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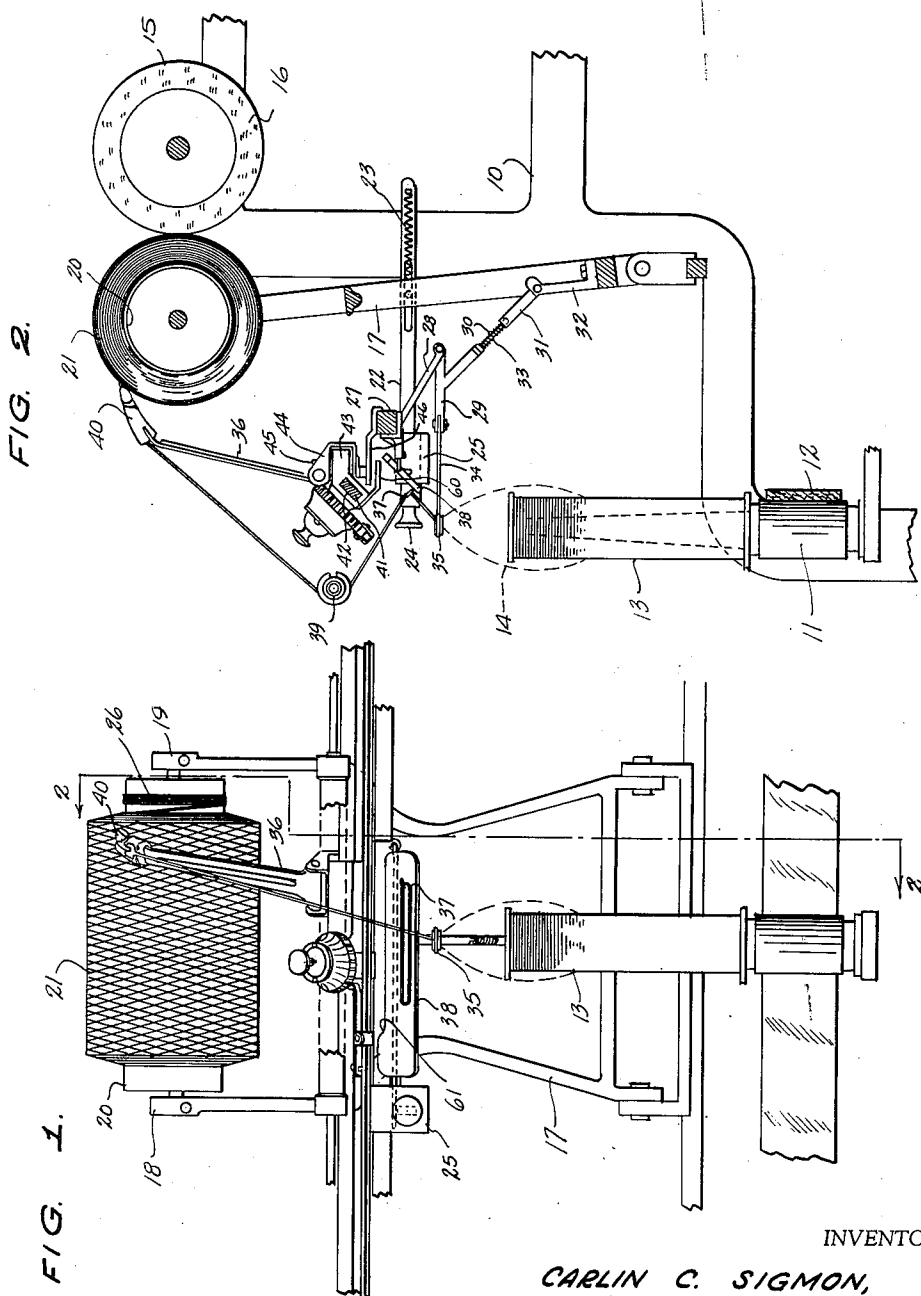
C. C. SIGMON

