March 2, 1954 C. TURLEY 2,670,521

BOBBIN STRIPPER

Filed June 12, 1951 3 Sheets-Sheet 1

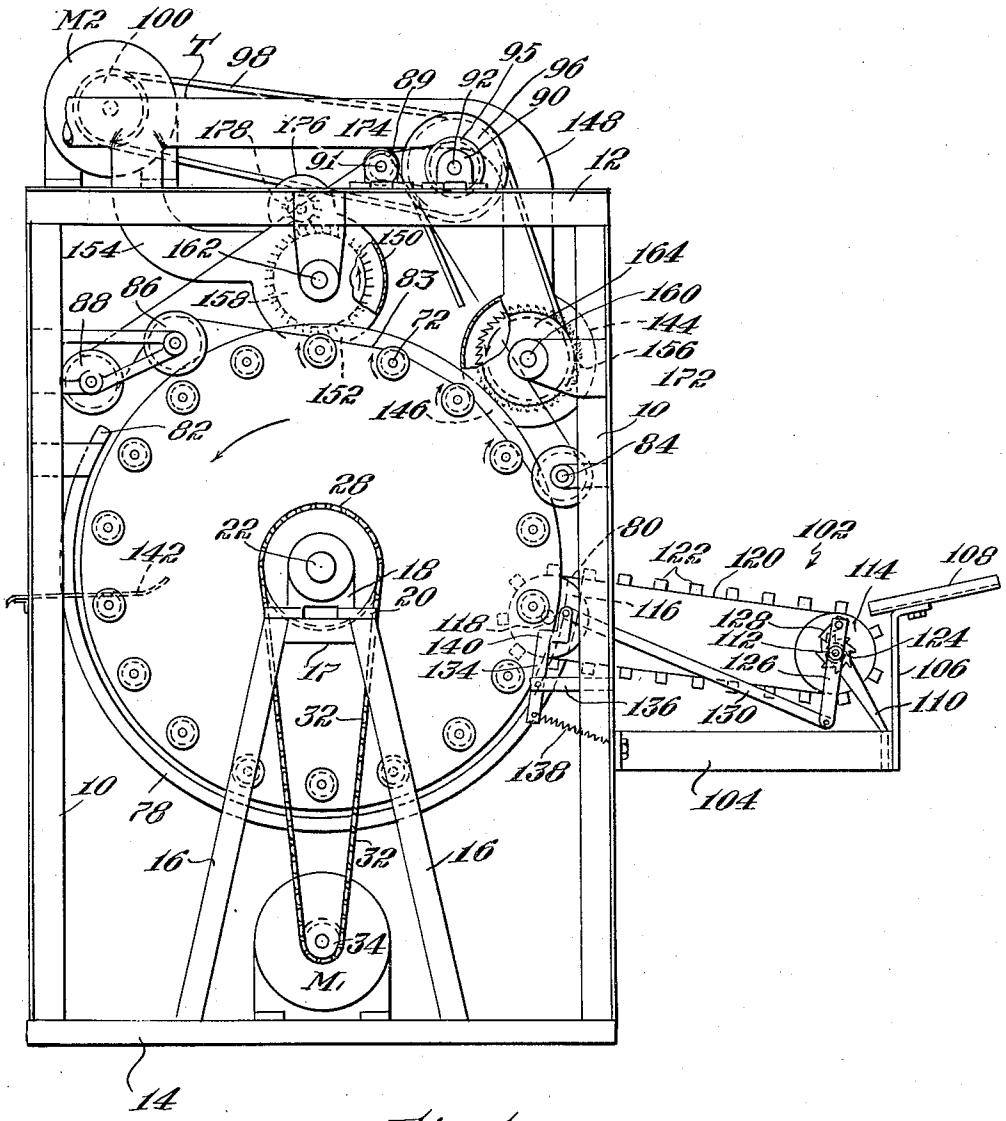


Fig. 1

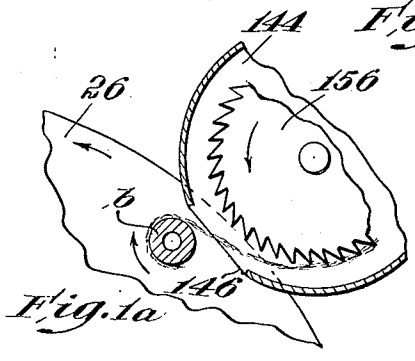


Fig. 1a

