No. 869,856. PATENTED OCT. 29, 1907.

W. B. LEATHERS.

BOBBIN STRIPPER.

APPLICATION FILED JUNE 5, 1906.

3 SHEETS—SHEET 1.

Fig. 1.

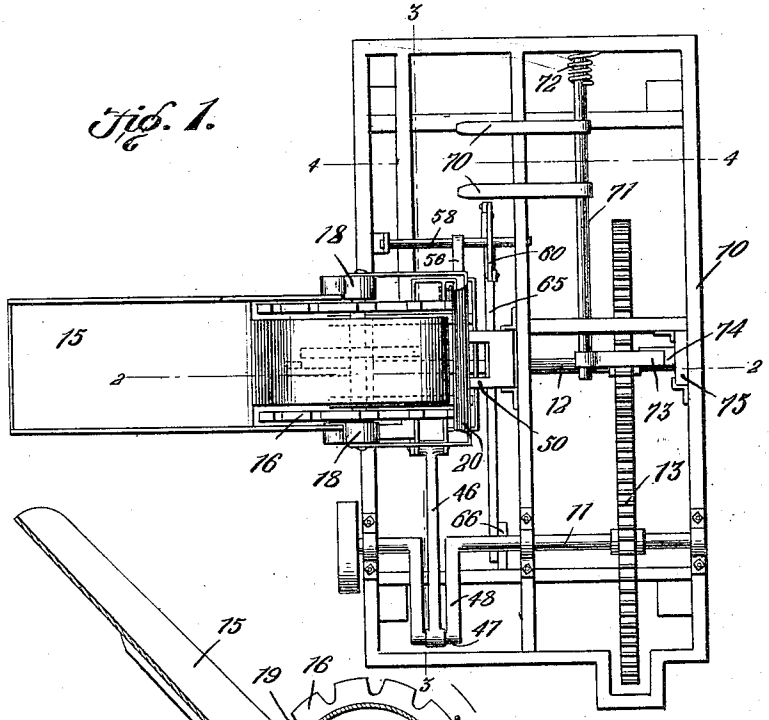


Fig. 2.

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3 SHEETS—SHEET 2.

Fig. 3.

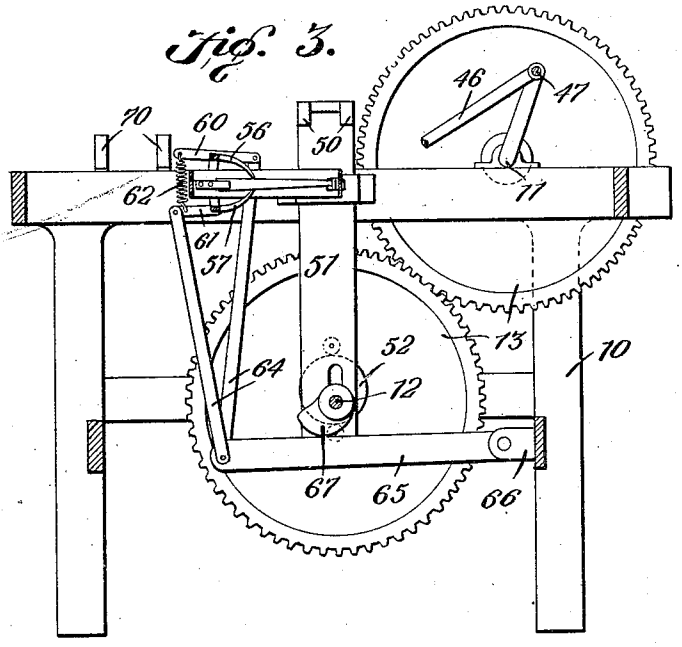
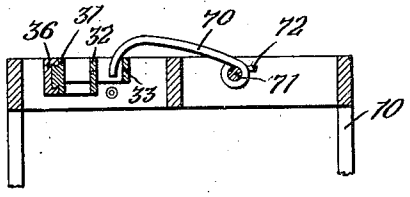



Fig. 4.



