

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of: Wehrli *et al.*

Application number: 14/520,125

Filed: October 21, 2014

For: *Improved High Performance Data Communications Cable*

Attorney Docket No.: 096001-1132 (BEL-001US)

Art Unit: 2847

Examiner: Mayo III, William H.

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MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT AND RESPONSE TO NON-FINAL OFFICE ACTION

Dear Examiner Mayo:

INTRODUCTORY COMMENTS

This Amendment and Response is filed responsive to the non-final Office Action dated October 7, 2016 and the Examiner Interview conducted February 13, 2017. Applicants submit this Response is timely filed on March 7, 2017, with a petition for two months' extension of time. In view of the comments set forth below, Applicants respectfully urge reconsideration, withdrawal of the outstanding rejections and allowance of the Claims.

Amendments to the Claims are reflected in the **Listing of Claims**, which begins on page 2 of this paper.

Remarks/Arguments begin on page 6 of this paper.

AMENDMENTS TO THE CLAIMS

Upon entry, the following Listing of Claims will replace all prior and previously filed Listings of Claims in this application.

Please amend Claims 1, 7, 15, and 20-21; and cancel Claim 6 as follows:

Listing of Claims

1. (Currently Amended) A fixed tape control high performance data cable, comprising:
 - a plurality of twisted pairs of insulated conductors;
 - a filler comprising a plurality of arms separating each twisted pair of insulated conductors, each arm having a terminal portion;
 - a multi-layer conductive barrier tape surrounding the filler and plurality of twisted pairs of insulated conductors, the multi-layer conductive barrier tape comprising a continuous conductive material contained between two layers of a dielectric material, the conductive material of the barrier tape extending to each lateral edge of the two layers of the dielectric material; and
 - a jacket surrounding the conductive barrier tape;wherein the filler is configured in a helical twist at a first angle; and
wherein the conductive barrier tape is configured in a helical twist at the first angle, and a seam of the conductive barrier tape is positioned above a terminal portion of an arm of the filler.
2. (Original) The fixed tape control high performance data cable of claim 1, wherein a second seam of the conductive barrier tape is positioned above a terminal portion of a second arm of the filler, the second seam overlapping a portion of the conductive barrier tape.
3. (Original) The fixed tape control high performance data cable of claim 1, wherein the seam of the conductive barrier tape is approximately centered above the terminal portion of the arm of the filler.

4. (Original) The fixed tape control high performance data cable of claim 1, wherein the filler has four arms and a cross-shaped cross section.

5. (Original) The fixed tape control high performance data cable of claim 1, wherein each twisted pair of insulated conductors is positioned in the center of a channel formed by two adjacent arms and corresponding terminal portions of the filler.

6. (Canceled).

7. (Currently Amended) An oscillating tape control high performance data cable, comprising:
a plurality of twisted pairs of insulated conductors, each configured in a helical twist at a corresponding plurality of angles;

a filler comprising a plurality of arms separating each twisted pair of insulated conductors, the filler having a helical twist at a first angle distinct from the plurality of angles;

a conductive barrier tape surrounding the plurality of twisted pairs of insulated conductors comprising a conductive material contained between two layers of a dielectric material, the conductive material of the barrier tape extending to each lateral edge of the two layers of the dielectric material; and

a jacket surrounding the conductive barrier tape; and

wherein the conductive barrier tape is configured in a helical twist at an application angle varying between a second angle and a third angle, distinct from the first angle and distinct from the plurality of angles.

8. (Original) The oscillating tape control high performance data cable of claim 7, wherein the second angle comprises the first angle minus a predetermined value and wherein the third angle comprises the first angle plus the predetermined value.

9. (Previously Presented) The oscillating tape control high performance data cable of claim 7, wherein the application angle varies from the second angle and the third angle along a length of the cable longer than a length of one helical twist of the filler.

10. (Original) The oscillating tape control high performance data cable of claim 7, further comprising a filler comprising a plurality of arms separating each twisted pair of insulated conductors, each arm having a terminal portion; and

wherein a position of a first seam of the conductive barrier tape varies from a first position above a first channel formed by two adjacent arms and corresponding terminal portions of the filler, to a second position over a terminal portion of a first arm of said adjacent arms.

11. (Original) The oscillating tape control high performance data cable of claim 10, wherein the position of the first seam further varies to a third position over a second channel formed by the first arm of said adjacent arms and a third arm and corresponding terminal portions of the filler.

12. (Original) The oscillating tape control high performance data cable of claim 10, wherein the filler has four arms and a cross-shaped cross section.

13. (Previously Presented) The oscillating tape control high performance data cable of claim 10, wherein each twisted pair of insulated conductors is positioned in the center of a channel formed by a first arm and a first portion of a terminal portion of the first arm, and an adjacent second arm and a second portion of a terminal portion of the second arm identical to the first portion.

14. (Previously Presented) The oscillating tape control high performance data cable of claim 7, wherein the barrier tape comprises a continuous conductive material contained between two layers of a dielectric material.

