(No Model.)

2 Sheets—Sheet 1.

J. E. PREST.

YARN SEPARATOR FOR SPINNING MACHINES.

No. 435,122. Patented Aug. 26, 1890.

Fig 1.

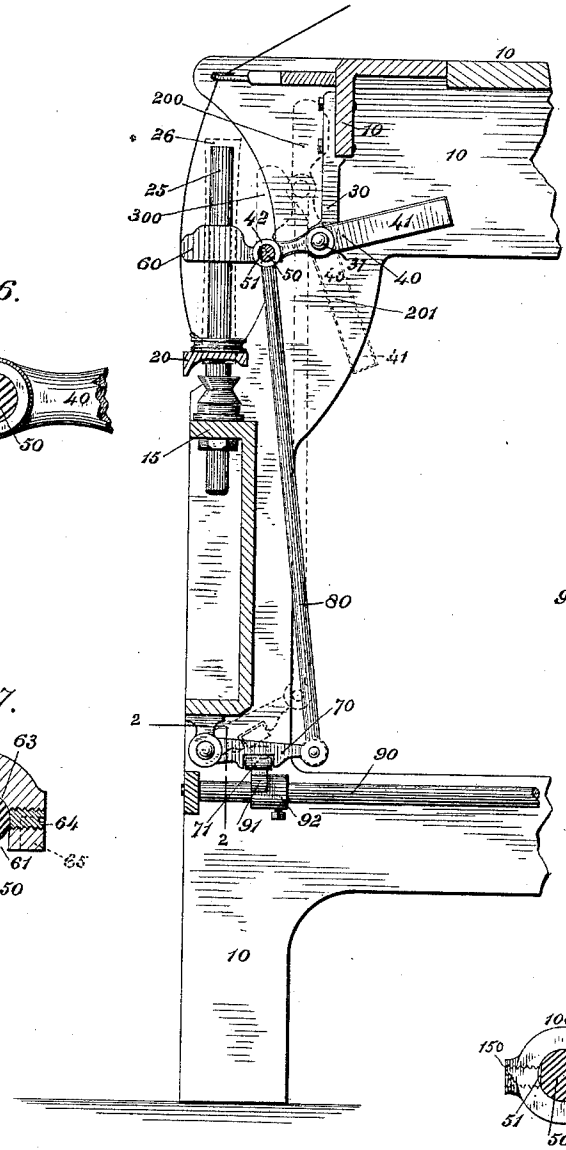


Fig 6.

Fig 2.

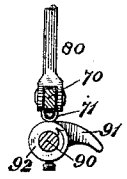


Fig 7.

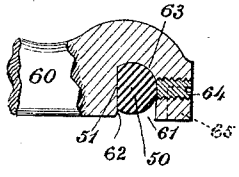


Fig 9.

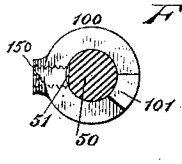
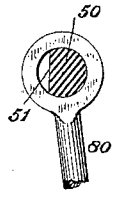


Fig 8.



WITNESSES

Harry King.

