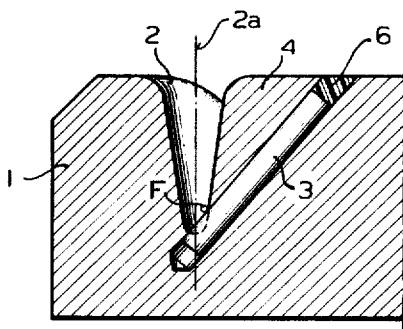


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H. WOLFF
YARN GUIDING DRUM
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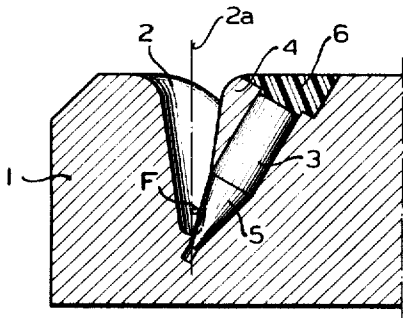
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FIG. 1



PRIOR ART

FIG. 2



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YARN GUIDING DRUM

Helmut Wolff, Monchen-Gladbach, Germany, assignor to
Walter Reiners, Monchen-Gladbach, Germany

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2 Claims. (Cl. 242—43.2)

My invention relates to yarn guiding drums for yarn winding machines or the like and more particularly to such yarn guiding drums which are provided with means for reducing abrasion at reversing locations of the guiding groove formed in the drum.

It has been known heretofore to shield the reversing locations of the grooves against abrasion caused by the moving yarn by providing additional shaped members at those locations formed of the most varied abrasion-resistant materials. A known type of shaping member for protection against abrasion at the reversing locations of the yarn guiding drum grooves consists of rod shaped bodies formed of abrasion-resistant material which are mounted on the drum. Such an abrasion resistant rod is described for example in German Patent No. 708,233. The abrasion resistant rod or pin extends perpendicularly to the axis of the drum and is fitted into the groove vicinity by suitably shaping the groove contour. In order to construct yarn guiding drums of the aforescribed known type, difficulties have arisen because the rod or pin must be fitted with as little spacing or clearance as possible and in exact conformity with the contour of the groove. It is particularly disadvantageous that the softer material surrounding the pin or rod, i.e., the material of the drum proper, abrades sooner than the pin so that a shoulder is gradually formed at the boundary between the two materials which limits exact guidance of the yarn.

In order to avoid the aforescribed disadvantages of the heretofore known devices as much as possible, another type of yarn guiding drum has been proposed wherein a rod shaped member or pin is inserted at an angle to the cross-sectional axis of the groove. In this manner, the yarn guiding groove edge remains unchanged, however, the inclined position of the rod or pin affects the security of the yarn position in the base of the groove. Such known yarn guiding drum construction is shown in FIG. 1 of the drawing and will be described hereinafter in greater detail when describing the structure of the invention in the instant application.

An object of the invention of this application is to provide a yarn guiding drum with means for avoiding abrasion at the reversing locations of the groove formed therein and which avoids many disadvantages of the hereinafter described known device illustrated in FIG. 1.

Features which are considered as characteristic for the invention are set forth in the appended claims.

Although the invention is illustrated and described herein as embodied in yarn guiding drum, it is nevertheless not intended to be limited to the details shown, since various modifications and structural changes may be made therein without departing from the spirit of the invention and within the scope and range of equivalents of the claims.

The construction and method of operation of the invention, however, together with additional objects and advantages thereof will be best understood from the following description of a specific embodiment when read in connection with the accompanying drawings, in which:

FIG. 1 is a fragmentary sectional view of a yarn guiding drum at a reversing location of the groove formed therein as has been heretofore known in the prior art; and

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FIG. 2 is a fragmentary cross-sectional view of a yarn guiding drum at the reversing location of the groove formed therein showing the improvement over the prior art device of FIG. 1 constructed in accordance with the instant application.

