

W. H. SHERIDAN.
CLEANER FOR WINDING MACHINES.

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NO MODEL.

Fig. 1.

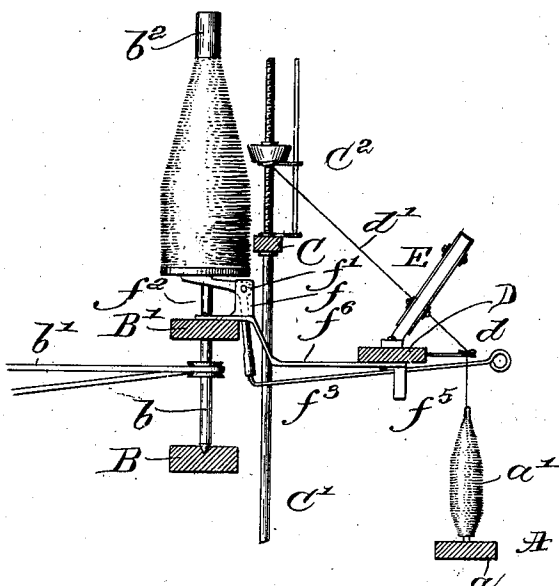


Fig. 3.

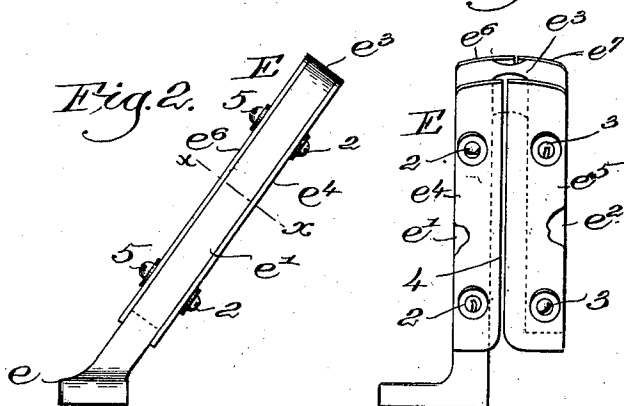
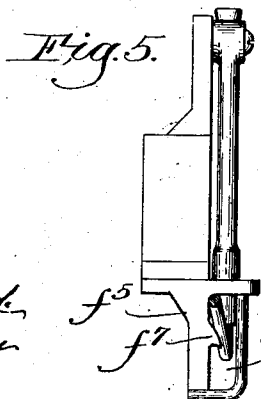
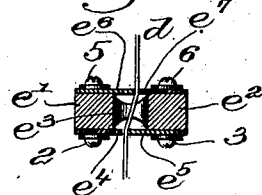


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM H. SHERIDAN, OF PITTSFIELD, MASSACHUSETTS.

CLEANER FOR WINDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 737,164, dated August 25, 1903.

Application filed December 14, 1901. Serial No. 85,886. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. SHERIDAN, a citizen of the United States, and a resident of Pittsfield, county of Berkshire, State of Massachusetts, have invented an Improvement in Cleaners for Winding-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention has for its object the production of a machine by which to wind threads or yarns of any fibrous material, my invention to be herein described relating more especially to the means for cleaning the thread or yarn.

As I have herein shown and illustrated my invention, the thread or yarn to be wound is represented as taken from a bobbin, or it may be a reel or any other usual thing which holds yarn. The thread or yarn after passing a suitable guide is led into the space between the blades of a cleaner occupying a position of inclination between a vertical and a horizontal plane, and from the cleaner the thread is led by any usual or suitable traverse-guide to a bobbin or spool, the traverse-guide laying the thread or yarn on the bobbin or spool. During the passage of the thread or yarn through the cleaner the relative positions of the thread or yarn and the cleaner will be changed, so that the thread or yarn is made to travel from one toward the other end of the slot between the blades of the cleaner, such change of position of the thread and cleaner besides insuring a better cleaning of the thread or yarn also preventing the wearing of the edges of the cleaner-blades more in one part than in another, as when the thread or yarn is drawn through between the edges of said blades in the same line. The cleaner has two pairs or sets of blades, one set occupying a position at or near one face of the body of the cleaner and the other pair at or near the opposite face of the body of the cleaner, the slot between the edges of one pair of blades being out of line in a vertical plane with relation to the slot between the other pair of blades, so that the thread or yarn is in a measure bent or wrapped more or less about the edge of one blade of one pair and about a blade of the other pair at

