Case No. 22-1228

UNITED STATES COURT OF APPEALS

FOR THE FEDERAL CIRCUIT

PANDUIT CORP., FS.COM INC., THE SIEMON COMPANY,
APPELLANTS,

v.

INTERNATIONAL TRADE COMMISSION,
APPELLEE,

CORNING OPTICAL COMMUNICATIONS LLC,
INTERVENOR.

APPEAL FROM THE UNITED STATES INTERNATIONAL TRADE COMMISSION INVESTIGATION NO. 337-TA-1194

SECOND CORRECTED BRIEF FOR DIVERSIFIED MATERIAL SPECIALISTS, INC. AS *AMICUS CURIAE* IN SUPPORT OF APPELLANTS AND REVERSAL

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May 24, 2022

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

CERTIFICATE OF INTEREST

Case Number 22-1228

Short Case Caption Panduit Corp. v. ITC

Filing Party/Entity Diversified Material Specialists, Inc.

Instructions: Complete each section of the form. In answering items 2 and 3, be specific as to which represented entities the answers apply; lack of specificity may result in non-compliance. **Please enter only one item per box; attach additional pages as needed and check the relevant box**. Counsel must immediately file an amended Certificate of Interest if information changes. Fed. Cir. R. 47.4(b).

I certify the following information and any attached sheets are accurate and complete to the best of my knowledge.

Date: 05/24/2022

Signature: /s/ Nicholas R. Grennan

Name: Nicholas R Grennan

1. Represented Entities. Fed. Cir. R. 47.4(a)(1).	**2. Real Party in Interest.** Fed. Cir. R. 47.4(a)(2).	**3. Parent Corporations and Stockholders.** Fed. Cir. R. 47.4(a)(3).
Provide the full names of all entities represented by undersigned counsel in this case.	Provide the full names of all real parties in interest for the entities. Do not list the real parties if they are the same as the entities. ☑ None/Not Applicable	Provide the full names of all parent corporations for the entities and all publicly held companies that own 10% or more stock in the entities. ☑ None/Not Applicable
Diversified Material Specialists, Inc.		

☐ Additional pages attached

4. Legal Representatives. List all law firms, partners, and associates that (a) appeared for the entities in the originating court or agency or (b) are expected to appear in this court for the entities. Do not include those who have already entered an appearance in this court. Fed. Cir. R. 47.4(a)(4).

☐ None/Not Applicable ☐ Additional pages attached

From Suiter Swantz pc llo: Nicholas R. Grennan		

5. Related Cases. Provide the case titles and numbers of any case known to be pending in this court or any other court or agency that will directly affect or be directly affected by this court's decision in the pending appeal. Do not include the originating case number(s) for this case. Fed. Cir. R. 47.4(a)(5). See also Fed. Cir. R. 47.5(b).

☑ None/Not Applicable ☐ Additional pages attached

6. Organizational Victims and Bankruptcy Cases. Provide any information required under Fed. R. App. P. 26.1(b) (organizational victims in criminal cases) and 26.1(c) (bankruptcy case debtors and trustees). Fed. Cir. R. 47.4(a)(6).

☑ None/Not Applicable ☐ Additional pages attached

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INTEREST OF *AMICUS CURIAE*

Diversified Material Specialists, Inc. ("DMSI") is a provider of fiber optic equipment. Its business depends on data centers and other installation environments that incorporate equipment such as racks, chassis, trays, cassettes, panels, adapters, connectors, cabling and organizers, among other equipment. DMSI, which owns a developing patent portfolio, has a strong interest in a patent system that rewards innovation. In particular, DMSI has a strong interest in a patent system that grants patent claims that are defined and recite genuine inventions, i.e., inventions that satisfy the conditions of patentability.

Regarding the Corning patents in this case, the asserted claims fail to define the necessary structure and metes and bounds of the claims to satisfy the requirements under 35 U.S.C. § 112, and therefore are not enabled. Further, the asserted claims fail to satisfy the conditions of patentability for failing to recite genuine inventions. As such, the scope of the asserted claims is broader than the disclosed inventions and therefore the patents claims encompass later developed and future inventions not contemplated at the time of filing. In addition, the asserted claims merely recite combinations of conventional "off-the-shelf" components, inherent dimensions of those components and/or connection densities associated with the intended use of those components. DMSI therefore contends

that the asserted claims block technology improvements in an ever evolving and advancing industry.

Accordingly, DMSI urges this court to reverse the errors of the Commission and correctly hold undefined and erroneously granted patent claims invalid to release their technology stranglehold on the fiber optic industry as it pertains to connection densities.

