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L. W. HAYES ET AL

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TRANSFER TAIL ANCHORING DEVICE

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Fig. 1.

PRIOR ART

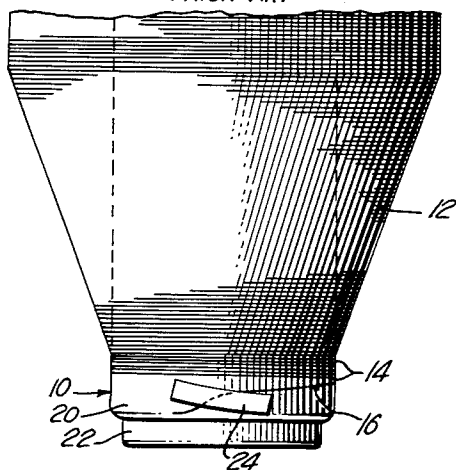


Fig. 2.

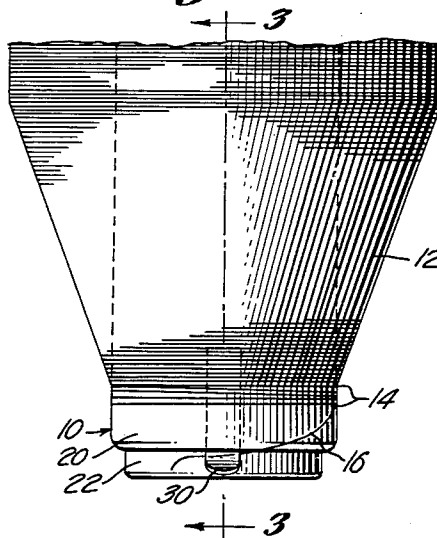


Fig. 3.

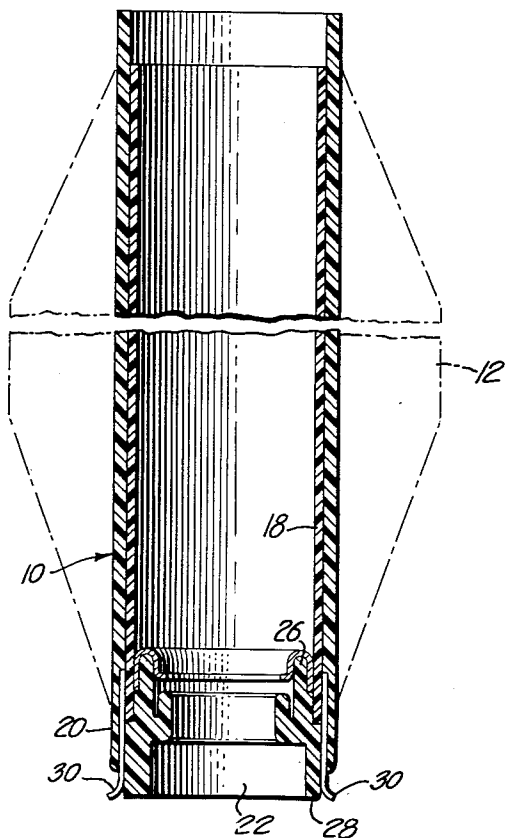


Fig. 4.

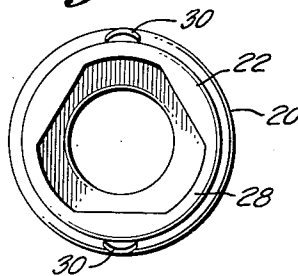
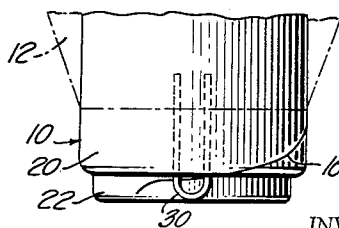


Fig. 5.



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TRANSFER TAIL ANCHORING DEVICE

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This invention relates to the winding and reeling art and more particularly to a textile bobbin or the like having means to attach a strand end thereon.

In many textile operations it is necessary to unwind yarn from a yarn holder such as cones, bobbins, etc. Where it is desired to unwind yarn from one yarn holder and to continue the unwinding from a second yarn holder without delay when the yarn is completely removed from the first holder, the tail end of yarn last to be unwound from the first holder is tied to the lead end of the second holder. To this end it is customary in the textile industry to provide yarn packages with a transfer tail. A transfer tail is generally defined as the first few feet of the yarn of the total yardage wound on a bobbin and, hence, the last few feet unwound. These first few feet are ordinarily wound on the bobbin around an area somewhat separated from the main body of the yarn package so that the tail end is easily accessible. As indicated, the purpose of winding a transfer tail in this manner is so that the tail end may be tied to the outer end of the second yarn package, whereby yarn may be uninterruptedly withdrawn from one bobbin after another successively, said bobbins, for example, being supported adjacent to one another on a creel or other bobbin holder.

