

June 6, 1961

A. J. REDMOND

2,987,034

WINDER GUIDE ATTACHMENT

Filed June 4, 1959

2 Sheets-Sheet 1

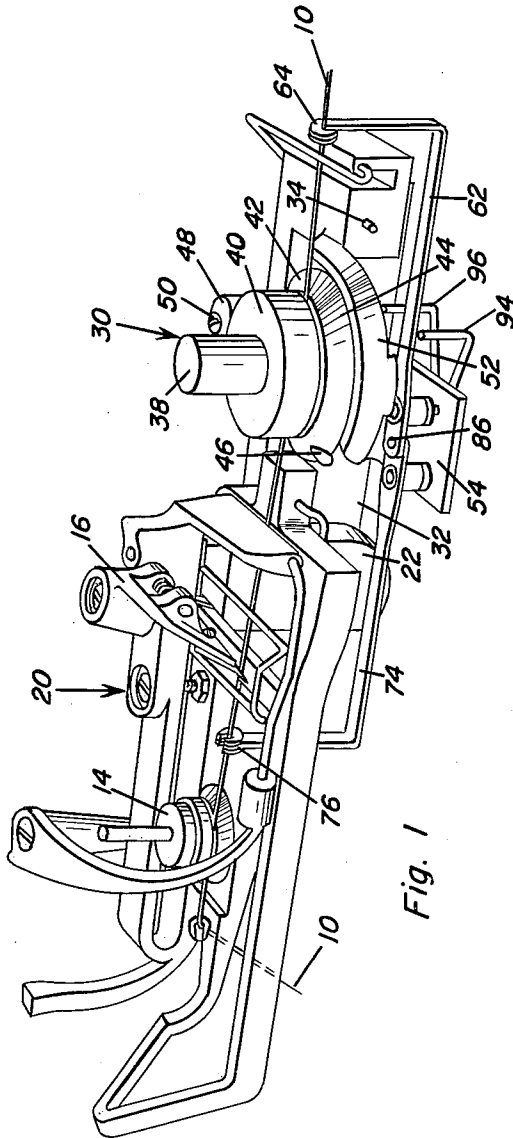


Fig. 1

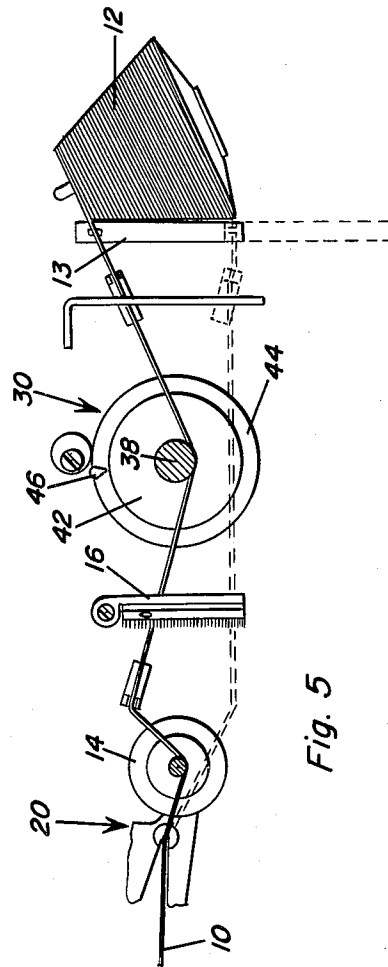


Fig. 5

Audy J. Redmond

INVENTOR.

