

No. 653,832.

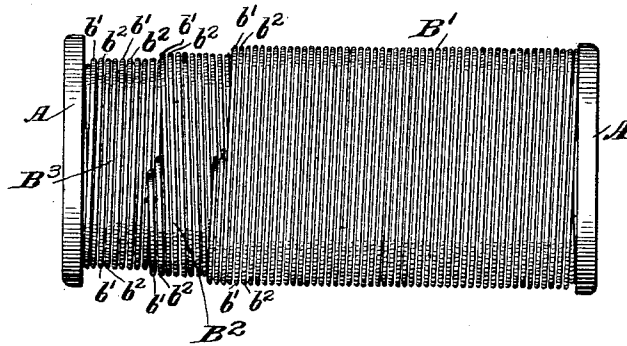
E. TYMESON & R. BORLAND.

Patented July 17, 1900.

SPOOLED YARN.

(Application filed Aug. 2, 1898.)

(No Model.)



Attest:
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UNITED STATES PATENT OFFICE.

EUGENE TYMESON AND REUBEN BORLAND, OF YONKERS, NEW YORK,
ASSIGNORS TO THE ALEXANDER SMITH & SONS CARPET COMPANY,
OF SAME PLACE.

SPOOLED YARN.

SPECIFICATION forming part of Letters Patent No. 653,832, dated July 17, 1900.

Original application filed May 26, 1897, Serial No. 638,216. Divided and this application filed August 2, 1898. Serial No. 687,499. (No model.)

To all whom it may concern:

Be it known that we, EUGENE TYMESON and REUBEN BORLAND, citizens of the United States, residing at Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Spooled Yarn and Similar Material, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

In weaving fabrics from dyed yarn in solid colors or in weaving a solid-color portion of any considerable size in figured fabrics the color-matching of the yarn from which the solid-color portions are formed is a matter of great importance, since a very slight variation in shade of the yarn woven into adjacent portions of the solid-color fabric will be noticeable and of course very objectionable.

It has been a matter of great difficulty and expense to secure the proper matching of the yarn in weaving solid colors, since it is practically impossible to dye yarn exactly to a desired shade or to dye two batches of yarn to exactly the same shade, so that it has been necessary to dye and select the yarn with great care to get that which is dyed to a sufficiently-good match, and a great portion of the yarn which has been dyed for the solid color desired has necessarily been rejected. This difficulty has been overcome to a great extent in the weaving of the coarser grades of carpet by weaving the carpet with strands formed by combining into a single strand two "ends" of yarn, as the strands of yarn in the hank as they come from the dyer are called, each of these ends of yarn in the hank usually being formed of two or more of the strands in which the yarn is spun. These two ends of yarn to form the combined strand or double end in the carpet are matched double in the hanks—that is, so that the two ends combined match the color and shade desired in the fabric—and are then treated as a single end in winding from the hanks and weaving the carpet. Thus one of the ends of the combined strand may be of yarn lighter and the other end of yarn darker than the shade desired, but when combined into a double end they will blend together and the difference in shade be-

tween the individual ends will not be noticeable, although such as to be very apparent if the two ends were woven in separate parts of the fabric. A solid color of the desired shade is thus secured without the very accurate matching of the shades otherwise necessary, and yarn may be used which under the method of single matching must be rejected.

The difficulties in matching yarn above pointed out and which have led to the use of the double ends in coarse fabrics are especially objectionable in producing tufted fabrics of the classes known as "moquette" and "Axminster," in which separate and independent rows of yarn-tufts are inserted and bound in by a body of warp and weft strands being looped about the weft of warp-strands; but they exist also in connection with tufted fabrics of the classes known as "pile" fabrics, more especially in cut pile fabrics, although to a less degree in uncut pile fabrics, and to some extent in fabrics of other classes woven from dyed yarns, whether tufted or not. In weaving such tufted fabrics by the double-end method heretofore employed to some extent in coarse fabrics each tuft has consisted of two ends of yarn combined to form a double end, as above described, and in winding the yarn onto the tuft-spools for such weaving it has been the practice to run two ends of yarn from different hanks together and wind them together onto the bank-spool and then to treat the two ends thus wound on the bank-spool as one end or strand in winding from the bank-spools to the loom tuft-yarn spool.

In another application, now Letters Patent No. 626,878, dated June 13, 1899, we have described and claimed an improved woven fabric and method of producing the same in which single ends of yarn are matched in sets to blend to the shade desired in the fabric and the ends of each set then woven into the fabric singly, but contiguous to each other. In this improved fabric and method as applied to tufted fabrics of the classes above referred to we use tufts formed of single ends of yarn; but the tufts are woven in pairs throughout the row of tufts or that portion of the row that is to form solid-color fabric, so that the two matched tufts of each pair of

tufts match the shade desired in the fabric, although one tuft of each pair may be a little lighter and the other tuft of each pair a little darker than the shade desired.

- 5 As is well known, the tuft-yarn used in such tufted fabrics is slack-twisted and very loose, and in carrying out this method the matched ends of each pair should be kept separate from the time they are matched until they
10 are woven into the fabric, so that the two ends of each pair will not become matted or felted together and may be handled as separate single ends in weaving, while at the same time it is necessary to associate or mark the
15 ends of each pair in some way, so that they shall not be mixed with the ends of other pairs after matching, but certainty shall be secured in the weaving of the ends of each pair into the fabric contiguous to each other.
20 The difficulty of thus retaining the matched ends of each pair separate from each other and at the same time avoiding confusion between the ends of different pairs into the desired portions of the fabric is obvious, especially with the large number of different strands used in weaving tufted fabric.

