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3,123,967

BOBBIN HANDLING METHOD AND APPARATUS

Filed July 13, 1960

4 Sheets-Sheet 2

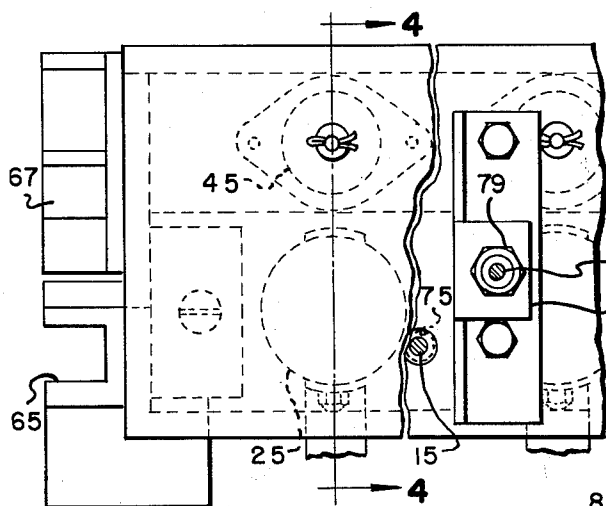


FIG. -3-

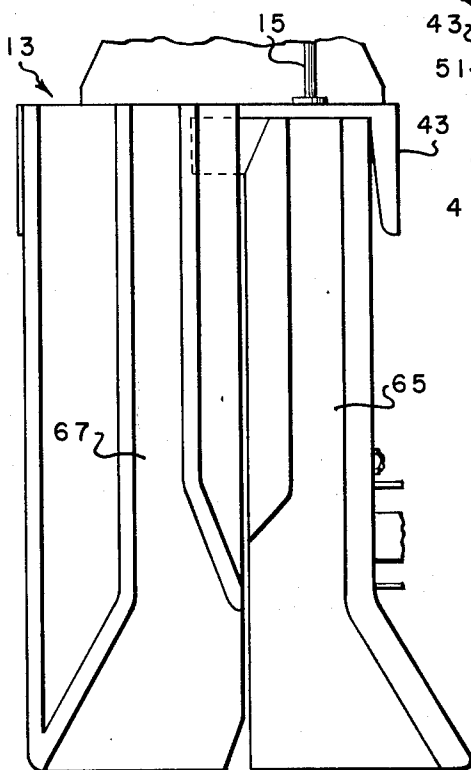


FIG. -2-

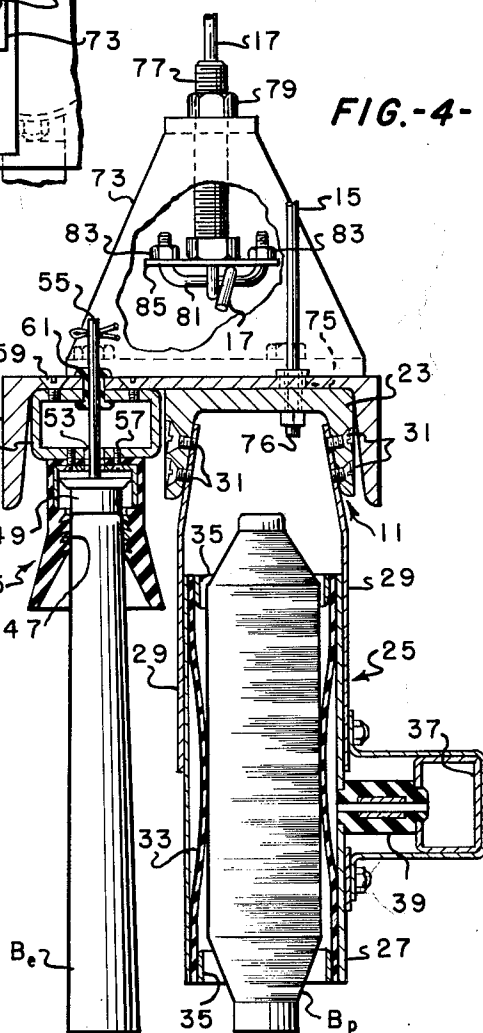


FIG. -4-

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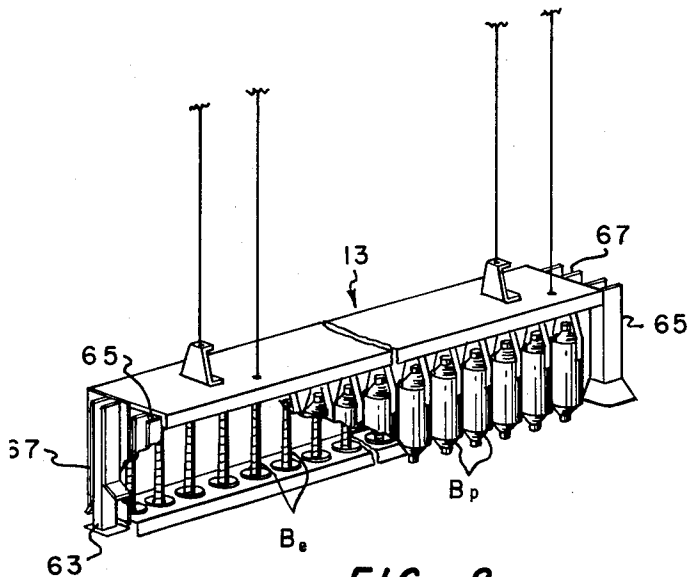


FIG. - 8 -

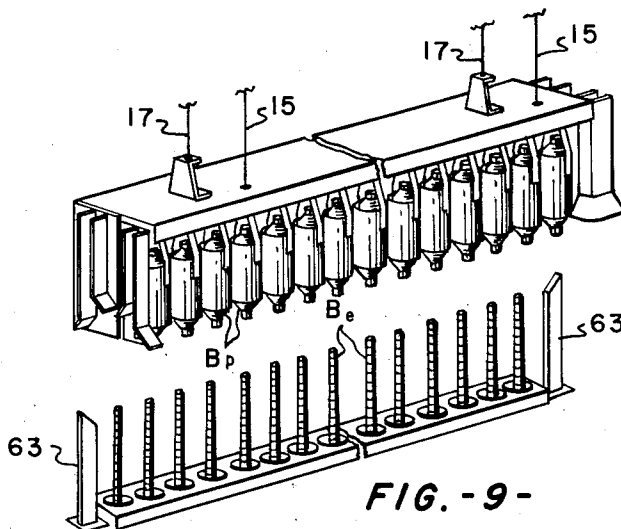


FIG. - 9 -

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3,123,967

BOBBIN HANDLING METHOD AND APPARATUS
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S.C., a corporation of Delaware
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20 Claims. (Cl. 57—52)

This invention relates to an improved doffing and donning apparatus and method for textile frames, and more particularly to an improved multiple position doffing and donning apparatus and method for doffing and donning bobbins from and onto a textile frame such as a spinning frame, twister frame, or the like.

In attempting to automate the doffing and donning operation of textile frames, and more particularly spinning frames and the like, it has been previously proposed to employ multiple position doffing apparatus, an example being a beam having a plurality of bobbin holders carried thereby for doffing and donning a frame. However, when employing many of the prior multiple position doffing devices a problem is encountered in requiring the separator panels between the takeup spindles to be turned back prior to doffing, or otherwise to specially form the separator panels so as not to interfere with the doffer device. Not only is the turning back of the separator panels a time consuming operation which is costly to automate, but also in several late model spinning frames these separators are fixed in position and cannot be turned back. It is accordingly a feature of this invention to provide an improved doffing and donning apparatus and method which does not require the separator panels to be turned back from between the respective takeup spindles.

It is a further feature of this invention that the doffing and donning of an entire textile spinning frame or the like may be doffed and donned in two simple successive operations each of which may be carried out as a simultaneous operation on one entire side of a frame without requiring movement of the separator panels, with the aid of an improved doffing and donning arrangement according to the invention and which includes two interengaging or intersting bobbin holder carriers movable jointly as an interested integral unit, one of the bobbin holder carriers being also movable separately into bobbin grasping and removing position for removing the yarn packages from the spinning frame or the like.