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TRANSFER WINDING ATTACHMENT FOR SPINNING MACHINES

Filed April 27, 1951

2 SHEETS—SHEET 1



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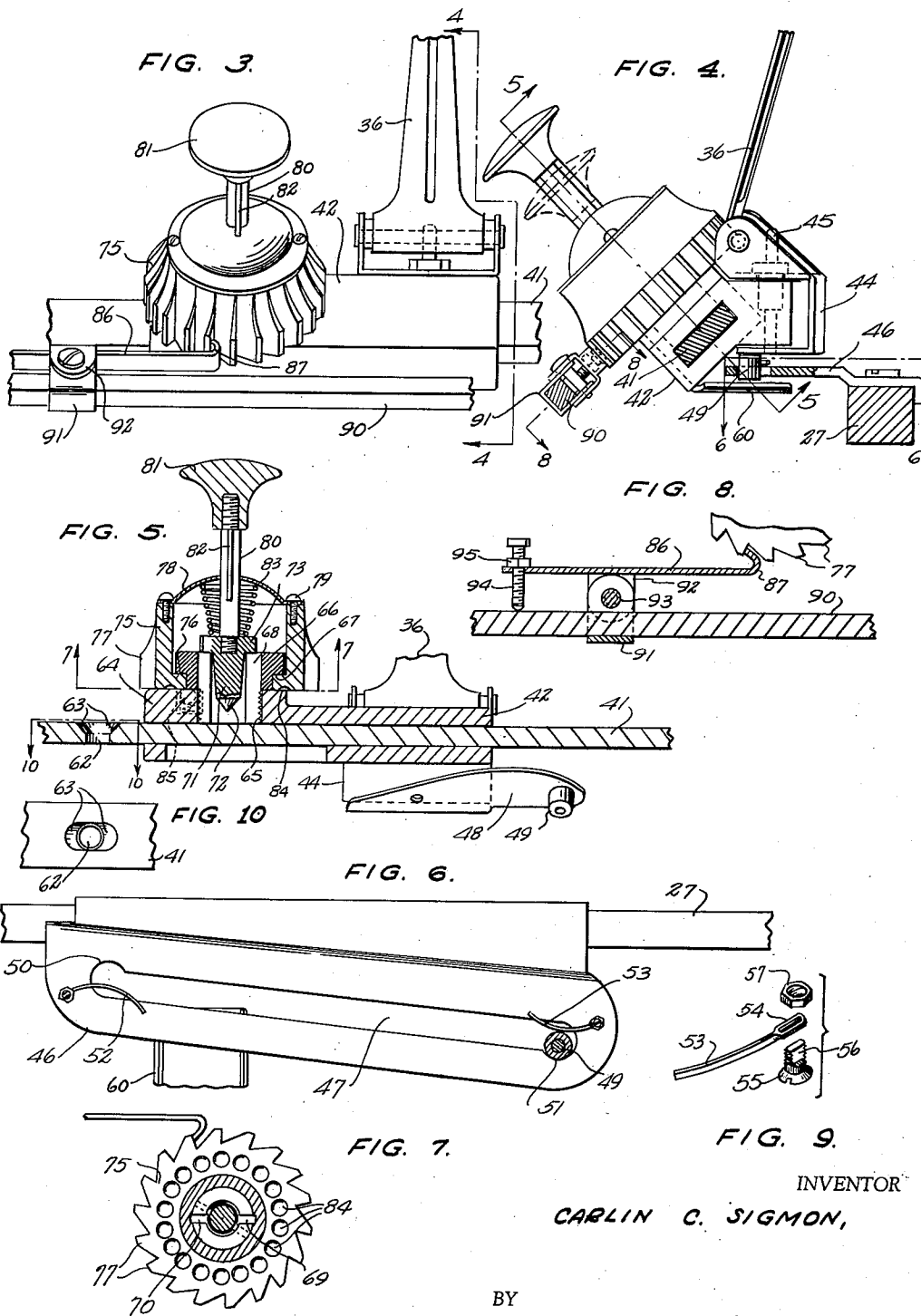
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2 SHEETS—SHEET 2



INVENTOR

CARLIN C. SIGMON,

BY
McMorrow, Berman & Davidson
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,597,537

TRANSFER WINDING ATTACHMENT FOR
SPINNING MACHINES

Carlin C. Sigmon, Alexis, N. C.

Application April 27, 1951, Serial No. 223,367

6 Claims. (Cl. 242-43)

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This invention relates to transfer winding attachments for spinning machines and more particularly to an attachment adapted to be mounted on a spinning machine and manually set to predetermine the yardage of thread or yarn to be wound separately on a thread package at the beginning of a spinning operation.

It is among the objects of the invention to provide a transfer winding attachment which can be mounted on an existing spinning machine with no material modification of the machine construction and can be manually set to automatically wind a predetermined yardage of thread or yarn separately on a thread or yarn package at the beginning of a spinning operation so that all of the loosely wound yarn at the beginning of the spinning operation will be wound separately and can be removed when the package is mounted on a warping machine prior to weaving the yarn into cloth; which attachment is easy to set manually and is automatically released to wind the yarn on a yarn package as soon as the separate winding or transfer has been completed; which does not interfere in any way with the normal operation of the spinning machine; which is effective to save an important amount of skilled hand labor in the thread or yarn spinning operation; and which is simple and durable in construction, economical to manufacture, easy to install and positive and effective in operation.

