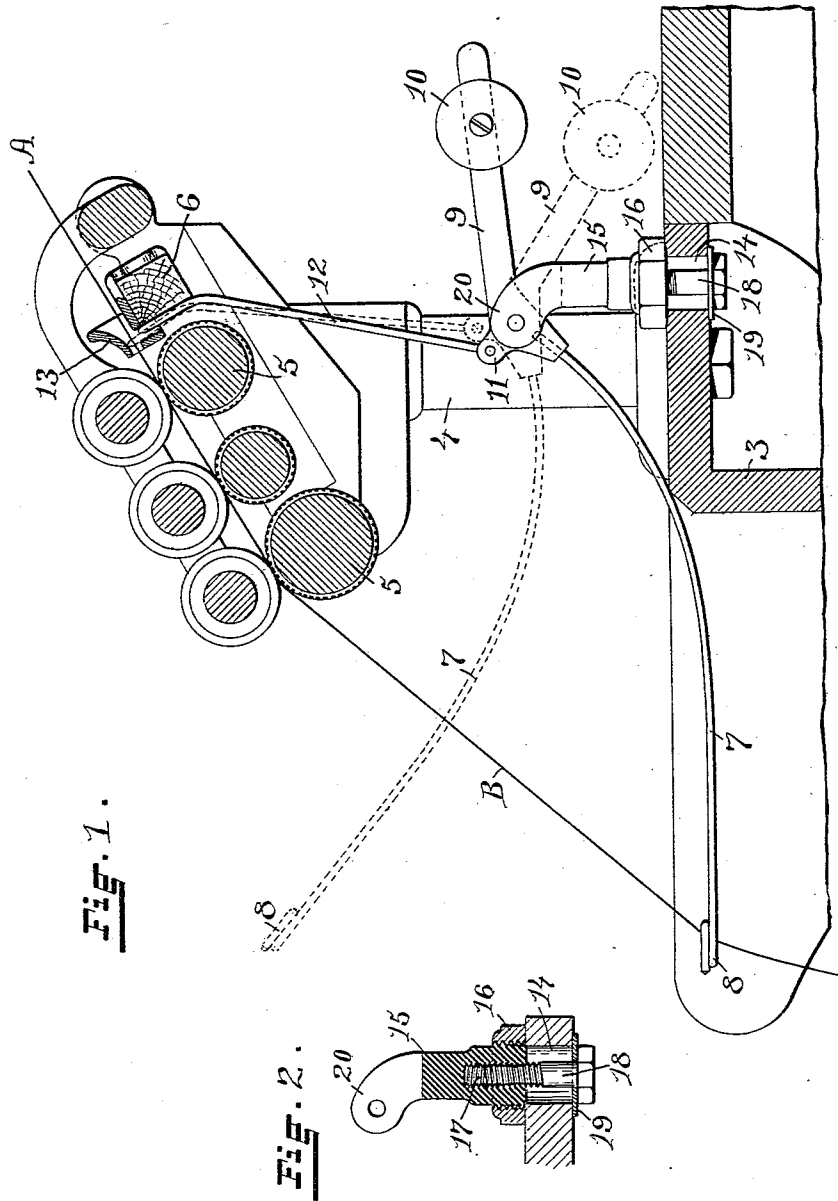


(No Model.)

J. A. MILLER.
SPINNING MACHINE.

No. 557,688.

Patented Apr. 7, 1896.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOSEPH A. MILLER, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO GEORGE DRAPER & SONS, OF HOPEDALE, MASSACHUSETTS.

SPINNING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 557,688, dated April 7, 1896.

Application filed November 20, 1895. Serial No. 569,563. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. MILLER, of the city of Providence, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in Spinning-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to an improvement in the yarn-guide and a roving-clamp for spinning-machines.

In a spinning-machine the roving passes through a guide-eye to the drawing-rolls. The roving consists of a large number of fine cotton fibers held loosely together. When this roving is arrested to prevent its passage through and between the drawing-rolls, it will separate by drawing the fine cotton fibers which have entered the bite of the rear roll out of the roving held by the roving-stop and thus break the roving between the stop and the rear drawing-roll, unless the roving-stop holds the roving so firmly that the fibers extending from the bite of the rear rolls to the roving-stop cannot be drawn out of the roving. Heretofore this has been accomplished by the use of a cam pivoted in the guide-eye above the roving and provided with a long lever, the end of which was connected with the weighted end of the yarn-guide. To secure the firm holding of the roving, prevent the drawing out of the fiber and the separation of the roving between the roving-stop and the rear drawing-roll, and to simplify the construction of the yarn-guide and roving-stop, I employ the principle of the toggle-jointed levers, whereby the pressure of the stop on the roving increases as the levers approach the straight line, arresting the passage of the roving through the drawing-rolls and causing it to separate between the bite of the rear roll and the intermediate roll, so that when released the roving will resume its passage through the drawing-rolls.

The invention consists in the peculiar and novel construction of the yarn-guide, its adjustable support, and the roving-clamp connected with and operated by the yarn-guide, as will be more fully set forth hereinafter.