In order to prevent said transfer tail from unwinding or becoming involved in a tangle in subsequent handling operations, it is necessary to impart a slight amount of tension to the first wrap of yarn and to anchor this first wrap to the bobbin in some manner. In the past this anchoring of the transfer tail end to the bobbin has been accomplished in commercial practice by using small strips of pressure sensitive adhesive tape or the like. This known method of anchoring, though it has been practiced in the industry for many years, suffers several drawbacks. In the first place, difficulty is encountered in that the adhesive provided by such tape does not always secure sufficiently the transfer tail end to the bobbin because of a defect in the tape itself or incorrect placement of the tape by the attending operator. In the second place, the worker often places the tape strip improperly so as to cover uneffectively and to fix only part of the transfer tail. In some cases a careless worker may cover part of the main body of the yarn package with the tape. Moreover, this known method of anchoring is a time consuming one which requires the cutting and handling of small sticky strips by the worker. Furthermore, these adhesive strips are not reuseable and consequently represent a considerable economic disadvantage when one considers the thousands of yarn packages which are produced daily in a large textile operation.

The present invention provides a textile yarn holder which has transfer tail anchoring means as an integral part of the yarn holder structure.

It is an object of this invention to provide an article of manufacture for holding the transfer tail of yarn wound on a bobbin that overcomes the disadvantages of the prior art anchoring means discussed above.

It is a further object of this invention to provide a textile bobbin adapted for reception on a spindle and provided with an anchoring clip on an end thereof which is assembled as a part of the bobbin structure.

It is a further object of this invention to provide a textile bobbin with a clip anchoring means adapted to

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clasp resiliently and hold tightly the transfer tail end on the bobbin.

It is a further object of this invention to provide such a bobbin wherein the clip is so placed as to offer no interference to the normal winding and axial unwinding of the yarn package on the bobbin.

It is a further object of this invention to provide a headless textile bobbin adapted for reception on a spindle and provided with anchoring means which permits far more rapid securing of the transfer tail than has previously been possible.

It is a further object of this invention to provide a textile bobbin with anchoring means which may be reused almost indefinitely.

It is a further object of this invention to provide a transfer tail anchoring means for textile bobbins which is uncomplex and inexpensive in structure.

Other objects and features of the invention will become apparent to those skilled in the art as the disclosure is made in the following detailed description of preferred embodiments of the invention as illustrated in the accompanying sheet of drawing in which:

FIGURE 1 is a fragmentary elevational view of a yarn package wound on a textile bobbin illustrating the prior art means for anchoring a transfer tail to the bobbin;

FIGURE 2 is a fragmentary elevational view illustrating the transfer tail anchoring means of the present invention;

FIGURE 3 is a sectional view taken on line 3—3 of FIGURE 2 and also illustrating the top portion of the bobbin and yarn package for the sake of clarity;

FIGURE 4 is an end elevational view of the bobbin and anchoring means disclosed in FIGURE 2; and

FIGURE 5 is a fragmentary elevational view of a second and preferred embodiment of the invention.

As can be seen these and other objects of this invention are attained in the provision of a textile bobbin device of various materials and constructions comprising an elongated rigid cylindrical bobbin adapted to hold yarn thereon wrapped in an orderly manner. The bobbin has an axial bore and is headless; that is to say it has a hole bored through its length and has no flanged ends that would hinder axial withdrawal of the yarn therefrom. A tubular part or sleeve is fitted over the main body portion of the bobbin and is secured thereto. This sleeve terminates short of the end of the bobbin. A plurality of clips circumferentially spaced are secured between the said tubular part and the main body portion and extends beyond the end of said part, and preferably to a point flush with the end of the bobbin structure. These clips are adapted to receive the end of a textile yarn initially wound on the bobbin and to clasp same resiliently between the inner surface thereof and the outer surface of the bobbin structure. Preferably, the extended ends of the clips are bent slightly outward so that the yarn to be held thereby may be conveniently pulled into the anchoring position provided by one of the clips. The bobbin is adapted for reception on a spindle as well as a skewer on a creel and the like.

Referring now to the drawing, wherein like reference characters designate like or corresponding parts throughout the several views, reference numeral 10 generally indicates a textile bobbin or like yarn holder upon which is wound a yarn package indicated by reference numeral 12. Reference numeral 14 denotes the transfer tail of the yarn package which begins with the first wrap or tail end indicated by reference numeral 16.