Other objects and advantages will become apparent from a consideration of the following description and the appended claims in conjunction with the accompanying drawings wherein:

Figure 1 is an elevational view of a fragmentary portion of a spinning machine showing a transfer winding attachment illustrative of the invention operatively mounted thereon;

Figure 2 is a cross sectional view on the line 2-2 of Figure 1;

Figure 3 is a front elevational view on an enlarged scale of the transfer winding attachment;

Figure 4 is a cross sectional view on the line 4-4 of Figure 3;

Figure 5 is a cross sectional view on the line 5-5 of Figure 4;

Figure 6 is a cross sectional view on the line 6-6 of Figure 4;

Figure 7 is a cross sectional view on the line 7-7 of Figure 5;

Figure 8 is a cross sectional view on the line 8-8 of Figure 4;

Figure 9 is an exploded perspective view of a spring element shown one at each end of Figure 6; and

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Figure 10 is a fragmentary top plan view looking from the line 10-10 in Figure 5.

With continued reference to the drawings, the spinning machine fragmentarily and somewhat diagrammatically illustrated in Figures 1 and 2 may be an existing spinning machine manufactured by the U. S. Textile Machine Company of Scranton, Pennsylvania, and called an Acme face drive spinner. As the spinning machine is well known to the art, it has been considered sufficient to illustrate only the portions thereof with which the transfer winding attachment of the present invention is directly related, and it is also to be understood that the transfer winding device may be applied to other spinning machines without in any way exceeding the scope of the invention.

The spinning machine has a fixed frame 10 which is elongated to support a large number of spindles, one spindle unit only being diagrammatically illustrated in the accompanying drawings. The spindle 11 is rotatably supported on the lower front portion of the machine and is driven at high speed by suitable means, such as the belt 12 connected to a suitable power plant, such as an electric motor. A bobbin 13 is mounted on the upper end of the spindle 11 for rotation at a high rate of speed about a substantially vertical axis and the loosely wound yarn is pulled off of the top of the bobbin, being twisted as it is pulled off by the rapid rotation of the bobbin and swinging rapidly in a somewhat ovoid figure, as indicated at 14, sometimes referred to in the trade as a balloon.

A roller 15 is mounted on the upper portion of the frame for rotation about a substantially horizontal axis and is driven from a suitable power plant which may be the same motor which drives the spindle 11. This roller is provided with an outer facing 16 of resilient material, such as cork, and is usually referred to as a cork roll.

A yoke 17 is pivotally mounted at its lower end on the frame and between the roller 15 and the spindle 11 for swinging movement about an axis below and substantially parallel to the rotational axis of the roller. At its upper end this yoke is provided with a pair of spaced apart forks, as indicated at 18 and 19 in Figure 1, and a package winding tube 20 is provided with a removable core having arbors disposed one at each end thereof and respectively journaled in the forks 18 and 19 for rotatably supporting the tube on the upper end of the yoke. The yarn or thread is pulled off of the bobbin 13 and wound onto the tube 20 to provide a yarn package 21, as is particularly

illustrated in Figures 1 and 2, the yarn being twisted as it is wound from the bobbin onto the package by the rapid rotation of the bobbin. A bar 22 is slidably mounted on the frame and disposed substantially at right angles to the yoke 17. The rear end of this bar is connected to the yoke by a tension spring 23 and the front end of the bar is provided with a hand knob 24. Intermediate its length the bar slides through a fixed guide 25 which guide carries a pin engageable in a notch in the bar to lock the bar in a retracted position. The bar is moved to its retracted position by manual pressure on the knob 24 and when the bar is in its retracted position the spring 23 pulls the yoke back toward the roller 15, so that this roller engages the surface of the tube 20 and the surface of the yarn package as the yarn is wound onto the tube to impart rotational movement to the package at a substantially constant peripheral speed. When the yarn breaks or is completely pulled off of the bobbin the bar 22 is released, in a manner to be later described, to permit the yarn package to fall away from the driving roller and come to rest, so that the completed package can be manually removed from the forks and taken to the steam room.

During the first part of the spinning operation and before the bobbin 13 comes up to full speed, the yarn is loosely twisted and is not suitable for use in weaving cloth. This loosely woven yarn is wound separately on the tube 20 at one end of the tube, as indicated at 26 in Figure 1, and is called a transfer. It is usually necessary to wind from six to ten yards of yarn at the beginning of the spinning operation onto the tube before the winding of the yarn package 21 is begun. It will be noted that the transfer 26 is spaced from the adjacent end of the package so that the transfer can be removed and discarded without wasting any of the yarn in the package.

After the transfer and the package have been completely wound onto the tube, the loaded tube is taken to the steam room where the yarn is steamed to deaden it and render it easily removable from the tube. The loaded tube is then carried to a warping machine where the yarn is wound off of the package onto the warp beam of a loom. At this point the transfer 26 is removed and broken off, a sufficient length of the transfer being left trailing so that the outer end of a subsequent package can be knotted to this trailing end of the transfer to provide a continuous warping operation.