Figure 1 is a sectional view of the part of

the spinning-machine comprising the front beam, the drawing-rolls, and the yarn-guide controlling the delivery of the yarn to the spindles. Fig. 2 is a sectional view of the adjustable support for the yarn-guide.

Similar numerals and letters of reference designate corresponding parts throughout both views.

In the drawings, 3 is the front beam of the spinning-machine, on which is secured the post 4, which forms the support of the drawing-rolls 5 and the roving-rod 6. The yarn-guide consists in the wire 7, having at its front end the usual pig-tail guide-eye 8, and the lever 9 provided with the adjustable counterweight 10. From the lever 9 projects the short arm 11, to which is pivotally secured the clamping-bar 12, the upper end of which enters the roving trumpet-guide.

The guide-eye 8 requires to be very accurately adjusted to the spindle onto which it guides the yarn, and the roving-clamp also requires accurate adjustment. To secure this adjustment and also to secure a rigid support for the yarn-guide and roving-clamp, I provide the front beam 3 with the hole 14 and secure over this hole the post 15. The lower part of this post 15 is provided with an external screw-thread, with which the nut 16 engages, and with an internal screw-thread 17, with which the bolt 18 engages.

19 is a washer, and 20 the pivotal support, at the upper end of the post, for the lever 9.

The bolt 18 is of smaller diameter than the hole 14, and in securing the post 15 the bolt 18 is passed through the washer 19 and screwed into the thread 17 of the post 15 until the nut 16 rests on the top surface of the front beam 3. The post can now be accurately adjusted laterally in all directions so as to bring the guide-eye 8 exactly into the desired position. The post can also be adjusted vertically, it being raised by loosening the bolt 18 and tightening the nut 16 and lowered by tightening the bolt 18 and loosening the nut 16, and when adjusted it is firmly held by the bolt 18 and nut 16.

The operation of the device is, when accurately adjusted and the spinning-machine is in operation, as follows: The roving A passes

from the spool through the trumpet-guide 13 to and between the drawing-rolls, where it is drawn out and delivered from the rolls. The twist from the spindle runs up to the front roll and converts the drawn-out roving into the yarn B, which passes through the guide-eye 8 to the spindle. The draft on the yarn causes friction in the guide-eye, and this frictional strain is nearly counterbalanced by the adjustment of the weight 10 on the lever 9. The roving-clamping bar 12, bent near its upper end, is in the position shown in the drawings in solid lines and the upper end does not interfere with the passage of the roving through the trumpet 13. As long as all the conditions of the roving and the yarn are maintained at the required standard the parts remain in the positions heretofore described, and shown in Fig. 1 in solid lines. When now the yarn breaks from any cause, the strain on the guide-eye 8 is diminished and the weight 10 raises the guide-eye into the position shown in broken lines, while the weighted end of the lever 9 is depressed and the clamping-bar 12 is raised against the roving and forces the same against the upper surface of the trumpet 13 with increasing pressure as the arm 11 and clamping-bar 12 approach the position shown in broken lines in Fig. 1 and holds the roving from being drawn into and through the drawing-rolls. The clamping-bar 12 is loosely pivoted in the arm 11, and the weight 10 secures a permanent contact of the upper end of the clamping-bar on the roving during the reciprocation of the roving-rod 6.

When the spinning-machine is stopped for doffing, the yarn-guide also assumes the position shown in broken lines in Fig. 1, and the operation of doffing is thereby facilitated.

I do not claim, broadly, the combination, with the drawing-rolls and reciprocating roving-rod, of a clamping device moving with the roving-rod, a yarn-guide, and connections between the clamping device and yarn-guide; but

What I claim as my invention, and for

which I desire to secure Letters Patent, is—

1. The combination with the pivoted counterbalanced yarn-guide, substantially as described, of the adjustable supporting-post 15 provided with the bolt 18 and nut 16 having the screw-thread connections with the post, as described.

2. The combination with the part of the spinning-machine provided with the hole 14, the supporting-post 15 provided with the bolt 18 and nut 16 connected with the post by screw-thread engagement, of the counterweighted yarn-guide consisting of the guide-eye 8, the wire 7, the pivoted lever 9 and adjustable weight 10, as described.

3. In a spinning-machine, the combination with the drawing-rolls, and the roving-rod provided with a roving-guide for the passage of the roving, and a counterweighted yarn-guide for controlling the delivery of the yarn to the spindle, of a clamping-bar pivotally connected with the counterweighted yarn-guide in front of the pivotal support of the yarn-guide, whereby, the pressure exerted by the clamping-bar on the roving increases as the connection of the lower end of the bar with the roving-guide approaches a straight line between the clamping end of the bar and the pivot of the roving-guide, as described.

4. In a spinning-machine, the combination with the drawing-rolls, and the roving-rod provided with a roving-guide, the counterweighted yarn-guide, and the roving-clamping bar, of the post 15 forming the support of the counterweighted yarn-guide and having capacity for vertical and lateral adjustment, whereby, the guide-eye may be adjusted with reference to the spindle, and the roving-clamping bar with reference to the roving-guide, as and for the purpose described.

In witness whereof I have hereunto set my hand.

JOSEPH A. MILLER.

Witnesses:

J. A. MILLER, Jr.,
M. F. BLIGH.