

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GILLES GAGNON

Appeal No. 1999-0434
Application No. 08/664,257

ON BRIEF

Before HAIRSTON, RUGGIERO, and BLANKENSHIP, Administrative Patent Judges.
BLANKENSHIP, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 3-15, 17, 18, and 30-54, which are all the claims remaining in the application.

We reverse, and enter a new ground of rejection in accordance with 37 CFR § 1.196(b).

BACKGROUND

The invention is directed to data communication cables having flame-resistant and smoke-suppressive properties such that the cables may be placed in buildings without the requirement of being within metal conduits. Claim 30 is reproduced below.¹

30. A plenum rated data communication cable for transmitting high-frequency signals, comprising:

at least one pair of conductors;

an insulation layer surrounding and enclosing each conductor, said insulation layer comprising a fluoropolymer having a signal dissipation factor less than about 3×10^{-4} and a dielectric constant less than about 2.1 at high frequencies;

a first jacket layer surrounding and enclosing the insulated conductors, said first jacket layer comprising a material having flame-resistant and smoke-suppressive properties;

a metallic shield surrounding said first jacket layer; and

a second jacket layer surrounding and sealing said metallic shield against said first jacket layer, said second jacket layer comprising a material having flame-resistant and smoke-suppressive properties.

The examiner relies on the following references:

Mitacek	3,697,670	Oct. 10, 1972
Schwarcz et al. (Schwarcz)	3,945,974	Mar. 23, 1976
Stine et al. (Stine)	4,041,237	Aug. 9, 1977

¹ We note that appellant filed an amendment after final rejection on December 29, 1997 which proposed amending the specification and claims 31 and 51. Although the examiner indicated (Advisory Action mailed January 12, 1998) that the amendment will be entered upon the filing of a Notice of Appeal and an Appeal Brief, the amendment has not been formally entered. Consistent with the examiner's indication and with appellant's claim appendix attached to the appeal brief, we consider the specification and claims as amended.

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Odhner et al. (Odhner)	4,401,845	Aug. 30, 1983
Dougherty et al. (Dougherty)	4,412,094	Oct. 25, 1983

Claims 30, 3-6, 15, 17, 18, 36-40, 49, and 50 stand rejected under 35 U.S.C. § 103 as being unpatentable over Odhner, Schwarcz, and Dougherty.

Claims 7-10 and 41-44 stand rejected under 35 U.S.C. § 103 as being unpatentable over Odhner, Schwarcz, Dougherty, and Mitacek.

Claims 11-13 and 45-47 stand rejected under 35 U.S.C. § 103 as being unpatentable over Odhner, Schwarcz, Dougherty, Mitacek, and Stine.

Claims 14 and 48 stand rejected under 35 U.S.C. § 103 as being unpatentable over Odhner, Schwarcz, Dougherty, and Stine.

Claims 31, 32, 34, 35, 51, 52, and 54 stand rejected under 35 U.S.C. § 103 as being unpatentable over Odhner and Schwarcz.

Claims 33 and 53 stand rejected under 35 U.S.C. § 103 as being unpatentable over Odhner, Schwarcz, and Dougherty.

We refer to the Final Rejection (mailed Nov. 22, 1997) and the Examiner's Answer (mailed Apr. 14, 1998) for a statement of the examiner's position and to the Brief (filed Feb. 26, 1998) and the Reply Brief (filed Jun. 15, 1998) for appellant's position with respect to the claims which stand rejected.

OPINION

Section 103 rejections

In this opinion we will consider the requirements of the independent claims seriatim, and the art applied against each. Independent claim 30 is drawn to a plenum rated data communication cable "for transmitting high-frequency signals." The claim requires, inter alia, that the insulation layers around the conductors comprise "a fluoropolymer having a signal dissipation factor less than about 3×10^{-4} and a dielectric constant less than about 2.1 at high frequencies." The claim also requires that the first jacket layer comprises a material having flame-resistant and smoke-suppressive properties.

The section 103 rejection set forth on pages 4 and 5 of the Answer proposes modification of the communication cable disclosed by Odhner. The examiner turns to Schwarcz for suggestion of the above-noted requirement with respect to the first jacket layer.

Appellant's position, as set out in the Brief and Reply Brief, is that Odhner teaches away from using any material other than a fluorinated polymer impregnated glass tape for the first jacket layer. Odhner is also deemed to teach away from using any material other than polyvinylidene fluoride (PVDF) for the insulation layer. Appellant also submits that the "PVDF insulating material of Odhner has a signal dissipation factor of 0.3 and a dielectric constant of 4.9" (Brief at 8), contrary to the requirements of instant claim 30.

