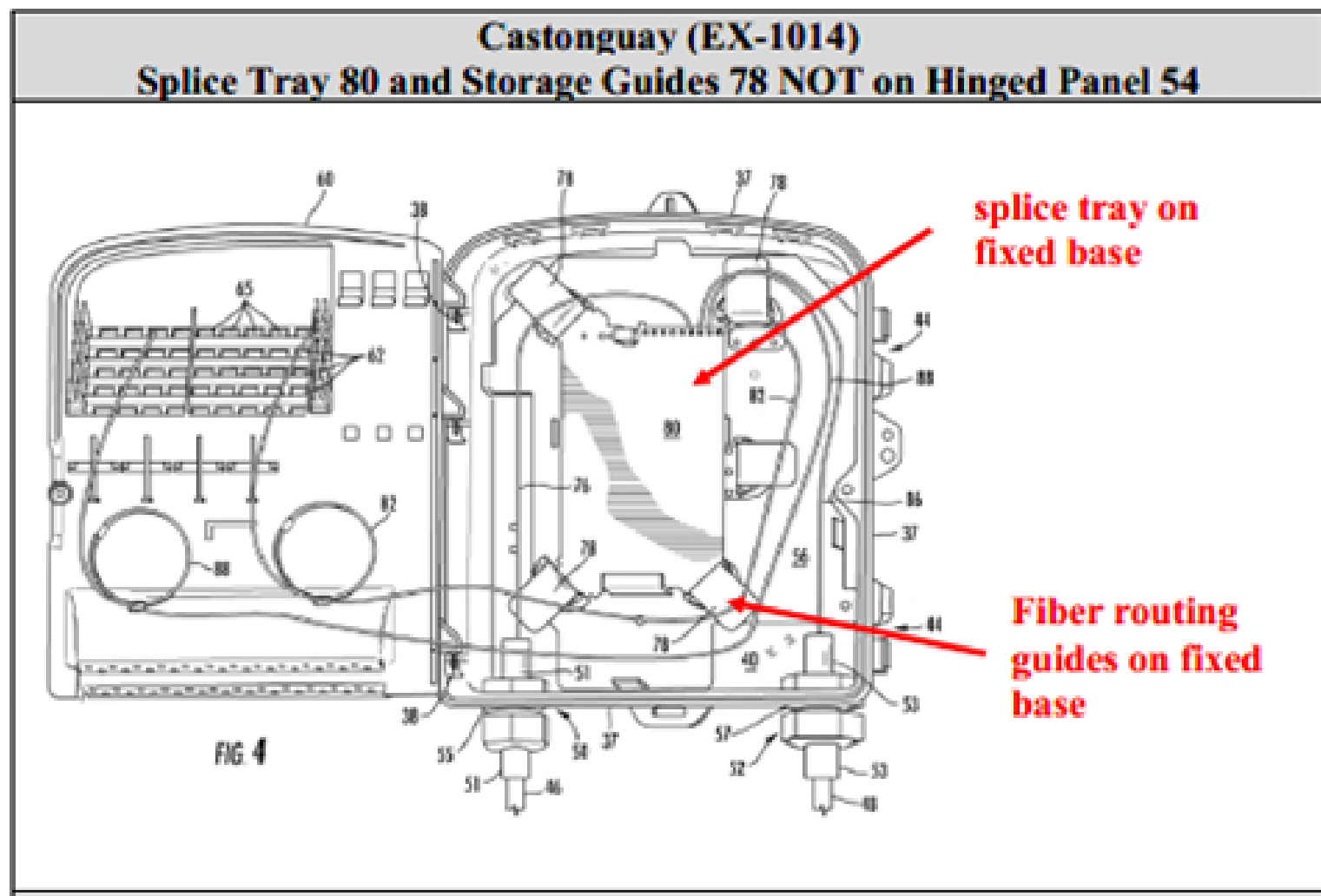
6 THE WITNESS: Well, that's a -- that
7 depends on what you mean "the splice tray is
8 easily removable." That depends on the
9 consequences of removing that. Of course,
10 somebody can unscrew those and yank it out
11 there and cutting all the lines or breaking
12 them.

13 And physically, yes, you can yank them
14 out and pull them out, but then you'll have
15 all the lines disrupted. But I don't think
16 that's what you want to do as a technician.