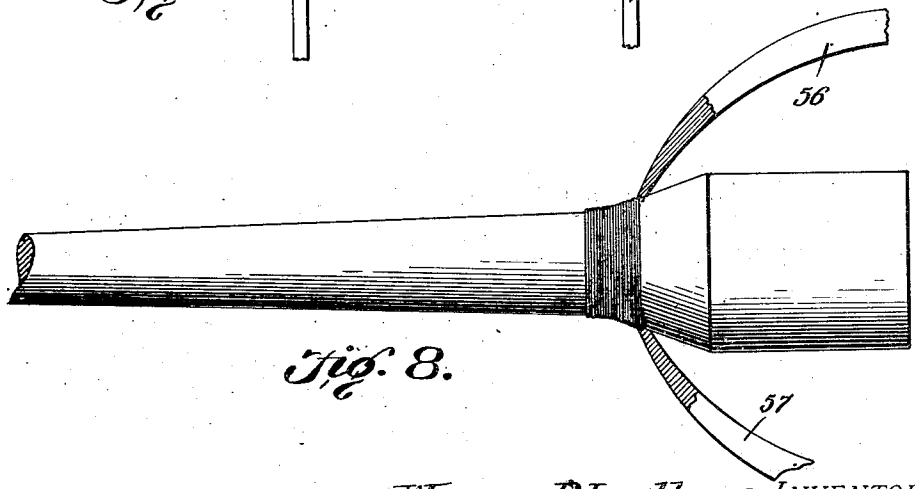




Fig. 8.

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No. 869,856. PATENTED OCT. 29, 1907.

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BOBBIN STRIPPER.

APPLICATION FILED JUNE 6, 1906.

3 SHEETS—SHEET 3.

Fig. 5.

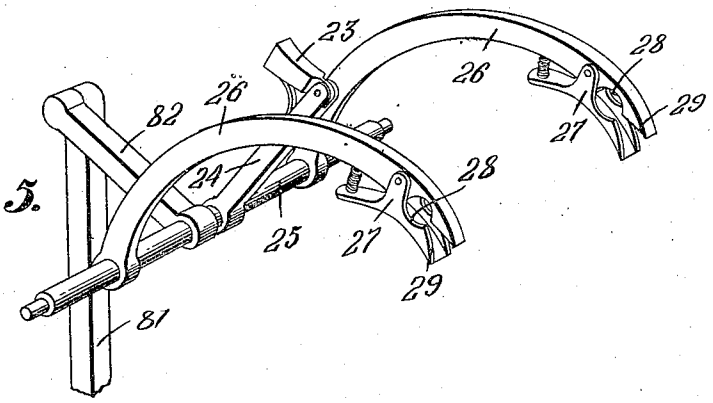



Fig. 7.

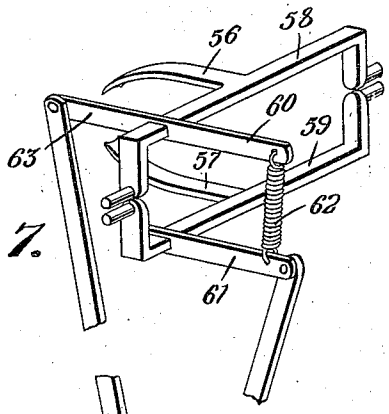
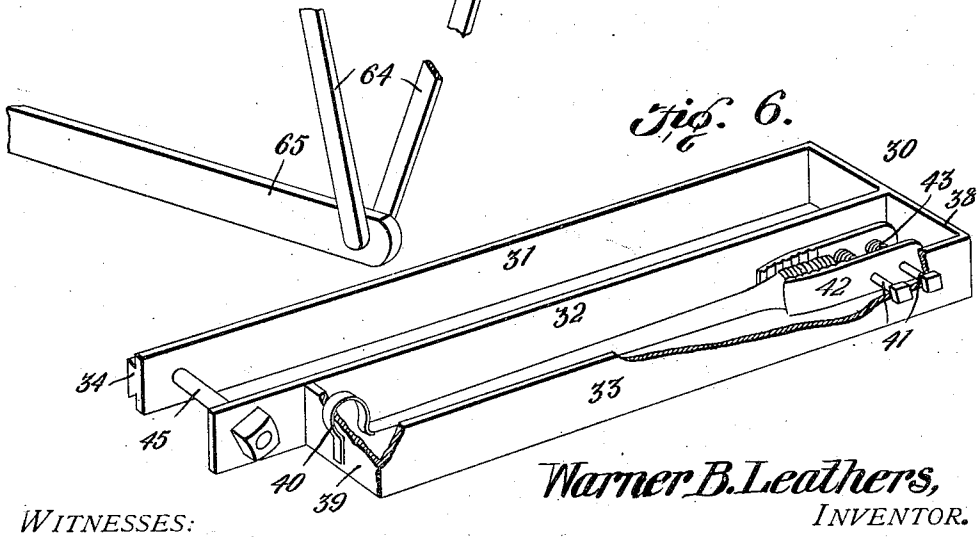