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The examiner responds (Answer at 11) that Odhner does not teach restricting the materials for the insulating material and first jacket layer to those disclosed. The examiner finds that Odhner teaches that other materials may be used, as disclosed in "the examples" and at column 2, lines 24 through 30. As for the signal dissipation factor and dielectric constant, the examiner observes that Odhner does not disclose either of the two quantities in the description of the PVDF material. Further, based on remarks made by appellant during prosecution, the examiner concludes that since PVDF is a fluoropolymer, then PVDF has the physical properties of the fluoropolymer that is claimed.

We find ourselves in agreement with appellant with respect to the teachings of Odhner. The Odhner reference theorizes a synergistic relationship with respect to PVDF polymers and silica glass tape in the context of minimizing flame spread. Although recognizing that polymers such as PTFE and FEP were used as jacket and insulating layers, the reference discloses the inventive combination to be superior. See Odhner at col. 2, ll. 2-23. Odhner also discloses (column 4, Table I) comparative studies wherein the embodiment of the disclosed invention (Example I) is shown to be superior in minimizing flame spread and smoke density when compared to cables comprised of other materials, including FEP as an insulation layer (Example III) and, as experimental controls, cables having PVC. See id. at col. 4, ll. 52-68.

Considering the disclosure of Odhner as a whole, in our opinion the combined teachings of Odhner, Schwarcz, and Dougherty as applied against instant claim 30 would

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not have suggested replacing the first jacket layer in Odhner's cable with PVC material, as contemplated by the rejection.²

In addition, appellant has referred to evidence in the record that the PVDF material disclosed by Odhner has a dielectric constant of 4.9 and a dissipation factor of 0.30 "at high frequencies." A product data sheet submitted by appellant in an Information Disclosure Statement filed July 24, 1997 in the instant case refers to "Solef PVDF" fluorocopolymer, disclosing material specifications consistent with appellant's averment. Since the examiner has supplied no evidence to the contrary, nor convincingly explained how the claim 30 specified quantities with respect to the insulation layers might be disclosed or suggested by the references, we cannot sustain the rejection of claim 30 for this additional reason.

Unlike claim 30, instant claim 31 does not require a "metallic shield surrounding said first jacket layer." In the rejection of claim 31 set forth on pages 8 and 9 of the Answer, the examiner offers the combination of Odhner in view of Schwarcz in substantially the same way as applied against claim 30. For the same reasons that we have found that

² The rejection relies on replacing the "first jacket layer" in Odhner's cable. However, in view of Odhner's description, the "first jacket layer" could fairly be deemed to comprise a material "having flame-resistant and smoke-suppressive properties," at least within the disclosed environment. Flame-resistance and smoke-suppression are the reasons for Odhner's contribution to the art, and Odhner teaches careful selection of the disclosed material for the "first jacket layer" in reaching those goals. However, even though our reading of the claims may be somewhat less restrictive than the examiner's, we consider the claims to be patentable over the references for reasons unrelated to the material comprising the "first jacket layer."

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the references fail to establish prima facie unpatentability of claim 30, we cannot sustain the rejection of claim 31.

Instant claim 36 is drawn to a plenum rated data communication cable "for transmitting low frequency signals." The examiner addresses claim 36 on page 6 of the Answer. The rejection relies on the combination of Odhner, Schwarcz, and Dougherty for suggestion of the first jacket layer "comprising a material having flame-resistant and smoke-suppressive properties." Since we do not agree that the teachings would have suggested replacing the first jacket layer disclosed by Odhner with the material disclosed by Schwarcz, for the reasons noted previously herein, we cannot sustain the rejection of claim 36.

The examiner further refers (Answer at 6) to column 4, lines 65 through 66 of Odhner as disclosing ECTFE for suggestion for the insulation layer "comprising an ethylene-chlorotrifluoroethylene polymer," as required by claim 36. However, we agree with appellant (Reply Brief at 3-4) that Odhner teaches that ECTFE has inferior properties with respect to flame spread. See Odhner at col. 4, Table I and II. 60-68. We therefore conclude that the applied prior art fails to show obviousness of the combination of claim 36 for this additional reason.

The rejection applied against instant claim 51 (Answer at 8-9) relies on the combination of Odhner and Schwarcz for the claimed details of the "first jacket layer," and the "insulation layer comprising an ethylene-chlorotrifluoroethylene polymer." However, for

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the same reasons that we have concluded that the references fail to establish prima facie obviousness of claim 36, we also conclude that the references fail to establish obviousness of claim 51.

We therefore cannot sustain the rejection of independent claim 30, 31, 36, or 51. The references applied against dependent claims in addition to Odhner, Schwarcz, and Dougherty -- namely, Mitacek and Stine -- fail to remedy the deficiencies we find in the rejections applied against the independent claims. Accordingly, we cannot sustain any of the section 103 rejections applied against claims 3-15, 17, 18, and 30-54.

New Ground of Rejection -- 37 CFR 1.196(b)

We enter the following new ground of rejection against the claims in accordance with 37 CFR § 1.196(b): claims 3-15, 17, 18, and 30-35 are rejected under 35 U.S.C. § 112, first paragraph, as the disclosure fails to provide a written description for the invention now claimed.