Bathey – Fixed Slack Storage Guides

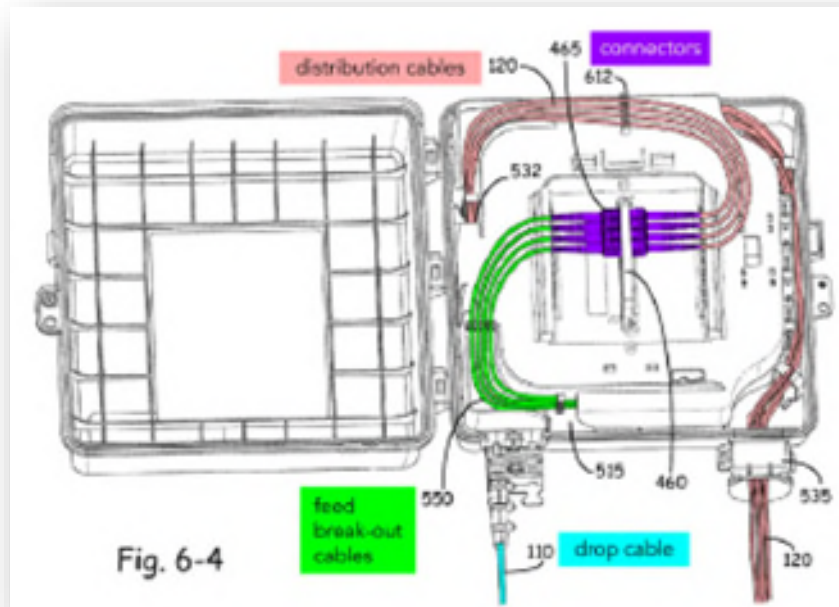


Castonguay – Fixed Splice Tray and Storage



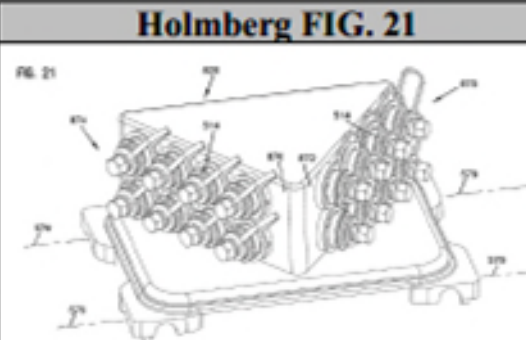
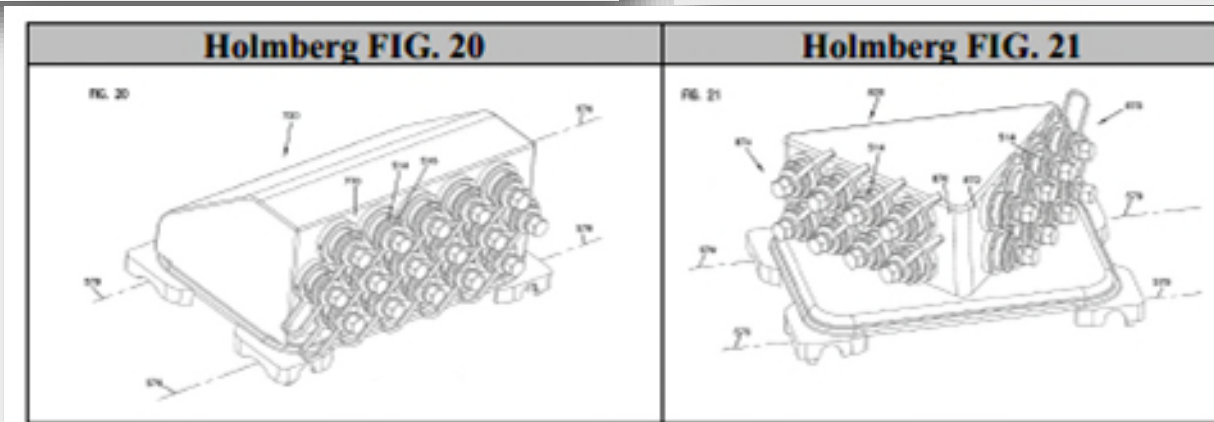
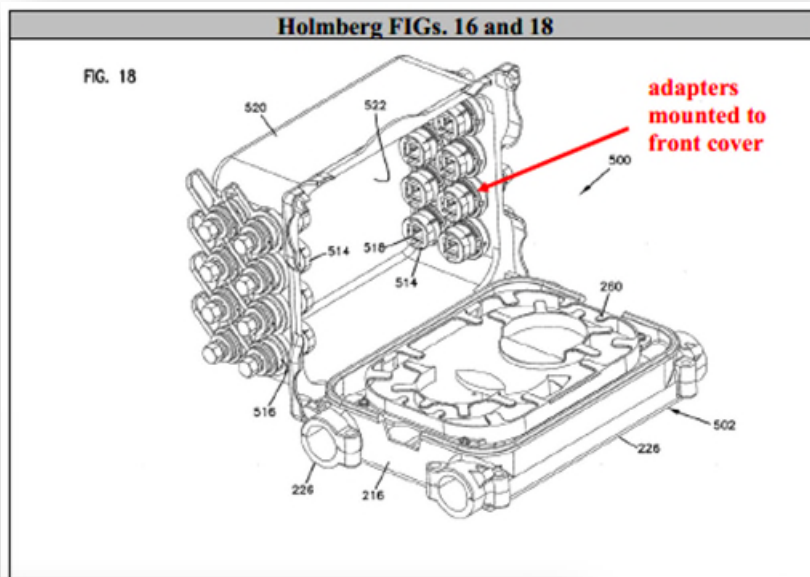
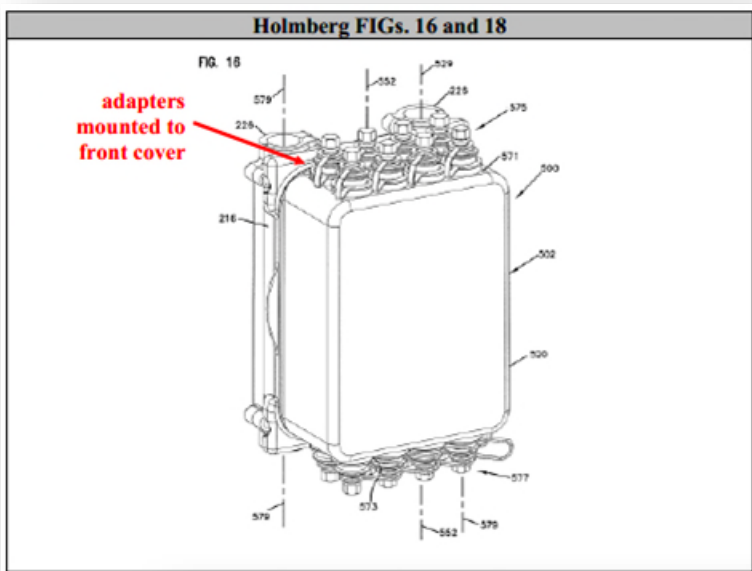
'483 Patent – Dependent Claim 2

- Adapter bracket 460 **on the fiber storage panel**



2. The drop interface box of claim 1, wherein the fiber storage panel further includes an adapter bracket configured to hold one or more adapters which couple the plurality of feed break-out cables to the plurality of distribution cables.

Holmberg – Alternative Embodiments With Wall Mounted Adapters (No Adapter Bracket On Fiber Storage Panel)



POR 65-71; SR 21-23; Holmberg ¶¶ [0056]-[0057], [0060]-[0061], FIGS. 16-18, 20-21.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