A further feature lies in the provision of an improved doffing and donning arrangement for spinning frames, twister frames, or the like, which is arranged for doffing and donning a plurality of spaced apart spinning frames, twister frames, or the like, and particularly transversely spaced parallel frames.

Still other objects, features, and attendant advantages will become apparent to those skilled in the art from a reading of the following detailed description of a preferred embodiment constructed according to the invention and with which the method of the invention may be carried out.

In the drawings:

FIGURE 1 is an overall schematic perspective view of a doffing and donning arrangement for a textile spinning frame, illustrating the takeup spindles of a spinning frame in highly schematic form for purposes of illustrating the operation of the apparatus in conjunction therewith.

FIGURE 2 is an end view of the doffing and donning carrier assembly of FIGURE 1 in interested position.

FIGURE 3 is a fragmentary plan view of one end portion of the doffing and donning carrier assembly of FIGURE 2.

FIGURE 4 is a section view on the line 4—4 of FIGURE 3.

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FIGURES 5-9 are schematic perspective views illustrating the sequential steps of doffing and donning a textile spinning frame according to the present invention while utilizing the apparatus of FIGURES 1-4, FIGURE 6 being illustrated with the further inclusion of the drafting or feed rolls of the spinning frame in order to illustrate the position of the doffing and donning apparatus relative thereto in a typical preferred mode of practicing the invention in doffing a spinning frame.

Referring now to the figures of the drawing, in the illustrated embodiment the invention takes the form of a pair of selectively individually and jointly movable bobbin holder carriers 11, 13 which may be selectively inter-nested as an integral unit assembly for joint movement in either vertical or horizontal directions, or separately and independently moved, particularly in a vertical direction. The carriers 11, 13 are supported by two pairs of cables 15, 17, respectively, extending down from an overhead carriage arrangement 18 mounted for horizontal translatory movement on a pair of suitably fixedly mounted overhead rails 19 in order to permit the proper and desired positioning of the bobbin holding carriers 11, 13 over the takeup spindles 21 of a spinning frame or the like.

One of the bobbin holder carriers 11 is particularly adapted for doffing yarn packages B_p from the takeup spindles 21 of a spinning frame and for transporting them to a desired discharge station, while the other bobbin holder carrier 13 is adapted for facile carrying of a plurality of empty bobbins B_e and the donning of such bobbins onto the spindles 21 from which the yarn packages B_p have been doffed.

In the illustrated embodiment the yarn package holder carrier 11 takes the form of a channel beam 23 having a plurality of yarn package holders 25 secured thereto in depending relation therefrom. These yarn package holders 25 may take any of various different forms, as may be desired, the illustrated yarn package holder taking the form of an annular open end rigid tube 27 carried by the channel beam 23 through the medium of a pair of support brackets 29 welded thereto and secured in turn to the channel beam 23 as by screws 31. Within each of the rigid tubes 27 of the respective yarn package holders 25 is disposed a distensible elastic annulus 33 of rubber or the like secured at its upper and lower ends to the interior of the rigid tube 27 through the medium of a pair of spaced apart expansion rings 35 in order to form a closed ended annular chamber. Air under pressure is selectively supplied to the interior of this annular chamber as through a common header conduit 37 and feeder conduit 39 connecting through the wall of each of the rigid annular tubes 27. The detailed construction of the yarn package holders does not per se form a part of the present invention, and such will accordingly not be further described in detail herein, such forming the subject matter of my prior copending application, S.N. 703,353, now U.S. Patent No. 3,059,406. Inasmuch as this particular construction of a yarn package holder does not form a part of the invention per se, this holder arrangement is only schematically shown in all figures other than FIGURE 4, and in these other figures the header conduit 37 and its associated supply lines thereto and various other details are omitted for purposes of simplification of the drawing.