BY *Charles A. O'Brien*  
and *Harvey B. Jacobson*  
Attorneys

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2 Sheets-Sheet 2

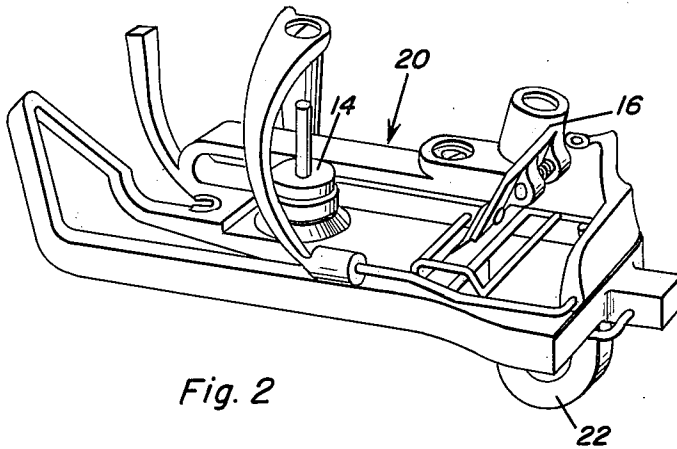


Fig. 2

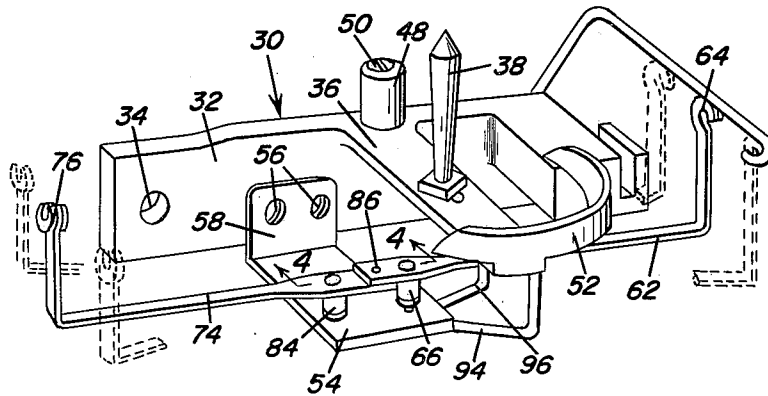


Fig. 3

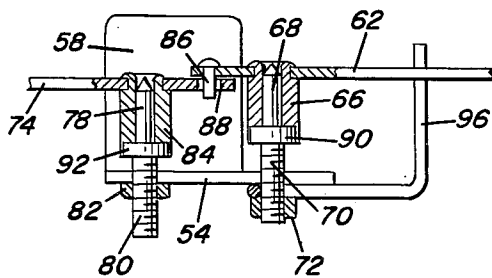


Fig. 4

Audy J. Redmond

INVENTOR.

BY *Clarence A. O'Brien*  
*and Harvey B. Jacobson*  
Attorneys

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2,987,034

## WINDER GUIDE ATTACHMENT

Audy J. Redmond, 1404 W. 5th Ave., Gastonia, N.C.

Filed June 4, 1959, Ser. No. 818,073

9 Claims. (Cl. 118—78)

This invention comprises a novel and useful winder guide attachment and more particularly relates to a device which although not limited thereto is particularly adapted to facilitate the applying of wax to a yarn to be wound upon a spool or bobbin in a yarn winder.

The primary object of this invention is to provide an attachment which may be readily applied to various types of winder guides and which will render the action of the same more effective in guiding the yarn as the same is wound upon a spool or bobbin.

A further important object of the invention is to provide an attachment specifically adapted for use with winder guides and whereby wax may be applied to the yarn more effectively and more advantageously.

Another important object of the invention is to provide a means which will enable a waxing operation to be performed upon the yarn after the latter has passed the slub catcher and prior to the winding of the yarn upon a spool or bobbin of a winding machine.

A further object of the invention is to provide an attachment which is capable of installation upon conventional winder guides of conventional winding machines and which may be mounted in close position to but down stream of the slub catcher and will facilitate the improved winding of the yarn upon a bobbin or spool and likewise improve the action of the slub catch upon the yarn passing therethrough.

A further and more general object of the invention is to provide a waxing attachment which may be applied to the winder guide of a conventional yarn winding machine in such a manner as to eliminate the disadvantages occurring from the prior practice of waxing the yarn before the same passes through the slub catcher and will improve the action of the slub catcher upon the yarn and more effectively apply wax to the yarn prior to its application to a spool bobbin in the winder.