E. A. Reed

INVENTOR

John E. Prest

By F. P. Somes,

Attorney

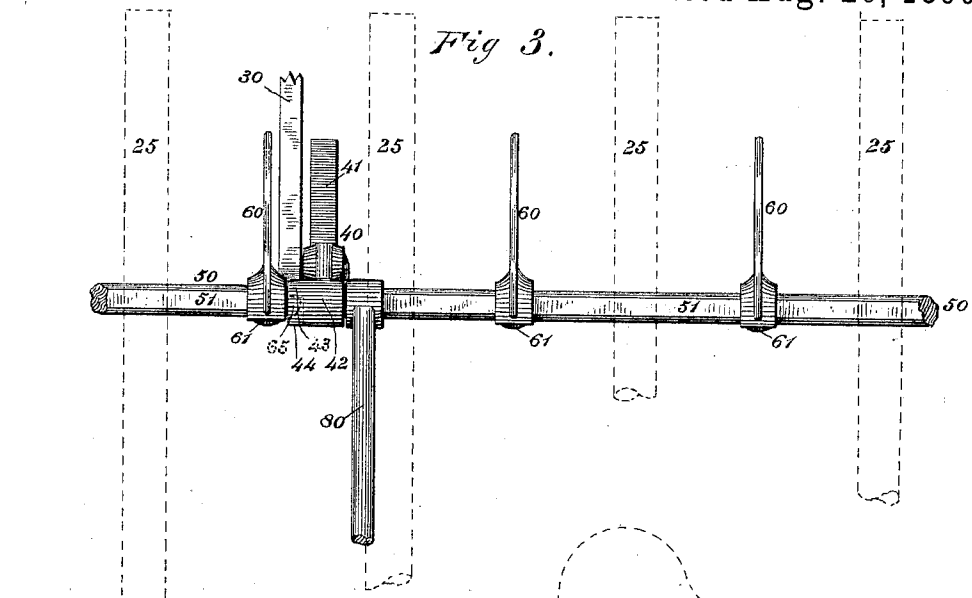
(No Model.) 2 Sheets—Sheet 2.

J. E. PREST.

YARN SEPARATOR FOR SPINNING MACHINES.

No. 435,122. Patented Aug. 26, 1890.

Fig 3.



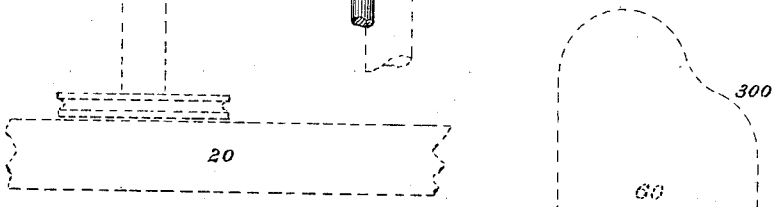


Fig 4.

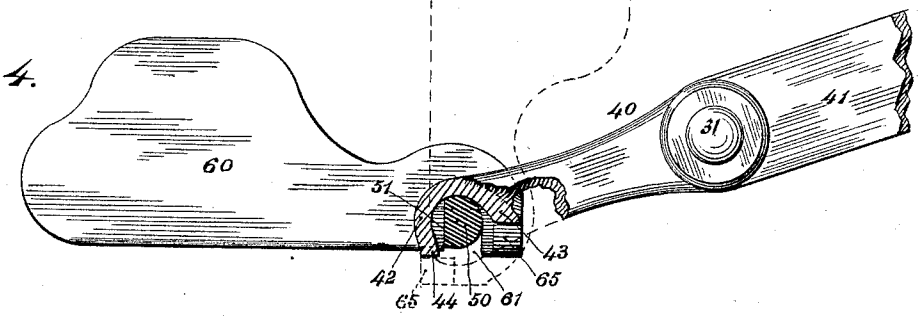
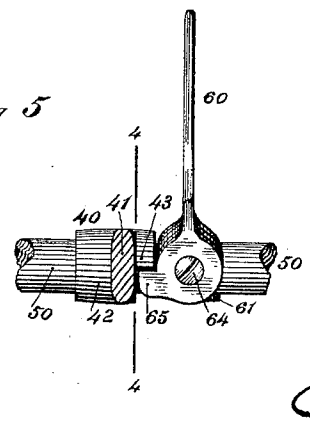


Fig 5



WITNESSES

Harry King.

C. A. Reed.

INVENTOR

John E. Prest,

By G. P. Somes

Attorney

UNITED STATES PATENT OFFICE.

JOHN E. PREST, OF WHITINSVILLE, MASSACHUSETTS.

YARN-SEPARATOR FOR SPINNING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 435,122, dated August 26, 1890.

Application filed April 28, 1890. Serial No. 349,768. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. PREST, a citizen of the United States of America, residing at Whitinsville, in the county of Worcester, in the State of Massachusetts, have invented certain new and useful Improvements in Yarn-Separators for Spinning-Machines, of which the following is a specification.