15. (Currently Amended) A method of manufacture of a high performance data cable, comprising:

helically twisting each of a plurality of twisted pairs of insulated conductors at a corresponding plurality of angles;

positioning a filler comprising a plurality of arms, each arm having a radially-symmetric terminal portion, the filler having a helical twist at a first angle distinct from the plurality of angles;

positioning each pair of the plurality of twisted pairs of insulated conductors within a channel formed by adjacent arms of the filler and corresponding terminal portions;

wrapping the helically twisted plurality of twisted pairs and filler with a conductive barrier tape at an application angle varying between a second angle and a third angle distinct from the plurality of angles, the conductive barrier tape comprising a conductive material contained between two layers of a dielectric material, the conductive material of the barrier tape extending to each lateral edge of the two layers of the dielectric material; and

jacketing the barrier tape and helically twisted filler and plurality of twisted pairs.

16. (Canceled).

17. (Canceled).

18. (Canceled).

19. (Previously Presented) The method of claim 15, wherein the second angle comprises the first angle minus a predetermined value and wherein the third angle comprises the first angle plus the predetermined value.

20. (Currently Amended) The method of claim 15, wherein varying the application angle between the second angle and the third angle comprises positioning a feed of the conductive barrier tape tangent to a roller or bar; and moving the roller bidirectionally along a track in a direction at an angle to the length of the cable.

21. (Currently Amended) The method of claim 15, wherein the conductive material of the barrier tape ~~comprises a~~ is a continuous layer ~~conductive material contained between two layers of a dielectric material.~~

REMARKS

Claims 1-15 and 19-21 were presented for examination, and all Claims were rejected. In the present amendment, Claims 1, 7, 15, and 20-21 have been amended; and Claim 6 canceled. No new matter has been added. Support for the present amendment may be found throughout the original specification and the Figures as originally filed and at least in Claim 6 as originally filed. Upon entry of the present amendment, Claims 1-5, 7-15, and 19-21 will be currently pending, of which Claims 1, 7, and 15 are independent. Applicants submit that Claims 1-5, 7-15, and 19-21 are patentable and in condition for allowance.

The following comments address all stated grounds of rejection. Applicants traverse all pending rejections and urge the Examiner to pass the Claims to allowance in view of the remarks set forth below.

EXAMINER INTERVIEW

Applicants thank the Examiner for taking the time to conduct a telephonic Interview with Applicants' attorney on February 13, 2017 and for providing the Interview Summary. During the Interview, the Examiner and Applicants' attorney discussed amendments to Claim 1, presented herein. The Examiner agreed that the amendment included features not present in the cited art, and agreed to withdraw the present rejection.

CLAIM REJECTIONS UNDER 35 U.S.C. §103

Claims 1-6 and 15-17 were rejected under 35 U.S.C. §103 as unpatentable over U.S. Publication No. 2012/0222883 to Nordin *et al.* ("Nordin") in view of U.S. Patent No. 6,812,408 to Clark *et al.* ("Clark"). Claims 7-15 and 19 and 21 were rejected under 35 U.S.C. §103 as unpatentable over Nordin and Clark in further view of U.S. Publication No. 2012/0227998 to Lindstrom *et al.* ("Lindstrom"). Claim 20 was rejected under 35 U.S.C. §103 as unpatentable over Nordin, Clark, and Lindstrom, in further view of G.B. Patent No. 988,789 to Smith Corp. ("Smith"). Applicants respectfully traverse these rejections.

Claims 1, 7, and 15 are independent Claims. As amended herein, these Claims recite the feature of a conductive barrier tape comprising a conductive material contained between two layers of a dielectric material, the conductive material of the barrier tape extending to each lateral edge of the two layers of the dielectric material. As discussed during the Examiner Interview

and as the Examiner agreed, the cited art presently of record fails to teach or suggest such a feature. Accordingly, Applicants submit that the Claims are patentable at least as amended, and are in condition for allowance. Claims 2-5 and 21 depend on and incorporate all of the patentable subject matter of Claim 1. Claims 8-14 depend on and incorporate all of the patentable subject matter of Claim 7. Claims 19 and 20 depend on and incorporate all of the patentable subject matter of Claim 15. Therefore, Claims 2-5, 8-14, and 19-21 are also patentable and in condition for allowance. Accordingly, Applicants respectfully request the Examiner to withdraw the rejections of Claims 1-5, 7-15, and 19-21 under 35 U.S.C. §103.

CONCLUSION

In light of the aforementioned amendments and arguments, Applicants contend that each of the Examiner's rejections have been adequately addressed and all of the pending Claims are in condition for allowance. Accordingly, Applicants respectfully request reconsideration, withdrawal of all grounds of rejection, and allowance of all of the pending Claims.

Should the Examiner feel that a telephone conference with Applicants' attorney would expedite prosecution of this application, the Examiner is urged to contact the Applicants' attorney at the telephone number identified below.

Respectfully submitted,

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