The empty bobbin holder carrier 13 takes the form of a wider U-channel beam 43 which carries a plurality of empty bobbin holders 45. The empty bobbin holders 45 may likewise take any of various suitable forms, the illustrated embodiment of each of the empty bobbin holders being an inverted rubber cup having an annular internal ring gripping surface 47 and an ejection and

seating plunger or piston 49, disposed therein for discharge of a held empty bobbin B_e and donning thereof onto a respective takeup spindle 21. The ejection and seating plunger or piston 49 is operated to eject and seat the empty bobbin B_e as by compressed air supplied thereto through a header conduit 51 having an enlarged aperture 53 formed therein through which the plunger shaft 55 extends. The empty bobbin holders 45 may be suitably secured to the header conduit 51 through the medium of screws 57, and the header conduit 51 may in turn be suitably secured to the channel beam 43 likewise through the medium of screws 59. A grommet 61 may be suitably employed at each of these holder positions for preventing appreciable escape of air around the plunger shaft 55. It is to be emphasized however, that the empty bobbin holders disclosed herein do not per se form a part of the present invention, and that such are to be taken only as illustrative of a suitable empty bobbin holder which may be employed according to the overall principles of the present invention. Accordingly, the details of construction of the illustrated empty bobbin holder, which is disclosed in my prior copending applications, S.N. 703,353, and S.N. 741,084, now U.S. Patent No. 2,962,856, will not be further described herein in more detail.

As seen in FIGURE 4, the channel beam 43 is of such wider width and of such depth as to fully accommodate and receive the channel beam 23 forming the yarn package carrier. Thus, as seen in this figure, the channel beam 23 may be fully internested within the open longitudinal downwardly facing channel of the channel beam 43 with the yarn package holders in side-by-side individually transversely aligned relationship with the respective empty bobbin holders carried by the empty bobbin holder channel beam 43. This is of importance not only for the purpose of movement of the two carrier beams as an integral unit assembly either laterally in a horizontal direction or vertically, but also in order to reduce the total head room required by the doffer assembly including the two carrier beams 23 and 43 and their respective empty bobbin and yarn package holders 25, 45.

At opposite ends of the row of takeup spindles there are mounted in fixed relation on the spinning frame body two guide posts 63 for guiding a selected one of the bobbin holder carriers 11 and 13 down with their respective bobbin holders 25 and 45 into registry with the takeup spindles 21. Secured on the opposite ends of the respective carriers 11 and 13 are two pairs of guide channels 65, 67, respectively, which serve in cooperation with the guide posts 63 for guiding the respective bobbin holding carriers 11, 13 and holders 25, 45 into the desired bobbin doffing or donning position at the takeup spindles 21. The channel guides 65, 67 may suitably have a flared lower end in order to accommodate slight out of registry position of the carriers 11 or 13 in the upper position prior to engagement with the guide posts 63, the guide posts 63 and upper portions of the guide channels 65, 67 serving to insure complete and full registry of the respective bobbin holders with corresponding takeup spindles along the lower portion of travel of the respective carriers 11 and 13.

The support cables 17 for the empty bobbin holder carrier 13 may be suitably connected in supporting relation thereto through the medium of brackets 73 which are preferably disposed along the longitudinal center of gravity of this carrier. The support cables 17 may be suitably adjustably anchored to the brackets 73 as through the medium of a pair of longitudinally hollow bolts 77 threadedly secured in vertically adjustable relation in a complementary threaded aperture in the upper arm of each of the brackets 73. A lock nut 79 may be employed to lock the bolt 77 in the desired vertical position on the bracket 73. The lower end of each of the cables 17 extends through the bore in the respective hollow bolt 77

and is wrapped around a U-shaped clamp 81 having nuts 83 threadedly engaged therewith at its opposite ends and serving to clamp the wraps of the cable between its body and an apertured plate 85 loosely engaging the lower end of the hollow bolt 77.

The support cables 15 for the yarn package bobbin holder carrier 11 extend through suitable openings 75 formed in the empty bobbin carrier channel beam 43 and are anchored to the yarn package carrier beam 23 as through the medium of an adjustment lock nut or clamp arrangement 76 or the like. In order to prevent chafing action of the support cables 15 as the cables are passed up and down through the openings 75 in the empty bobbin holder carrier beam there may be provided in these openings grommets of nylon or other suitable antifriction material for engagement by the cable.