Fig. 6.

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# UNITED STATES PATENT OFFICE.

WARNER B. LEATHERS, OF NEW HOLLAND, GEORGIA.

## BOBBIN-STRIPPER.

No. 869,856. Specification of Letters Patent. Patented Oct. 29, 1907.

Application filed June 5, 1906. Serial No. 320,296.

*To all whom it may concern:*

Be it known that I, WARNER B. LEATHERS, a citizen of the United States, residing at New Holland, in the county of Hall and State of Georgia, have invented a new and useful Bobbin-Stripper, of which the following is a specification.

This invention relates to machines for stripping bobbins.

The principal object of the invention is to provide a machine by which bobbins as they come from the loom with more or less turns of yarn adhering thereto, may be stripped before being placed in the spinning frame.

A further object of the invention is to provide a device of this class in which the operation of stripping is rendered automatic.

A still further object of the invention is to provide a stripping machine to which the bobbins may be fed in bulk, the machine separating the single bobbins and stripping and delivering the same in successive order.

A still further object of the invention is to provide a machine of this class in which the yarn may be stripped without cutting the same as ordinarily practiced where the yarn is removed by hand, it being usual to employ a cutting knife for severing the yarn, especially where the latter is wound on straight bobbins.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a plan view of a bobbin stripping machine constructed in accordance with the invention. Fig. 2 is a transverse sectional view of the same on the line 2—2 of Fig. 1. Fig. 3 is a longitudinal section of the machine on the line 3—3 of Fig. 1. Fig. 4 is a transverse section of the machine on the line 4—4 of Fig. 1, showing more particularly the mechanism for removing the stripped bobbins from the machine. Fig. 5 is a detail perspective view of the grippers by which the single bobbins are removed from the feeding disks and carried to a position over the holder. Fig. 6 is a similar view of the bobbin holder, parts being broken away in order to more clearly illustrate the construction. Fig. 7 is a detail perspective view of the stripping mechanism, detached. Fig. 8 is a detail view on an enlarged scale illustrating the bobbin stripping operation.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The working parts of the machine are supported on a suitable frame 10, that has bearings for a main shaft 11 and a crank shaft 12, the shaft 11 receiving motion from any suitable source of power, and being connected by gears 13 of equal diameter to the cam shaft 12.

The bobbins as they come from the loom are thrown into a chute 15 and run by gravity against a pair of feeding wheels or disks 16, that are mounted on a shaft 17 supported by bearing brackets 18. These wheels or disks have peripheral notches 19, each pair of notches being arranged to receive a single bobbin, and as the disks rotate in the direction indicated by the arrow in Fig. 2, the bobbins will fall into the successive notches, and will be carried around under a guard 20, the latter being in the form of an arcuate plate having terminal spring fingers 21 which lightly engage and hold the bobbin at the point where the latter is to be delivered from the disks.