This invention relates to yarn-separators for spinning-machines for separating the threads being wound upon different bobbins to prevent the thread passing to one bobbin from becoming entangled with the threads passing to adjacent bobbins.

The object of this invention is to provide yarn-separators for spinning-machines which may be swung into and out of position by actuating mechanism which is independent of the ring-rail, and which may be easily swung into vertical position by the operator independently of their actuating mechanism when the bobbins are to be doffed from the spindles.

Figure 1 of the accompanying drawings represents a transverse section of a portion of a spinning-frame provided with these improved yarn-separators. Fig. 2 is a section on line 2 2 of Fig. 1, showing parts of the mechanism for raising and lowering the separators. Fig. 3 is a front elevation, on a larger scale, of the separator-rod and the separators in position thereon, the relative positions of the spindles being indicated by dotted lines. Fig. 4 represents on the larger scale a transverse section on line 4 4 of Fig. 5, showing one of the separators and one of the supporting-levers for the separator-rod in side elevation, portions of said lever being broken away to show the stops thereon for limiting the movements of the separator. Fig. 5 represents a top view on the same scale, showing a portion of the separator-rod, the eye of the supporting-lever, and a separator on said rod in engagement with a stop on said eye. Fig. 6 represents a side elevation of a portion of the supporting-lever for the separator-rod and a transverse section of said rod in the eye of said lever. Fig. 7 represents a transverse section of the separator-rod and a partial longitudinal section of the shank of one of the separators, showing the fastener for holding the separator on the rod. Fig. 8 represents an enlarged side elevation of the upper end of the lifting-rod for raising the separator-rod and its separators, and a transverse section of the separator-rod in the eye of said lifting-rod. Fig. 9 represents an enlarged transverse section of the separator-rod and one of the stop-collars thereon.

Similar numerals of reference indicate corresponding parts in the different figures.

The frame 10, spindle-rail 15, ring-rail 20, and spindles 25 are of any suitable construction. Dependent brackets 30 are attached to the frame at proper intervals, and supporting-levers 40 are pivoted on pivots 31 to said brackets. Each of these levers is provided with a weighted extension 41 at its inner end and with an eye 42 at its outer end. The eye 42 is preferably provided with a rear stop 43 and a front stop 44. A separator-rod 50 is supported in the eyes 42 of the supporting-levers 40 and extends longitudinally of the frame throughout the length of the machine, being disposed adjacent to the spindles in the rear thereof. This separator-rod is provided at its outer side with a continuous flat face 51. The separators 60, of any suitable shape, are disposed at proper intervals on the separator-rod 50 and project outward between the spindles 25 or the bobbins 26 thereon. The shank of each separator is provided with a slot 61, extending upward from its lower edge, the outer side 62 of said slot being straight and the inner side 63 thereof being curved. The shank is provided with a fastener for fastening the separators onto the separator-rod, which fastener may consist of a set-screw 64, the inner end of which engages the rounded side of the separator-rod and draws the straight side 62 of the slot 61 in contact with the flat face 51 of the separator-rod, whereby the separator is tightly fastened onto the rod. For adjusting the separator to its proper position between the spindles the set-screw 64 is loosened and the separator may be freely moved longitudinally along the separator-rod.

A mechanical actuator for lifting and swinging the separator-rod and its separators out of the path of the ring-rail when the latter is raised is employed, which actuator is preferably independent of the ring-rail. The mechanical actuator herein shown comprises an

arm 70 hinged to the lower part of the frame, near each end thereof, a lifting-rod 80 at each end of the machine, connected at its lower end to the free end of said arm and at its upper end to the separator-rod 50, and a cam 91 on a cross-shaft 90. The hinged arm 70 is preferably provided with an anti-friction roller 71, with which the cam comes in contact. The cross-shaft 90 is disposed, as usual in spinning-machines of this character, near each end thereof and employed for driving the actuating mechanism of the ring-rail. The cam 91 is preferably on a collar 92, which is adjustable on said shaft. The shank of each of the separators nearest the supporting-levers 40 may be provided with a lateral stop 65, which engages the stops 43 and 44 for limiting the oscillation of the separator-rod, or a stop-collar 100, provided with a lateral stop 101, may be disposed on said rod adjacent to each of said supporting-levers for the same purpose, in which case the shanks of all the separators may be cast without the lateral stops. The stop-collar 100 may be adjustable on the separator-rod 50 by means of a set-screw 150.