In the spinning operation the yarn is wound onto the package through suitable yarn guides and a level winding device which distributes the yarn evenly over the package and tapers the ends of the package, as is particularly illustrated in Figure 1. With the conventional machine it is necessary to pull the yarn at the beginning of the operation and to guide the yarn constituting the transfer 26 onto the tube by hand until, in the operator's judgment, the proper amount of yarn has been wound into the transfer, whereupon the yarn is released and the level winding mechanism starts building up the yarn package at a location slightly spaced from the transfer winding.

With the transfer winding attachment of the present invention the winding of the transfer is mechanically controlled and the yardage of yarn wound into the transfer is definitely predetermined.

A fixed bar 27 extends transversely of the face of the winding machine between the spindle 11 and the yoke 17 and a support 28 is inclined

downwardly from the under side of this bar toward the yoke. A Y-shaped lever 29 is pivotally secured at one end to the support 28 at the end of the latter remote from the bar 27 and one leg of the lever has a reduced extension 30 slidably received in a socket 31 pivotally mounted on the upper end of a standard 32 carried by the yoke, a compression spring 33 being interposed between the socket and the leg of the lever at the proximal end of the reduced portion 30. An arm 34 is pivotally connected at one end to the end of the lever 29 remote from the pivotal connection of the lever with the support 28 and this arm 34 carries at its end remote from the lever a thread guide eye 35 through which the thread passes from the bobbin 13. This arm 34 maintains the eye 35 directly above the bobbin during the spinning operation, but the pivotal connection between arm 34 and lever 29 permits the arm and eye to be swung out of the way when the bobbin is changed. The eye is also moved vertically as the size of the yarn package increases to maintain a substantially even tension on the yarn.

Upon leaving the eye 35 the yarn passes through a guide 37 on a cam plate 38 pivotally mounted on the guideway 25 and carrying at one end a pin engageable with the bar 22 for releasing the bar when the thread breaks or has been exhausted from the bobbin. After leaving the guide 37 on the plate 38 the yarn passes over a fixed guide roll 39 and from the guide roll passes the yarn guiding head 40 on the distal end of the traversing arm 36 which head feeds the yarn onto the yarn package 21 and level winds the yarn from one end of the package to the other.

A traversing rail 41 extends substantially horizontally across the face of the winding machine and substantially parallel to the fixed bar 27. This rail is constantly reciprocated by suitable power operated means, not illustrated, the range of its reciprocatory movement being less than the length of the yarn package 21. A carriage 42 is mounted on the rail 41 for movement therewith and comprises an elongated member of channel shaped cross section receiving the rail interiorly thereof. The rail 41 is slidably mounted in suitable guide brackets carried by the machine frame 10 and is of elongated, rectangular cross sectional shape and so positioned that its major surfaces are disposed at an angle of approximately 45 degrees to the horizontal. The carriage has an extension 43 which projects therefrom toward the yoke 17 and is substantially horizontally disposed. A bracket 44 is pivotally mounted on the extension 43 by a pin 45 extending through registering apertures in the bracket and extension 43 for movement about a substantially vertical axis which is disposed substantially at right angles to the rail 41 and the traversing arm 36 is pivotally connected at its lower end to the bracket 44 for movement about an axis which is substantially horizontal and substantially parallel to the rail 41.

When the carriage 42 moves with the rail 41 the traversing arm 36 and its thread guiding head 40 are carried back and forth longitudinally of the tube 20 to distribute the yarn in the package 21 evenly from one end to the other end of the package.

A flat plate 46 is mounted along one edge on the upper surface of the fixed bar 27 and projects from the fixed bar toward the reciprocating rail 41. This plate, as is particularly illustrated in Figure 6, extends longitudinally of the bar 27

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and has a straight slot 47 extending longitudinally thereof and closed at both ends. The slot 47 is inclined relative to the bar 27 and the rail 41 and an extension 48 projects laterally and longitudinally from the bracket 44 and overlies the slotted portion of the plate 46. A roller 49 is carried by the extension 48 at the distal end of the extension and rides in the slot 47.

As the carriage 42 is moved back and forth by the reciprocating rail 41 the inclined slot 47 acting on the roller 49 causes the traversing arm 36 to swing about the axis of the pivot pin 45. At the beginning of the winding operation the traversing arm 36 is inclined at its maximum angle from the vertical and hence the operation of the slotted plate and roller 49 causes the maximum swinging action or throw of the traversing arm when there is little or no yarn wound on the tube 20. Under these conditions the traversing arm swings the thread guide 40 outwardly beyond its range of reciprocating movement at the ends of the thread package on the spool providing the maximum length of the package adjacent the spool. As the thread is wound onto the spool and the position of the arm 36 brought nearer the vertical, the throw of the thread guide 40 at the ends of the package is gradually decreased so that the length of the package is less at the periphery of the package than adjacent the tube 20 and the ends of the package are beveled or tapered inwardly from the spool 20, as is clearly illustrated in Figure 1.