The shaft 17 also carries a ratchet wheel 22 having teeth of a number corresponding to the number of notches in each disk, and these teeth are engaged by a pawl 23 that is carried by a rocker arm 24 rigidly secured to a rock shaft 25, the latter also finding bearings in the bracket 18. At each movement of the rock shaft, the ratchet wheel is advanced to the extent of a single tooth, and another set of notches 19 is arranged in position to receive the bobbin from the chute 15.

Secured to the shaft 25 is a pair of curved feeding fingers 26 to the outer end of each of which is pivoted a spring actuated clamp 27. The clamp and the finger are provided with mating notches 28 to receive a bobbin, and the ends of the finger and the clamp have tapered walls 29 for the purpose of guiding the bobbin into said recesses. As the rock shaft 25 is moved in one direction, it will carry the feeding fingers 26 back under the shield or guard 20, and at the same time the pawl 23 will turn the ratchet wheel, and the two disks will be moved to an extent sufficient to bring a bobbin in alinement with spring fingers 21. On movement in the opposite direction, the feeding fingers will engage with the bobbin which has been previously adjusted to position, and the clamps 27 will yield until the bobbin is received in the recesses 28, and then the fingers 21 will yield, the bobbin being carried downward to a position over the bobbin carrying slide 30.

The slide 30 is approximately rectangular in general contour, and in the present instance is shown as formed of three parallel bars 31, 32 and 33, the bar 31 having a dove-tailed rib 34 on its rear face which engages in a dove-tailed groove formed in a horizontally disposed bar 36 carried by the frame. The opposite ends of the two bars 32 and 33 are connected by short plates 38 and 39, and one of these plates, 39, carries a

small spring 40, the free end of which projects over the top of the plate in position to receive the smallest end of the bobbin, as clearly shown in Fig. 6.

Between the two bars 32 and 33 extend parallel pins or bolts 41, on which are mounted bobbin clamping fingers 42 that are arranged to engage against diametrically opposite points on the largest end of the bobbin, and these clamps are held together by coiled tension springs 43 which are preferably held in place by the pins 41. The clamping faces of the fingers 42 are preferably slightly serrated in order that they may firmly grip the bobbin and hold the same during the stripping operation.

The two bars 31 and 32 are connected by a pin 45 and said pin is connected by a pitman 46 to a crank pin 47 carried by a pair of cranks 48 on the main shaft 11, this mechanism serving to effect reciprocatory movement of the bobbin carrier between the bobbin receiving and bobbin discharging points.

When the bobbin carrier is at the receiving point, the crank is on one dead center, so that there will be little or no movement of the bobbin carrier during the time the bobbin is being forced thereinto, and in order that the operation may be quickly accomplished, a pair of compression fingers 50 are arranged to engage with the bobbin held by the feeding fingers 26, and force the same from the fingers down into place between the spring 40 and the spring held clamps 42. These fingers 50 are carried by a vertically guided bar 51 that is moved by a quick operating cam 52 on the shaft 12, the bar 51 being provided with a pair of springs or anti-friction rollers 53, between which the cam plays.

After the bobbin has been placed on the carrier, the latter is moved toward discharging position, and during this movement the yarn is stripped therefrom.

The stripping fingers 56 and 57 are carried, respectively, by crank shafts 58 and 59, the ends of which are journaled in suitable supports on, or forming a part of the frame. These crank shafts are provided with arms 60 and 61, respectively, and said arms are drawn together by a coiled tension spring 62 for the purpose of holding the stripping fingers separated. The arm 60 is continued to the opposite side of the shaft 58, to form an arm 63, and the two arms 61 and 63 are connected by links 64 to one end of a lever 65, the opposite end of the lever being pivoted to a bracket 66 carried by the frame. This lever 65 is operated by a cam 67 on the shaft 12, the function of the cam being to draw the stripping fingers together around the bobbin. The bobbin engaging ends of these stripping fingers are preferably curved transversely, so that a large portion of the periphery of the bobbin may be engaged thereby, and as the bobbins are drawn between the fingers, the yarn will be stripped therefrom.

