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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ANNE GERMAINE BRINGUIER and
BRANDON ROBERT WILLIAMSON

Appeal 2019-004707
Application 15/259,746
Technology Center 2800

Before JULIA HEANEY, MONTÉ T. SQUIRE, and
DEBRA L. DENNETT, *Administrative Patent Judges*.

HEANEY, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE¹

Pursuant to 35 U.S.C. § 134(a), Appellant² appeals from the Examiner's decision to reject claims 1–20. *See* Final Act. 1. We have jurisdiction under 35 U.S.C. § 6(b).

¹ This Decision refers to the Specification filed Sept. 8, 2016 (“Spec.”), Final Office Action dated Feb. 9, 2018 (“Final Act.”), Appeal Brief dated June 28, 2018 (“Appeal Br.”), and Examiner’s Answer dated Apr. 1, 2019 (“Ans.”).

² We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Corning Optical Communications LLC, the assignee of record. Appeal Br. 1.

We REVERSE.

CLAIMED SUBJECT MATTER

The claims are directed to a fiber optic cable having a dual layer jacket surrounding and protecting core components of the cable. Spec. ¶ 5.

Claim 1, reproduced below, is the sole independent claim:

1 A fiber optic cable, comprising:

a core comprising:

at least one optical fiber; and

one or more of the following:

a strength element, a tubular element, a binding element, a water-blocking element, a flame-retardant element, armor, and another optical fiber;

a jacket surrounding the core, the jacket comprising:

a base layer formed from a first composition, wherein the first composition comprises polyethylene; and

a surface layer defining an exterior surface of the fiber optic cable, wherein the surface layer has a thickness of at least about 300 micrometers, wherein the surface layer is formed from a second composition that differs from the first composition, wherein the second composition comprises polyethylene, wherein the second composition comprises one or more additives comprising paracrystalline carbon, and wherein the paracrystalline carbon is concentrated in the surface layer such that the second composition has a percentage by volume of the paracrystalline carbon that is at least ten times greater than the percentage by volume thereof in the first composition; and

an interface between the surface and base layers, the interface cohesively bonding the surface and base layers to one another at least in part due to molecular chain entanglement of the polyethylene of the first and second compositions.

Appeal Br. 20 (Claims Appendix) (emphases added).

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Risch	US 6,210,802 B1	Apr. 3, 2001
Davis	US 2003/0228116 A1	Dec. 11, 2003
Chung	US 2009/0068453 A1	Mar. 12, 2009
Bambara	WO 02/074843 A2	Sept. 26, 2002

V. M. Litvinov et al., *Rubber-Filler Interactions and Network Structure in Relation to Stress-Strain Behavior of Vulcanized, Carbon Black Filled EPDM*, *Macromolecules*, 44 (12) 4887–4900 (2011) (“Litvinov”).

P. Bindu and S. Thomas, *Viscoelastic Behavior and Reinforcement Mechanism in Rubber Nanocomposites in the Vicinity of Spherical Nanoparticles*, *The Journal of Physical Chemistry B*, 117 (41), 12632–12648 (2013) (“Bindu”).

REJECTIONS

1. Claims 1–6, 10–12, and 17–20 are rejected under 35 U.S.C. § 103 as being unpatentable over the combination of Risch, Litvinov, Bambara, and Chung. Final Act. 6.

2. Claims 7–9 and 13–16 are rejected under 35 U.S.C. § 103 as being unpatentable over the combination of Risch, Bambara, Chung, Davis, and Bindu. *Id.* at 13.

OPINION

Rejection 1

The Examiner finds that Risch discloses cable 10 having buffer tubes 12 holding fibers 14 about central strength member 16 and confined by extruded jacket 20 where the jacket includes nucleating agent carbon black, which is a type of paracrystalline carbon. Final Act. 7 (citing Risch Fig. 1, 2:58–3:48). The Examiner further finds that Risch discloses using additives such as carbon black “to predictably tailor, for example, ‘Young’s modulus,

yield, tensile strength, compression resistance and dimensional stability.’’
Id. (citing Risch 3:20–49). The Examiner also finds that Litvinov discloses that a person of ordinary skill in the art would understand the use of carbon black additives affects mechanical properties of a material. *Id.* at 8.

The Examiner acknowledges that Risch does not disclose that the jacket includes a base layer of a first composition and a surface layer of a second composition different from the first composition, but finds that Bambara teaches that a laminate structure with a HDPE foamed sheet including a core and skin surface layer on the core where the core and skin surface layers have different compositions. *Id.* at 9 (citing Bambara Fig. 1, Abs.). The Examiner determines that it would have been obvious to one of ordinary skill in the art to include a base layer with a first composition and a surface layer with a different second composition in Risch’s jacket, in order to optimize the jacket’s performance characteristics. *Id.*

The Examiner further finds that Risch, as modified by Bambara, does not explicitly disclose that the interface of the jacket cohesively bonds the surface and base layers to one another at least in part due to molecular chain entanglement. *Id.* The Examiner finds that Chung discloses this feature. *Id.* at 10 (citing Chung Abstract, claim 14). The Examiner determines that it would have been obvious to provide molecular chain entanglement in the surface and base layers of the jacket in order to facilitate forming impact-resistant structures. *Id.* at 10–11 (citing Chung ¶ 96).

Appellant argues that the portion of Risch that the Examiner relies upon as teaching a nucleating agent to optimize a cable jacket relates to Risch’s filler rods and “has nothing to do with cable jacket design.” Appeal Br. 9 (citing Risch 3:20–21). The Examiner appears to admit this deficiency but finds that Risch’s teachings “regarding the use of additives and the

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physical characteristics” is applicable to both cable jackets and filler rods because Risch teaches polyethylene-containing polymers for both the cable jackets and filler rods. Ans. 11.

Appellant’s argument persuasively identifies reversible error. The findings underlying the determination of obviousness are based on unfounded assumptions because the Examiner has not identified any disclosure in Risch or any other reference which shows or suggests the use of carbon black in a cable jacket. Rather, the evidence relied upon by the Examiner relates to Risch’s filler rods. Further, the Examiner’s response that Risch’s teaching regarding the use of additives would be applicable to both polyethylene jackets and filler rods is also unsupported; the Examiner cites no evidence to support this finding, and does not identify anything in the prior art that suggests the desirability of additives in a cable jacket. Accordingly, we reverse rejection of claim 1. We reverse the rejection of dependent claims 2–6, 10–12, and 17–20 for the same reasons. Because we find reversible error, we need not reach Appellant’s additional arguments for reversal.

Rejection 2

The rejection of claims 7–9 and 13–16 is based on the same deficient findings as discussed above for Rejection 1, and the Examiner does not rely upon the additional references for any disclosure that remedies the deficiencies in Rejection 1. Accordingly, for the reasons discussed above, we also reverse the rejections of claims 7–9 and 13–16.

CONCLUSION

The Examiner's rejection is REVERSED.

DECISION SUMMARY

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1-6, 10-12, 17-20	103	Risch, Litvinov Bambara, Chung		1-6, 10-12, 17-20
7-9, 13-16	103	Risch, Bambara, Chung, Davis, Bindu		7-9, 13-16
Overall Outcome:				1-20

REVERSED