The plate 46 is provided with rounded notches 50 and 51 disposed one at each end of the slot 47 and leaf springs 52 and 53 are mounted on the plate 46 adjacent the notches 50 and 51 respectively. These springs are disposed in opposition to the notches and each spring, as is particularly illustrated for the spring 53 in Figure 9, comprises a curved flat spring portion having an elongated loop or eye 54 at one end. A screw 55 is threaded through an aperture in the plate 46 adjacent the corresponding notch and has a beveled head received in a countersunk end portion of the plate. The screw threaded portion of the screw is flattened on its opposite side to provide a shank, as indicated at 56, which receives the elongated eye formation 54 of the spring and a nut 57 is threaded onto this shank portion of the screw and forces the eye portion of the spring against the adjacent surface of the slotted plate to hold the spring in operative position relative to the corresponding notch in the plate. If the carriage 42 is released from the rail 41 and moved longitudinally of the rail so that the roller 49 is received in one of the notches 50 or 51 the corresponding spring 52 or 53 will resiliently lock the roller in the corresponding notch and the carriage will be held against movement longitudinally of the winding tube 20. This will hold the traversing arm 36 and the thread guide 40 at one end of the tube for the winding of the transfer yarn onto the tube at the corresponding end of the latter.

A cam lug 60 is carried by the carriage 42 and is disposed immediately below the plate 46. This cam lug traverses back and forth over the upper edge of the trip plate 38. As long as the yarn passes through the elongated eye or guide 37 on the trip plate 38 the plate is held in a position such that it is not contacted by the cam lug 60 but, if the yarn breaks or is completely wound off of the bobbin 13, the trip plate 38 is freed and tips up so that the cam lug hits the inclined cam

portion or ramp 61 at one end of the trip plate. This movement of the trip plate forces the bar or plunger 27 downwardly and releases it from its latch with the guide 25 so that the plunger can move outwardly permitting the package to fall away from the driving roller 15 and stop rotating.

In order to make the transfer windings on one end of the package winding tube 20, the carriage 42 is temporarily released from the reciprocating rail 41 and held at a selected end of the tube by engagement of the roller 49 in one of the notches 50 or 51 and, when the desired amount of yarn has been wound into this transfer winding, the carriage is automatically re-engaged with the reciprocating rail and the winding of the yarn package begins.

In order to accomplish the above operation the reciprocating rail 41 is provided with an aperture 62 having at the upper side of the rail countersunk portions 63 extending longitudinally of the rail at respectively opposite sides of the aperture and inclined at an angle of approximately 45 degrees. The carriage 42 has a thickened portion 64 at one end of its upper part which rides on the top surface of the rail 41 and this thickened portion is provided with a screw threaded aperture or tapped hole 65. A tubular stud is provided at one end with a screw threaded portion threaded into the tapped hole 65 and is provided at its other end with an outwardly projecting annular flange 66 which rests upon the upper surface of the thickened portion of the carriage and is provided around its edge adjacent the carriage with a rectangular groove or annular rabbet 67 providing an annular shoulder spaced from and opposed to the adjacent surface of the carriage. The inner portion 68 of the stud is provided with a pair of longitudinally extending grooves, as indicated at 69 and 70 in Figure 7, disposed substantially 180 degrees apart.

A tapered pin 71 is received in the bore of the stud and has at its end adjacent the rail 41 a conically tapered portion 72. At its other end the pin is provided with laterally extending wings or ribs 73 disposed substantially 180 degrees apart which are movable through the grooves 69 or 70 when they are brought into registry with the grooves.

A ratchet wheel 75 in the form of a hollow cylinder surrounds the flange 66 of the stud and has at one end an inwardly projecting annular flange 76 which is received in the annular groove 67 in the stud flange and secured between the flange 66 and the adjacent surface of the carriage, so that while the wheel is rotatable around the stud it is held against movement toward and away from the carriage. Around its periphery the ratchet wheel is provided with a series of ratchet teeth 77, for a purpose to be later described, and a domed or partly spherical end plate 78 is secured to the end of the ratchet wheel remote from the carriage in covering relationship to this end of the ratchet wheel by suitable means, such as the cap screws 79 extending through apertures in the end plate and threaded into tapped holes or wells in the corresponding end of the ratchet wheel.

A stem 80 is threaded at one end into a screw threaded well or recess in the end of the pin 71 carrying the wings 73 and a knob 81 is threaded onto the other end of this stem at the outer side of the end plate 78 of the ratchet wheel.

The stem 80 extends slidably through an aperture in the end plate 78 at the center of the latter

and is provided with one or more longitudinally extending ribs 82 which engage in notches in the end plate to restrain the stem against rotation relative to the ratchet wheel while permitting longitudinal sliding movement of the stem relative to the end plate 78.

A coiled compression spring 83 is disposed between the end plate 78 and the adjacent end of the pin 71 and resiliently urges the pin toward the rail 41.

