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YARN PACKAGE

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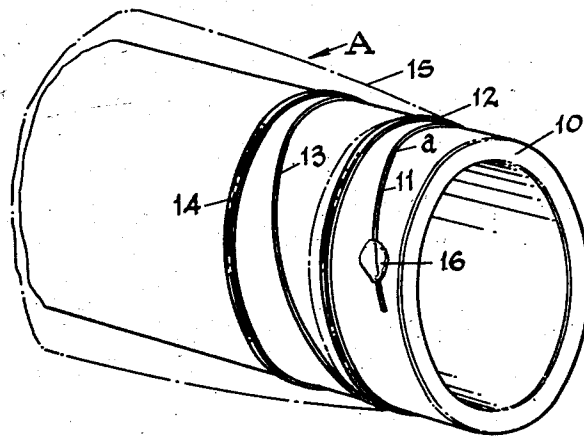


Fig. 1

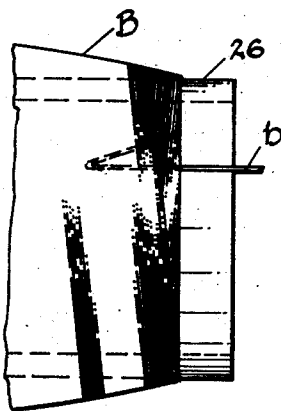


Fig. 2

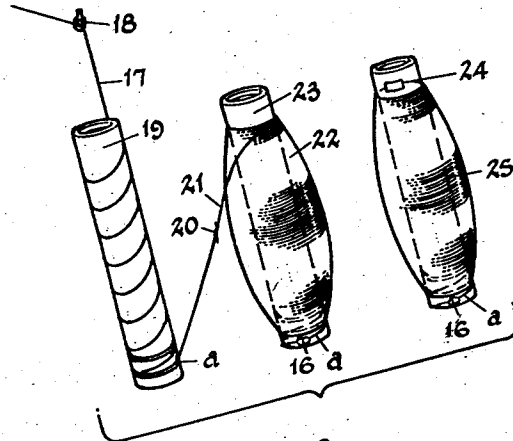


Fig. 3

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YARN PACKAGE

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The present invention relates broadly to the art of textile winding, and is more particularly concerned with the production of a yarn package provided with a readily accessible transfer tail.

As it is commonly understood in the textile art, a transfer tail or tie-on-tail refers to a portion of the first yarn wound on the yarn support and so disposed as to be positively secured during the winding of the remainder of the yarn package, yet readily available for tying directly to the outer end of the yarn on another yarn package when so desired. The purpose in providing a transfer tail on the yarn package is to enable an uninterrupted flow of yarn to be maintained from a depleted yarn package to a full yarn package adjacent thereto on a creel or other yarn package holder, upon which the yarn packages are supported.

Prior to the present invention, when it was desired to wrap a transfer tail, it was conventional procedure after disconnecting the traversing mechanism to guide or lay the free end of the yarn longitudinally of the rotatable core or tube and then wrap several turns circumferentially of the tube and directly over the longitudinally arranged transfer tail. Thereafter the tube was transferred to the creel, the yarn engaged in the traversing mechanism, and a yarn package formed on the tube, including that portion upon which the first several turns were made. This method of making a transfer tail had the prime disadvantage that in order to reach the tail for tying purposes, it was necessary to dig at the tail with a fingernail or other means, thereby wasting considerable time and spoiling the first few layers of yarn adjacent the end of the tube. Thus, although this was termed in the art a transfer tail, for most practical purposes it was substantially useless as such.

It is therefore an important aim of the present invention to provide an improved method of winding yarn packages characterized by the elimination of the foregoing noted difficulties and the provision of a readily available transfer tail.

Another object of the invention is to provide a novel method of winding yarn packages which is simple, speedy, and productive of a transfer tail readily accessible for the tying operation.

A further object of the invention lies in the provision of a yarn package which is tight and secure, and which has on one end thereof a readily available transfer tail.