As seen in FIGURE 1, the overhead carriage includes a carriage beam 91 supported by rollers 93 between the pair of parallel rails 19. This overhead carriage beam 91 carries a suitable source of motive power for raising and lowering the cables 17, 15 supporting the respective empty bobbin carriers 13 and yarn package carriers 11. In the illustrated example, this source of motive power takes the form of two electric motors 95, 97, each of which drives a capstan drum 99, 101 through a reduction gear train and pulley arrangement 103, 105. One of the capstan drums 99 and associated motor 95 serves to raise and lower the empty bobbin carrier assembly 13 as by passage of the two cables 17 over and about guide pulleys 107 suitably disposed and mounted within or on the overhead carriage beam 91. Likewise, the other motor 97 and capstan drum 101 similarly effects vertical movement of the yarn package carrier assembly 11 by raising and lowering the support cables 15 therefore, these support cables 15 being also guided over suitable guide pulleys 109 carried by the overhead carriage beam 91.

The two motors may be suitably wired in any desired conventional or other manner so as to be individually and separately or jointly operated selectively in either the forward or reverse direction to cause selective raising or lowering of either or both of the two sets of cables 15, 17 and their respective bobbin holding carrier assemblies in order to carry out the doffing and donning operation as subsequently described. Inasmuch as the circuitry for effecting this operation of the motors may be of conventional design and will be readily apparent to one skilled in the art such is not illustrated or described in detail herein.

In the operation of the device the overhead carriage beam 91 is first positioned by movement either manually or by other suitable power means (not shown), such as an electric motor or the like and drive wheels engaging the rails 19, to a desired position such that the yarn package holders 25 are substantially aligned with the row of takeup spindles 21 on the spinning frame which is desired to be doffed. This position is illustrated in FIGURE 5. Next, the yarn package doffing carrier assembly 11, including the carrier beam 23 and its plurality of yarn package holders 25, is lowered by operation of the motor 97 and capstan 101 in the reverse direction to let out the support cable 15. The guide channels 65 ride down onto and engage with the guide posts 63, thus insuring full registry of the yarn package holders 25 with the respective spindles 21 and yarn packages B_p . During this operation, as shown in FIGURE 6, the empty bobbin carrier beam 43 and empty supply bobbins B_e , which empty bobbins B_e have been previously loaded into the respective empty bobbin holders 45, are held at an upper position. This retained upper position of the empty bobbins B_e and their carrier 13 is necessary in order to prevent the empty bobbins from coming down onto and colliding with the front portion of the spinning frame, particularly the drafting and feed rolls 111 (see FIGURE 6), these drafting and feed rolls 111 being disposed above and only slightly

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behind the takeup spindles 21 in most spinning frames and being insufficiently far behind the takeup spindles to permit downward movement of both the yarn package holders and the empty bobbin holders at the same time when the yarn package holders are lowered into doffing position on the takeup spindles.

The drafting and feed rolls 111 are shown only in FIGURE 6 in order to illustrate the position of the empty bobbins thereabove in this doffing step in the illustrative example, these drafting and feed rolls being omitted from the other figures for purposes of simplification of the drawing.

The yarn package holders 25 are actuated when in the position as shown in FIGURE 6 to grasp the respective yarn packages B_p, and in the instant case this is effected by supplying air to the interior of the closed ended annular chamber shown between the rubber annulus 33 and rigid outer wall 27 of each of the yarn package holders 25 to cause engagement of the rubber annulus 33 with the yarn package as shown in FIGURE 4.

