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Paper 92
Entered: May 9, 2014

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CORNING INCORPORATED
Petitioner

v.

DSM IP ASSETS B.V.
Patent Owner

Case IPR2013-00045
Patent 6,339,666 B2

Before FRED E. McKELVEY, GRACE KARAFFA OBERMANN, JENNIFER S. BISK, SCOTT E. KAMHOLZ, and ZHENYU YANG, *Administrative Patent Judges*.

OBERMANN, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

A. Background

Petitioner, Corning Incorporated ("Corning"), filed a petition on November 15, 2012, for *inter partes* review of claims 1-20 ("the challenged claims") of U.S. Patent No. 6,339,666 B2 (Ex. 1001 ("the '666 Patent")) pursuant to 35 U.S.C. §§ 311-319. Paper 2 ("Pet."). Patent Owner, DSM IP Assets B.V. ("DSM"), filed a preliminary response on February 21, 2013. Paper 10 ("Prelim. Resp."). On May 13, 2013, the Board instituted trial on six grounds of unpatentability. Paper 11 ("Dec."). Those grounds are set forth in the following table:

Claims challenged	**Basis**	**Reference(s)**[1]
10-20	§ 102	Szum
10-20	§ 103	Szum
1-9	§ 103	Szum and Shustack
1, 2, 8, 10, 11, 16, 17, and 19	§ 102	Shustack
1, 2, 8, 10, 11, 16, 17, and 19	§ 103	Shustack
3, 12, 18, and 20	§ 103	Shustack and Jackson

After institution of trial, DSM filed a patent owner response. Paper 43 ("PO Resp."). DSM also filed a motion to amend claims by submitting proposed new claims 21 and 22 to be substituted for original claims 1 and 10, respectively. Paper 44 ("Mot. to Amend"). Corning filed a reply to the patent owner response (Paper 61 ("Reply")) and also an opposition to DSM's motion to amend (Paper 60). DSM then filed a reply in support of its motion to amend. Paper 72.

[1] The references are: WO 95/15928 (Ex. 1002) ("Szum"); U.S. Patent No. 5,352,712 (Ex. 1003) ("Shustack"); and U.S. Patent No. 4,900,126 (Ex. 1005) ("Jackson").

Both parties filed and fully briefed motions to exclude evidence. Paper 78 ("Pet. Mot. to Exclude"); Paper 75 ("PO Mot. to Exclude"). Oral hearing was held February 11, 2013. Paper 89 ("Transcript").

The Board has jurisdiction under 35 U.S.C. § 6(c). This final written decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

Corning fails to show by a preponderance of evidence that any of the challenged claims 1-20 are unpatentable. DSM's motion to amend is denied, without prejudice. DSM's motion to exclude evidence is denied. Corning's motion to exclude evidence is dismissed as moot.

B. Related Proceedings

Corning and DSM are involved simultaneously in nine other *inter partes* reviews based on patents claiming similar subject matter: IPR2013-00043; IPR2013-00044; IPR2013-00046; IPR2013-00047; IPR2013-00048; IPR2013-00049; IPR2013-00050; IPR2013-00052; IPR2013-00053.

C. The '666 Patent (Ex. 1001)

The '666 patent generally relates to radiation-curable coating compositions for optical glass fibers commonly used in data transmission. Ex. 1001, 1:22-23. In particular, the patent describes optical glass fibers coated with two radiation-cured coatings. *Id.* at 1:30-31. An inner primary coating contacts the glass surface of the fiber. *Id.* at 1:32-34. An outer primary coating overlays the inner coating. *Id.* For identification purposes, the outer primary coating includes colorant or, alternatively, a third colored layer, called an ink coating, which is applied to the outer primary coating. *Id.* at 1:57-62.