Other objects and advantages of the invention will become more apparent during the course of the following description, when taken in connection with the accompanying drawings.

In the drawings, wherein like numerals are employed to designate like parts throughout the same:

Fig. 1 is a fragmentary view of one end of a yarn package provided with a transfer tail in accordance with the present invention;

Fig. 2 is a side elevation of a yarn package end having a transfer tail as provided by heretofore known procedures; and

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Fig. 3 is a perspective view showing the manner in which the transfer tail of a nearly exhausted package is tied onto the outer end of a full package.

In accordance with the present invention, a yarn package having a readily available transfer or tie-on tail is provided in a simple and speedy manner by laying a free yarn end substantially spirally onto the tube or bobbin circumference adjacent one end thereof, wrapping a plurality of yarn turns upon said tube spaced from one end thereof and generally parallel with the transverse plane of said tube, and preferably, thereafter laying down upon the tube face a spirally arranged yarn wrap, followed by a plurality of substantially parallel yarn turns one upon the other and spaced an even greater distance from the tube or bobbin end upon which the transfer tail is laid. Thereafter the remainder of the yarn package may be mechanically formed in a manner that the yarn is traversed upon the entire length of the tube but leaving the transfer tail exposed.

A yarn package provided with an easily accessible transfer tail and formed in the manner just described is illustrated in Fig. 1. Upon reference thereto it may be seen that the yarn package A is wound upon a substantially cylindrical tube or bobbin 10 of conventional construction, generally known to the art as an impregnated paper twister tube. At one end of the tube and generally arranged substantially spirally thereof is a yarn end section 11 which is laid thereon from the free end of a bulk package of the yarn as originally formed and which is located on the twisting and plying frame conventionally used in textile operations.

Connected to the end section 11 and disposed generally parallel with the transverse axis of the tube 10 are a plurality of yarn turns 12, comprising an intermediate section, which, together with the end section 11, comprise an end portion forming the transfer or tie-on tail a. Generally, in order to provide a convenient amount of yarn for tying onto the outer end of a full package, the transfer tail is in the neighborhood of three feet in length, and in order to have this quantity available, the yarn turns 12 are preferably about six in number. However, regardless of the length of the transfer tail a, it is important that it be positioned closely adjacent the end of the tube, and preferably, within an inch or inch and one-half of said end.

Continuing inwardly on the circumference of the tube 10, as a continuation of the turns 12 of the transfer tail a, is a generally diagonally or spirally arranged yarn turn 13, said turn being connected to a plurality of secondary yarn turns 14 which are wrapped about the tube circumference on a line substantially parallel to the transverse plane of the tube 10. As shown in Fig. 1, while the transfer tail a is exposed for ready access during the tying-on operation, the diagonally arranged turn 13 and also the secondary turns 14 are covered by the main body portion 15 of the yarn package A, thereby anchoring said turns 13 and 14 upon the tube 10. However, since the transfer tail a is freely exposed, it is desirable that the end portion 11 thereof be fixed to the tube circumference, and for this purpose a small quantity of glue, tape or the like 16 may be used.

As thus formed, the yarn package A is provided with a readily available transfer tail a for the tying-on operation. Thus, as shown in Fig. 3, when the yarn 17 passing through a guide eye or the like 18 and onto a tube 19 being employed in weaving, braiding or other processes is nearly exhausted, the transfer tail a of said yarn may be attached, as by a conventional knot 20, to the outer end 21 of the yarn 22 on a fully loaded tube 23. Thereafter, when said yarn 22 on the tube 23 has almost entirely been utilized, the transfer tail a thereof may be tied onto the outer end 24 of the reserve yarn package

25. Thus it may be seen that the use of the present transfer tail permits an uninterrupted flow of yarn in conventional textile fabricating processes.