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BOBBIN STRIPPER

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Fig. 1

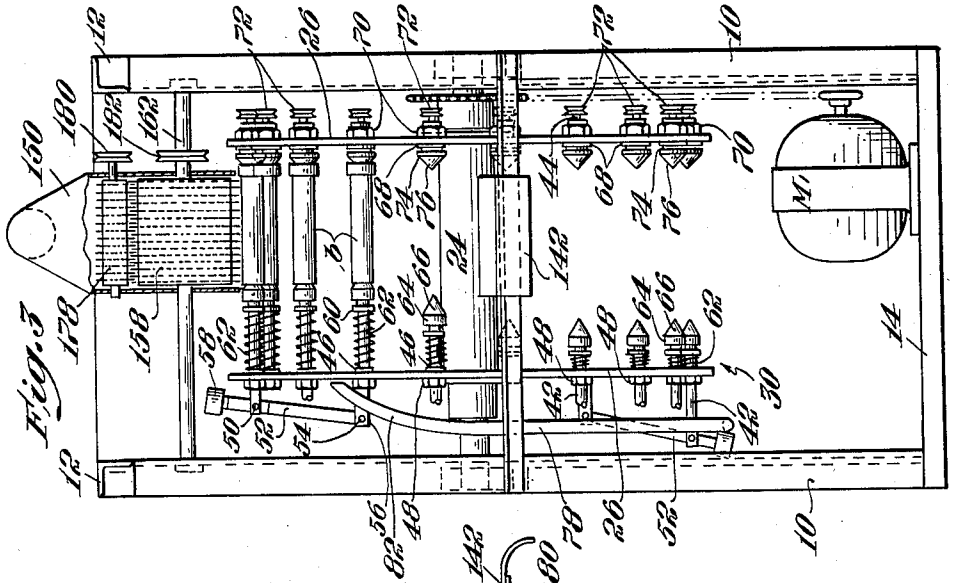
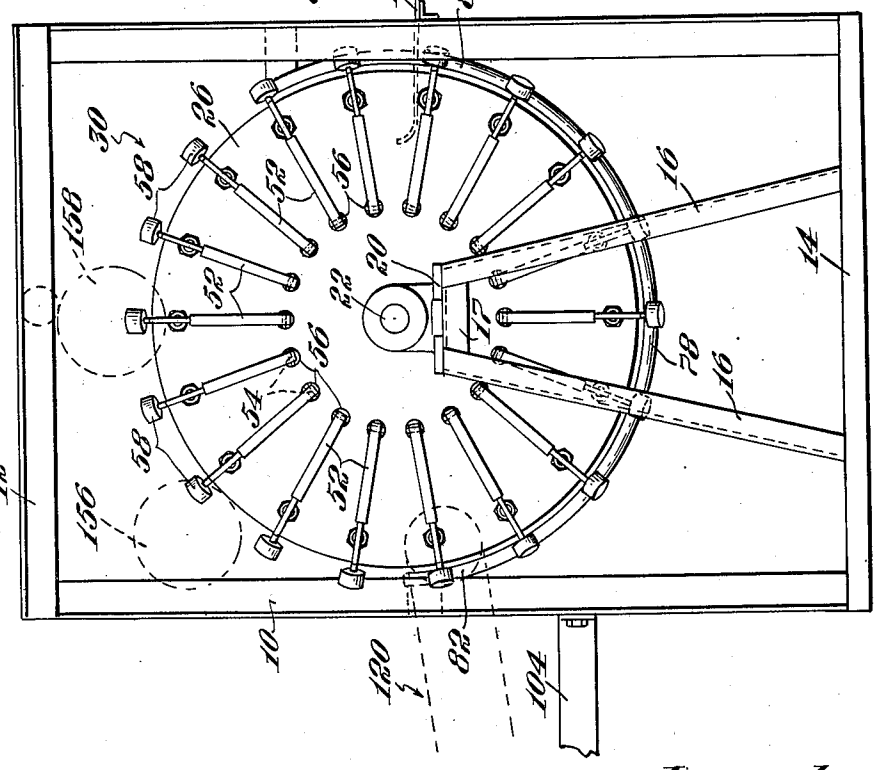