the opposite side of the line of travel of the thread or yarn in its passage between said two pairs of blades. The body has a substantially vertical slot closed at its top, and the blades are secured adjustably to said body at its face and back. The bobbin shown is held adhesively to the spindle and is rotated thereby, and when the rotation of the bobbin is to be stopped for any reason, either because of the breaking of an end or because the bobbin is sufficiently filled, a lever having an arm occupying at all times a position below and crossing the lower end of the bobbin and during the winding operation out of contact with the bobbin is turned, causing the said arm to rise and lift the bobbin sufficiently to enable it to be sustained by the arm and its adhesive fit on the spindle released sufficiently to enable the spindle to be run and leave the bobbin at rest. The lever referred to has a second arm to which is connected rigidly a rod preferably made as a spring, said rod constituting a locking device which may be moved in a suitable guide, having a projection or cam to coact with said rod to maintain the lever in its operative or inoperative position.

Figure 1 is a diagram showing a sufficient part of a well-known form of winding-machine with my improvement added to enable my invention to be understood. Fig. 2 is an enlarged side elevation of the cleaner; Fig. 3, an enlarged view of the cleaner. Fig. 4 is a section of the cleaner in the line *x x*, Fig. 2, looking upwardly; and Fig. 5 is a front view, on a larger scale, of the guide forming part of the stand holding the lever and with which coacts the rod referred to, the rod being shown in section.

Referring to the drawings, A represents a suitable rail having, as shown, spindles *a* to contain cops of thread or yarn *a*.

B represents a stepped rail; B', a spindle-rail; *b*, a spindle driven by a band *b'* and driving the bobbin *b*² by an adhesive fit of the bobbin on the spindle.

C represents a traverse-rail carried by a suitable rod or rods C' and having a suitable thread-guide, as C², said parts being common and shown and described in United States Patent No. 497,819.

In the drawings, D represents a top board

having usual eyes d , through which is led the thread or yarn d' to be wound on the bobbin b^2 or any other usual or suitable form of thread or yarn receiver.

5 It is well known that thread or yarn is taken from reels and subjected to the action of a cleaner and then wound upon bobbins or spools, and instead of the spindles a , containing bobbins a' , I may mount the thread or yarn
10 to be cleaned and wound upon any usual reel or other thread or yarn holder.

The cleaner E (shown detached in Figs. 2 and 3) is composed of a body consisting of a foot e , from which passes an arm e' , the body
15 having a second or depending arm e^2 connected with the arm e' by a suitable web e^3 . The cleaner has also, forming a part of it, two pairs of blades e^4 e^5 and e^6 e^7 , the blades e^4 and e^5
20 being connected with the front face of the body of the cleaner by means of suitable screws, as 2 and 3, the body of said screws entering slots in the blades to permit the adjustment of the blades relatively one toward
25 the other to define the width of the slot 4 between the substantially parallel edges of said blades, according to the count of the yarn. The plates e^6 and e^7 are connected with the rear side of the body of the cleaner in like manner by suitable screws 5 6.

30 Viewing Figs. 3 and 4, it will be seen that the vertical spaces between the acting edges of the two pairs of blades e^4 e^5 and e^6 e^7 are out of line one with the other in vertical planes, so that the thread or yarn d' as it is
35 drawn longitudinally between said plurality of blades is bent, as represented in Fig. 4, thereby greatly enhancing the action of the edges of the blades as a cleaner of knots, bunches, &c., from the thread or yarn. Further, as the traverse motion lays the thread
40 or yarn upon the bobbin or spool of whatever form, the thread or yarn as it is drawn from the bobbin is made to traverse vertically the spaces between the plurality of pairs of
45 blades, and this action also is found to be of material benefit in removing any bunches or irregularities from the thread or yarn, and at the same time the edges of the blades are not worn away rapidly as when the yarn has only
50 a substantially longitudinal movement between the blades of the cleaner from the guide-eyes d on the top board.

I believe I am the first to produce a cleaner having a plurality of blades and presenting
55 the spaces between said blades in different vertical planes and also to traverse the thread longitudinally of the spaces between the edges of said blades, and I shall herein claim the same broadly.