Counsel for the *amicus curiae* authored this brief in whole, and no person(s), party, parties' counsel or other entity, other than *amicus curiae*, monetarily contributed to the preparation or submission of this brief.

PRELIMINARY STATEMENT AND SUMMARY OF ARGUMENT

This *amicus* concerns the asserted claims of Corning's U.S. Patent Nos. 9,020,320 ("the '320 Patent), 10,444,456 ("the '456 Patent), and 8,712, 206[1] ("the '206 Patent"). DMSI contends that the asserted claims are undefined and overly broad, that the Commission erred in their enablement and infringement analysis, and that the court continuing to hold the asserted claims valid would stifle innovation across the entirety of the fiber optic industry to the sole benefit of

[1] DMSI was a defendant to a lawsuit with Corning involving the '206 Patent that resulted in a consent judgment and permanent injunction that remains in effect until 2031.

Corning. An intention of this *amicus* is to voice the concerns of DMSI as representative of a small-scale manufacturer and retailer of fiber optic components as compared to the named parties. A further intention of this *amicus* is to explain the contents and scope of the patent claims to the court in general terms such that the court can understand and appreciate the excessively broad claim scopes that place a stranglehold on innovation and advancement of the fiber optic industry.

Broadly speaking, none of the '320, '456 and '206 Patents ("the patents") are pioneering in terms of the fiber optic components disclosed therein. In fact, none of the patents disclose new fiber optic connector or adapter inventions. Instead, the patents disclose conventional connectors and conventional adapters used in known equipment having standardized dimensions.

Known to those skilled in the art, racks are utilized in data centers and elsewhere to support/mount various types of equipment. Rack dimensions, admitted as "*standard*" in the '320 Patent at col. 4 line 58 – col. 5 line 5, have been adopted as necessary such that different types of equipment (e.g., chassis, servers, etc.) can be manufactured in standard sizes to fit in the racks. Also known to those skilled in the art, a rack unit "U" or "RU" indicates an industry standard width dimension of 19 inches/482.6 mm, or in some cases 23 inches/584.2 mm, and "1U" indicates a standard height dimension of 1.75 inches/44.45 mm. Increasing height

dimensions are indicated as multiples of U such as 2U, 3U, 4U, etc., where the height increases with the multiplier while the width dimension remains constant.

The asserted patents disclose chassis configurations for installation in standard rack dimensions, trays for installation in standard chassis dimensions, modules for installation in standard tray dimensions, and conventional adapters for installation in standard module dimensions. Each of the aforementioned components is dimensioned based on the standard rack unit "U" and physical dimensions of the conventional adapters for receiving connectors. Regarding connectors, none of the patents disclose new connector inventions, and Corning's own prior art U.S. Patent No. 6,923,579 admits conventional connector types include FC, MTP, BLC, SC, DC, Unicam, LC, ST, MTP, MU and MT-RJ (*See* Col. 8 lines 1-5). Of these, at least LC, SC and MU are provided in simplex and duplex configurations.

In addition, none of the patents disclose new adapter inventions for receiving connectors to facilitate optical connections. Considering twelve (12) optical fibers to be a standard number in cabling, the dimensions of each component are inherently based on hardware configured that accommodate twelve (12) simplex adapters or six (6) duplex adapters, such as found in various cassettes, panels, etc. which Corning ambiguously terms a "*module*" as opposed to the conventional terms of art.

Regarding the known connectors discussed in the patents, standard LC connectors feature a 1.25 mm diameter ferrule, the dimensions of the LC simplex adapter are 6.9 mm by 11.5 mm, and the dimensions of the duplex LC adapter are 13.0 mm by 13.0 mm. *LC Connector- The Emerging Connector Choice in Current and Future Applications* (2001), lcalliance.net/lcinterface/pdfs/lcconnector.pdf

Regarding duplex LC connectors, most commonly used considering multi-mode application, fiber pitch is 6.25 mm. Considering a standard 1U rack space, simply dividing the 1U space by the conventional LC adapter dimensions yields the densities recited in the patents.

As such, the patents do not disclose novel and inventive concepts or designs, but instead merely disclose connection densities achieved through close position spacing of conventional components and minimizing empty space not utilized or useful for any other purpose in a rack enclosure. As with any industry, it is well known that density increases as components become smaller as a result of advances in technology and manufacturing. Such is the natural product evolution observed across the technology spectrum. Allowing patent claims to persist that cast an overly broad net without reciting genuine inventions, defined structure, and defined limits grants undeserved exclusivity to a patent owner and stifles future innovations. Therefore, the court should remedy the errors of the Commission as discussed further below.

