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BOBBIN

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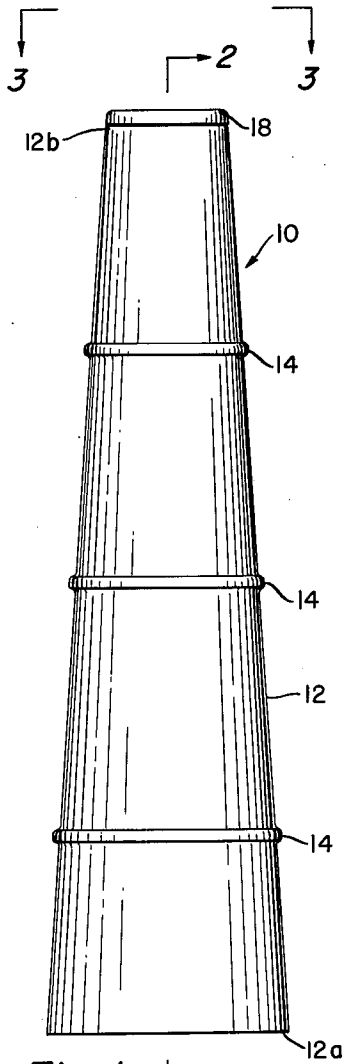


Fig. 1

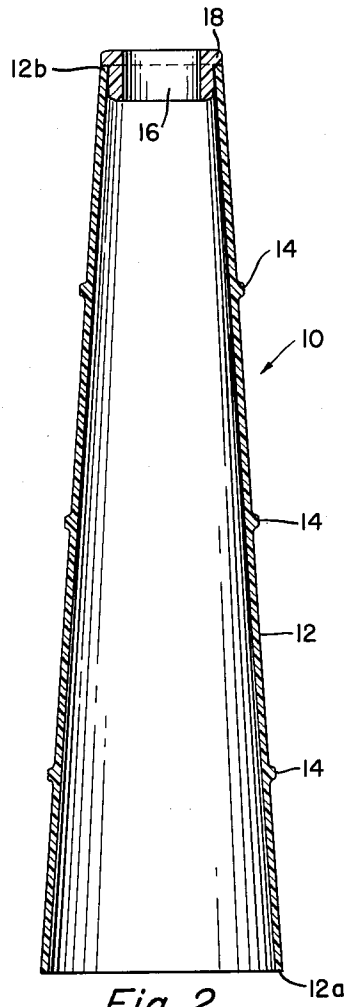


Fig. 2

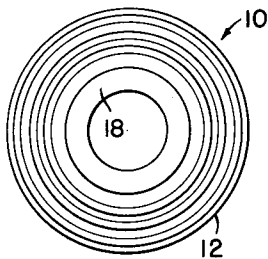


Fig. 3

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BOBBIN

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2 Claims. (Cl. 242—118.32)

The present invention relates to a bobbin, and more particularly to a reusable bobbin for yarn and similar filamentary material.

Bobbins for yarn and similar filamentary material which are in general use comprise a substantially conical tube of laminated paper. A disadvantage of such bobbins is that during the use of such bobbins they are easily damaged. In particular, the small diameter end of such a bobbin, over which the yarn passes as the yarn is pulled from the bobbin, is torn and worn away due to the yarn passing thereover. It has been found that during a single use of such a bobbin, the bobbin is damaged to such an extent that it cannot be reused, but must be discarded.

Another disadvantage of such bobbins is that they permit slippage of the yarn over the outer surface of the bobbins. Thus, when the yarn has been removed from such a bobbin down to nearly the end of the yarn, there is a tendency for the last layer of the yarn to be pulled from the bobbin all at once, which can interfere with the operation of the machine to which the yarn is being fed.

It is an object of the present invention to provide a novel bobbin for yarn or similar filamentary material.

It is another object of the present invention to provide a reusable bobbin for yarn or similar filamentary material.

It is still another object of the present invention to provide a bobbin for yarn having a replaceable tip at its smaller diameter end.

It is a further object of the present invention to provide a bobbin for yarn which prevents slippage of the yarn along the outer surface of the bobbin.

Other objects will appear hereinafter.

For the purpose of illustrating the invention there is shown in the drawings a form which is presently preferred; it being understood, however, that this invention is not limited to the precise arrangements and instrumentalities shown.

FIGURE 1 is a side elevational view of the bobbin of the present invention.

FIGURE 2 is a sectional view taken along line 2—2 of FIGURE 1.