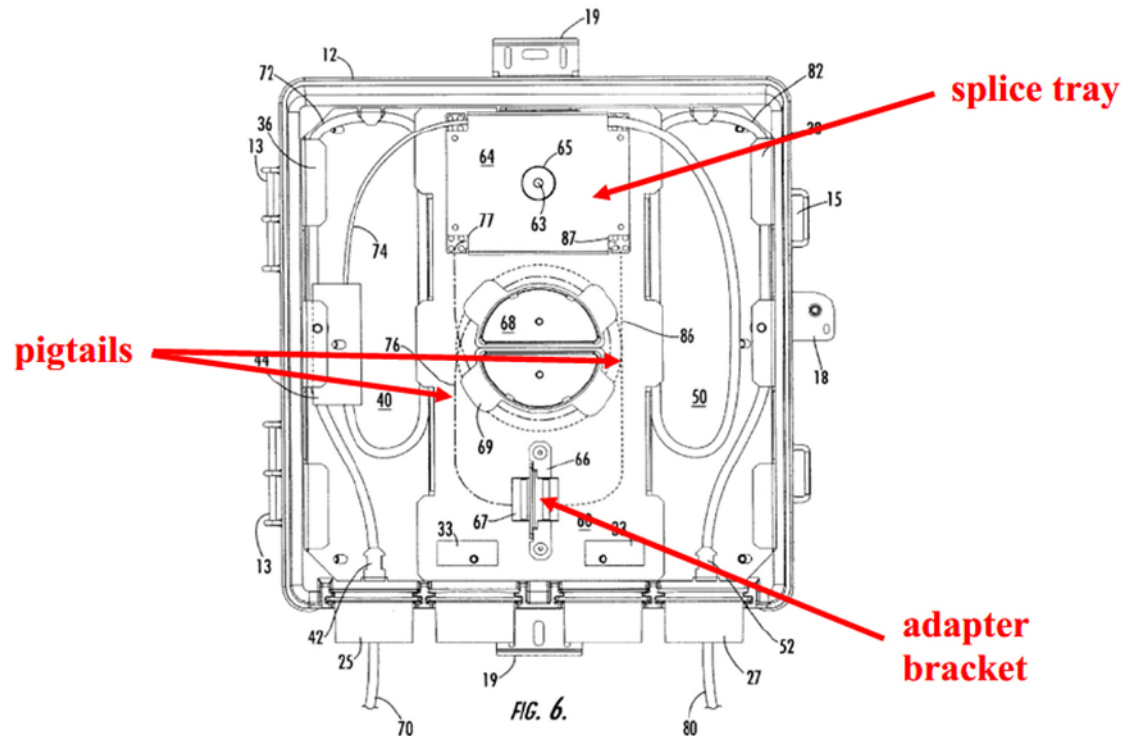
Holmberg – Alternative Embodiments With Wall Mounted Adapters (No Adapter Bracket On Fiber Storage Panel)

- Petitioner admitted Holmberg adapters work in conjunction with (do not replace) splice sleeve holders

would not have been necessary on splice tray 230. The adapters in *Holmberg's* other embodiments (e.g., in Figs. 16-18) attach to the outside of the enclosure, connecting external connectorized fibers to the internal fibers. In these embodiments, the connections secured on splice tray 230 are still required, and *Holmberg* is clear that splice tray 230 remains a critical component of these alternative embodiments. Eldering Depo. Tr., 75:18-79:5; *Holmberg*, [0056], Figs. 16-18. Accordingly, these

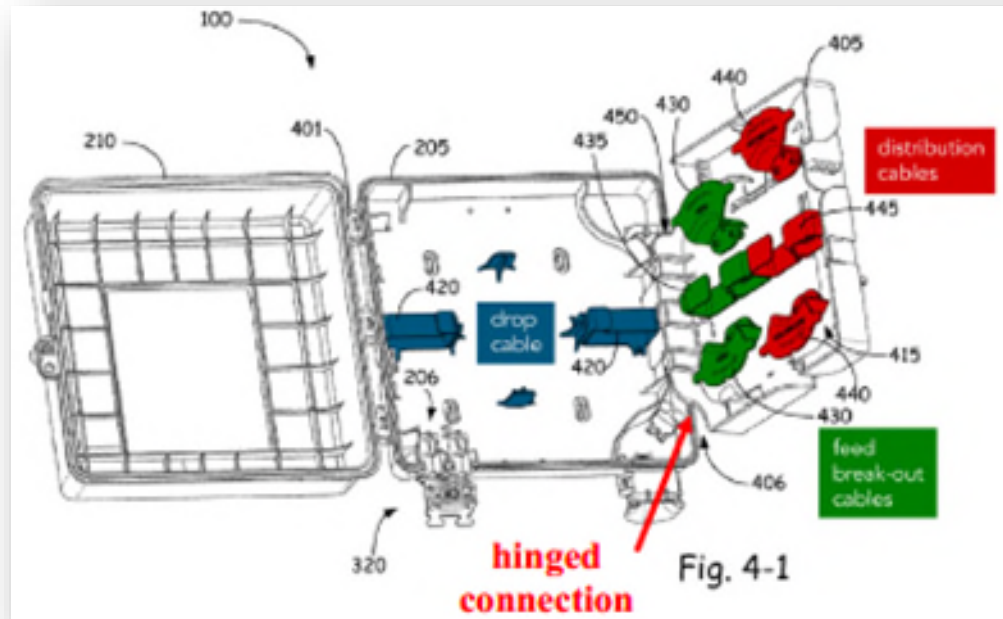
Blankenship – Adapter Bracket Does Not Replace Splice Tray