Referring now to the drawings and first to the prior art device shown in FIG. 1, there is illustrated in cross-sectional view a yarn guiding drum 1 provided with a yarn guiding groove 2 located at the lefthand side reversing locality. Although not illustrated fully, the man of skill in the art is familiar with such guiding grooves which constitute a closed loop peripherally extending around the drum body as well as axially thereof between two reversing localities. A rod shaped member 3 is inserted inclined with respect to the cross-sectional axis 2a of the groove and passes, as is clearly shown in FIG. 1, through the wall of the groove 2 so that the yarn F is not guided by or engaged by the soft material of the drum proper but rather by the rod shaped member 3 of abrasion-resistant material. The rod shaped member 3 can however not be inserted at any steep angle with respect to the axis 2a because the portion 4 of the drum material located between the insertion location of the rod shaped body 3 and the wall surface of the groove 2 would easily break off if the rod-shaped member were inserted too steeply in the drum with respect to the axis 2a. If the rod shaped member 3 were inserted, however, at a greater angle with respect to the axis 2a, i.e., at a flatter relationship thereto than as is shown in FIG. 1, the yarn F, due to the inclined location of the pin surface, would then slide to the groove wall at the edge thereof where the pin penetrates through the wall as shown in FIG. 1. In such case, however, the yarn would again apply stress and wear to the material of the drum proper so that protection against abrasion would not be fully achieved.

To avoid this disadvantage of the prior art device, the improvement of the invention in this application provides the rod shaped body 3 of the known prior art with a construction which is cone-shaped at the location where it penetrates the wall of the groove.

An embodiment of the invention of the instant application is shown in fragmentary sectional view in FIG. 2 wherein a cross section through the yarn guiding drum 1 at the reversing location of the yarn guiding groove 2 is illustrated. As in the case of the prior art device, the rod shaped member 3 is also inserted in the improved embodiment of this invention at an inclination to the cross-sectional axis 2a of the groove; however, in the region 5 which penetrates the wall of the groove, the rod shaped member 3 is conical. Thus the dimensioning of the conical angle is so chosen that on the one hand the contour of the groove walls at the surface of the drum remains substantially unchanged yet on the other hand a sufficient amount of the drum material is permitted to remain at the location 4 and the steepness of the angle formed by the cone surface 5 with respect to the axis 2a is kept so great that the yarn F is in engagement solely with the abrasion resistant member 3 and does not engage any part of the groove wall. Consequently, an abrasion-resistant surface of sufficient length and width is afforded without any substantial variation of the groove wall angle and without disturbing the transition zones between the drum material and the abrasion-resistant material of the pin 3.

The rod shaped abrasion resistant member 3 has an upper portion as shown in FIG. 2 of a desired cross-section and can be formed for example either cylindrically, prismatically or also slightly conically. The abrasion-resistant member 3 is secured either by being provided with an outer thread which engages in an inner

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thread formed in the bore provided in the drum or can be glued or cemented into the bore thus provided, in which case it may be advisable to press an edge of the drum material against it for added security. It is also advantageous to countersink the abrasion-resistant member in the material of the drum and to fill the countersunk space up to the surface of the drum with a cast mass 6 of epoxy resin, for example.

The material of which the yarn guiding drum is formed can consist either of plastic material or aluminum. The abrasion-resistant pins or rods can consist of a hardened steel or of sintered corundum, for example.

I claim:

1. A yarn guiding drum for yarn-yackage winding machines, comprising a drum body with a guiding groove extending as a closed loop peripherally around said body as well as axially along said body between two reversing localities, two pins of wear-resistant material inserted into said body at said respective reversing localities in a direction inclined to the axis of the groove cross section, each of said pins having a conical portion tapering

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toward the bottom end of the pin and penetrating through the groove lateral contour so as to be engageable by the yarn at said locality.

2. In a yarn guiding drum according to claim 1, said conical portion of said pin extending along the groove lateral contour from the groove bottom up to more than one-third the total depth of the groove.

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