

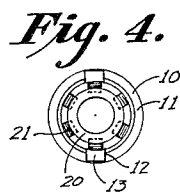
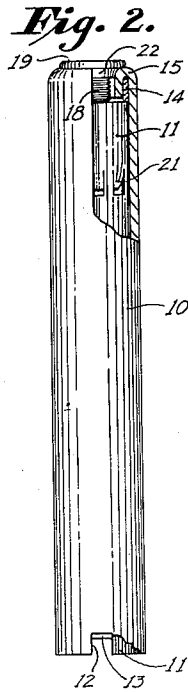
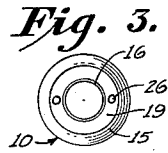
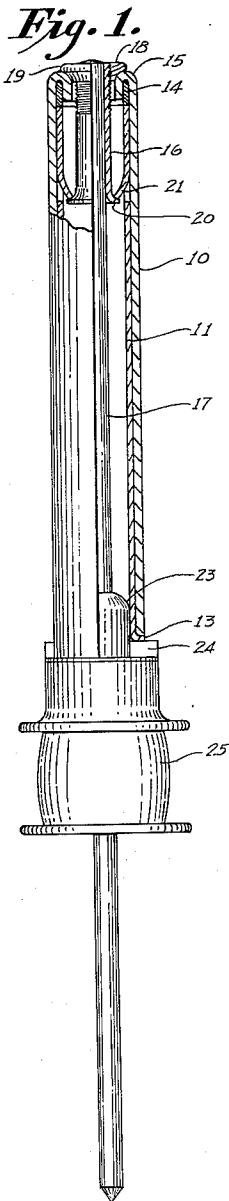
Jan. 17, 1950

C. K. DUNLAP

2,495,058

BOBBIN

Filed Dec. 17, 1945



INVENTOR.
CHARLES K. DUNLAP
BY *Warley L. Parrott*

UNITED STATES PATENT OFFICE

2,495,058

BOBBIN

Charles K. Dunlap, Hartsville, S. C., assignor to
Sonoco Products Company, a corporation of
South Carolina

Application December 17, 1945, Serial No. 635,448

2 Claims. (Cl. 242—122)

1

This invention relates to textile bobbins such as are used for supporting yarn or thread packages, and more particularly to flangeless bobbins for use as supporting cores or carriers for synthetic fibers such as rayon and "nylon."

With the progressive and wide increase in uses of synthetic fibers the requirements for satisfactory bobbins for winding of these fibers has become more and more strict. Rayon yarns, for example, vary all the way from hard twisted slick finish yarn to very soft yarns of practically no twist and require bobbins quite different and varied from those used in prior years. Also, the winding of nylon has given rise to the problem of providing greater strength in the bobbin so as to resist the tremendous contracting forces exerted by nylon when it is wound on a bobbin and subjected to varying moisture conditions.

To meet these varied and increasingly strict requirements on bobbins and at the same time keep down the cost to a reasonably low level has presented a major commercial problem. I have now met this problem from both a technical and economic standpoint by providing new bobbin constructions.

According to the present invention I have conceived and developed a very simple, inexpensive type of reinforced flangeless bobbin that is particularly well suited for use with synthetic fibers.

An embodiment of my invention is illustrated in the accompanying drawing in which:

Fig. 1 is an elevation of a bobbin constructed in accordance with my invention, the bobbin being illustrated in association with a spindle to show the manner of engaging the driving lugs of the spindle whorl;

Fig. 2 is a similar elevation of the bobbin shown in Fig. 1 and rotated 90°; and

Figs. 3 and 4 are respective top and bottom views of the bobbin shown in Fig. 2.

The embodiment of the flangeless bobbin of the present invention as illustrated in Figs. 1 and 2 of the drawing comprises essentially a fibrous tubular member 10 adapted as a bobbin barrel, and a reinforcing sleeve 11 disposed interiorly of the tubular member 10. Notches as at 12 are formed in the fibrous tubular member 10 to engage the driving lugs of a spindle whorl and in forming corresponding notches in the reinforcing sleeve 11, ears 13 are struck out to extend through the notches 12 and thus effect a keyed engagement between the reinforcing sleeve 11 and tubular member 10.

The fibrous tubular member or bobbin barrel 11 preferably comprises a convolutely wound tu-

2

bular paper body made up from a suitable paper stock, such as kraft stock. The multi-ply construction of a paper body formed in this manner is sturdy and serviceable when adapted as a bobbin barrel and also has advantages from the standpoint of cost. It will also be apparent, however, that fibrous tubular bodies formed by other means, such as by molding or extruding, might also be used if desired. Where a convolutely wound tubular body is used as suggested above, the bobbin barrel formed may be invested with a resin finish as disclosed in my copending application for patent, Serial No. 633,998 filed December 10, 1945.

As the inner reinforcing sleeve 11 is provided principally to augment the strength of the bobbin construction, in the usual instance this sleeve will most suitably be formed of metal although paper, plastics or other materials having adequate strength characteristics may be used if desired. The inner reinforcing sleeve 11 extends from a point flush with the lower end of the bobbin barrel 10 to a position of abutment with a ring insert 14 disposed inside a crimp 15 which is formed at the top of the bobbin barrel 10 by turning in the end of the barrel 10.

