Aug. 2, 1966 C. V. JONES, SR 3,263,407

IMPLEMENT FOR CONDITIONING BOBBINS ON TEXTILE SPINNING FRAMES

Filed July 30, 1964

FIG. 1

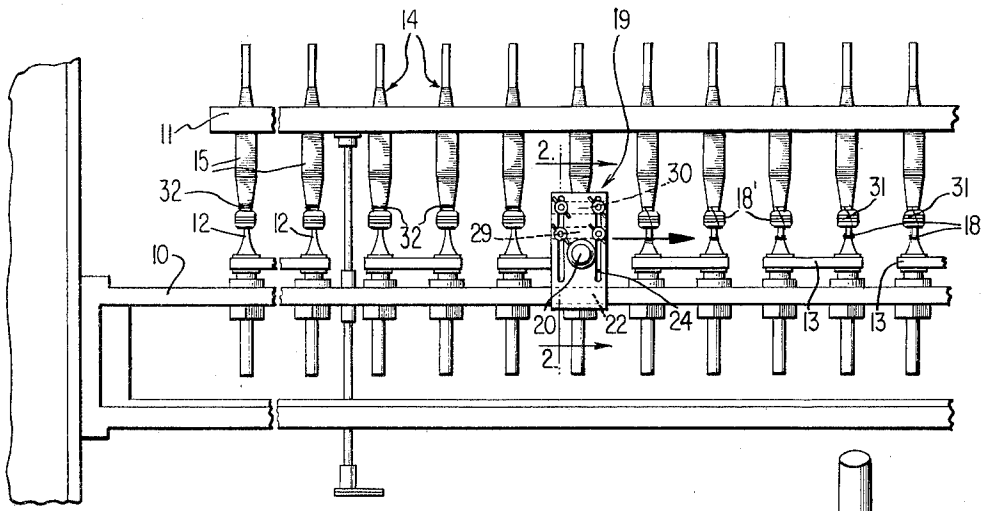


FIG. 2

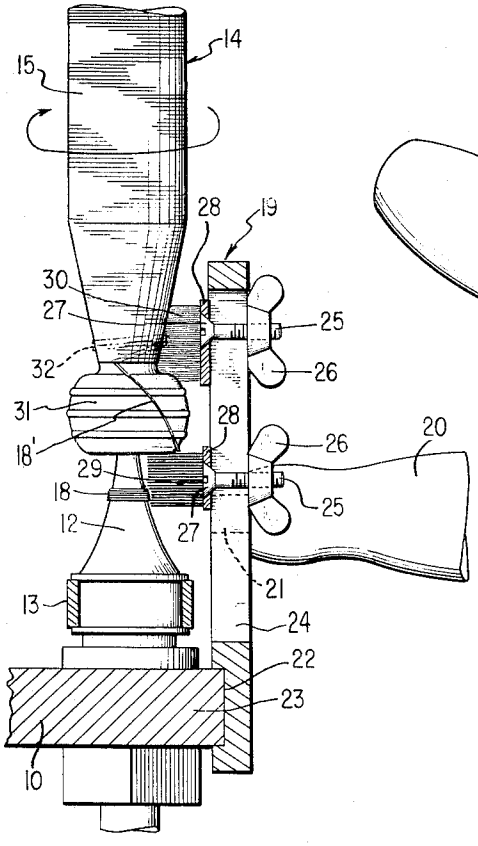
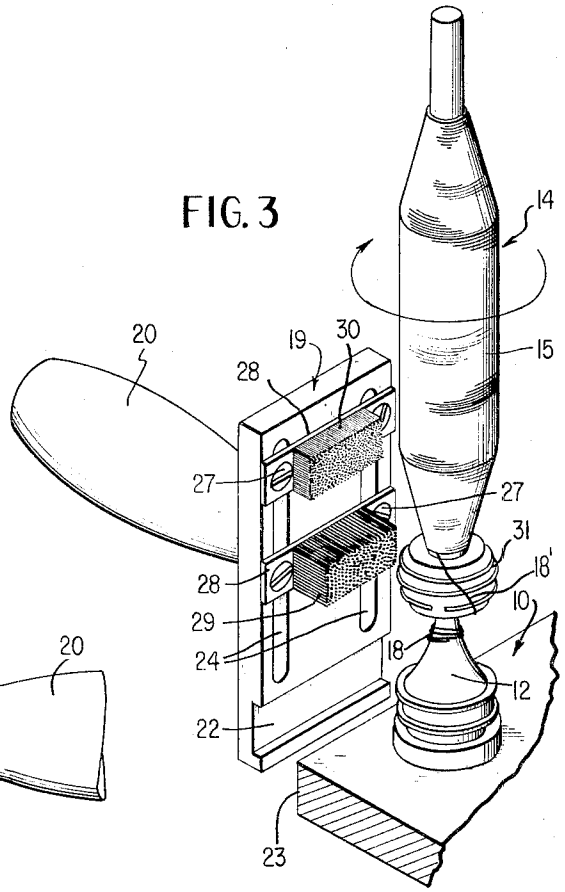