Blankenship (EX-1006) FIG. 6
Separate Splice Tray 64 And Adapter Bracket 66 Joined By Pigtails 76, 86



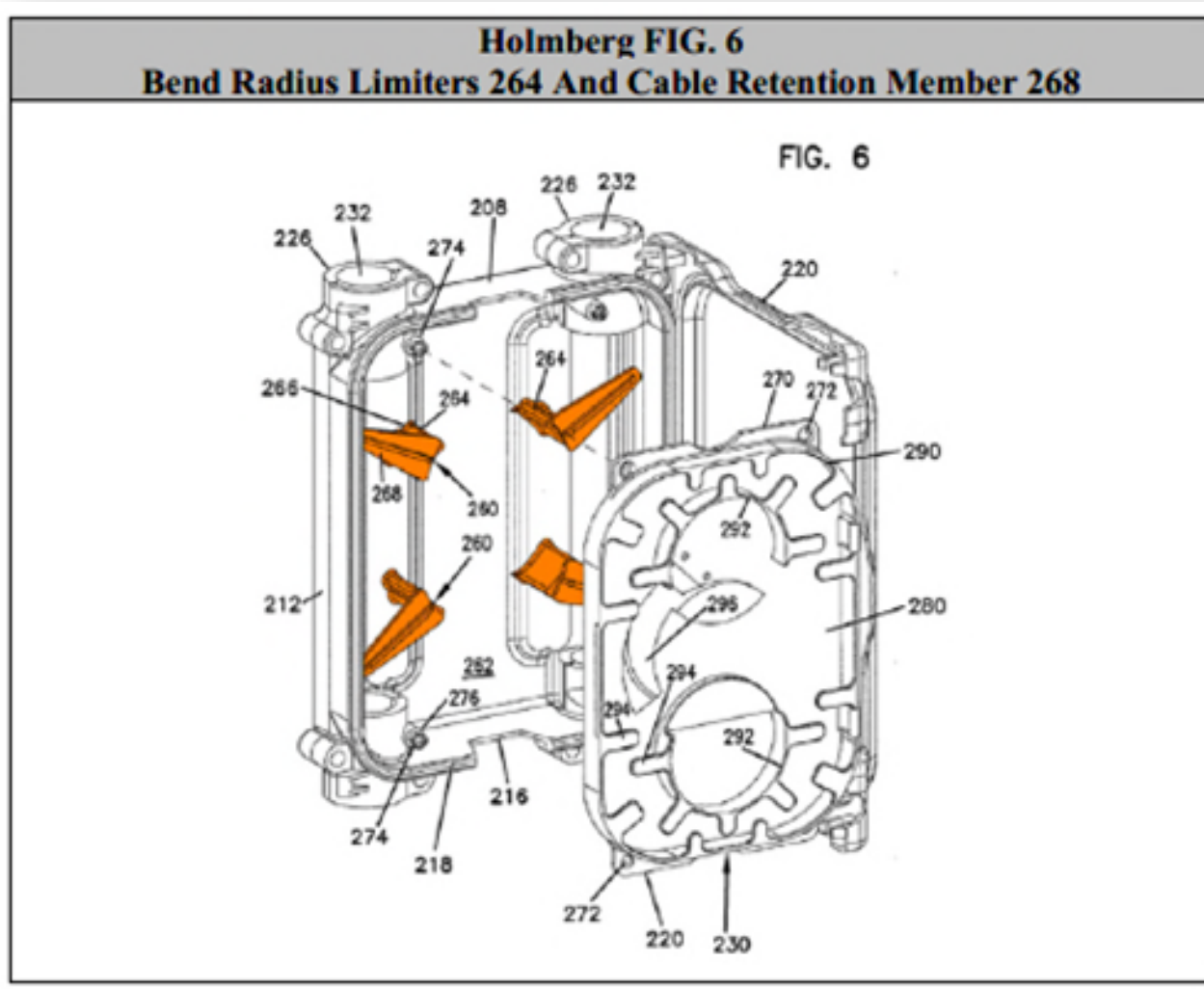
'483 Patent – Dependent Claim 10

- Storage clips 420 on the base unit

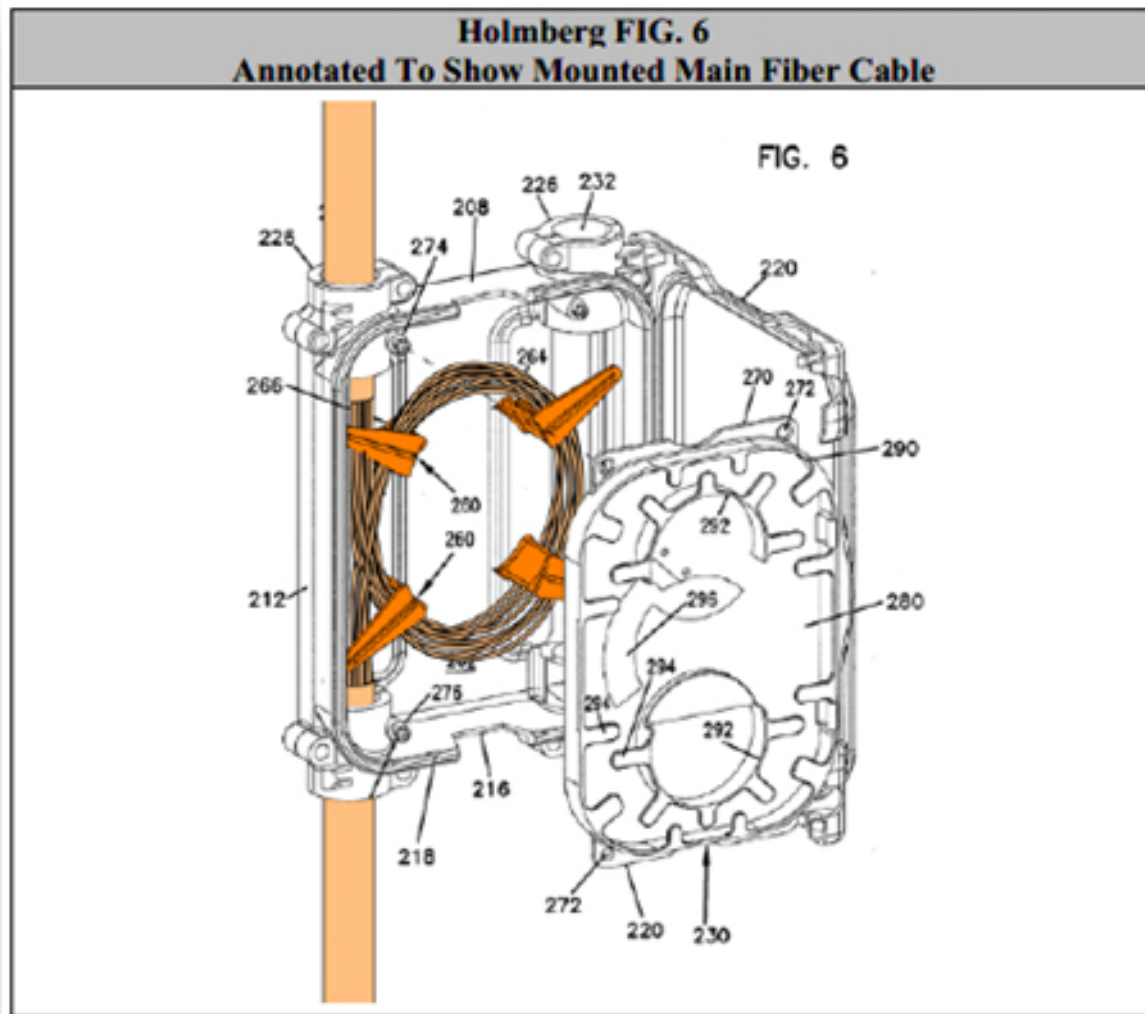


10. The drop interface box of claim 1, wherein the drop cable retaining mechanisms in the base unit comprise storage clips positioned on opposing sides of the base unit.

Holmberg – Already Includes Cable Management Members To Retain Uncut Drop Cable



Holmberg – Already Includes Cable Management Members To Retain Uncut Drop Cable



Cowan – Fully Encircling Clips Complicate Storage Of Uncut Drop Cable