In order to form an upper spindle bushing for the bobbin, means are associated with the reinforcing sleeve 11 as illustrated in Figs. 1 and 2 of the drawing. The means comprising the upper spindle bushing include a shorter inner sleeve member 16 having an inner diameter corresponding to the diameter of the spindle 17 as shown in Fig. 1. One end of the inner sleeve member 16 is provided with a threaded portion as at 18, which receives a nut member 19. The other end of the inner sleeve member 16 is flared outwardly as at 20, and ears 21 are struck inwardly in the reinforcing sleeve 11 in relation to this flanged portion 20 and form positioning stops for the inner sleeve 16 which restrain it against upward movement. The inner sleeve 16 is positioned in this manner so that the upper threaded portion 18 extends beyond the crimp 15 at the upper end of bobbin barrel 10 just far enough to engage the nut member 19 and when nut member 19 is placed on inner sleeve 16 and turned down tight the inner sleeve 16 will be positioned as an upper spindle bushing and will also serve the purpose of securing the reinforcing sleeve 11 in the bobbin barrel 10.

To center the inner sleeve 16 so that it will be disposed properly as a spindle bushing the nut member 19 is formed with an undercut portion 22 which, as illustrated best in Fig. 2, corresponds

3

to the rounded portion of the crimp 15 at the upper end of bobbin barrel 10. When arranged in place the nut member 19 accordingly seats on the rounded portion of this crimp 15 to center the inner sleeve 16.

At the lower end the bobbins constructed according to the present invention may be centered by any conventional adapter, shown at 23, associated with the spindle 17. This arrangement has the advantage of allowing the previously mentioned notches 12 to be easily engaged with driving lugs 24 of the usual spindle whorl shown at 25.

An important feature of a flangeless bobbin arranged according to the present invention is that its constituent elements are demountably secured in assembled form so that any of these elements may be readily replaced if they become worn or damaged. The assembly is effected by inserting the reinforcing sleeve 11 in the bobbin barrel 10, the reinforcing sleeve being formed for a snug but sliding fit in the bobbin barrel 10. When inserted in this manner the extending ears 13 at the lower end of reinforcing sleeve 11 will be positioned in the notches 12 of bobbin barrel 10 and forced upward in these notches 12 until the reinforcing sleeve 11 reaches a position of abutment with the ring insert 14 in the crimp 15 of bobbin barrel 10.

The inner sleeve 16 is next positioned inside the reinforcing sleeve 11 so that the flange portion 20 is engaged against further upward movement by the inwardly extending ears 21 of reinforcing sleeve 11 and the nut member 19 is then screwed in place on the threaded portion 18 of inner sleeve 16 to center the sleeve 16, as noted above and secure the elements of the bobbin in assembled form. To provide means for turning the nut member down adequately so that all of the elements may be securely bottomed in place, holes 26, as shown in Fig. 3, may be provided for engagement by a spanner wrench or the like. This arrangement is preferable over providing the nut member 19 with a corrugated or angular peripheral surface for adjustment by a wrench as such a surface might easily become roughened so that it would catch yarn or thread unwound from the bobbin and break it.

The bobbin of the present invention, as illustrated and described above, provides a sturdy and serviceable construction which is well adapted for use with synthetic fibers and at the same time is simple and inexpensive. The manner of providing spindle bushings for the bobbins is of particular advantage in that the bushings are associated with the reinforcing sleeves so as to

4

secure the elements of the bobbin demountably in assembled form. This feature is provided with a minimum of constituent elements for the bobbin, and yet the spindle bushing is incorporated so that it is readily centered in the bobbin upon assembly. Also, the adaptation of the bobbin barrels and reinforcing sleeves for keyed engagement in assembled form integrates the bobbin construction for serviceable use without requiring auxiliary locking fixtures.

I claim:

1. A textile bobbin comprising a fibrous tubular member adapted as a bobbin barrel, a reinforcing sleeve disposed interiorly of and in keyed engagement with said fibrous tubular member, an upper spindle bushing for said bobbin having a threaded portion at one end and a flared portion at the other end, means associated with said reinforcing sleeve for engaging said flared portion and positioning said spindle bushing to extend said threaded portion beyond the top of said bobbin, and means cooperating with said threaded portion to center said spindle bushing and secure the elements of said bobbin in assembled form.

2. A textile bobbin comprising a fibrous tubular member adapted as a bobbin barrel, a reinforcing sleeve disposed interiorly of and in keyed engagement with said fibrous tubular member, an upper spindle bushing for said bobbin having a threaded portion at one end and a flared portion forming a flange at the other end, ears struck inwardly in said reinforcing sleeve and adapted to engage said flared portion and position said spindle bushing to extend said threaded portion beyond the top of said bobbin, and a nut member engaging said threaded portion, said nut member being formed to center said spindle bushing and secure the elements of said bobbin in assembled form.

CHARLES K. DUNLAP.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,811,609	Buffington	June 23, 1931
2,320,965	Cotchett et al.	June 1, 1943
2,377,920	Atwood	June 12, 1945

FOREIGN PATENTS

Number	Country	Date
316,417	Great Britain	Aug 1, 1929
553,035	France	May 11, 1923