The ratchet wheel 75 is provided in its end adjacent the carriage 42 with a series of partly spherical recesses 84 and a ball detent 85 is mounted in a recess in the carriage and spring pressed into the depressions or recesses 84 to provide a clicker between the ratchet wheel and carriage to determine the extent of manual rotation of the ratchet wheel by the hand knob 81 in terms of the number of ratchet teeth moving past a fixed point on the carriage.

With this arrangement, the pin 71 can be raised against the force of spring 83 by pulling upwardly on the knob 81 until the wings 73 of the pin are above the upper ends of the stud 66. By then rotating the knob the ratchet wheel and the pin will be simultaneously rotated relative to the stud to bring the wings 73 on the pin out of registry with the grooves 69 or 70 in the stud, so that the pin will be held above the rail 41 until it is rotated to a position at which the wings 73 are returned to alignment with the grooves. At this time the spring 83 will force the pin down and, upon reciprocation of the rail 41, the lower end of the pin will engage in the beveled portion at one side of the aperture 62 in the rail causing the carriage to start to move with the rail and pull the roller 49 out of the notch 50 or 51 in which the roller is engaged. As soon as the roller is freed from the corresponding notch the pin 71 is projected full into the aperture 62 in rail 41 and the taper of the pin provides a tight fit of the pin in the aperture which will prevent any lost motion between the carriage and the rail.

After the pin has been raised by the knob 81 out of the aperture 62 and away from the rail 41 and rotated so that it is supported on the upper end of the stud 66, the carriage can be manually moved along the rail 41 in either direction until the roller 49 is received in one of the notches 50 or 51. As long as the roller is held in one of these notches by the associated spring 53 the carriage will be held against movement and the traversing thread guide will be held adjacent one end of the package tube 20 for the winding of the transfer yardage of yarn on the tube adjacent the corresponding end of the latter.

The notches 50 and 51 are disposed somewhat beyond the limits of normal reciprocating travel of the carriage when connected to the rail 41, so that the roller 49 will not enter either of these notches after the carriage has been reconnected to the reciprocating rail for winding the yarn package 21.

In order to rotate the pin 71 back to a position at which the wings 73 register with the proper grooves in the stud, a ratchet pawl 86 in the form of a flat leaf spring having a hook 87 at one end, is connected to the rail 41 for movement with the rail and is engageable with the ratchet teeth 77 of the ratchet gear 75 when the roller 49 is in one or the other of the notches 50 or 51.

An auxiliary rail 90 extends along the rail 41 and is spaced outwardly therefrom so that it is clear of the carriage 42. This auxiliary rail is connected to the rail 41 for reciprocatory move-

ment therewith and a clamp 91 is secured on the auxiliary rail 90 adjacent the carriage 42. The pawl 86 is provided intermediate its length with apertured lugs 92 which are disposed at respectively opposite sides of the clamp 91 and pivotally connected to the latter by a pivot screw 93 extending through registering apertures in the lugs 92 and in the apertured end portions of the clamp which extend from the rail 90 toward the rail 41.

At its end remote from the hook formation 87 the pawl 86 is provided with a tapped hole and an adjusting screw 94 is threaded through this hole and bears at one end against the adjacent side of the rail 90 to position the hook formation 87 for engagement with the teeth 77 of the ratchet wheel. This screw is secured in adjusted position relative to the pawl by lock nut 95 threaded onto the screw and bearing against one side of the pawl.

After the carriage has been released from the reciprocating rail and moved beyond one end of its range of reciprocatory movement so that the roller 49 is secured in one of the notches 50 or 51 by the associated spring 52 or 53, upon reciprocation of the rails 41 and 90 the hook formation 87 on the pawl 86 will engage the ratchet teeth and rotate the ratchet wheel step by step in the same direction to that in which the wheel was rotated by the hand knob 81, so that after a predetermined number of reciprocations of the rails, the wings 73 on the locking pin will be brought back into alignment with the grooves in the stud 66 and the pin will be forced by the compression spring 83 into the aperture 62 in the rail 41 to reconnect the carriage 42 to the rail. As explained above, this pulls the roller 49 out of the notch in which it is engaged and causes the carriage carrying the traversing thread guide to reciprocate with the rail. During this normal reciprocation of the carriage with the rail the roller 49 will not re-enter either of the notches 50 or 51 and the hook formation 87 on the pawl 86 will not engage the ratchet teeth 77, since the pawl and ratchet wheel now reciprocate together with the carriage and the rails 41 and 90.

As a definite amount of yarn will be wound on the package tube during each reciprocation of the rail 41, the exact amount of yarn to be wound into the transfer winding can be predetermined by the extent of rotation of the ratchet wheel 75 at the time the carriage is released from the reciprocating rail. After this predetermined yardage of yarn or thread has been wound into the transfer winding the carriage will be automatically reconnected with the reciprocating rail to wind the yarn package. Thus, the only attention required on the part of the operator is to set the attachment for the desired amount of yardage in the transfer winding and the attendant can quickly set the attachment as he threads the yarn from the bobbin through the yarn guides and connects it to the package spool, not having to wait after each threading until the transfer winding has been completed. The yardage in each transfer winding is also accurately determined and does not depend upon the judgment of the operator or attendant at the spinning machine.