FIG. 3



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United States Patent Office 3,263,407 Patented August 2, 1966

3,263,407

IMPLEMENT FOR CONDITIONING BOBBINS ON TEXTILE SPINNING FRAMES

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Filed July 30, 1964, Ser. No. 386,170
8 Claims. (Cl. 57—34)

This invention relates to textile spinning frames and more particularly to an implement used in connection with spinning frames for conditioning bobbins produced by the spinning frames.

As is well known to those skilled in the art, bobbins produced on spinning frames of the movable ring rail type have two tail ends of yarn at the time of completion and after lowering of the ring rail, preparatory to doffing. One of these yarn tail ends is commonly called the "start up" tail. The yarn constituting the start up tail comes from the drafting system of the spinning frame and through the ring traveler and then inwardly so as to form several yarn wraps on the spindle immediately below the bobbin when the ring rail is fully lowered as for doffing and placing new bobbins upon the spindles. From the few wraps on the spindle, the yarn extends spirally across the butt of the bobbin and then is wound directly into the lowermost extremity of the yarn package as the ring rail gradually rises. Upon doffing of the bobbin after completion thereof, according to conventional procedures, this start up tail is broken and hangs loose for about one inch at the bottom of the package and the several yarn wraps remain on the spindle.

A second yarn tail end commonly called a "doff tail," and of no concern in the present invention, is produced when the ring rail is lowered to the doffing position after the full building of the bobbins with or without the inclusion of a tip bunch on the upper tips thereof. When the ring rail is lowered preparatory to doffing, either manually or automatically, the several wraps of yarn coming from the tip bunch or from the upper extremity of the package are wrapped on the exterior of the package in a wide spiral, and several more wraps of yarn are wound on the spindle immediately below the bobbin butt until the spindle coasts to a stop. When the bobbins are doffed, the yarn is broken between the wraps on the spindle and those few wraps on the package caused by ring rail lowering and the second tail or "doff tail" is produced on the doffed bobbin.

The existence of the "start up tail" on completed bobbins is objectionable and it is the object of this invention to provide means for eliminating the start up tail at any time during the bobbin building process when the ring rail has achieved a sufficient elevation to allow use of the invention implement. The invention is in no way concerned with the treatment or elimination of the "doff tail" because at the time when the invention is employed, the bobbins are being gradually built and the doff tail has not yet been created by the final lowering of the ring rail.

Two reasons why it is desirable to eliminate the start up tail are the following. The start up tail can become entangled after doffing with the doff tail of the same bobbin. If this occurs, the tip bunch cannot be pulled off properly in the magazine filling system of the loom. Furthermore, the start up tail of a bobbin can become entangled with the doff tail of another bobbin in the same container. When the two bobbins are pulled apart, the tip bunch can be pulled off. The invention by completely eliminating the loose start up tail prior to doffing and at any convenient time during bobbin building completely eliminates the above difficulties and conditions

the bobbins for more efficient use in modern looms, as will be understood by those skilled in the art.

Another object of the invention is to provide a bobbin start up tail eliminator in the nature of a simplified adjustable manual implement which may be guided along the fixed spindle rail in a rapid manner by the user to efficiently condition the bobbins with uniformity while the spinning frame is in operation and without interfering in any way with the continued operation of the frame and without requiring any modification of the spinning frame structure.

Still another object is to provide an implement for the purpose described which is lightweight, rugged and durable, and cheap to manufacture.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this application and in which like numerals are employed to designate like parts throughout the same.

FIGURE 1 is a partly diagrammatic fragmentary front elevation of a movable ring rail spinning frame, illustrating use of the invention in connection therewith for conditioning bobbins in the frame,

FIGURE 2 is a enlarged fragmentary transverse vertical section taken on line 2—2 of FIGURE 1, and

FIGURE 3 is a perspective view of the invention implement together with a fragmentary portion of the spinning frame with which it coacts.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of the invention, the numeral **10** designates the stationary horizontal spindle rail of a conventional spinning frame having the usual vertically movable ring rail **11** and associated parts. A plurality of spindles **12** are rotatably mounted upon the fixed spindle rail **10** and revolve in unison on their vertical axes of rotation under the influence of well known driving tape means **13** and associated parts. A corresponding number of bobbins **14** are applied removably over the spindles **12** and have body portions or packages **15** of yarn gradually built thereon during the traversing action of the ring rail **11**, according to a mode of operation which is conventional and well known in the art and need not be described herein. In the drawings, the several bobbins **14** are shown with their packages of yarn partially completed and the ring rail **11** is in an intermediate position sufficiently spaced from the spindle rail **10** to permit efficient use of the invention implement designated generally by the numeral **19**.