Fig. 2



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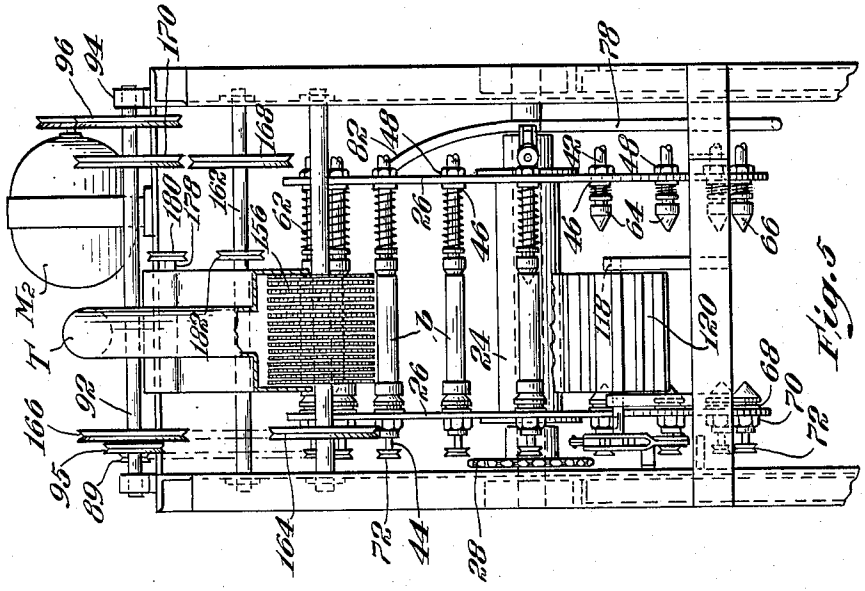


Fig. 5

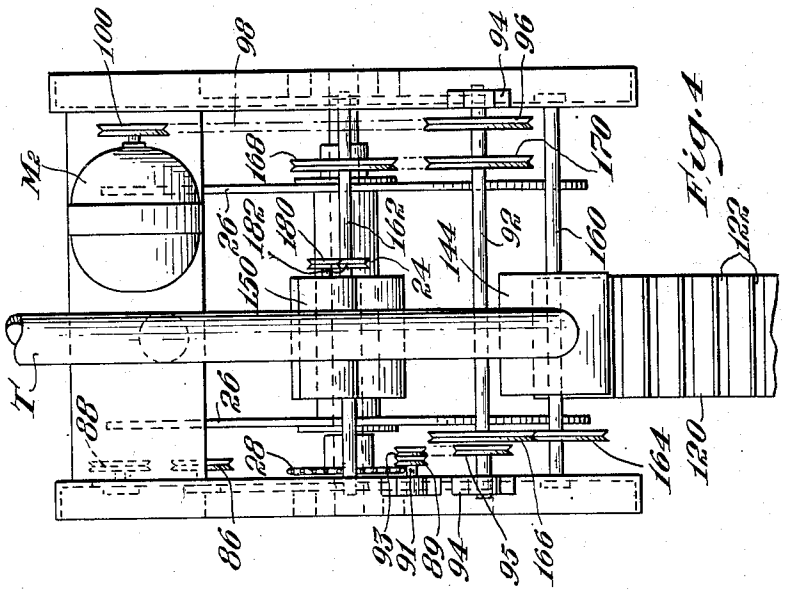


Fig. 4

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UNITED STATES PATENT OFFICE

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BOBBIN STRIPPER

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Application June 12, 1951, Serial No. 231,217

13 Claims. (Cl. 28—19)

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This invention relates to apparatus for stripping the residue of roving from used bobbins and the like and has for its principal objects to provide an apparatus of large capacity which is semi-automatic in operation, which will without fail remove every trace of roving without damage thereto or to the bobbins and which is durable and of comparatively simple construction.

As herein illustrated, the apparatus has a carrier on which may be mounted one or more bobbins for movement in a predetermined path and while moving in said predetermined path, for rotation about their longitudinal axis in directions to unwind the residual roving or the like hereinafter to be referred to as a textile strand. Movement of the carrier and bobbins is effected in directions to cause the unwinding textile strand to trail behind the carrier. In the path of movement of the bobbins there is located a stripper chamber with its mouth in a position to be traversed by the bobbins. A negative pressure is maintained in the chamber so that the trailing ends of the strands on the bobbins crossing the mouth will be drawn into it. Within the mouth of the chamber is located a stripper roll, the periphery of which is close to the path of movement of the bobbins but spaced therefrom at its closest proximity thereto and there is means for rotating the stripper in a direction to entrain the trailing strand as it enters the mouth of the chamber and carry it inwardly. The bobbins are mounted on the carrier on pairs of arbor parts arranged to engage the ends of the bobbins and there is means for moving the arbor parts into engagement with the ends of the bobbins and for retracting the arbor parts at different positions in the path of movement of the carrier to pick up successive bobbins, move them across the mouth of the chamber for stripping, and then release the bobbins after stripping. There is also means for charging the carrier with the bobbins, timed to present bobbins to the carrier simultaneously with the movement of a pair of bobbin supports, into positions to engage the ends of the bobbins.

The invention will now be described in greater detail with reference to the accompanying drawings wherein:

Fig. 1 is an elevation of one side of the machine;

Fig. 1*a* is a vertical section through one of the stripper chambers showing the relation of the stripper to a bobbin at its closest proximity thereto;

Fig. 2 is an elevation of the opposite side of the machine;

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Fig. 3 is a rear elevation of the machine partly in section;

Fig. 4 is a top view of the machine; and

Fig. 5 is a front elevation partly in section.