As the bobbin reaches the discharge position, it moves under a pair of curved discharging fingers 70, that are carried by a rock shaft 71, said shaft being engaged by a torsion spring 72 that tends normally to maintain said fingers in elevated position. The rock shaft carries a rocker arm 73, disposed in the path of movement of a lug 74 that is carried by a vertically movable bar 75, the latter being operated by a cam 76 on the shaft 12. As soon as the bobbin reaches the discharge position, the cam acts and raises the bar 75, whereupon the shaft 71 is rocked and the fingers 70 will engage with the top of the bobbin and force the same down between the two bars 32 and 33, the bobbin being dislodged from its supporting clamps and falling into a suitable receptacle.

The operation of the machine is as follows:—The bobbins in coming from the loom are dropped into the chute 15 with the heads or enlarged ends of the bobbins in the same direction, and the bobbins will move by gravity against the peripheries of the disks 16, so that as the disks rotate, a single bobbin may enter the notches 19. The bobbins are carried around under the guard 20, and when a bobbin reaches a position adjacent to the spring fingers 21, a cam 80 on the shaft 12 operates a rod 81 that is connected to a rocker arm 82 on the shaft 25, and the feeding fingers 26 are moved forward, so that the bobbin will be engaged and held in the recesses 28. When this position is reached, the fingers 50 act, and in moving downward, the bobbin is forced from the feeding fingers into position between the clamps 40 and 42. The fingers 50 are then elevated and as the fingers 26 move rearward, the rock shaft 25 will, also, carry the rocker arm 24, and the pawl 23 will engage the teeth of the ratchet wheel 22, advancing the ratchet wheel to the extent of a single tooth, and feeding another bobbin to position adjacent the spring fingers 21. During the return movement of these parts, the bobbin carrier is moved forward, and as it passes between the stripping fingers, the latter will be moved toward each other, and will engage and strip the threads from the bobbin, while on reaching the discharge position, finger 70 will act to force the bobbin from the carrier.

With a device constructed in accordance with this invention, the slow and laborious hand operations are avoided, and the bobbins are not injured by the cutting of the thread, or broken by knocking of the ends of the bobbins against a table or other surface, as usually practiced in hand stripping.

I claim:—

1. In a device of the class specified, a bobbin stripping member, a bobbin carrier, and means for feeding the carrier and its bobbin past said member.

2. In a device of the class specified, a plurality of stripping members arranged to engage against the opposite sides of a bobbin, a bobbin carrier, means for feeding bobbins thereto, means for effecting relative movement of the carrier and stripping members, and means for dislodging the bobbin from the carrier.

3. In a device of the class specified, a bobbin carrier, a stripping member, means for moving the carrier past said member, and means for dislodging the bobbin from the carrier.

4. In a device of the class described, a bobbin carrier, means for feeding bobbins thereto, a stripping member, means for moving the carrier past said stripping member, and means for dislodging the bobbin from the carrier.

5. In a device of the class specified, a reciprocatory bobbin carrier movable between a receiving and a discharge point, means for feeding bobbins to the carrier, means for dislodging the bobbins, and a stripper arranged between said receiving and discharge points.

6. In a device of the class described, a movable bobbin carrier, means for automatically feeding bobbins thereto, a stripper, means for moving the carrier past the stripper, and means for dislodging the bobbin.

7. In a machine of the class described, a bobbin carrier, feeding fingers for conveying bobbins to the carrier, means for automatically presenting successive bobbins in position to be engaged by the feeding fingers, means for forcing the

bobbins from the fingers into the carrier, a stripper, means for moving the carrier past the stripper, and means for dislodging the bobbin from the carrier.

8. In a machine of the class described, a bobbin carrier, a pair of revoluble disks having bobbin receiving notches, a supply chute through which said disks rotate to receive successive bobbins, feeding fingers, means for operating the same to engage and carry the successive bobbins from the disks to the carrier, means for forcing the bobbins from the fingers into the carrier, a stripper, means for moving the carrier past the stripper, and means for dislodging the bobbin from the carrier.