Next, the motor 97 is reversed and the capstan 101 is driven in a direction to take up the cables 15 and raise the yarn package holder support beam 23 to a position where the lower ends of the yarn packages B_p and empty bobbins B_e are above the upper ends of the spindles 21 in order to permit transverse lateral movement of both of beams 23 and 43. This raised position of the beam 23 may be at a vertical position spaced beneath the beam 43, if desired, in order to conserve time, particularly if the position of the beam 43 is required to be fairly high up in the step of FIGURE 6 to avoid interference with the spinning frame elements, such as the drafting rolls 111, or alternatively the yarn package holder support beam 23 may be raised directly to a fully interested position within the channel of channel beam 43, if desired, as shown in FIGURE 4. Upon the beam 23 reaching the desired vertical clearance position, the carrier beams 23 and 43 are moved laterally as an integral unit in a transverse direction perpendicular to the length of the spinning frame to bring the empty bobbin holders 45 into vertical registry with the respective takeup spindles 21. This may be effected by movement of the overhead carriage beam 91 on rails 19 or in some instances may be accomplished merely by manual movement of the two support beams 23, 43 over the slight distance which is necessary to effect this registration. This lateral empty bobbin and spindle registry position of the carriage beams is illustrated in FIGURE 7. The carrier beams are then jointly lowered as an integral unit assembly to position the empty bobbins B_e onto the respective takeup spindles 21 from which the full bobbins have been doffed, it being seen from FIGURE 8 that in this step the yarn package holders 25 and their respective yarn packages B_p are disposed outboard of the spinning frame and away from the frame body, thereby not interfering with or incurring interference from the frame in any manner.

It will be noted that if, as mentioned above, the yarn package carrier beam 23 is not raised to the fully interested position within the channel of beam 43 prior to lateral movement for aligning the empty bobbins and spindles, the two carrier beams 23 and 43 will still be jointly laterally moved as an integral unit to align the empty bobbin holders and empty bobbins B_e with the spindles, as the support cables 15 for the yarn package holder support beam 23 pass through guide openings 75 in the empty bobbin holder support beam 43. In this alternative mode of practicing the invention, upon lateral movement of the two carriers 11 and 13 to the position where the empty bobbin holders 45 and bobbins B_e are in vertical registry with the spindles the empty bobbin support beam 43 is lowered until the two support beams 23 and 43 are substantially fully interested, as shown in FIGURES 7 and 4, and thereupon the two support beams are lowered as an integral unit, as de-

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scribed above, to the position shown in FIGURE 8 for donning of the empty bobbins onto the spindles 21.

The mode of releasing and seating the empty bobbins B_e onto their respective spindles 21 after movement of the carrier assembly to the position shown in FIGURE 8 will be dependent upon the particular type of empty bobbin holders employed. In the illustrated embodiment the empty bobbins B_e are ejected and seated onto their respective spindles 21 by the application of air to the upper ends of each of the piston plungers 49 at each empty bobbin holder 45, this air being supplied from a suitable pressure supply source through the header conduit 51.

Upon donning and seating the empty bobbins B_e onto the spindles 21 the entire carrier assembly 11, 13 is raised by simultaneous operation of both of the motors 95, 97 to cause takeup of their respective support cables 17, 15 on the capstans 99, 101, as shown in FIGURE 9. The overhead carriage 18 is then moved along rails 19 to a discharge station (not shown) where the yarn packages B_p may be suitably unloaded as by release of the air pressure in the yarn package holders 25. Also, the unloading station may suitably be a loading station for empty bobbins B_e, in order to permit the reloading of empty bobbins B_e into the empty bobbin holders 45 for subsequent doffing and donning of another spinning frame or the like.

While I have shown and described only one illustrative embodiment constructed according to the invention, it will be readily apparent to those skilled in the art that various modifications and improvements may be made without departing from the scope and spirit of the invention. For instance, the overhead carriage 18 may suitably take various other forms and the direction of horizontal translatory movement thereof may be different from and more complex than that illustrated, in order to effect the desired movements in a horizontal direction of the carriage and its supported carriers 11, 13. Further, as has been mentioned above, various other holders or graspers might be employed for carrying the yarn packages and/or the empty bobbins, in lieu of the illustrated holders for this purpose. Also, while I have shown stationary male guide posts and female guide channels on the two carrier beams one might similarly employ the reversal of this arrangement, or other guide arrangements as may be desired in order to bring the holders 25, 45 into desired registry with the takeup spindles 21. Additionally, while electrical drive means is shown for raising and lowering the support cables, other drive means might similarly be employed, such as hydraulic or pneumatic means.

Accordingly, it will be understood that the invention is not to be limited by the particular embodiment illustrated and described herein, but only by the scope of the appended claims.