Referring to Fig. 1, the apparatus is provided with a rigid substantially, rectangular frame, consisting of uprights in the form of angle members 10, the upper ends of which are joined by horizontal disposed angle members 12, and the lower ends of which are fastened to a base 14 or if desired to the floor. The frame is adapted to support the parts of the machine in operating relation as will appear hereinafter. Within the frame and at opposite sides thereof there are mounted on the base or floor pairs of converging uprights 16—16, which are joined near their upper ends by plates 17. Bearing brackets 18 having flanged feet 20, are made fast to the upper ends of the uprights 16. The bearing brackets 20 support a horizontal shaft 22, which extends widthwise of the apparatus, the shaft being fixed at its ends in the bearings. On the shaft 22, there is mounted a hollow rotatable shaft 24 to the opposite ends of which are made fast large circular disks or plates 26 so that the disks are substantially parallel and turn on the fixed shaft 22. Hubs extend from the rotatable shaft 24 through the plates 26 and one of these hubs has fast to it a sprocket 28 (Fig. 4) by which rotation is imparted to the shaft 24 and its attached plates 26. As is illustrated in Fig. 1, the sprocket 28 is connected by an endless chain 32, to a sprocket 34 fast to the motor shaft on a motor M1, mounted on the base below the shaft 24.

The rotatable shaft 24 and the plate 26—26 constitutes a carrier and will be hereinafter referred to as such and designated by the reference character 30. The carrier 30 is adapted to receive a plurality of bobbins *b* (Fig. 5) which are to be stripped and carry them through a predetermined path for processing, that is cleaning of the residual yarn from their surfaces and then discharged to a receiver for reuse. To this end there are mounted on the carrier a plurality of bobbin supporting means which are arranged peripherally of the disks 26. The supporting means consist of pairs of oppositely disposed arbors arranged to engage the ends of the bobbins and to hold them in horizontal positions parallel to the axis of rotation of the carrier for rotation about their own longitudinal axis as well as about the axis of the carrier. As is illustrated in Figs. 3 and 5, the arbors 42 and 44 are mounted at spaced intervals peripherally of the plates 26 and project through the plates. The arbors 42 are supported in bushings 46 for axial sliding

movement to and from the opposite plate 26, the bushings being held in place by nuts 48. The arbors 42 are pivotally connected at their outer extremities at 50 (Fig. 3) to cam levers 52, which are arranged substantially radially of the plate 26 (Fig. 2). The inner ends of the lever 52 are pivotally connected at 54 to posts 56, fastened to the plate and extending outwardly therefrom. The posts 56 are arranged concentrically with the center of rotation of the carrier. The outer ends of the cam levers 52 have on them rotatable followers 58 which are adapted to engage a cam which will be described hereinafter to retract the arbors 46 from the arbors 44 on the opposite plate during part of the rotation of the carrier and to allow them to move into co-operating relation with them during another part of rotation of the carrier. At the end of each arbor there is made fast a head 64, having a conical end 66, which constitutes a center of rotation for one end of a bobbin. The opposite arbors 44 are rotatably mounted in bushings 68 fastened to the opposite plate 26 by nuts 70 and have at their outer ends pulleys 72 by which they may be rotated. The inner end of each arbor has on it a head 74 and a conical end 76 forming a center of rotation for engagement with the opposite end of the bobbin. The conical ends 66 and 76 of the arbors are in alignment and are adapted to engage the open ends of the bobbins placed therebetween and to hold the bobbins for rotation about their own axis while they are being moved about the axis of rotation of the carrier for the stripping and cleaning operation.

The axially movable arbors 42 are retracted during part of the rotary movement of the carrier and during another part are released for engagement with the ends of bobbins placed between them and the opposed arbors 44 by a cam track 78 arranged close to the outer side of the carrier and peripherally thereof. As illustrated in Fig. 1, the cam has an arcuate portion which is uniformly spaced from the end plate 26 of the carrier, a sufficient distance to engage and hold the movable arbors at their retracted positions with the springs 62 compressed as shown at the lower part of Fig. 3, throughout approximately the lower half of rotation of the carrier (Fig. 2) and sloping end portions 80 and 82, one of which releases the cam levers so as to permit the arbors to move into engagement with the bobbins and the other of which reengages the cam levers and thus retracts the arbors to release the bobbins. The low portion of the cam track at 80 is located in a position to permit an arbor to move inwardly into engagement with an end of a bobbin delivered to the carrier by an endless conveyor which will be described hereinafter, the delivery point of which is situated about opposite the front of the carrier at about the level of the axis of rotation. At this point, the followers move off the cam track and remain out of contact therewith until they reach the rear side of the carrier and engage the low point of the cam at 82. During the interim, that is between the ends of the cam the springs 62 hold the arbors 42 against the ends of bobbins placed between them and the arbors 44 and stripping of the bobbins takes place. When the followers reengage the cam track at 82 the bobbins are clean so that as the arbors are retracted to release the bobbins they fall onto a discharge apron 142 (Fig. 1) and gravitate into a container.