9. In a machine of the class described, the combination with a bobbin carrier, of a pair of revoluble feed disks having notches for the reception of bobbins, a supply chute through which the disks move to receive the bobbins, yieldable guard fingers for maintaining the bobbins in the notches, a shaft carrying the disks, a ratchet wheel on said shaft, feeding fingers arranged to engage and remove the successive bobbins from the disks and force the same past said guard fingers, a pawl movable with the fingers and arranged to engage the ratchet-wheel to impart step by step rotative movement to the disks, means for forcing the bobbins from the fingers into the carrier, a stripper, means for moving the carrier past the stripper, and means for dislodging the bobbins from the carrier.

10. In a machine of the class described, the combination with a bobbin carrier, of a pair of notched bobbin feeding disks, spring guard fingers for maintaining the bobbins in position on the disks, a supply chute through which said disks move, a shaft carrying said disks, a ratchet wheel on the shaft, a rock shaft, feeding fingers carried by the rock shaft and arranged to engage and carry the successive bobbins from the disks to the carrier, an arm on said rock shaft, a ratchet wheel engaging pawl on said arm, means for forcing the bobbins from the fingers into the carrier, a stripper, means for moving the carrier past the stripper, and means for dislodging the bobbins from the carrier.

11. In a machine of the class described, the combination with a bobbin carrier, of a pair of notched bobbin receiving disks, spring guard fingers for holding the bobbins in the disks, a supply chute through which the disks move, a shaft carrying the disks, a ratchet wheel on said shaft, a rock shaft, a pair of clamping fingers carried by the rock shaft and provided with movable clamps, said fingers and clamps being arranged to engage and carry the bobbins from the disks to the bobbin carrier, a rocker arm on said rock shaft, a ratchet wheel engaging pawl on said rocker arm, a stripper, means for moving the carrier past the stripper, and means for dislodging the bobbins from the carrier.

12. In a machine of the class described, the combination with a bobbin carrier, of an oscillatory feeding finger having a bobbin receiving recess, a spring pressed clamp pivoted to the finger and having a mating recess, the adjacent faces of the finger clamp being inclined to permit the passage of the bobbin into the recesses, means for presenting successive bobbins into the path of movement of said finger, means for forcing the bobbins from the finger into the carrier, a stripper, means for moving the carrier past the stripper, and means for dislodging the bobbins from the carrier.

13. In a machine of the class described, a bobbin carrier, a pair of stripper fingers having transversely curved bobbin engaging ends, means for opening the fingers to permit the passage of the carrier, means for closing the fingers on the bobbin, and means for dislodging the bobbin from the carrier.

14. In a machine of the class described, the combination with a bobbin carrier, a pair of crank shafts, stripping fingers carried by said shafts and arranged to engage the bobbin at diametrically opposite points, arms projecting from said shafts, a spring connecting the arms and tending to open the fingers, cam actuated links connected to the shafts and arranged to close the fingers on the bobbin, means for moving the carrier past the stripping fingers, and means for dislodging the bobbins from the carrier.

15. In a machine of the class described, the combination with a stripper, of a reciprocatory bobbin carrier, spring clamps supported thereby and arranged to engage the bobbin, and means for automatically dislodging the bobbin.

16. In a machine of the class described, a stripper, a bobbin carrier, spring clamps on said carrier for engaging the opposite end portions of the bobbin, and means for automatically dislodging the bobbin.

17. In a machine of the class described, a stripper, a bobbin carrier, a leaf spring engaging the smaller end of the bobbin, and a pair of spring actuated clamping fingers for engaging the large end of the bobbin.

18. In a machine of the class described, the combination with a stripper, of a bobbin carrier open at top and bottom, means for inserting a bobbin through the open top of the carrier, and means for dislodging the bobbin and forcing the same same through the open bottom of the carrier.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WARNER B. LEATHERS.

Witnesses:
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W. H. DARDEN.