In order to effect a speedy connection between the outer yarn end of one package and the transfer tail of another package, it is only necessary that the small piece of tape or other means such as glue securing the end portion of the transfer tail to the tube be removed, followed by unwrapping the yarn turns adjacent said end portion from the tube. The transfer tail is then available to make the tie-on, and there is avoided the time-consuming attempts to pull out the transfer tail provided by prior art procedures, often resulting in damaged yarn.

To illustrate, and as is shown in Fig. 2, a yarn package B provided previous to the present invention was formed on a tube 26 of the same character shown in Fig. 1. However, the transfer tail *b* of the prior art package B was formed by laying it upon the tube 26 longitudinally thereof and then wrapping several yarn turns onto the tube circumferentially of said tube and directly upon the longitudinally arranged transfer tail *b*. The remainder of the yarn package was then formed by positioning the tube on the creel and utilizing the conventional traversing mechanism to wrap the yarn on the tube. However, in so doing, the transfer tail *b* was covered up, as shown in Fig. 2, and could only be used for the tie-on by peeling off the first several layers of yarn on the transfer tail.

Such is not now necessary since the transfer tail formed by the present method is positioned outwardly toward the end of the tube and away from that area normally covered by the yarn package as formed during the winding operation on the creel or frame. Thus, as appears in Fig. 1, the end portion 11 and yarn turns 12 of the transfer tail *a* are exposed for use, and yet, being on the outermost section of the tube 10, do not diminish to any substantial degree the total amount of yarn which is carried upon the tube.

Various modifications may be practiced in the procedures and articles herein disclosed without departing from the spirit or scope of the invention as defined in the appended claims.

I claim:

1. A yarn package, comprising a support tube and a plurality of yarn turns carried upon said tube, said turns including a free end portion arranged generally spirally of the tube circumference and positioned adjacent one end of the tube, a first intermediate portion positioned in spaced relation from said spiral free end and comprising a plurality of turns arranged generally parallel with the transverse plane of the tube, a second intermediate portion spaced from said first intermediate portion and connected by a single spiral turn to said first intermediate

portion and comprising a plurality of turns arranged generally parallel with the transverse plane of the tube, and a plurality of turns comprising a main body portion spaced from opposite ends of said tube and extending down to said first plurality of turns but free of overlapping contact therewith.

2. A yarn package, comprising a substantially cylindrical support tube, a plurality of yarn turns carried upon said tube, said turns including an end portion having a section arranged generally spirally of the tube circumference, said end portion including an intermediate section disposed at one end of the spirally arranged section and comprising a first plurality of turns arranged generally parallel with the transverse plane of the tube, said end portion also including an additional set of turns arranged generally parallel with the transverse plane of the tube and spaced from said first plurality of turns, a second spirally arranged turn extending between said spaced sets of parallel turns, a main body portion spaced from opposite ends of said tube, said main body portion being positioned in surrounding relation with respect to said additional set of turns and said second spirally arranged turn in overlapping contact therewith, said main body portion being spaced from said first spiral end portion of said yarn turns.

3. A yarn package, comprising a substantially cylindrical supporting tube, a plurality of yarn turns carried upon said tube, said turns including a main body portion spaced from opposite ends of said tube and an end portion having a section arranged generally spirally of the tube circumference and positioned thereon free of overlapping contact with the main body portion, the end portion also including an intermediate section disposed at one end of the spirally arranged section and comprising a plurality of turns arranged generally parallel with the transverse plane of the tube, an additional set of turns arranged generally parallel with the transverse plane of the tube and spaced from said first set of parallel turns, and a second yarn turn arranged generally spirally of the tube circumference and extending between said spaced sets of parallel turns, said additional set of parallel turns and said second spiral yarn turn being positioned beneath said main body portion.

References Cited in the file of this patent

UNITED STATES PATENTS

1,614,420	Brown et al.	Jan. 11, 1927
2,184,334	Brucker	Dec. 26, 1939
2,300,073	Stafford	Oct. 27, 1942
2,395,891	Lodge	Mar. 5, 1946
2,451,468	Boyce	Oct. 19, 1948