Figure 1, depicting such an optical glass fiber, is reproduced below:

FIG. 1

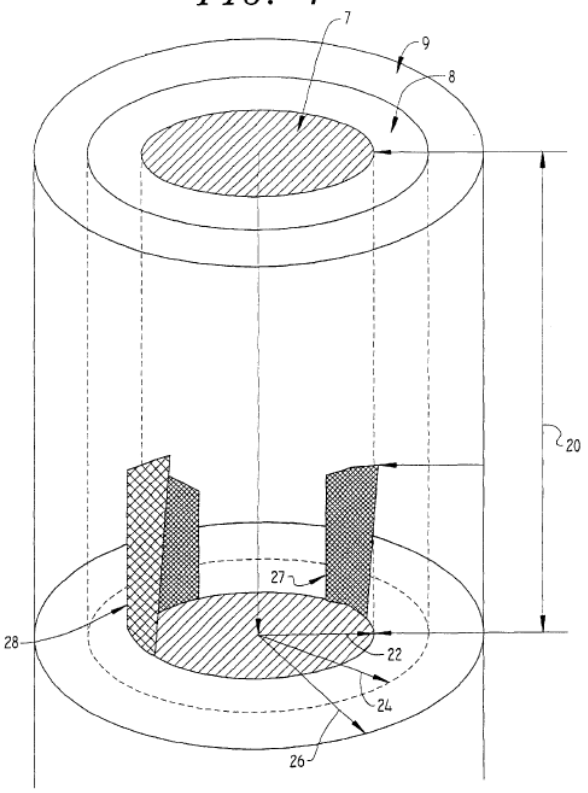

Figure 1 is a longitudinal cross-sectional view of coated optical glass fiber 7 coated with inner primary coating 8 and commercially available outer primary coating 9. *Id.* at 8:11-12; 10:10-12.

To create a cable or ribbon assembly, used in the construction of multi-channel transmission cables, a plurality of coated optical fibers are bonded together in a matrix material. *Id.* at 1:44-50. In order to connect the fibers of multiple ribbons, the surface of a glass fiber must be accessible. *Id.* at 1:57–2:10. That is often accomplished by a process known as "ribbon stripping"— removing the coatings and the matrix material, preferably as a cohesive unit. *Id.* The invention of the '666 patent is directed to a ribbon assembly having improved ribbon stripping capabilities. *Id.* at 1:25-27.

As described in the Background of the Invention, the prior art discloses ribbon assemblies composed of multiple optical glass fibers with

both an inner and outer coating and an optional outer ink layer. *Id.* at 1:44-52. The two compositions used as the inner and outer coatings often are modified to provide desired properties—providing bare optical glass fibers, which, when stripped, are substantially free of residue. *Id.* at 2:37-4:33. For example, the inner primary coating may be modified to reduce adhesion between the coating and the optical glass fiber. *Id.* at 2:42-44. A reduction in adhesion facilitates easy removal of the coating during stripping, but also increases the possibility of undesirable delamination in the presence of moisture. *Id.* at 2:44-53. "Delamination of the inner primary coating from the optical glass fiber can lead to degraded strength of the optical glass fiber as well as signal transmission attenuation disadvantages." *Id.* at 2:54-57.

We focus our analysis on a dispositive issue concerning a property, required by each challenged claim, of providing "sufficient adhesion to [a] glass fiber to prevent delamination in the presence of moisture and during handling." *Id.* at claims 1, 10.

D. Illustrative Claims

Claims 1 and 10 are the only independent claims and are reproduced below (emphases added):

> 1. A composition for coating an optical fiber, said composition comprising propoxylated nonyl phenol acrylate and an oligomer having at least one functional group capable of polymerizing under the influence of radiation, said composition after radiation cure having the combination of properties of:
>
> (a) a fiber pull-out friction of less than 40 g/mm at 90° C.;
>
> (b) a crack propagation of greater than 1.0 mm at 90° C.;
>
> (c) a glass transition temperature of below 10° C.; and
>
> (d) *sufficient adhesion to said glass fiber to prevent delamination in the presence of moisture and during handling*.

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