60 When the bobbin is full or when a thread or yarn breaks, it is desirable to instantly stop the bobbin and yet permit the spindles to continue to rotate. To provide for this, I have mounted upon the spindle-rail a bracket
65 f , having a suitable upright to receive a pivot f' , upon which is mounted a lever f^2 , represented as an angle-lever and having

one end normally standing under the head of the bobbin, but out of contact therewith, while the spindle is rotating the bobbin to
70 wind the thread or yarn thereon. The down-turned arm of the lever f^2 has a connected rod f^3 , which enters a space f^4 in a guide f^5 , depending from an arm f^6 of the stand, which arm is represented as connected by a
75 suitable screw with the under side of the top rail D, the opposite end of said stand being connected by a suitable screw with the spindle-rail. The guide has a cam face or projection, as f^7 , (see Fig. 5,) and when the bobbin
80 is to be rotated by the spindle the rod f^3 occupies the position represented in Figs. 1 and 5; but when for any reason the rotation of the bobbin is to be stopped the workman depresses the end of the rod f^3 , which is within
85 easy reach, and causes said rod to pass the projection f^7 and be held in place thereby. This movement of the rod turns the lever f^2 in a direction to cause it to act upon the head of the bobbin and lift it sufficiently with relation
90 to the spindle to destroy the adhesive fit of the bobbin on the spindle, and immediately the bobbin is stopped without, however, stopping the rotation of the spindle.

Having fully described my invention, what
95 I claim as new, and desire to secure by Letters Patent, is—

1. In a winding-machine, means to hold the thread or yarn to be wound, a cleaner for the thread or yarn comprising a plurality of parallel blades arranged in pairs with a space
100 between the adjacent edges of the blades of each pair, said spaces being out of line with each other, thread-traversing means, and means to wind the thread or yarn, said thread
105 or yarn traversing means acting upon the thread while passing through the spaces between the adjacent edges of the blades of each pair to reciprocate the thread or yarn in said spaces.

2. In a winding-machine, a spindle, a bobbin thereon, a cleaner comprising a body and a plurality of blades arranged in separated parallel pairs and set at an inclination to the longitudinal axis of the spindle, and means to
115 present and guide the thread or yarn into the spaces between the two blades of each pair, and means to positively move the yarn or thread to change the relative position of said thread or yarn and the cleaner during the
120 operation of cleaning and winding the thread or yarn, whereby different parts of the edges of the blades of the cleaner are made to act against the thread or yarn as the latter is drawn between said edges to be wound.

3. A cleaner presenting a stationary support, a plurality of pairs of blades secured thereto, the space between the edges of the two blades of one pair of blades being out of line with relation to the space between the
130 edges of the two blades of the other pair of blades and means for adjusting the blades of each pair toward and from each other.

4. A cleaner presenting a supporting-body

having two arms with a space separating said arms, a plurality of blades arranged in separated pairs, one pair being secured to one, and the other pair to the opposite face of the arms of said body respectively, the edges of the blades of each pair of blades being in the same plane and out of contact to leave a space in which the thread or yarn being cleaned may be drawn in the direction of its length and be moved laterally as described.

5. A cleaner comprising a supporting-body having a slot extending from its lower to near its upper end, a plurality of pairs of blades, one pair being secured to one, and the other pair to the opposite face of said body on opposite sides of said slot, the edges of the blades of each pair of blades being in the same plane and out of contact to leave a space in which the thread or yarn being cleaned may be drawn in the direction of its length and to be moved laterally as described, said space being out of line to thereby in a measure wrap the thread about the edge of one blade of the pair of blades at one side of one of said spaces, and about that one of said blades of the second pair of blades which sustains the opposite side of the thread.

6. A cleaner presenting a foot, an inclined body slotted for part of its length, the slot being closed at its upper end, a plurality of pairs of blades, the space between the edges of the two blades of one pair of blades being out of line with relation to the space between

the edges of the two blades of the other pair of blades.

7. A cleaner presenting a slotted supporting-body, a plurality of pairs of independent parallel blades, the blades of each pair being secured to the body on opposite sides of the slot therein and the edges of the blades of each pair being directly opposite one the other, the space between the edges of one pair of blades being out of line with relation to the space between the other pair of blades whereby the yarn is diverted between one and the next pair of blades from its straight line of travel.

8. A cleaner presenting a foot, a supporting-body having two substantially parallel arms with a space between them, said arms being united at the tops thereof, a plurality of blades arranged in separated pairs, the blades of one pair being secured respectively to the said arms on the front side thereof and the blades of another pair being secured to the arms on the rear side thereof, the blades of each pair having a space between their adjacent edges, said spaces being out of line with each other.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM H. SHERIDAN.

Witnesses:

WELLINGTON K. HENRY,
ALEXANDER ALEXANDER.