The reciprocating rail 41 is mounted in modified slide brackets attached to the machine frame, so that the faces of this rail are inclined approximately 45 degrees to the horizontal and the longitudinal center line of the stem 80 and pin 71 is also inclined outwardly at an angle of approximately 45 degrees. This is to position the

attachment so that the yarn package 21 will not rub against the attachment as the package is filled, and to provide room for the package to drop away from the associated cork roll at the end of the winding operation.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is, therefore, to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are, therefore, intended to be embraced therein.

What is claimed is:

1. In a spinning machine, the combination with a frame, a rail mounted on said frame for reciprocatory longitudinal movement, a carriage connected to said rail for movement therewith and having an upstanding traversing thread guide mounted thereon, a package tube supported on said frame for rotation about an axis spaced from and substantially parallel to said rail, a guideway on said frame adjacent said rail, and a roller connected to said carriage and movable in said guideway, of manually operable means disposed adjacent said carriage and said rail for disconnecting said carriage from said rail, means acting between said roller and said guideway for latching said carriage against movement when the latter is released from said rail and moved beyond one end of its range of reciprocating movement when connected to said rail to thereby hold said traversing thread guide adjacent one end of said package tube, and coacting means on said rail and said manually operable means operable in response to predetermined relative movement of said carriage and said rail only when said carriage is disposed beyond one end of its normal range of reciprocatory movement for reconnecting said carriage to said rail.

2. In a spinning machine, the combination with a frame, a rail mounted on said frame for longitudinal reciprocatory movement, a carriage connected to said rail for movement therewith and having an upstanding traversing thread guide mounted thereon, a package tube supported on said frame for rotation about an axis spaced from and substantially parallel to said rail, a guideway on said frame adjacent said rail, and a roller connected to said carriage and movable in said guideway, of a pin carried by said carriage and engageable in an aperture in said rail to connect said carriage to said rail for movement therewith, spring means resiliently urging said pin into engagement with said rail, manually operable means connected to said pin for retracting said pin from said rail and rotating the pin, means locking said pin when rotated in retracted position, means acting between said roller and said guideway for latching said carriage against movement when said pin is retracted and said carriage is manually moved beyond one end of its range of reciprocatory movement when connected to said rail to thereby hold said traversing thread guide adjacent one end of said package tube to make a transfer winding on said tube, and means operated by a predetermined relative movement between said carriage and said rail connected to said pin for rotating the latter to release position to reconnect said carriage to said rail.

3. In a spinning machine, the combination with a frame, a rail mounted on said frame for

longitudinal reciprocatory movement, a carriage connected to said rail for movement therewith and having an upstanding traversing thread guide mounted thereon, a package tube supported on said frame for rotation about an axis spaced from and substantially parallel to said rail, a guideway on said frame adjacent said rail, and a roller connected to said carriage and movable in said guideway, of a tubular stud threaded at one end into an aperture in said carriage and having at least one internal groove extending longitudinally thereof, a pin in said stud engageable at one end in an aperture in said rail to connect said carriage to said rail for movement therewith, a wing on said pin slidable in said groove, a spring acting between said pin and said stud resiliently urging said pin into engagement in the aperture in said rail, a stem secured to said pin for manually lifting the pin away from said rail and rotating said pin to bring said wing out of registry with said groove to thereby disconnect said carriage from said rail, resilient means acting between said roller and said guideway for latching said carriage against movement when the latter is disconnected from said rail and manually moved beyond one end of its range of reciprocatory movement when connected to said rail to thereby hold said traversing thread guide adjacent one end of said package spool to make a transfer winding on the latter, and means actuated by a predetermined relative movement between said carriage and said rail and operative to turn said pin when said carriage is in latched position to realign said wing with said groove and free said pin to reconnect said carriage to said rail.

4. In a spinning machine, the combination with a frame, a rail mounted on said frame for longitudinal reciprocatory movement, a carriage connected to said rail for movement therewith and having an upstanding traversing thread guide mounted thereon, a package tube supported on said frame for rotation about an axis spaced from and substantially parallel to said rail, a guideway on said frame adjacent said rail, and a roller connected to said carriage and movable in said guideway, of a tubular stud threaded at one end into an aperture in said carriage and having at least one internal groove extending longitudinally thereof, a pin in said stud engageable at one end in an aperture in said rail to connect said carriage to said rail for movement therewith, a wing on said pin slidable in said groove, a spring acting between said pin and said stud resiliently urging said pin into engagement in the aperture in said rail, a stem secured to said pin for manually lifting said pin away from said rail and rotating the pin to bring said wing out of registry with said groove to thereby disconnect said carriage from said rail, resilient means acting between said roller and said guideway for latching said carriage against movement when the latter is disconnected from said rail and manually moved beyond one end of its range of reciprocatory movement when connected to said rail to thereby hold said traversing thread guide adjacent one end of said package spool to make a transfer winding on the latter, a ratchet wheel rotatably mounted on said stud and connected to said stem for rotating said pin while permitting free movement of said pin and said stem longitudinally of said stud, and a pawl connected to said rail and engageable with the teeth of said ratchet wheel when said carriage is in latched position for rotating said ratchet wheel to return

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said wing into registry with said groove in response to a predetermined relative movement of said carriage and said rail and thereby free said pin to reconnect said carriage to said rail.

