

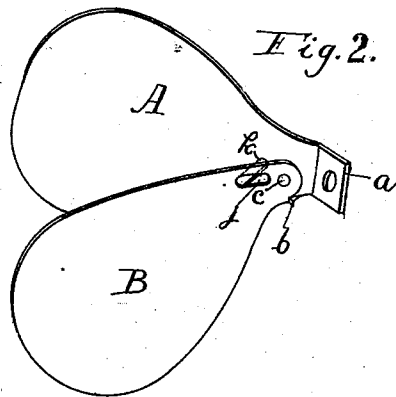
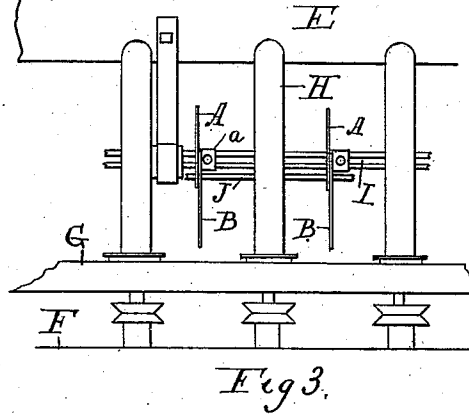
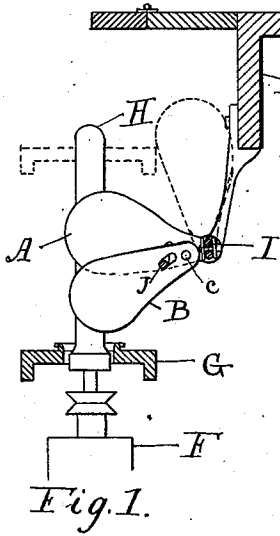
(No Model.)

E. L. MORRILL.

YARN SEPARATOR FOR RING SPINNING MACHINES.

No. 531,548.

Patented Dec. 25, 1894.



Witnesses:
E. D. H. H. H. H.
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Inventor:
Ernest L. Morrill
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UNITED STATES PATENT OFFICE.

ERNEST L. MORRILL, OF SACO, MAINE, ASSIGNOR TO GEORGE DRAPER & SONS, OF HOPEDALE, MASSACHUSETTS.

YARN-SEPARATOR FOR RING-SPINNING MACHINES.

SPECIFICATION forming part of Letters Patent No. 531,548, dated December 25, 1894.

Application filed January 16, 1894. Serial No. 497,026. (No model.)

To all whom it may concern:

Be it known that I, ERNEST L. MORRILL, a citizen of the United States, residing at Saco, in the county of York and State of Maine, have
5 invented certain new and useful Improvements in Yarn-Separators for Ring-Spinning Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others
10 skilled in the art to which it appertains to make and use the same.

My invention relates to separators such as employed in ring spinning machines.

I have chosen to illustrate my invention in
15 connection with a separator of the class shown in United States Patent No. 202,420, dated April 16, 1878.

My invention has for its object the production of a compound separator or one composed
20 of two or more blades or arms to work in each space between adjacent spindles, the blades or arms being so devised and combined that the ring rail in its ascent will act upon and lift one and then the other of the two or more
25 blades or arms, the purpose being to so construct and combine the blades or arms of each separator as to furnish a separating device which in operation shall prevent the contact of the yarns between adjacent spindles for
30 the greatest possible vertical distance, as I have found that with a separator composed of but a single narrow blade or arm, the yarns as they "balloon," as it is called, at high speeds of the spindles, are apt to contact
35 above or below the separator. The blade is usually narrow in order to fold back and let the ring rail pass on its ascent in the upper part of the traverse, also dividing each separator into two or more blades, so that one
40 after the other may be lifted, tends to reduce the strains on the ring rail.

One part of my invention consists in the combination with a ring rail, and spindles, of a series of separators each composed of a plurality of pivoted arms adapted to be struck
45 and lifted in succession as the ring rail rises.

Other features of my invention will be hereinafter described and defined in the claims at the end of this specification.