That which is claimed is:

1. A bobbin handling arrangement for handling bobbins in doffing and donning relation to a bobbin-using textile processing device comprising first and second individually movable interengaging bobbin carrier members each having a plurality of bobbin holders carried thereby, a common support for said carrier members, said common support being movable horizontally, means for selectively moving one of said carrier members individually and separately and for moving said carrier members as an interengaging unit relative to a bobbin-using portion of a textile processing device.

2. A bobbin handling arrangement for handling bobbins in doffing and donning relation to a bobbin-using textile processing device comprising first and second individually movable interengaging bobbin carrier members, a common support for said carrier members, said common support being movable horizontally, means for selectively moving one of said carrier members individually and separately and for moving said carrier members

as an interengaging unit relative to a bobbin-using portion of a textile processing device, said carrier members being a pair of longitudinally extending carrier beams each having a plurality of bobbin holders carried thereby along the length thereof.

3. The arrangement according to claim 2 wherein each of said carrier beams has an equal number of bobbin holders carried thereby, said bobbin holders being linearly disposed along the length of each of said carrier beams and aligned laterally with corresponding holders on the other of said carrier beams, whereby transverse lateral movement of said carrier beams will effect movement of the bobbin holders on one carrier member into registry with the corresponding vertical columns of space previously occupied by the corresponding bobbin holders of the other of said carrier beams.

4. The arrangement according to claim 2 further comprising vertically extending end guide means operatively associated with said carrier beams to selectively guide either of said carrier beams into a desired common bobbin transfer area.

5. The arrangement according to claim 4 wherein the bobbin holders on at least one of said carrier beams are disposed in depending relation beneath said carrier beam.

6. A bobbin handling arrangement according to claim 4, further comprising a textile processing apparatus having at least one set of bobbin holding spindles thereon, the gauge between the bobbin holders of each of said carrier beams corresponding in gauge to the gauge of the spindles in said set.

7. The arrangement according to claim 6 wherein said textile processing apparatus has vertically extending yarn takeup spindles forming said set of bobbin holding spindles, said vertically extending end guide means being disposed at opposite ends of said textile processing apparatus.

8. In the combination including a textile frame having a plurality of takeup spindles along one side thereof and a doff and don arrangement for doffing yarn packages from said spindles and donning empty bobbins onto said spindles, the improvement wherein said doff and don arrangement comprises first and second interengageable bobbin carrier members vertically and horizontally movable together as an integral unit assembly, each of said bobbin carrier members having at least one bobbin holder thereon, one of said bobbin carrier members being vertically movable separately from and independently of the other of said carrier members, said one carrier member being disposed laterally outboard of said textile frame as compared to said other of said carrier members, and guide means for selectively guiding either of said carrier members down for registry of their respective bobbin holders with the respective spindles of said frame.

9. The improvement according to claim 8 wherein said carrier members are a pair of selectively interengaging members each having a plurality of bobbin holders carried thereby.

10. The process of doffing and donning a textile frame having a plurality of yarn takeup spindles in side-by-side relationship thereon and feed means for feeding textile material to said takeup spindles, comprising the steps of simultaneously lowering a plurality of yarn package holders down onto a corresponding plurality of spindles with yarn packages thereon while holding a plurality of empty bobbin holders and empty bobbins above said feed means on said frame, picking up a plurality of said yarn packages substantially simultaneously with said yarn package holders, raising said yarn package holders and yarn packages substantially simultaneously, moving said yarn package holders and yarn packages and said empty bobbin holders and empty bobbins simultaneously laterally as a unit and aligning said empty bobbin holders and empty bobbins with the empty spindles from which said yarn packages have been doffed, lowering said empty bobbin holders and empty bobbins and donning said empty bobbins onto respective corresponding empty spindles of

said textile frame, raising said empty bobbin holders simultaneously as a unit while leaving said empty bobbins on their respective spindles, and moving both said yarn package holders and yarn packages held thereby and said empty bobbin holders to a desired loading station for discharge of the yarn packages from said full bobbin holders.

11. The process according to claim 10 wherein both said yarn package holders and the yarn packages carried thereby and said empty bobbin holders and empty bobbins carried thereby are lowered substantially simultaneously as a unit assembly to don said empty bobbins onto their respective empty spindles in said bobbin donning step.

