

Aug. 22, 1961

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2,997,017

WAXING ATTACHMENT FOR WINDING MACHINES

Filed May 19, 1960

2 Sheets-Sheet 2

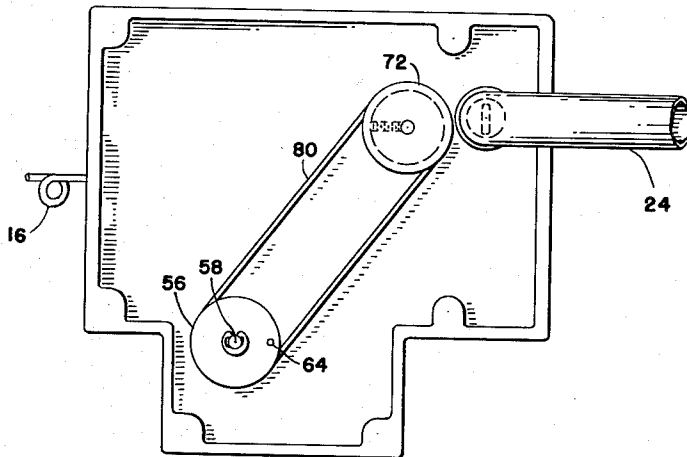


Fig. 3

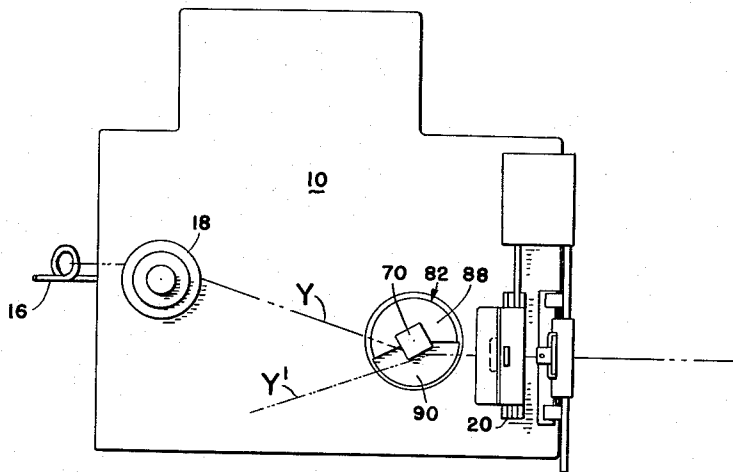


Fig. 4

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WAXING ATTACHMENT FOR WINDING MACHINES

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Filed May 19, 1960, Ser. No. 30,233

4 Claims. (Cl. 118—78)

The present invention relates to winding machines and more particularly relates to a waxing attachment for use on such machines.

In the following specification and claims the term yarn is employed in a general sense to apply to all kinds of strand material, either textile or otherwise, and the designation package is intended to mean the product of a winding or twisting machine whatever its form.

It is common in the textile industry to wind yarn from a supply source to form suitable packages and, as a part of the winding operation, to pass the yarn through a unit whereby the running strand may have wax applied thereto. So that wax can be applied uniformly throughout the length of the strand it is customary to rotate a disc of wax while it bears on the running strand. This permits the wax to wear down uniformly and to contact the yarn uniformly. In most cases the wax disc is rotated by placing it over a pin and drawing the yarn in a chordal manner beneath it. This method of rotating the wax does not give predictable results inasmuch as the rotation of wax discs will vary from spindle to spindle and from disc to disc. To overcome this it has been suggested that the wax disc be positively rotated. Such an arrangement results in a uniform wax coating being applied to the yarn but does require power means to rotate the wax. However, a major disadvantage that has been inherent in such devices is that when the strand of yarn breaks the rotating wax disc winds the strand around its spindle. This, of course, wastes yarn but more important creates a tangle that must be removed and in automatic winding machines, where breaks are automatically repaired, prevents the machine from functioning.

It is, accordingly, one object of the present invention to provide a driven waxing attachment for use with a winding machine which will prevent a broken strand of yarn from becoming entangled therein.

Another object of the present invention is to provide a waxing attachment for use with a winding machine which will release a broken strand of yarn which is positioned therein.

Another object of the present invention is to provide a waxing attachment for use with a winding machine which is capable of shifting a strand of yarn away from a waxing position when a break occurs in the winding strand of yarn.

Another object of the present invention is to provide a waxing attachment which is simple in operation, economical to manufacture, and durable and reliable in use.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the apparatus possessing the construction, combination of elements and arrangement of parts exemplified in the following detailed disclosure, and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention reference should be had to the following detailed description taken in connection with the accompanying drawing wherein:

FIG. 1 is a side elevational view of a mechanism embodying the present invention;

FIG. 2 is a perspective view of the waxing attachment platform of FIG. 1;

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FIG. 3 is a bottom plan view of the waxing attachment and bracket of FIG. 1; and

FIG. 4 is a top plan view corresponding to FIG. 3.