The structure of the textile bobbin itself is best shown in FIGURE 3 wherein the bobbin is shown as including an elongated hollow cylindrical shell or bobbin structure denoted by numeral 18 which is surrounded by a sleeve or tubular part indicated by reference numeral 20 in se-

cured relation therewith. This sleeve which may be made of plastic, resin impregnated paper or other similar materials is used to protect the surface of the bobbin shell which is generally made of aluminum steel or similar material and might be scratched or otherwise injured during transit or handling.

Reference numeral 22 indicates an end piece which is inserted securely and preferably in both ends of the hollow bobbin shell. The end piece has two portions of different diameters, the inner end 26 of the piece having a diameter substantially equal to the inside diameter of the shell and the outer end 28 of the piece having a larger diameter substantially equal to the outside diameter of the shell, so that the shell 18 and the piece 22 when mated form a continuous flush cylindrical surface. The end piece has a central bore, the outer part of which is of non-circular cross-section whereby the textile bobbin is adapted for reception on a spindle of like cross-sectional configuration and the inner part of which is somewhat smaller in diameter. This end piece is designed to fit onto an end of a spindle and a long, slender rod on a creel or the like so as to hold the bobbin in position for winding and axial withdrawal of the yarn. It will be noted that the sleeve 20 completely surrounds the bobbin shell 18 and extends beyond the bobbin shell to cover partially the outer peripheral surface of the end piece 22.

With reference to FIGURE 1, numeral 24 denotes a strip of pressure sensitive adhesive tape which has been the usual means of anchoring the tail end 16 to a yarn holder. This method of anchoring the transfer tail suffers the drawbacks described above.

The anchoring means of the present invention is illustrated in the remaining FIGURES 2 through 5. Reference numeral 30 indicates an anchoring clip which is inserted by force fitting same and frictionally is held between the sleeve 20 and the bobbin body made up of the bobbin shell 18 and the portion of the end piece 22 having the larger diameter. In the embodiment shown two clips are provided 180° apart so that either clip which is convenient may be used to anchor the tail end to the bobbin. Alternatively, the tail end 16 may be wedged underneath both clips to provide an even more secure anchor. While two clips are suggested, it is understood that more than two clips can be employed. It is preferred that the clips be uniformly spaced.

In the embodiment disclosed in FIGURES 2, 3, and 4 the clip 30 takes the form of a flat elongated solid sheet of metal or other durable resilient springy material.

In the embodiment disclosed in FIGURE 5, the clip is in the form of a U-shaped metal wire. The legs of the U are located between the sleeve and the continuous peripheral surface formed by the outer peripheries of the shell and the end piece.

In both embodiments it is seen that the tip of the clip extending axially from the sleeve is bent slightly outwardly for more conveniently wedging the yarn tail thereunder and that a minority of length of the clip extends axially beyond the end of sleeve 20. It will also be noted that the clip terminates evenly with the end of the end piece so as to avoid the possibility of catching the

clip and loosening the same during transportation or winding and reeling operations.

It is readily apparent from the above disclosure that the transfer tail end is readily and securely anchored to the bobbin merely by wedging the same between the clip and the outer cylindrical surface of the end piece.

It should be understood, of course, that the foregoing disclosure relates to only preferred embodiments of the invention and that numerous modifications or alterations may be made therein without departing from the spirit and scope of the invention as set forth in the appended claims.

What is claimed is:

1. A headless textile bobbin adapted for axial withdrawal of yarn therefrom and for reception on a spindle comprising an elongated rigid cylindrical shell having a central bore, an end piece partially inserted and secured in an end of said shell and having two portions of different outside diameters, the diameter of the portion of said piece inserted in the end of said shell being equal to the inside diameter of said shell and the diameter of the larger portion of said piece extending from the end of said shell being equal to the outside diameter of said shell so that the outer peripheries of said shell and the larger portion of said piece form a continuous flush peripheral surface, a cylindrical sleeve fixedly surrounding part of said continuous peripheral surface but terminating short of the end of said end piece, and a plurality of elongated resilient metal clips each located and force fitted between the inner periphery of said sleeve and said continuous peripheral surface, said clips extending axially beyond an end of said sleeve for a minority of their lengths and to a point even with the end of said end piece and bent outwardly from the periphery of said end piece, the bent end of said clips extending radially to a point flush with the outside periphery of said sleeve, whereby the bobbin is adapted to receive an end part of a textile yarn initially wound thereon and to clasp same resiliently between the inner surface of said clips and the outer peripheral surface of said end piece.

2. The bobbin of claim 1 wherein said clips are flat solid strips.

3. The bobbin of claim 1 wherein said clips are U-shaped wires having the legs thereof located between the inner periphery of said sleeve and said continuous peripheral surface formed by the outer peripheries of said shell and the larger portion of said piece.

4. The bobbin of claim 2 wherein there are two clips positioned 180° apart.

5. The bobbin of claim 3 wherein there are two U-shaped wire clips positioned 180° apart.

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