Rotation of the bobbins about their longitudinal axis is effected by rotation of the arbors 42 and to this end an endless belt 83 is mounted on pulleys 84, 86 and 88 as shown in Fig. 1, so that a portion of the belt has contact with several of the pulleys 72. The pulleys 84, 86 and 88 are mounted on brackets fast to the frame of the machine and the belt 83 is driven by a pulley 89 mounted on a stub shaft 91 fast to the frame. The pulley 89 has integral with it a pulley 93. A shaft 92 extending horizontally across the top of the frame being journaled in bearings 94 mounted on the horizontal frame members 12 and has fixed to it a pulley 95. An endless belt 97 is entrained on the pulleys 93 and 95. Also on the shaft 92 is a pulley 96 and a belt 98 entrained on this pulley and a pulley 100 fast to the shaft of a motor M2, mounted on the top of the frame, provides the drive for the shaft 92 and hence the belt 83. By driving only the arbors which are in the zone of the stripping operation, economy of operation is obtained since less power is consumed than would be required to drive all of the arbors all of the time.

The bobbins are delivered to the carrier for stripping by charging device 102 as shown in Fig. 1. As there illustrated a horizontal bracket 104 is made fast to the front of the frame and has at its outer end an upstanding post 106, to which is fastened an inclined apron 108. Also fast to the bracket 104, are spaced parallel support members 110, between which is journaled a horizontally arranged shaft 112 on which is fixed a pair of spaced sprockets 114—114. Entrained about the spaced sprockets 114—114 and corresponding sprockets 116—116, mounted for rotation on a horizontal shaft 118, is an endless conveyor belt 120, having fastened to its outer surface a series of longitudinally spaced, transversely extending slats 122. The slats are spaced so that a bobbin dropped or otherwise disposed on the conveyor will take up a position between a pair of spaced slats and will be advanced by the conveyor with its longitudinal axis parallel to the longitudinal axis of the arbors described heretofore. The bobbins are disposed on the conveyor by dropping them on the inclined apron 108 side by side with their tapered ends all pointing in one direction and in such direction as to facilitate unwinding in one direction, whereupon they roll onto the surface of the endless conveyor. Movement of the conveyor to transfer bobbins deposited on its surface to a position for engagement by the arbors is automatically timed by rotation of the carrier itself, so that the arrival of a spindle coincides with the movement of a pair of spaced arbors into position to pick it up as will now be described. Fast on the shaft 112 is a ratchet wheel 124. Also on the shaft 112 and pivotally mounted is a rocker arm 126, which has pivoted to its upper end a pawl 128, for engagement with the ratchet wheel 124. Oscillation of the rocker arm 126, rotates the sprockets 114—114 to advance the endless conveyor. The rocker arm 126 is connected by a link 130 to one end of an actuating arm 134, pivotally connected to a bracket 136 fast to the frame of the machine. The opposite end of the actuating arm 134 has a spring 138 connected to it which normally tends to turn the actuating arm in a counterclockwise direction, tilting or rocking its upper end toward the carrier. Near the upper end of the arm 134 is a shoulder 140 which is located in the path of movement of the arbor shafts 44, just inside of their pulleys 72. As a result, during rotation of the carrier each time an arbor shaft 44 passes the shoulder 140 of the arm 134, the latter is pushed or tilted in a clockwise direction about its pivot, thereby

rocking the rocker arm 126 counterclockwise and advancing the endless carrier a sufficient distance to present another bobbin to the carrier.