To comply with the written description requirement of 35 U.S.C. § 112, first paragraph, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the "written description" inquiry, whatever is now claimed. Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991).

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Each of independent claims 30 and 31 requires an insulation layer "comprising a fluoropolymer having a signal dissipation factor less than about 3×10^{-4} and a dielectric constant less than about 2.1 at high frequencies" (emphasis added). In appellant's amendment to the specification and claims filed July 24, 1997, appellant inserted support in the specification (page 15) for the quantities now claimed. Although admittedly not appearing in the original disclosure, in the Remarks accompanying the above-noted amendment appellant alleged (page 12 of the Remarks) that the properties were inherent in the fluoropolymer of the insulation layer "discussed at page 3, line 14 in the specification and at page 15, line 24."

As support for the alleged inherency appellant submitted, in the Information Disclosure Statement filed on the same date, a product data sheet which compares HYFLON MFA perfluoropolymers with FEP. Page 3 of the data sheet lists PFA, MFA, and FEP. The entries for PFA, MFA, and FEP are apparently the material offered as evidence of the inherency.³

According to the evidence of record, and consistent with our understanding of the terms, both "signal dissipation factor" and "dielectric constant" are measured quantities which change with the frequency of applied signals. The "at high frequencies" language in

³ We note that appellant's specification, at page 3, lines 11 through 15 suggests that MFA, PFA, and FEP have similar physical properties. The specification at page 15 lists FEP as an insulation material for plenum high speed data grade cables. The numerical quantities in claims 30 and 31 -- 2.1 and 3×10^{-4} - are apparently related to the data sheet entry for FEP.

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the claims in question thus refers to not only the "dielectric constant less than about 2.1," but also the "signal dissipation factor less than about 3×10^{-4} ."

The "HYFLON MFA" data sheet documents, for FEP, a dielectric constant of 2.1 measured at 100 Hz, and a dissipation factor of less than 3×10^{-4} measured at 100 kHz. However, in our understanding of the relevant art, neither of the frequencies can be considered a "high frequency" in the context of data communication cables. Appellant's specification does not define what is to be deemed a "high frequency." We note that a technical dictionary defines, in the context of telecommunications, "high frequency" in view of an FCC designation. "[H]igh frequency [definition] Telecommunications. an FCC designation for the range of frequencies from 3 to 30 megahertz." Academic Press Dictionary of Science and Technology, Harcourt, available at <http://www.harcourt.com/dictionary/def/4/8/2/9/4829500.html> (Nov. 13, 2001).

This technical definition, ranging from 3 to 30 MHz, is consistent with appellant's averment (e.g., Reply Brief at 5) that the previously-noted Solef PVDF data sheet (at page 1) shows that PVDF has a dissipation factor of 0.30 and a dielectric constant of 4.9 "at high frequencies." Values are given for measurements at 1, 5, and 10 MHz. Appellant refers to the values for the 10 MHz measurements as evidence of properties of PVDF "at high frequencies."

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Appellant's submitted evidence thus fails to support the averment that the claimed properties are inherent in the materials that were described in the original disclosure.⁴ Based on the evidence before us, we conclude that appellant was not in possession of the invention that is now claimed.

CONCLUSION

The rejections of claims 3-15, 17, 18, and 30-54 under 35 U.S.C. § 103 are reversed.

Claims 3-15, 17, 18, and 30-35 are newly rejected by us under 35 U.S.C. § 112, first paragraph.

This decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b)(amended effective Dec. 1, 1997, by final rule notice, 62 Fed. Reg. 53,131, 53,197 (Oct. 10, 1997), 1203 Off. Gaz. Pat. & Trademark Office 63, 122 (Oct. 21, 1997)). 37 CFR § 1.196(b) provides that, "A new ground of rejection shall not be considered final for purposes of judicial review."

⁴ The claims we are rejecting also raise the issue of lack of enablement of the invention, within the meaning of the separate requirement of 35 U.S.C. § 112, first paragraph. That is, on this record it is not clear that the artisan would have known how to make and use a "fluoropolymer" having the claimed properties "at high frequencies." However, our present analysis is limited to consideration of the written description, and we enter the new ground of rejection accordingly. Any evidence submitted by appellant that establishes the artisan would have recognized the inherency of the claimed properties would also serve to show enablement of the claimed invention.

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37 CFR § 1.196(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings

(§ 1.197(c)) as to the rejected claim:

(1) Submit an appropriate amendment of the claim so rejected or a showing of facts relating to the claim so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner

. . . .

(2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record. . . .

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

REVERSED -- 37 CFR § 1.196(b)

KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
JOSEPH F. RUGGIERO)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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)	
)	
HOWARD B. BLANKENSHIP)	
Administrative Patent Judge)	

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ALIX, YALE & RISTAS LLP
750 MAIN STREET
HARTFORD , CT 06103