Referring now to the drawing wherein a preferred embodiment of the present invention is disclosed. The waxing attachment may be constructed to serve as an attachment to be used on existing textile machines or may be constructed as an integral part of any of said machines. As herein disclosed the waxing attachment is illustrated in connection with a winding machine having a substantially flat panel 10 forming the top of a compartment 11 supported in inclined relationship to the frame 12 of the winding machine by a bracket 14 projecting forwardly from said frame. Panel 10 mounts a yarn guide 16 on the forward end thereof. A tensioning unit 18 which may be of any well known type, is mounted rearwardly of said guide 16. A slub catcher 20 is supported at the rearward or upper end of panel 10 cleaning the yarn before it is fed to the winding means. As illustrated herein a vacuum duct 22 is shown as running longitudinally of frame 12 and is connected to a vacuum pump (not shown) for sucking air therefrom. A conduit 24 connects duct 22 with an orifice as at 26 passing through panel 10 adjacent slub catcher 20 and adapted to remove any loose material which may collect in that area.

A pair of supply packages 30 and 31 are mounted below panel 10 on upright spindles 32 and 33 supported on a rotatable plate 34. In turn, plate 34 is supported on frame 36 by a spacer 38. Frame 36 extends longitudinally of the machine parallel to frame 12 and serves to provide a guard for rotatable shaft 40.

Shaft 40 runs lengthwise of the textile machine and is connected to suitable power means, such as an electric motor as at an end of the machine, which serves to rotate said shaft. A bevel gear 42 fixed on shaft 40 is positioned to mate with a bevel gear 44 fast on an upright shaft 46 which extends upwardly through housing 48 and emerging within compartment 11. The upper portion of shaft 46 mounts power transmission mechanism 50 for rotating plate 34 in the manner described and claimed in commonly assigned United States patent application of Thomas E. Pitts and Carlton A. Steele entitled "Automatic Supply Package Indexing Mechanism for Winding Machines" filed concurrently herewith. The portion of shaft 46 above mechanism 50 is reduced in diameter to mount a collar 52 fast thereon. A pin 54, fixed in the periphery of collar 52 extends radially therefrom. It will be obvious that as rotation is imparted to shaft 40 shaft 46 will rotate to drive pin 54 thereabout.

A pulley 56 having a grooved periphery, is mounted for rotation on a stub shaft 58 projecting downwardly from panel 10. Pulley 56 is held on shaft 58 by split ring 62. A driving pin 64 is fixed in the bottom face of pulley 56 eccentrically of shaft 58 and depends therefrom to be engaged and driven by pin 54.

A shaft 66 journaled in a bearing 68 extending through panel 10 terminates above said panel in an enlarged square stud 70. A grooved pulley 72 having a hub 74 is mounted fast on shaft 66 below panel 10 and is held thereon by set screw 76.

Stud 70 has a shoulder 78 which rotates on the upper end of bearing 68. A belt 80, is passed about pulleys 56 and 72 in the grooves therein.

A circular platform 82 having an axial bore is mounted flat on the upper surface of panel 10 around stud 70. The upper surface of platform 82 is stepped having an upper section 88 and a lower segment or section 90 joined to section 88 by the radial shoulders 92, 94. A wax disc 86 having a square axial hole fits over stud 70 and rests on section 88. Platform 82 and stud 70 are so positioned on panel 10 that the strand of yarn Y, as it runs from tensioning means 18 through slub catcher 20,

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will lie on the surface of section 88 adjacent stud 70. Section 90 is wedge shaped and preferably extends over about 160° of the surface of platform 82. Platform 82 preferably is so oriented on panel 10 that shoulder 92 crosses or intersects strand of yarn Y at an angle of about 30 degrees and shoulder 94 makes an angle of about 15 degrees with said strand. It will thus be seen that yarn Y passes between disc 86 and section 88 of platform 82 for waxing after which it will be free to pass over and out of contact with section 90.

The foregoing apparatus operates as follows: With shaft 40 being rotated to drive shaft 46 pin 54 will rotate to engage and drive pin 64 and pulley 56. Pulley 72 is driven through belt 80 from pulley 56. Pulley 72, when rotated, will drive stud 70 and will, in turn, cause wax disc 86 mounted thereon to rotate. A strand of yarn being drawn from supply 30 and threaded through yarn guide 16 and tension unit 18 is between disc 86 and platform 82 for waxing, and thereafter passes through slub catcher 20 and on to the winding means. As the strand Y passes under wax disc 86 it will be drawn toward stud 70 due to tension in the strand and the fact that said stud 70 is substantially on a direct line between tension 18 and slub catcher 20.

In the event a break occurs in winding yarn strand Y after it passes through the waxing unit the strand will be urged laterally by wax disc 86 out from between section 88 and said wax disc and into the recess formed between section 90 and said disc and will become seated therein as shown by dotted line Y'. So positioned the strand will be held away from rotating stud 70 thereby preventing the strand from becoming wrapped therearound. In the embodiment illustrated the broken strand end attached to the winding means would be withdrawn by the suction at orifice 26 and the waxing disc would be cleared for rethreading.

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Since certain changes may be made in the foregoing apparatus without departing from the scope of the invention herein involved, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in the limiting sense.

What is claimed is:

1. A device for applying wax to a running strand of yarn comprising a platform having a first surface and a second surface in a lower plane, means for movably holding a piece of wax on said first and overlaying said second surface, means for actuating said holding means to move said wax relative to said two surfaces and means for guiding a strand of yarn across said two surfaces and beneath said piece of wax whereby wax is applied thereto, said wax being adapted, when said strand breaks, to move said strand off from said first surface.

2. A device as set forth in claim 1 wherein said strand remains between the second surface and said piece of wax.

3. A device as set forth in claim 2 wherein said second surface comprises a recess in said platform.

4. A device as set forth in claim 2 wherein said holding means is a rotatable pin which rotates said wax relative to said surfaces.

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