To effect stripping or cleaning of the bobbins two stripper chambers 144 and 150 are arranged in tandem along that part of the path of movement of the carrier between delivery of the bobbins to the carrier and discharge therefrom. The chamber 144 is arranged transversely of the carrier, is generally cylindrical in shape and has an open substantially rectangular mouth 146 at its underside close to the path of movement of the bobbins on the carrier. The length of the mouth widthwise of the carrier is about equal to the length of a bobbin and the width of the mouth is about two to four times diameter of a bobbin. The upper part of the chamber is connected by a conduit 148 to a trunk T. The trunk T is in turn connected to an exhaust fan not shown, for creating a negative pressure or induced updraft in the chamber. The second chamber 150 is arranged rearwardly of the chamber 144 and transversely of the carrier and has a mouth 152 at its underside in close proximity to the path of movement of the bobbins similar to that described above. The chamber 150 is also connected to the trunk by a conduit 154. The bobbins as they are carried across the mouths 146 and 152 of the stripper chambers are as indicated by the arrows in Fig. 1, rotated in directions opposite in sense to the direction of rotation of the carrier, that is clockwise. The bobbins are so arranged between the arbors that such clockwise rotation is counter to the direction in which the strand is wound on the bobbins. Such counterrotation tends to unwind the strand causing it to be thrown outwardly and to trail out behind the bobbins rather than to whip around as it would if the bobbin were rotated in the same direction that the strand is wound. As the trailing ends of the strand move across the mouths of the chambers they will naturally be drawn into the chambers. A negative pressure or induced draft of sufficient intensity is maintained to pull the strand from the spindles and carry it inwardly into the trunk where it is ultimately disposed in a bin not shown, to which the trunk leads. To facilitate drawing the floating strand ends into the chamber there is disposed in each of the chambers a stripper roll. The roll shown in the chamber 144 is a licker-in, roll 156 and that shown in the chamber 150 is a carding roll 158. The roll 156 is mounted on a horizontal shaft 160 and the roll 158 on a horizontal shaft 162. As illustrated in Fig. 4, the shaft 160 is journaled between the side members of the frame and has fast to it a pulley 164 which is connected by an endless belt to a pulley 166 mounted on the shaft 92. The shaft 162 is also journaled between the side members of the frame and has fast to it a pulley 168 which is driven by way of an endless belt from a pulley 170 fast to the shaft 92. In each case the stripper roll is so located that its periphery is spaced from the surface of any bobbin traversing the mouth of the chamber in which it is located at its closest proximity thereto, so that the licker-in wire or the carding wire will not touch the surface of the bobbin. This is of extreme importance since contact of the stripper rolls with the bobbins will damage them, roughing them up hence requiring frequent refinishing of the bobbins. It is also important from the standpoint that it is not desirable to have the licker-in wire or carding wire actually abrade or tear the strand from the bobbin, since this is destructive to the fibers making them less useful as a recovery product. The spacing of each stripper is such that its traveling surface merely catches and entrains the trailing ends of the strand and assists in carrying it inwardly into the chambers so that it may be caught up in the induced draft and delivered to the trunk line. As illustrated in Fig. 1, it will be seen that the strippers are rotated in a direction opposite to that of the bobbins so that the surfaces of the strippers are moving in the same directions as the surfaces of the bobbins at their points of closest proximity and that the surfaces of the strippers are in a position to catch the trailing ends of the strands and carry them inwardly. The first suction chamber and its stripper is usually sufficient to remove all the strands from the bobbins, however, the second chamber is added to insure complete removal. It is desirable to keep the carding wire clean of fibers, hence the upper part of the chamber 150 has in it a cleaning cylinder 176, mounted for rotation on a shaft 178 arranged parallel to the shaft 162. A pulley 180 is made fast to the shaft 178 and is driven by way of an endless belt entrained about it, and a pulley 182 on the shaft 162.

The apparatus is substantially automatic since it is only necessary to place the bobbins on the apron 108 after the machine is set in operation and they will be carried successively by the conveyor to the carrier automatically positioned between the arbors, moved through positions to be operated upon by the suction chambers and stripper rolls, and then released at the back side of the machine for disposition upon the inclined discharge apron 142, whereupon they will fall into a receptacle for reuse. The stripped strand is carried through the trunk to a waste chamber where it is recovered for reuse.

While the apparatus is described as adapted especially for the purpose of removing textile strands such as roving from bobbins, it may also be used for stripping yarn thread, cord, string or the like from bobbins, spindles or other cores on which they are wound.

The used bobbins are delivered to the carrier by an endless conveyor however other means may be employed for this purpose, for example, a hopper arranged with its discharge close to the carrier or a magazine such as is commonly used on looms for replenishing the loom with filled bobbins.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the appended claims.

I claim:

1. A bobbin stripper comprising a chamber in which an induced exhaust draft is maintained, said chamber having an open intake mouth, means for supporting bobbins successively at the open mouth of the chamber, means for effecting movement of the bobbin support, means for rotating the bobbins while located at the mouth in a direction to unwind the strands wound thereon, a stripper located in the mouth of the chamber, means for rotating the stripper about an axis parallel to the axes of rotation of the bobbins on the support, the axes of the stripper and the bobbins being spaced so that the periphery of the stripper is spaced from the surfaces of the bobbins at their point of closest proximity therewith.