A still further object of the invention is to provide a waxing attachment wherein the passage of the yarn across the waxing element will be positive in nature and will be effected by the normal operation of the winder guide.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of a portion of a conventional winder guide to which the waxing attachments of this invention has been applied;

FIGURE 2 is a perspective view of a conventional winder guide, such as that shown in FIGURE 1, removed from the frame of the winder guide and the winding machine, and to which the attachment of this invention is adapted to be applied;

FIGURE 3 is a perspective view showing the winding attachment in accordance with the invention;

FIGURE 4 is a detail view in vertical section of the connecting means by which the oscillating arms of the winder guide and of the attachment are operatively connected to each other in accordance with this invention, being taken substantially upon the plane indicated by the section line 4—4 of FIGURE 3; and,

FIGURE 5 is a diagrammatic view in top plan showing the association of the attachment with the winder

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guide and the bobbin or spool of the winder upon which the yarn is to be wound.

Conventional guides of the older type of winding machines, such as the guide shown in FIGURE 1, do not have any means for waxing the thread or yarn. When a waxing operation is desired it has been heretofore necessary to replace this old type of guide with an attachment wherein the replacement guide incorporates a waxing device therein.

In prior waxing attachments such as those for winding machines of which I am aware, such as the attachment shown in the patent to Litton, No. 2,235,229, the waxing attachment is placed in advance of the slub catcher so that in applying wax to the yarn this wax necessarily passes through the slub catcher. It has been found from practical experience that in this type of construction a number of disadvantages are inherent. For example, during the passage of the waxed yarn through the needles of the slub catcher, wax is applied to the latter, this serving to detrimentally effect the uniformity of the wax applied to the yarn which is wound upon the spool or bobbin in the winding machine; and also provides an undesirable accumulation of wax in the needles of the slub catcher thereby detrimentally effecting the operation of the latter.

It is therefore the primary purpose of this invention to provide an attachment which may be applied to and used with the conventional winder guide and shall be capable of applying wax to yarn as the latter passes through the winder guide of a winding machine and which will overcome the above-mentioned disadvantages of the prior art by applying the wax to the yarn after the latter has passed through the slub catcher.

Referring first to FIGURE 5 it will be understood that this view diagrammatically indicates the manner in which the form of the winder guide attachment of this invention may be incorporated into a winder machine. In this machine the yarn to be waxed designated generally by the numeral 10 is seen as travelling from the left toward the right, finally being wound into a spool, bobbin, cone or other receptacle as at 12 in accordance with the conventional structure and operation of a winder. A level winder mechanism, not shown, but diagrammatically represented at 13, moves the yarn back and forth across the length of the cone 12 to effect even winding of the yarn thereon, and positively moves the yarn between the full and dotted line positions adjacent the cone as in FIGURE 5. During its passage from its source to the winder, the yarn passes through a tensioning means such as indicated at 14 of any conventional design, then through a slub catcher 16 by means of which inequalities in the diameter of the yarn are detected and removed. If the conventional guide shown in FIGURE 2 is replaced by a known type of waxing guide, not shown, a wax applying member is provided between the tension means 14 and the slub catcher 16, and is then finally wound upon the cone 12.

Referring now specifically to the embodiment of the invention illustrated in FIGURES 1 and 3 it will be observed that the numeral 20 therein designates generally a conventional form of winder guide, the same including the usual mounting bracket 22 by which the winder guide is secured to the framework of the winder machine. Upon the winder guide 20 the slub catcher 16 is mounted so that the yarn will pass therethrough on its way to the spool or cone 12 being formed therefrom.

In prior conventional constructions, the winder guide 20 had the waxer means applied between the tension means 14 and the slub catcher 16, or at least prior to passage of the yarn through the latter. In accordance with this invention, however, such waxing attachment is dispensed with and the wax assembly indicated generally

by the numeral 30 is applied to the conventional guide 20. The form of waxer attachment disclosed in the embodiments of FIGURES 1 and 3 includes a plate 32 comprising a mounting bracket and having apertures 34 for reception of the usual fastening bolts by which the device may be mounted at its right end in any convenient manner to a supporting frame forming a part of or carried by the frame of the winder machine and at its left end may support by the bracket 22 the conventional winder guide 20. The bracket 32 has a laterally projecting portion 36 from which rises a spindle 38 upon which a cake of wax 40 is removably or rotatably received. The cake of wax is preferably supported upon a flat cup-like base 42 having a beveled peripheral edge 44. This edge has a slight protuberance or projection 46 thereon, which upon rotation of the base 42 upon the spindle 38 may be caused to strike and engage the eccentric stop 48 which is rotationally adjustably secured by a locking pin or bolt 50 to the portion 36. This arrangement adjustably controls the speed of rotation of the base 42 and the wax 40 upon the spindle.