FIGURE 3 is a top elevational view of the bobbin of the present invention taken along line 3—3 of FIGURE 1.

Referring to the drawing, the bobbin of the present invention is generally designated as 10.

Bobbin 10 comprises a rigid, a frusto-conical tube 12 of nylon, and preferably of high density scrap nylon which is tough and is relatively inexpensive. Tube 12 is of uniform thickness along its entire length, and has a plurality of annular ribs 14 projecting radially outwardly from its outer surface. Ribs 14 are longitudinally spaced along the tube 12, with the bottommost rib 14 being spaced from the bottommost end 12a of the tube 12.

A substantially cylindrical, plastic bushing 16 frictionally fits in the uppermost end 12b of the tube 12. Bushing 16 has an annular flange 18 extending radially outwardly

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from the uppermost end of the bushing 16. Flange 18 projects over the uppermost end 12b of tube 12, and the outer diameter of the flange 18 is substantially equal to the outer diameter of the uppermost end 12b of tube 12.

Since the tube 12 of the bobbin 10 of present invention is made of nylon, it is tough so that it is not prone to be damaged. Also, the nylon tube 12 is light in weight so that it is easy to handle. Since the bottommost rib 14 on the tube 12 is spaced from the bottommost end 12a of the tube 12, the bottommost end 12a of tube 12 is flexible. Thus, when the bobbin 10 is mounted on a spindle, the bottommost end 12a of the tube 12 can expand to fit tightly on the spindle, yet when the bobbin 10 is removed from the spindle, the bottommost end 12a of tube 12 will return to its normal size. Also, since the bottommost end 12a of tube 12 is flexible, it can withstand bumps and vibrations without being damaged.

The bushing 16 prevents the uppermost end 12b of the tube 12 from being damaged during shipping and handling the bobbin 10. Also, as the yarn is pulled from the bobbin 10 over the uppermost end 12b of the tube 12, the flange 18 of the bushing 16 protects the uppermost end 12b of the tube 12 from being worn by the yarn. If the flange 18 of the bushing 16 becomes worn out after long continuous use, it is only necessary to remove the bushing 16 and replace it with a fresh bushing. Thus, the bushing 16 increases the usable life of the bobbin 10, and the replacement of a bushing 16 is much less expensive than the replacement of an entire bobbin. The bushing 16 in addition to protecting the uppermost end 12b of the tube 12 from being damaged, can also provide an indication of the type of yarn which is wound on the bobbin 10. By having bushing 16 of various colors which indicate various types of yarns, a bushing 16 of the proper color can be inserted in the tube 12 to indicate the type of yarn wound on the bobbin 10. Thus, a user of yarn who must maintain a large inventory can easily locate a bobbin of a desired type of yarn by the color of the bushing 16 in the bobbin 10. When the yarn is completely removed from the bobbin 10, the bushing 16 can be removed from the tube 12 so that when the bobbin 10 is reused, a bushing 16 of the proper color can be inserted in the tube 12 to indicate the particular type of yarn wound on the bobbin 10.

The ribs 14 on the tube 12 prevent slippage of the yarn along the surface of the tube 12. Thus, in the use of the bobbin 10, when the yarn is removed down to nearly the end of the yarn, the ribs 14 prevent the last layer of the yarn which is juxtaposed to the surface of the tube 12 from being pulled from the bobbin 10 all at one time. Thus, the yarn will be removed from the bobbin 10 as a single continuous filament down to substantially the very end of the yarn.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof and, accordingly, reference should be made to the appended claims, rather than to the foregoing specification as indicating the scope of the invention.

I claim:

1. A bobbin for yarn and similar filamentary material comprising a frusto-conical tube of uniform thickness and light in weight, said tube being made from a tough, high density nylon, a substantially cylindrical plastic bushing fitting tightly in the small diameter end of said tube, said bushing having an annular flange extending radially out-

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ward from the uppermost end thereof, said flange extending over the small diameter end of said tube, said tube having a plurality of annular ribs of uniform height projecting radially outward from the outer surface thereof, said ribs being spaced longitudinally along said tube and being spaced from the larger diameter end of said tube so that said larger diameter end is more flexible than the remainder of said tube, said bushing being colored to indicate the type of filamentary material wound on the bobbin.

2. The bobbin in accordance with claim 1 wherein the outer diameter of the flange on the bushing is co-extensive

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with the diameter of the tube at the small end thereof and thereby forms a continuation of said tube.

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