ARGUMENT

I. THE COMMISSION'S ENABLEMENT DETERMINATION SHOULD BE REVERSED AS TO THE CLAIMS OF THE '320 PATENT

Enablement exists to ensure adequate disclosure of the claimed invention and prevent claims broader than the disclosed invention. *MagSil, Inc.*, 687 F.3d at 1380-81.

Asserted claim 1 of the '320 Patent is directed to an apparatus including a structurally undefined "*chassis*" and structurally undefined "*fiber optic connection equipment*" supporting "*at least ninety-eight (98) fiber optic connections per U space*" based on using "*at least one simplex fiber optic component or at least one duplex fiber optic component*." Claim 3 narrows the connection density to "*at least one hundred forty-four (144) fiber optic connections per U space*." None of the remaining, unasserted dependent claims further define the element "*fiber optic connection equipment*" recited in claim 1.

As discussed above, in '320 Patent Corning did not invent any of a chassis, U spacing, simplex fiber optic components, and duplex fiber optic components elements, nor did Corning invent using adapters and connectors in a rack-mountable enclosure to facilitate optical connections. Thus, the only remaining elements of claim 1 even capable of being genuine inventions are the "*fiber optic connection equipment*" and the recited connection density.

The specification does not recite the term "*fiber optic connection equipment*" or even the shorter version "*connection equipment*" other than in the claims, and the asserted claims do not recite any structure with respect to this element in the claims themselves. In addition, none of the dependent claims further define the recited claim element. Instead, claim 11 introduces "*at least one fiber optic module*" as an additional element of the apparatus without any association with the "*fiber optic connection equipment*", therefore differentiating the fiber optic connection equipment recited in claim 1 from the modules recited in claim 11. As such, an appropriate 35 U.S.C. 112, ¶6 construed claim turns to the corresponding structure described in the specification and equivalents. In this case, one skilled in the art would understand that connection equipment includes equipment most directly associated with optical connections, namely the adapters themselves, which are not inventions in the '320 Patent. If the drafter intended the "*a fiber optic connection equipment*" to mean something other than the adapters, then the claim should have been drafted as such or the specification should have mentioned as such. As it stands, the recitation of the singular element "*a fiber optic connection equipment*" without any recited structure is ambiguous and not understandable to one skilled in the art.

In addition, the open-ended ranges of the connection densities do not define upper limits, and therefore read on all later and to-be developed smaller form

factor fiber optic components capable of achieving significantly greater connection densities in defined U spaces. One such connector and adapter pairing includes the MDC two fiber connector and associated MDC adapters currently available from USCONEC of Hickory, North Carolina, which increase fiber density by a factor of three (i.e., 3X) as compared to the density provided using the conventional duplex LC pairings mentioned in the '320 Patent. While some upper limit must inherently exist in any defined space, Corning's alleged "improvement" to "*ninety-eight (98)*" connections over the prior art industry standard of ninety-six (96) connections using conventional cassettes is hardly a density leap worthy of a claim construction that encompasses a 3X leap possible with the new MDC pairings. It should also be noted that densities are typically provided in multiples of twelve (12) fiber cabling, e.g., 12, 24, 36, 48, 60, 72, 84 and 96 fibers, etc., and therefore ninety-eight (98) appears to be an arbitrary number just greater than 96 and not applicable to real-world installations or helpful to patentability searching.

From at least the above, it is evident that claim 1 merely recites the use conventional in undefined equipment installable in a standard U space. Such a claim that lacks any recitation of novel structure and/or a novel combination of conventional components cannot recite a genuine invention, nor can any claim reciting a minimal density improvement over the prior art without a defined upper limit be enabled.

Therefore, in view of the above, the court should reverse the Commission's enablement determination and find at least the asserted claims of the '320 Patent invalid.

II. THE COMMISSION'S ENABLEMENT DETERMINATION SHOULD BE REVERSED AS TO THE CLAIMS OF THE '456 PATENT

As stated above, enablement exists to ensure adequate disclosure of the claimed invention and prevent claims broader than the disclosed invention. *MagSil, Inc.*, 687 F.3d at 1380-81.

Asserted claim 11 of the '456 Patent is directed to a similar apparatus as claim 1 of the '320 Patent, while further reciting the elements "*a plurality of fiber optic equipment trays*", "*a plurality of fiber optic modules*" installable in the trays, and "*simplex or duplex fiber optic adapters*". Claim 11 further recites the dimensions of a standard U space as discussed above. Asserted claim 27 further recites a "*4-U space*" and "*a fiber optic connection density of five hundred seventy-six (576) fiber optic connections in the 4-U space*." The asserted dependent claims recite additional modules, adapter types, row configurations, connection density, and module guide members.