The arrangement is such that when the wax member is placed on the spindle 38, the yarn 10 after its passage through the slub catcher and beneath the needles thereof will be disposed between the cake of wax 40 and the base 42. Consequently since the cake of wax will rest upon the yarn, passage of the yarn will rub wax from the cake and thereby wax the yarn causing rotation of the base and wax to thereby effect uniform consumption of the wax. As will be indicated by comparison of full and dotted line showing in FIGURE 5, during the passage of the yarn the portions of the yarn on opposite sides of the spindle will oscillate from two relatively inclined positions so that the yarn will rub across the surface of the wax rather than having the engagement confined to a straight line. The means for effecting this traversing travel of the yarn will be subsequently described. There is further provided an arcuate guide arm 52 mounted upon the portion 36 and surrounding the base 42 to hold the yarn 10 up in position for horizontal movement upon the base 42 and beneath the wax 40.

Secured to the side of the plate 32 adjacent and below the projection 36 is a support bracket 54 detachably secured as by fasteners 56 extending through an apertured flange 58 of the bracket.

Journalled on the bracket 54 is a pair of interconnected oscillating arms. Thus there is provided an actuating arm 62 carrying an eyelet 64 at its upper end through which the yarn 10 passes and which serves to cause by the traverse of the yarn across the cone under the action of the conventional level winder actuating arm 62, in turn to oscillate between the two extremes shown in FIGURE 5. This arm is pivotally mounted near one end as by a hub or sleeve 66, removably journaled upon a vertical pivot 68 whose lower end is screw-threadedly engaged by its threaded stem portion 70 and lock nut 72 in the support bracket 54. There is also provided a complementary actuated arm 74 similar to the arm 62 but having an eyelet 76 through which the yarn 10 extends, this eyelet being positioned in advance of the passage of the yarn through the slub catcher 16. A vertical pivot and fastening means 78 having a threaded stem 80 and lock nut 82 is carried by the bracket 84 and journals the sleeve 84 of the arm 74. The two adjacent ends of the arms 62 and 74 overlap, as shown in FIGURE 4, and are pivotally connected to each other by a pin 86 in the arm 62 which extends into the slot 88 of the arm 74 for free movement therein. It will be noted that the hubs 66 and 84 rest on collars 90 and 92 on the pins 68 and 78 whereby the arms 62 and 74 may be readily applied to or removed therefrom.

The arrangement is such that when the winder arm 62 is caused to oscillate as shown by the full and dotted lines in FIGURE 5, by the usual winder arm actuating

mechanism, not shown it will in turn cause reverse oscillation of the auxiliary arm 74. The operation of the winder arms 62 and 74 serves to cause a traversing movement of the yarn across the face of the wax cake in order to effect a more even application of wax to the yarn and prevent excessive wear of the wax cake at one point. Secondly, the operation of the auxiliary arm 74 serves to effect a traversing movement of the yarn in advance of the slub catcher thereby increasing the angle 10 which the yarn makes as it passes through the slub catcher and rendering the action of the slub catcher itself more effective.

It should be especially noted that the actuating and the actuated arms 62 and 74 are of uneven length thereby effecting, as shown by the full and dotted lines of FIGURE 5, a relative bending or flexing of the yarn 10 as it moves laterally across the lower face of the wax cake 40.

A pair of L-shaped guides 94 and 96 are secured at one end of each to the underside of the support bracket 54, as by the nut 72 of the pivot stem 70, whereby to allow horizontal, pivotal adjustment. The upper legs or ends of the guides receive the yarn 10 therebetween and limit the extent of the lateral movement of the yarn by the action of the arms 62 and 74.