2. A bobbin stripper comprising a chamber in which an induced exhaust draft is maintained,

said chamber having an intake mouth, means for supporting bobbins successively at said mouth, means for effecting rotation of the bobbins in directions to unwind the strands wound thereon, means for effecting movement of the support to cause bobbins on the support to traverse the mouth in directions opposite in sense to the rotation of the bobbins to cause the strands unwound from the bobbins to trail movement of the bobbin support as it moves bobbins successively across the mouth of the chamber, a stripper located in the mouth of the chamber, and means for rotating the stripper so that its peripheral surface moves in the same direction as the surfaces of the bobbins at their points of closest proximity thereby to entrain the trailing strands and to pull them in directions to further unwind them from the bobbins and to carry them into the chamber, the periphery of the stripper being spaced from the surfaces of the bobbins at their points of closest proximity thereto.

3. A bobbin stripper comprising a carrier on which may be placed bobbins for movement in a predetermined path, a chamber having an open mouth located close to said predetermined path, means for maintaining a negative pressure in said chamber, means for effecting movement of the carrier to move successive bobbins thereon in said predetermined path across the mouth of the chamber, means for rotating the bobbins on the carrier, as the latter moves, about their own axes, the direction of rotation being counter to the direction in which the strands are wound on the bobbins and a stripper located in the mouth of the chamber close to the path of movement of the bobbins, the periphery of which is spaced from the bobbins at their points of closest proximity and means for effecting rotation of the stripper and bobbins in opposite directions.

4. A bobbin stripper comprising a carrier rotatable about a horizontal axis, means at the periphery of the carrier for supporting a plurality of bobbins at spaced intervals for movement with the carrier in a predetermined path, said bobbins being rotatable about axes parallel to the axis of rotation of the carrier, means for effecting rotation of the carrier and bobbins in opposite directions, said bobbins being oriented so that rotation thereof effects an unwinding of the strands thereon so that they trail the movement of the carrier, a chamber disposed adjacent to the path of movement of the carrier said chamber having a mouth facing the path of movement of the bobbins and close to said path, means for maintaining a negative pressure in the chamber, and a stripper located in the mouth of the chamber with its periphery close to, but not touching the surfaces of bobbins during movement across the mouth of the chamber and means for rotating the stripper in a direction to cause its periphery to entrain the rearwardly extending strand and draw them into the housing in conjunction with the intake draft produced by the negative pressure.

5. A bobbin stripper comprising a carrier rotatable about a horizontal axis, a plurality of arbors distributed at substantially equal intervals about the carrier, said arbors being equally distant from the axis of rotation of the carrier and hence being movable in a predetermined circular path, said arbors being adapted to receive bobbins and move them in said circular path, means for rotating the arbors and hence the

bobbins carried thereby about their longitudinal axes parallel to the axis of rotation of the carrier and in directions to unwind the strands on the bobbins, a chamber having an open mouth located close to the path of movement of the arbors across which the bobbins are moved by rotation of the carrier, means for effecting rotation of the carrier and bobbins, means for exhausting the chamber to produce a negative pressure therein and hence to draw the trailing ends of the strands into the chamber, a stripper in the chamber, and means for rotating the stripper in a direction to entrain the trailing ends as they enter the chamber.

6. A bobbin stripper comprising a carrier rotatable about a horizontal axis, a plurality of pairs of opposed arbor parts distributed at substantially equal intervals about the carrier, said pairs of arbor parts being equally distant from the axis of rotation of the carrier and hence movable in a predetermined circular path, each pair of arbor parts being adapted to receive between them the ends of a bobbin, means for effecting rotation of the carrier in a predetermined direction, means for effecting rotation of one part of each pair of arbor parts for rotating the bobbin held therebetween about its longitudinal axis and in a direction to unwind the strand thereon, a chamber having an open mouth located close to the path of movement of the bobbins while moving with the carrier in said predetermined direction, means for exhausting the chamber to produce a draft inwardly thereof to draw the trailing ends of the strands into the chamber, a stripper in the chamber and means for effecting rotation of the stripper in a direction to entrain the trailing ends as they enter the chamber.

7. A bobbin stripper comprising a carrier rotatable about a horizontal axis, a plurality of pairs of opposed arbor parts distributed at substantially equal intervals about the carrier, said pairs of arbor parts being equidistant from the axis of rotation of the carrier and movable in a predetermined circular path, means yieldably urging the arbor parts of each pair toward each other to engage the ends of a bobbin placed therebetween and hold the same for rotation about its longitudinal axis, means holding the arbor parts separated during part of the rotation of the carrier and for bringing them together throughout another part of the rotation of the carrier, means for effecting rotation of one of each pair of arbor parts during that portion of rotation of the carrier in which said pair of arbor parts engage a bobbin, a chamber at said portion of the path of rotation of the carrier, said chamber having a mouth located close to the path of the bobbins supported by the arbor so that they cross the mouth of the chamber, means producing a negative pressure in the chamber and a stripper in the chamber, the periphery of which is spaced from the bobbins crossing the mouth of the chamber at their closest proximity thereto.