- The especial object of the present invention is to secure the convenient and efficient association of the single ends of each pair after
30 matching, as above described, while at the same time preventing the ends from becoming matted or felted together as in the compound strands heretofore used, so as to assure the matched ends of each pair being
35 kept together and avoid danger of confusion between the ends of different pairs, while the single ends may be handled separately in subsequent operations. We secure this result by winding onto a single spool the two ends
40 of yarn from different hanks matched double—that is, as above explained, so that the two ends combined match the shade desired; but instead of running the ends together as they are wound onto the spool, as previously
45 in connection with yarn matched double, the ends are kept separate as they are wound onto the spool, and thus wound spirally on the spool with the two ends kept separate, so as to prevent them from becoming matted or felted
50 together, as heretofore, the two ends, preferably, being wound spirally and simultaneously upon the spool, so that they lie side by side in the same layer of yarn throughout the winding of the spool. From a spool thus
55 wound the ends of the pair may readily be drawn off and treated as separate ends in subsequent operations.

- The spools wound from the hanks, as above described, may be used in any desired manner in connection with weaving; but, preferably, these spools are what is known in the art as “bank-spools,” from a number of which the yarn is wound onto a loom-spool, the different pairs of ends being arranged on the
60 loom-spool in the order desired for weaving the fabric. In winding the ends of yarn from the bank-spools wound as above described

the ends of yarn will be treated as separate ends as they are unwound from the bank-spools, so as to be wound separately onto the loom-spools and so that the two ends from each bank-spool containing a pair of matched ends are wound onto the loom-spool in separate but adjacent zones or rings, the zones or rings on the loom-spool thus being arranged in pairs of adjacent zones or rings, the two zones or rings of each pair being of yarn of such shades that although varying they blend into the shade desired in the fabric when woven into the latter singly but contiguous to each other. The loom-spools may thus be wound by hand or any suitable winding apparatus may be used with the ends on each bank-spool run through a suitable winding reed, so as to be wound separately onto
70 the loom-spools, as above described.

The invention claimed in this application relates to the spool wound spirally with a plurality of ends of yarn, as above described, and while the invention is especially designed for use with single ends of yarn matched double for use in connection with the fabric and method above described, and a specific part of the invention consists in a spool wound with a plurality of single ends of yarn in the manner defined by the claims, the present invention includes, broadly, a spool similarly wound with a plurality of strands of tuft-yarn or similar loose material which may be used for other purposes. The yarn or similar material may be wound to form the spool of the present invention by hand or by winding apparatus of any suitable form, the apparatus preferably being of the form employing traverse devices for the spool or yarn, so that the successive layers of yarn are wound on the spool spirally from opposite ends of the spool as usual in single winding.

For a full understanding of the invention a description of a spool of yarn embodying the invention as applied in its preferred form in connection with single ends of yarn matched double, as above described, will now be given in connection with the accompanying drawing, showing such a spool, and the features forming the invention will then be specifically pointed out in the claims.

In the drawing, which is a side view of a spool wound in the preferred manner with the two outer layers of yarn partly broken away to show the construction, A is the spool proper, which is shown as of common form, and B B² B³ the three outer layers of yarn thereon, numbering from the outside. Each of these layers of yarn contains the two ends forming a pair of ends of yarn matched double, as above described, these matched ends B' B² lying side by side in the same layer of yarn throughout the successive layers, but kept separate from each other, so that the matting or felting together of the ends to form a double strand is avoided, and they may be unwound from the spool simultaneously, but separately, and treated as single ends.

While the invention has been described and illustrated in connection with a spool having two ends of yarn wound thereon—that is, two single ends as they come from the dyer—
 5 and a specific part of the invention consists in such a spool of yarn, it will be understood that three or more ends or other strands of yarn or similar material may be wound on a spool in the same manner, and the invention,
 10 broadly considered, includes a spool wound with a plurality of ends or other strands, as defined by the claims. The term “spool” used herein is intended to include all carriers on which yarn or similar material may be
 15 wound, as defined by the claims. The strands of yarn on the spools may be more or less separated; but it is essential only that they shall be kept separate from each other sufficiently so that the fibers of the strands lying side by
 20 side shall not unite to interfere with the separation of the strands in unwinding and the subsequent handling of the strands separately. It will be understood, therefore, that the space shown in the drawing between the two strands
 25 is only illustrative.

This application forms a division of our application for United States Letters Patent, Serial No. 638,216, filed May 26, 1897, and now Letters Patent No. 626,878, dated June 13, 1899,
 30 in which is claimed the fabric and method of producing the same above described. The spool above described having the ends of yarn wound thereon in sets of adjacent zones or rings is fully described and claimed in Letters Patent No. 626,879, dated June 13, 1899,
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and apparatus for winding spools embodying the present invention is fully described and claimed in another application for United States Letters Patent filed simultaneously herewith.

What is claimed is—

1. A spool wound with a plurality of strands of tuft-yarn or similar material, the strands being wound side by side in successive layers on the spool but separated from each other
 45 such a distance as to prevent interlocking of the fibers, substantially as described.

2. A spool wound with a plurality of strands of tuft-yarn or similar material of different shades matched to blend to a single shade,
 50 the strands being wound side by side in the same layer of yarn but separated from each other such a distance as to prevent interlocking of the fibers, substantially as described.

3. A tuft-yarn spool wound with two ends
 55 of yarn of different shades matched double to blend to a desired shade, the ends being wound spirally and side by side throughout the same layer of yarn but separated from each other such a distance as to prevent in-
 60 terlocking of the fibers, substantially as described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

EUGENE TYMESON.
 REUBEN BORLAND.

Witnesses:

RICHARD EDIE, Jr.,
 ARTHUR LAUD.