Adjustment of the pivot pins vertically upon the bracket 54 also enables the proper vertical positioning of the eyelets 64 and 76 for different sizes and types of winders and guides.

The attachment of this invention thus provides a device which is readily applicable to conventional types of winders and guides and will improve their operation by effecting better travel of the yarn through the slub catcher and/or waxing the yarn after it has passed the slub catcher and just prior to its level winding upon the cone.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A guide attachment for use with a winder of the type including a slub catcher and a guide winder through which a yarn passes as it is wound upon a cone, said attachment comprising a mounting means disposed downstream of but adjacent said slub catcher, an actuating arm pivoted upon said mounting means for traversing movement and having a yarn guide thereon for oscillation by said yarn as the latter is wound upon said cone, an auxiliary arm pivoted upon said mounting means and extending oppositely to said actuating arm and having a yarn guide means disposed in advance of said slub catcher, connecting means attached to the adjacent ends of said arms.

2. A guide attachment for use with a winder of the type including a slub catcher and a guide winder through which a yarn passes as it is wound upon a cone, said attachment comprising a mounting means disposed downstream of but adjacent said slub catcher, an actuating arm pivoted upon said mounting means for traversing movement and having a yarn guide thereon for oscillation by said yarn as the latter is wound upon said cone, an auxiliary arm pivoted upon said mounting means and extending oppositely to said actuating arm and having a yarn guide means disposed in advance of said slub catcher, connecting means attached to the adjacent ends of said arms, said attachment including a waxer supported upon said mounting means and positioned for passage of yarn thereacross.

3. A guide attachment for use with a winder of the type including a slub catcher and a guide winder through

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which a yarn passes as it is wound upon a cone, said attachment comprising a mounting means disposed downstream of but adjacent said slub catcher, an actuating arm pivoted upon said mounting means for traversing movement and having a yarn guide thereon for oscillation by said yarn as the latter is wound upon said cone, an auxiliary arm pivoted upon said mounting means and extending oppositely to said actuating arm and having a yarn guide means disposed in advance of said slub catcher, connecting means attached to the adjacent ends of said arms, said attachment including a waxer supported upon said mounting means and positioned for passage of yarn thereacross, said waxer being disposed for relative traverse movement of the yarn thereacross under the action of the replacement arm guide.

4. A guide attachment for use with a winder of the type including a slub catcher and a guide winder through which a yarn passes as it is wound upon a cone, said attachment comprising a mounting means disposed downstream of but adjacent said slub catcher, an actuating arm pivoted upon said mounting means for traversing movement and having a yarn guide thereon for oscillation by said yarn as the latter is wound upon said cone, an auxiliary arm pivoted upon said mounting means and extending oppositely to said actuating arm and having a yarn guide means disposed in advance of said slub catcher, connecting means attached to the adjacent ends of said arms, said mounting means including a support bracket, said arms being independently and adjustably mounted upon said bracket.

5. The combination of claim 1 including means for

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vertically adjusting the pivots of at least one of said arms relative to the line of travel of said yarn.

6. A waxer attachment for use with a winder guide of a yarn winding machine of the type including a slub catcher, a guide arm having a guide eyelet thereon, a yarn winding means having actuating means for imparting a traversing movement to said guide arm comprising; a support mounted between said slub catcher and said eyelet, a wax cake on said support positioned for passage of a yarn therebeneath whereby the traversing motion of the yarn between the slub catcher and the eyelet will effect lateral sliding of the yarn across the wax cake.

7. The combination of claim 6 including means for adjusting the traverse movement of said guide arm whereby to vary the amplitude of the traversing movement of the yarn across said wax cake.

8. The combination of claim 1 wherein said attachment includes a waxer supported upon said mounting means and positioned for passage of yarn thereacross, means adjustably controlling rotation of said waxer in response to travel of said yarn thereacross.

9. The combination of claim 6 including means adjustably controlling the rotation of said waxer in response to travel of said yarn thereacross.

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