8. A bobbin stripper comprising a carrier rotatable about a horizontal axis, a plurality of pairs of opposed arbor parts distributed at substantially equal intervals about the carrier, said pairs of arbor parts being equidistant from the axis of rotation of the carrier and movable in a predetermined circular path, means yieldably urging the arbor parts toward each other to engage the ends of bobbins placed therebetween and hold the same for rotation about their longitudinal axes, cam means holding the arbor parts separated

during part of the rotation of the carrier, said cam means permitting the arbor parts to move into engagement with the ends of a bobbin at a predetermined point in the path of rotation of the carrier, and to continue in engagement through a predetermined angular distance and then to retract the arbor parts to release the bobbin, means for effecting rotation of the arbors to rotate the bobbins about their longitudinal axes during engagement of the arbor parts with the bobbins in directions to unwind the strands thereon, a chamber having a mouth located close to the path of movement of the bobbins so that the trailing ends of the strands on the bobbins are drawn across the mouth of the chamber, means for effecting a draft inwardly of the chamber, a stripper located in the chamber with its periphery close to the path of the bobbins traversing the mouth but not touching the surfaces of the bobbins and means for effecting rotation of the stripper in a direction in which its surface is moving in the direction of the unwinding strands.

9. A bobbin stripper comprising a carrier rotatable about a horizontal axis, a plurality of pairs of opposed arbor parts distributed at substantially equal intervals about the carrier said pairs of arbor parts being equidistant from the axis of rotation of the carrier and movable in a predetermined circular path, means yieldably urging the arbor parts towards each other to engage the ends of bobbins placed therebetween and hold the same for rotation about their longitudinal axes, a lever at an end of one part of each pair of arbor parts, a cam arranged to be engaged by each lever as the carrier rotates to hold the arbor parts retracted during part of the rotation of the carrier and to release the arbor parts for movement toward each other during the rest of the rotation of the carrier to engage the ends of bobbins placed between the parts, a pulley on the other part of each of the arbor parts, means for effecting rotation of the pulleys during that part of the movement of the carrier in which the bobbins are held between the arbor parts in directions to unwind the strands on the bobbins, a suction chamber located with its mouth close to the path of movement of the bobbins so that unwound strands are drawn across the mouth, a stripper located in the mouth and means for rotating the stripper in a direction to cause it to entrain the trailing ends of the strands as they are drawn into the mouth.

10. A bobbin stripper comprising a carrier rotatable about a predetermined axis, means on the carrier for supporting bobbins for rotation in said predetermined path, means for effecting rotation of the carrier, means for rotating the bobbins about their longitudinal axes as they move in said predetermined path in directions to unwind the strands thereon, a pair of chambers tandemly arranged in the path of movement of the bobbins, said chambers having mouths close

to the path of movement, means producing a negative pressure in said chambers so as to draw the strand ends trailing from the bobbins into them as they traverse the mouth of the chambers, strippers in the chambers and means for effecting rotation of the strippers in directions to entrain the traveling ends of the strand as they enter the chambers.

11. A bobbin stripper comprising a carrier, a plurality of bobbin supports on the carrier, said supports having parts movable from retracted positions into positions to engage the opposite ends of bobbins at a predetermined point in the path of rotation of the carrier, a conveyor arranged adjacent to the carrier with one end close to the said predetermined point, means for moving the conveyor to deliver bobbins to said predetermined point and means operable by rotation of the carrier to effect movement of the conveyor in timed relation with the movement of the carrier to synchronize the arrival of a bobbin and the bobbin engaging part at said predetermined point.

12. A bobbin stripper comprising a carrier, a plurality of bobbin supports on the carrier, said supports having parts movable from retracted positions into positions to engage the opposite ends of bobbins at a predetermined point in the path of rotation of the carrier, a conveyor arranged adjacent to the carrier with one end close to said predetermined point and means for effecting intermittent motion of the conveyor to deliver a bobbin at said predetermined point simultaneously with movement of the bobbin supports to said predetermined point, said last named means being actuated by the rotation of the carrier.

13. A bobbin stripper comprising a carrier, a plurality of bobbin supports on the carrier, said supports having parts movable from retracted positions into positions to engage the opposite ends of bobbins at a predetermined point in the path of rotation of the carrier, means for effecting rotation of the carrier, a conveyor arranged adjacent to the carrier with one end close to said predetermined point, a ratchet and pawl mechanism for effecting intermittent movement of the conveyor to deliver a bobbin at said predetermined point simultaneously with movement of a bobbin support to said point, and means on the carrier for effecting actuation of the pawl.

COMER TURLEY.

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