12. The process according to claim 10 wherein said lateral movement of said yarn package holders and empty bobbin holders and their respective yarn packages and empty bobbins is effected laterally away from and transversely of said textile frame, and said empty bobbin holders and empty bobbins are lowered with said yarn package holders and yarn packages disposed outboard of said empty bobbin holders and empty bobbins and laterally further away from said textile frame than said empty bobbin holders and empty bobbins when in the donning position.

13. A bobbin handling arrangement for handling bobbins in doffing and donning relation to a bobbin textile processing device comprising first and second movable individually interengaging bobbin carrier members, each of said bobbin carrier members having a plurality of bobbin holders carried thereby, a common support for said carrier members, said common support being movable horizontally, means for selectively moving one of said carrier members individually and separately and for moving said carrier members as an interengaging unit relative to a bobbin-using portion of a textile processing device, a support connection between each of said carrier members and said common support, said support connection for said one carrier member being engageable with and guided in movement by a part of the other of said carrier members.

14. The arrangement according to claim 13 wherein said support connections are flexible cables, said other carrier member having guides engaged by said cables for said one carrier member and thereby serving to interconnect said carrier members as an integral laterally movable unit.

15. A bobbin handling arrangement for handling bobbins in doffing and donning relation to a bobbin-using textile processing device comprising first and second individually movable interengaging bobbin carrier members, each of said bobbin carrier members having a plurality of bobbin holders carried thereby, a common support for said carrier members, said common support being movable horizontally, means for selectively moving one of said carrier members individually and separately and for moving said carrier members as an interengaging unit relative to a bobbin-using portion of a textile processing device, said carrier members being interengaging, one of said carrier members having a portion thereof complementary to a portion of the other said carrier member for selective interengaging relation therebetween and simultaneous movement thereof as a single unit assembly.

16. A bobbin handling arrangement for handling bobbins in doffing and donning relation to a bobbin-using textile processing device comprising first and second individually movable interengaging bobbin carrier members, each of said bobbin carrier members having a plurality of bobbin holders carried thereby, a common support for said carrier members, said common support being movable horizontally, means for selectively moving one of said carrier members individually and separately and for moving said carrier members as an interengaging unit relative to a bobbin-using portion of a textile processing device, one of said carrier members having a female configuration effectively formed therein and the

other of said carrier members having an effectively male configuration engageable in interesting relation within said female configuration of said one carrier member.

17. A bobbin handling arrangement for handling bobbins in doffing and donning relation to a bobbin textile processing device comprising first and second movable individually interengaging bobbin carrier members, each of said bobbin carrier members having a plurality of bobbin holders carried thereby, a common support for said carrier members, said common support being movable horizontally, means for selectively moving one of said carrier members individually and separately and for moving said carrier members as an interengaging unit relative to a bobbin-using portion of a textile processing device, horizontal movement of said common support moving both of said carrier members simultaneously in a horizontal direction, and both of said carrier members being movable vertically whereby said means for moving said carrier members will move said carrier members as a unit vertically and will move said one carrier member separately and individually in a direction having a vertical component.

18. A bobbin doffing and donning arrangement for handling bobbins in doffing and donning relation to a bobbin-using textile processing device comprising two interesting bobbin holder supports movable separately and jointly as a unit, a plurality of bobbin holders on each of said supports, and means for selectively moving one

of said holder supports individually and separately and both of said holder supports jointly as an interested integral unit relative to a bobbin-using portion of a textile processing device.

19. A bobbin doffing and donning arrangement for handling bobbins in doffing and donning relation to a bobbin-using textile processing device comprising two interengaging bobbin holder supports movable jointly as a unit, and each having a plurality of bobbin holders carried thereby, said bobbin holder supports being movable jointly as a unit in the horizontal direction to move said bobbin holder supports simultaneously in a horizontal direction, one of said holder supports being movable individually and separately of the other of said holder supports, and means for selectively moving said holder supports jointly and said one support individually and separately relative to a bobbin-using portion of a textile processing device.

20. A bobbin doffing and donning arrangement according to claim 19 wherein said bobbin holder supports are a pair of horizontally interesting beams.

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