As shown in the drawings, particularly FIGURE 3, and the right-hand portion of FIGURE 1, the few yarn wraps **18** on the spindles **12** immediately below the butts **31** of the bobbins are created there when the ring rail was previously in the fully lowered doffing position below the bobbin butts at the time that the new bobbins shown in the drawings were applied to the spindles. The yarn constituting the wraps **18** is derived through the drafting system of the spinning frame and through the ring travelers, not shown, on the ring rail. When the ring rail began to rise from the extreme lowered position, not shown, toward the position shown in FIGURE 1, the yarn was passed across the bobbin butts **31** as indicated at **18'** and leads directly into the bottom of the yarn package, **15**, as clearly shown. As previously explained, the conventional bobbin doffing operation after the completion of bobbin building causes breaking of the yarn ends between the packages and the spindle wraps **18** and this is what produces the objectionable loose start up tails on the completed bobbins which are customarily about one inch long or a bit more. As stated, this invention processes or eliminates the start up tails at a convenient time during the bobbin building cycle and actually before

the loose tails are created by the breaking or severing thereof at doffing.

The invention implement **19** per se comprises a sturdy flat rectangular plate body portion, as shown, somewhat elongated in the vertical direction during use and having a centrally located rigid handle **20** secured thereto and extending beyond one side thereof at right angles to the plate body portion. The handle **20** is preferably of a shape and size to allow convenient grasping by one hand. The handle **20** may have a screw-threaded connection at **21**, FIGURE 2, with the plate body portion **19**, if desired, so that the parts may be separated.

The plate body portion **19** of the implement is provided near and above its lower edge and in its forward face with a transverse groove or recess **22** adapted to receive slidably the forward horizontal edge portion **23** of the spindle rail **10**. The groove **22** which is horizontal during use constitutes a means for guiding the implement smoothly and rapidly in a straight path along the row of bobbins **14** to condition them in the desired manner.

The plate body portion **19** has a pair of parallel spaced vertically extending slots **24** extending therethrough near opposite sides thereof and receiving screws **25**, as shown in the drawings. The screws **25** carry winged clamping nuts **26** adapted to bear against the rear face of the plate body portion **19** for clamping the screws **25** in selected adjusted positions within the slots. The forward ends or heads **27** of screws **25** are secured to thin flat cross strips **28** which lie from the forward face of body portion **19** and are adjustable vertically with the screws **25** to selected points on the implement.

The elements or strips **28** constitute the carriers for lower and upper bruhes **29** and **30**, each comprising a horizontally elongated rectangular bundle of brush bristles projecting forwardly of the strips **28** at right angles thereto and suitably anchored thereto firmly. The bristles of the lower brush **29** are longer than the bristles of the upper brush **30**, as clearly shown in FIGURE 2, and are preferably former of bronze or brass wire. The bristles of the upper brush **30** are preferably formed of nylon or some suitable plastic. Due to its longer bristles, the lower brush **29** projects considerably further forwardly of the body portion **19** than the upper brush, for a reason to be further described.

The use or operation of the invention is as follows. After the ring rail **11** has reached a sufficient elevation above the spindle rail **10** during bobbin building, and while the spinning frame is in full operation, the operator or spinner grasps the handle **20** of the implement firmly in one hand and brings the guide groove **22** into sliding engagement with the edge of the spindle rail **10**. The operator then simply walks along the spinning frame fairly rapidly in the direction of the arrow in FIGURE 1 while continuing to hold the implement and maintaining its guided sliding engagement with the edge of the spindle rail.

As shown most clearly in FIGURE 2, the above operation causes the lower brush **29** having the longer metal bristles to engage and sever the yarn strand **18'** between it and the several wraps **18** on the spindle and adjacent the bottom of the bobbin butt **31**. Substantially simultaneously, the upper brush **30** with the nylon or plastic bristles will engage the severed yarn end which would normally constitute the objectionable "start up tail" in conventional practice, and wind the same up into the lower extremity of the package **15** as shown approximately at **32** in the drawings. The upper brush **30** will also embed the wound up yarn portion **32** to a certain extent into the surface of the package so that it cannot readily become unwound after processing with the invention.