Like the '320 Patent, Corning did not invent any of the recited chassis, U space dimensions, and simplex and duplex adapters, nor did Corning invent using adapters in a rack-mountable chassis to facilitate optical connections. Thus, the

only remaining elements of claims 11 and 27 even capable of being genuine inventions are the "*plurality of fiber optic modules*", "*fiber optic equipment trays*" configured to receive the modules, and the recited connection density.

Regarding the "*plurality of fiber optic modules*", the claims do not recite module structure other than connections formed at the front and back and an internal chamber, all of which are common features of cassettes in widespread use prior to the earliest effective filing date of the '456 Patent. For example, the images immediately below from prior art U.S. Patent No. 7,751,674 show one such example of a typical cassette configuration including a housing supporting frontside adapters (15) disposed in a front opening, backside adapters (36, 38) disposed in backside openings, and an internal chamber that holds cabling/fiber (24), the cassettes including features (10) for chassis and rack mounting.

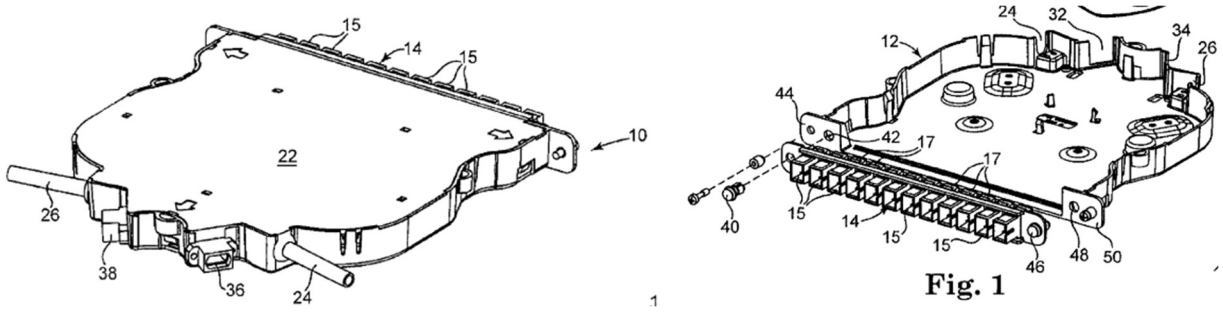

Fig. 1

In addition, like the '320 Patent discussed above, the open-ended ranges do not define upper limits of the recited connection densities and therefore read on significant leaps in connection densities not contemplated at the time of filing. As such, the asserted claims of the '456 Patent also lack the necessary recitations of

structure and/or novel combination of conventional components to recite a genuine invention, nor are they enabled without defining upper limits.

Therefore, in view of the above, the court should reverse the Commission's enablement determination and find at least the asserted claims of the '456 Patent invalid.

III. THE COMMISSION'S INFRINGEMENT FINDING WITH RESPECT TO THE '206 PATENT SHOULD BE REVERSED BASED ON IMPROPER CLAIM CONSTRUCTION

A general understanding of the '206 Patent is required to further understand the claim construction of the '206 Patent. Broadly speaking, the '206 Patent is directed to modules configured to hold adapters. The '206 Patent claims are dividable into three groupings, with each grouping reciting connection density in the front of the module according to a different numerical dimension. Specifically, the first grouping includes independent claims 1, 41, 52 and 63, the second grouping includes independent claims 14 and 46, and the third grouping includes independent claims 26 and 48. The asserted claims depend from claim 14 which includes the element "*a front opening*".

The first grouping recites connection density as a percentage of the width of the front opening as compared to the front side of the module. Simply stated, how much of the front side of the module is consumed by the opening. The second grouping recites connection density in terms of the number of connections per

defined portion of the front opening. In other words, how much space is required between connections. The third grouping recites connection density in terms of the total number of connections possible in a defined front opening width. In other words, how big is the opening required to accommodate a predetermined number of connections.

As discussed above, neither of the '320 and '456 Patents disclose connector or adapter inventions, nor do they disclose cabling inventions, and the same is true of the '206 Patent. Instead, the '206 Patent is directed to module configurations that receive conventional adapters and cable assemblies to facilitate optical connections.