It is not deemed necessary to illustrate the mechanism for raising and lowering the ring-rail, as any ordinary mechanism for this purpose may be employed. Other portions of the spinning-machine which do not constitute a part of this invention are omitted from the drawings and description.

In the operation of a spinning-machine provided with this improved yarn-separator, the separators 60 are held in horizontal position between the bobbins, as shown in full lines in Fig. 1, during the winding of the threads upon the lower parts thereof by the action of gravity and the stops 65 on the shanks of the separators, (or stops 101 on the collars 100, as the case may be,) engaging the rear stops 43 on the eyes 42 of the supporting-levers 40. When the ring-rail rises to guide the threads to the upper portions of the bobbins the cam 91 on the cross-shaft 90 swings up the hinged arm 70, which raises the lifting-rod 80, whereby the separator-rod 50 is moved upward and backward through the arc of a circle and the supporting-levers 40 turned on their pivots. This movement of the separator-rod swings the separators into the position indicated by dotted lines 200 in Fig. 1. In this position the supporting-levers stand at an angle to the vertical, as indicated by dotted lines 201 of said figure, the pivots of said levers being in rear of the plane of the separator-rod, whereby dead-centering is avoided. When the ring-rail descends the cam 91 releases the hinged arm 70, and the parts drop back by gravity into their full-line positions. When the operator desires to lift the separators out of the way for piecing a thread or for doffing the bobbins, he can do so by grasping one of the separators and swinging it upward into the position indicated by dotted line 300 in Fig. 1, which movement turns the separator-rod axially in the eyes of the supporting-levers and swings all the separators upward. The lateral stops 65 or 101, as the case may be, engage the front stops 44 of the eyes of the supporting-levers and arrest the separator-rod and prevent the separators from being turned too far backward. The separators can thus be thrown out of position with facility, as the axial turning of the separator-rod is independent of the actuating mechanism for lifting said rod mechanically.

I claim as my invention—

1. The combination, with the frame of a spinning-machine, of pivoted levers provided with eyes, a separator-rod supported in said eyes and adapted to turn axially therein, and separators for the yarn or thread disposed on said rod and adapted to project between the yarn-spindles.

2. The combination, with the frame of a spinning-machine, of pivoted levers provided with eyes, a separator-rod supported in said eyes and adapted to turn axially therein, and stops for limiting the axial movement of said rod.

3. The combination, with the frame of a spinning-machine, of pivoted levers provided with eyes, a separator-rod supported in said eyes and adapted to turn axially therein, separators for the yarn-threads disposed on said rod and adapted to project between the yarn-spindles, and a mechanical actuator which intermittently swings said levers on their pivots and lifts said rod and its separators out of their normal positions.

4. The combination, with the frame of a spinning-machine, of pivoted levers provided with eyes, a separator-rod adapted to turn axially in said eyes, separators for the yarn-threads disposed on said rod, stops for limiting the axial movement of said rod, and a mechanical actuator which intermittently swings said levers on their pivots and lifts said rod and its separator out of their normal positions.

5. The combination, with the frame of a spinning-machine, of pivoted levers provided with eyes, a separator-rod supported in said eyes and adapted to turn axially therein, separators for the yarn-threads disposed on said rod, stops for limiting the axial movement of said rod, a hinged arm attached to the frame, a cam for swinging said arm, and a lifting-rod connecting said hinged arm with the separator-rod.

6. The combination, with the frame of a spinning-machine, of pivoted levers provided with eyes, a separator-rod supported in said eyes, separators for the yarn-threads disposed on said rod, and an adjustable collar on said separator-rod provided with a stop for engaging one of said levers.

JOHN E. PREST.

Witnesses:
F. C. SOMES,
W. A. EASTERDAY.