50 Figure 1 in cross section represents a ring rail and a sufficient portion of a spinning

frame with my improvements added to enable my invention to be understood, the ring rail being shown as down. Fig. 2, on a larger scale, shows a separator embodying my invention, the free end of one blade or arm thereof hanging below the free end of the other blade or arm, and Fig. 3 is a view from the left of Fig. 1 showing portions of three
55 spindles and two separators with other usual parts of a ring spinning frame.

In the drawings E represents part of the roller beam; F, part of the spindle rail; G, part of a ring rail having attached rings *g*. H represents bobbins; H', spindles, and I a
60 separator carrying shaft or bar.

The parts referred to by letter are and may be all as common in ring spinning frames, and said parts together with the main blade or arm A of the separator are as in said patent.
70

In place of employing a separator composed of the usual single blade or arm, I make use of several blades pivoted or otherwise secured together so that one may move up and down independently of or with relation to the other,
75 and one in advance of the other as the ring rail rises.

As I have herein chosen to illustrate my invention, I have pivoted to the usual blade or arm A, at *c*, an auxiliary blade or arm B, the
80 lower edge of the blade B hanging normally below the lower edge of the blade A, thus presenting an extended surface to act as a wall of separation between adjacent spindles to prevent the contact of the arms due to
85 "ballooning" when the spindles are being run at high speed, the effective length of the wall of separation being about twice as great when the ring rail is down, than were only the blade A used. A suitable stop *b*, shown as carried
90 by blade A, prevents blade B from falling farther than desired.

When the ring rail is down the blade A is in substantially horizontal position and the blade B drops down so that the space between
95 the spindles is filled sufficiently to prevent the yarn from throwing across. When the rail rises it strikes against the lower edge of the blade B and lifts it with relation to the blade A and thereafter as the ring rail rises
100 the blade A is lifted, it and blade B traveling in unison, both blades, as the ring rail com-

pletes its ascent, being tilted back under the roller beam without obstructing or interfering with the operation of the ring rail. As the ring rail descends, the blade B will finally drop by its own weight below the blade A.

It will be seen that my separator presents a wall of separation for the yarn to strike against and offers no obstructions on which the yarn can catch, and in use may be actuated at any desired speed without danger of the yarn of adjacent spindles striking.

I have herein shown two blades or arms joined together to form an extensible separator but it is evident that more than two blades or arms may be connected together as provided for.

When the frame is to be doffed the separator is tilted to a vertical position in order to leave the bobbins clear from any obstruction and at such times it is desirable that the auxiliary blade B should be closed up on the blade A. This may be done by tilting it backward by hand but it is preferable to so arrange the separators that several may be shut up with one motion of the hand. In order to accomplish this I make use of a rod or wire J which extends through slots *j* and *k* formed in the blades of the separator. These slots overlap each other and they are placed at an angle with each other so that when the blades are raised to a vertical position the rod will fall in the slots and so hold the two parts of the separator together until they are again brought to a horizontal position.

Each one of the rods J extends through several separators so that when one is lifted and tilted back the others receive the same motion.

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

1. A combination with a ring rail and spindles, of a series of separators each composed of a plurality of blades or arms adapted to be struck by the ring rail and lifted in succession, substantially as described.

2. A combination with the ring rail and spindles, of a yarn separator consisting of a plurality of blades or arms pivoted one with relation to the other, whereby one may be moved independently of and in advance of the other, substantially as described.

3. In a separator for ring spinning machines, the combination of a shaft adjacent to the spindles, a separator blade secured to said shaft, an auxiliary blade pivoted to said separator blade, overlapping slots being formed in said blades, said slots being at an angle with each other when the blades are open, and a rod connecting several of said blades and passing through said slots, substantially as described.

4. A combination with the ring rail and spindles, of a yarn separator consisting of a plurality of blades or arms pivoted one directly upon the other, whereby one may be moved independently of and in advance of the other, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ERNEST L. MORRILL.

Witnesses:

H. G. PALMER,
S. W. BATES.