Regarding the first grouping directed to the front opening ratio, aligning conventional adapters in a single row to accommodate conventional twelve-fiber cable assemblies requires a minimum physical dimension to accommodate the adapters. For example, referring again to the above images, the row of twelve (12) LC adapters occupies a predetermined amount of space to accommodate the physical dimensions of the adapters. To maximize connection density across the width of the U space, it is obvious to position the adapters as close together as possible as there is no benefit or need for empty space other than to accommodate minimal wall thicknesses or organizational components. While the crux of the first grouping is the "*85%*" limitation, there is nothing novel or inventive about

reducing wall material to gain empty space to maximize density, particularly when the wall material merely provides adapter and cabling containment. Further, there is no criticality discussed in the specification nor structure defined in the first grouping associated with the recited opening dimension. Similar to the above regarding an arbitrary connection density number of 98 connections, the "*85%*" limitation also appears arbitrary and non-critical and does not lend itself to relevant patent searching.

Regarding the second grouping, the recited connection density of "*at least one fiber optic connection per 7.0 mm of width of the front opening*" is inherent with the use of conventional duplex LC connectors having a fiber pitch of 6.25 mm. Specifically, the opening is dimensioned to receive conventional adapters and each adapter is sized to receive a conventional connector. In the case of duplex LC connector and adapter pairings, the 6.25 mm fiber pitch is less than the larger 7.0 mm recited dimension for each connection, and the physical size of conventional LC connectors is smaller than a larger defined space. Again, Corning has not invented new connectors or adapters, but in second grouping recited a dimensional limitation around the physical specifications of a known connector pairing type.

Regarding the third grouping, much of the above with respect to the first and second groupings applies. Requiring "*at least twelve (12) fiber optic connections*" in a front opening that is "*90 mm or less*" is another arbitrary physical dimension

greater than the total physical dimension of the adapters needed to support the optical connections.

Regarding all three groupings, the '206 Patent merely recites arbitrary physical dimensions around the opening dimension that are each greater than the physical dimensions of known types of connector and adapter pairings disposed in the opening. Importantly, the recited language "*at least*" with respect to the number of optical connections also reads on smaller form factor connectors now known or later developed, for instance the MDC pairing discussed above. The stifling effect of the '206 is that future pairings can only grow larger and connection densities can only decrease to avoid the claims of the '206 Patent, which is counter to the general direction of the industry.

In addition to the above, the Commission erred in its construction of "*front opening*" to encompass multiple front openings. With the exception of claims 52 and 63, the other six (6) independent claims of the '206 Patent all recite the singular "*a front opening*", whereas claim 52 does not recite an opening and claim 63 recites the plural "*front openings*". Applying claim term differentiation, a canon of claim construction, the Commission erred in construing a singular opening and multiple openings to mean the same. Referring to the drawings of the '206 Patent, every twelve-fiber module configuration shown includes only one singular opening per module. Regarding the double modules shown in FIGS. 16-

21, those modules are not single modules, but are instead integrally formed double or coupled modules wherein each twelve-fiber module portion includes one singular opening. Therefore, for at least the reasons discussed herein, the proper construction for the element "*a front opening*" should have been, with respect to each module, a singular opening consistent with the recited claim language and specification. Likewise, the same applies in reverse to claim 63 wherein the "*front openings*" cannot be construed to mean a singular opening. Expanding the "*a front opening*" to include multiple separate openings improperly expands the construction to encompass module designs having multiple front openings not contemplated at the time of filing and benefitting only Corning at the expense of the industry.

Therefore, in view of the above, the court should adopt a construction of the term "*a front opening*" that excludes multiple front openings as it pertains to each module.

CONCLUSION

The Court should reverse the decision of the ITC.

Respectfully submitted,

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May 24, 2022

CERTIFICATE OF SERVICE

I hereby certify that, on this 24th day of May, 2022, I filed the foregoing with the Clerk of the United States Court of Appeals for the Federal Circuit via the CM/ECF system, which will send notice of such filing to all registered CM/ECF users.

Dated: May 24, 2022

/s/ Nicholas R. Grennan
Nicholas R. Grennan
SUITER SWANTZ PC LLO
Counsel for Diversified Material Specialists, Inc.

CERTIFICATE OF COMPLIANCE

This brief complies with the type-volume limitation of Federal Rule of Appellate Procedure 29(a)(5). This brief, excluding the parts of the brief exempted by Federal Rule of Appellate Procedure 32(f) and Federal Circuit Rule 32(b), contains 3,275 words.

This brief complies with the typeface requirements of Federal Rule of Appellate Procedure 32(a)(5) and the type style requirements of Federal Rule of Appellate Procedure 32(a)(6). This brief has been prepared in a proportionally-spaced typeface using Microsoft Word in 14-point Times New Roman.

May 24, 2022

/s/ Nicholas R. Grennan
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