5. In a spinning machine, the combination with a frame, a rail mounted on said frame for longitudinal reciprocatory movement, a carriage connected to said rail for movement therewith and having an upstanding traversing thread guide mounted thereon, a package tube supported on said frame for rotation about an axis spaced from and substantially parallel to said rail, a guideway on said frame adjacent said rail, and a roller connected to said carriage and movable in said guideway, of a tubular stud threaded at one end into an aperture in said carriage and having at least one internal groove extending longitudinally thereof, a pin in said stud engageable at one end in an aperture in said rail to connect said carriage to said rail for movement therewith, a wing on said pin slidable in said groove, a spring acting between said pin and said stud resiliently urging said pin into engagement in the aperture in said rail, a stem secured to said pin for manually lifting said pin away from said rail and rotating the pin to bring said wing out of registry with said groove to thereby disconnect said carriage from said rail, resilient means acting between said roller and said guideway for latching said carriage against movement when the latter is disconnected from said rail and manually moved beyond one end of its range of reciprocatory movement when connected to said rail to thereby hold said traversing thread guide adjacent one end of said package spool to make a transfer winding on the latter, a ratchet wheel rotatably mounted on said stud and connected to said stem for rotating said pin while permitting free movement of said pin and said stem longitudinally of said stud, and a pawl connected to said rail and engageable with the teeth of said ratchet wheel when said carriage is in latched position for rotating said ratchet wheel to return said wing into registry with said groove in response to a predetermined relative movement of said carriage and said rail and thereby free said pin to reconnect said carriage to said rail, said guideway comprising a plate supported by said frame and having a slot therein extending along and inclined relative to said rail, said slot receiving said roller and having roller receiving notches disposed one at each end thereof, and said resilient means acting between said roller and said guideway comprising flat springs mounted on said plate one adjacent each of said notches and operative to releasably hold the roller in the corresponding notches.

6. In a spinning machine, the combination with a frame, a spindle rotatably mounted on said frame for supporting and driving a yarn carrying bobbin, a yoke movably mounted on said

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frame for carrying a package winding tube, a tube journaled at its ends in said yoke, a roller mounted on said frame adjacent said yoke for driving said tube to wind yarn off of a bobbin onto a tube carried package, and a longitudinally reciprocable rail mounted on said frame adjacent said yoke for moving a level wind device back and forth longitudinally of said tube, of means controlling the winding of yarn on said tube to provide a transfer winding at one end of the tube and a package winding spaced at one end from the transfer winding comprising a carriage mounted on said rail for movement therewith, a bracket pivotally mounted on said carriage for movement relative to the carriage about an axis disposed substantially at right angles to said rail, a traversing thread guide pivotally mounted at one end on said bracket and extending from said bracket toward said tube, a plate secured to said frame adjacent said carriage and having a diagonal slot therein and notches disposed one at each end of said slot, an extension on said bracket overlying said slot, a roller carried by said extension and movable in said slot for swinging said traversing thread guide to taper the ends of a yarn package wound on said tube, resilient means carried by said plate for releasably locking said roller in one or the other of said notches to hold said carriage against movement and said thread guide at the corresponding end of said tube for winding a transfer on the tube, a tubular stud mounted on said carriage and having at least one internal groove extending longitudinally thereof, a ratchet wheel rotatably mounted on said stud, a pin slidably carried by said ratchet wheel and extending through said stud, said pin having a wing thereon slidable in said groove and said rail having a pin receiving recess therein, said wing being engageable with said stud when said pin is turned with said ratchet wheel to move said wing out of alignment with said groove, a spring acting between said pin and said ratchet wheel to force said pin into said pin receiving aperture when said pin is turned by said ratchet wheel to bring said wing into registry with said groove to thereby lock said carriage to said rail for movement therewith, said carriage being effective when locked to said rail to pull said roller out of the notch in which it is engaged, and a pawl movable with said rail and engaging said ratchet wheel for turning the latter to return said wing into registry with said groove after the wing has been angularly displaced from the groove by manual rotation of said ratchet wheel, the length of the transfer wound on the tube being proportional to the angular displacement of said wing from said groove.

CARLIN C. SIGMON.

No references cited.