Another important feature of the invention is that the lower brush **29** simultaneously with the severing of the yarn adjacent the bobbin butt **31** engages the yarn wraps **18** on the spindle acorn and effectively cleans or removes the wraps therefrom, thus overcoming another bothersome problem known to the art. The above operation is of course repeated in the identical manner for each bobbin in succession as the operator moves the implement smoothly along the spinning frame. At each bobbin, the yarn **18'** will be severed and the loose end will be wrapped up into the package at **32** and the wraps **18** will be cleaned or removed from the spindle, as stated. The invention implement acts upon the bobbins with almost perfect uniformity and preconditions them to overcome the above-described deficiencies of the conventional prior art.

Since the brushes **29** and **30** are adjustable in the slots **24**, their spacing may be varied in the required manner so that the two brushes will properly straddle the bobbin butts **31**, as shown in FIGURE 2, and properly engage the yarn above and below the butts, as described. The two brushes are properly adjusted prior to use and can be made to accommodate various types or designs of bobbins and spindles which may be encountered in practice.

It is believed that the full advantages of the invention and its usefulness will now be apparent to those skilled in the art without the need for a further description or illustration.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to, without departing from the spirit of the invention or scope of the subjoined claims.

Having thus described my invention, I claim:

1. An implement for conditioning bobbins during winding in a spinning frame having a fixed spindle rail and vertically oriented bobbin supporting spindles thereon comprising, a hand held body portion adapted for guided engagement with the fixed spindle rail of the spinning frame as the implement is moved along the spinning frame, and means on the body portion projecting from one side thereof to engage and sever yarn ends extending from the lower portion of the bobbins in the spinning frame and to wrap the severed yarn ends into the yarn packages of the bobbins and to also engage the bobbin spindles immediately below the bobbins to clean wraps of yarn therefrom.

2. A device for preventing the formation of loose start up tails on bobbins formed in a spinning frame having a fixed spindle rail and vertically oriented bobbin supporting spindles thereon comprising, a hand held implement body portion adapted for guided engagement with fixed spindle rail during sliding movement therealong, and a pair of spaced adjustable elements on the body portion projecting beyond one side thereof, one of said elements rubbingly engage the bobbins immediately above the butts thereof and the other of said elements engaging the spindles carrying the bobbins immediately below said bobbin butts so as to engage and sever yarn ends extending from the lower portion of the bobbins and to wrap the severed yarn ends into the yarn packages of the bobbins.

3. The invention as defined by claim **2**, and wherein said engaging elements are upper and lower brush units on said body portion, and means adjustably clamping the brush units to the body portion, whereby the spacing between the brush units may be varied so that the brush units may straddle the butts of bobbins during use.

4. The invention as defined by claim **3**, and wherein the upper brush unit embodies a horizontally elongated bundle of synthetic material bristles of a length permitting engagement with the lowermost portions of yarn packages immediately above the bobbin butts, and said lower brush unit embodies a horizontally elongated bundle of metallic wire bristles of a greater length than the bristles of the upper brush unit permitting engagement

of the lower brush unit with the bobbin spindles immediately below the bobbin butts.

5. The invention as defined by claim 4, and wherein the bristles of the upper brush unit are nylon and the bristles of the lower brush unit are brass to enhance their yarn cutting capacity.

6. A bobbin conditioning device comprising a plate body portion having a pair of parallel slots formed therethrough and a groove in one face thereof substantially at right angles to said slots, a manipulating handle on the plate body portion centrally thereof and substantially at right angles thereto and extending from the side of the plate body portion remote from said groove, a pair of relatively stiff somewhat yielding elements carried by the plate body portion and projecting forwardly of the side thereof having said groove, and fastener means carrying the rubbing elements and said slots clampingly and adjustably so that the spacing between the elements may be varied.

7. For use in conjunction with the horizontal longitudinal edge of a spinning frame spindle rail, a device for eliminating loose start up tails on bobbins in spinning frames, said device comprising a plate which is disposed upright during use and provided near its lower end and in its forward face with a transverse guide recess, said plate having vertically extending through slots above said recess substantially at right angles thereto, a pair of vertically spaced stiff brush sections, means carrying the brush sections and engaging adjustably within the through slots of the plate and suppporting the brush sections adjacent the forward face of the plate, and a handle secured to the plate and projecting beyond the rear face thereof remote from the brush sections.

8. A bobbin conditioning implement comprising a transportable body portion having a handle and adapted for guided engagement along a straight rigid member supporting bobbins having yarn wound thereon, and spaced yarn engaging elements on said body portion for engaging yarn on said bobbins above and below the butts of the bobbins, respectively, to sever yarn, extending from the lower portion of the bobbins, close to the bottoms of the butts of the bobbins and wrap it up into the packages of the bobbins above said butts.

References Cited by the Examiner

UNITED STATES PATENTS

1,085,662 2/1914 Brunner ---------- 57—56 XR

FOREIGN PATENTS

2,014 1858 Great Britain.

STANLEY N. GILREATH, *Primary Examiner.*