

(No Model.)

E. M. WHITTUM.

SEPARATOR MECHANISM FOR SPINNING MACHINES.

No. 504,954.

Patented Sept. 12, 1893.

Fig. 1.

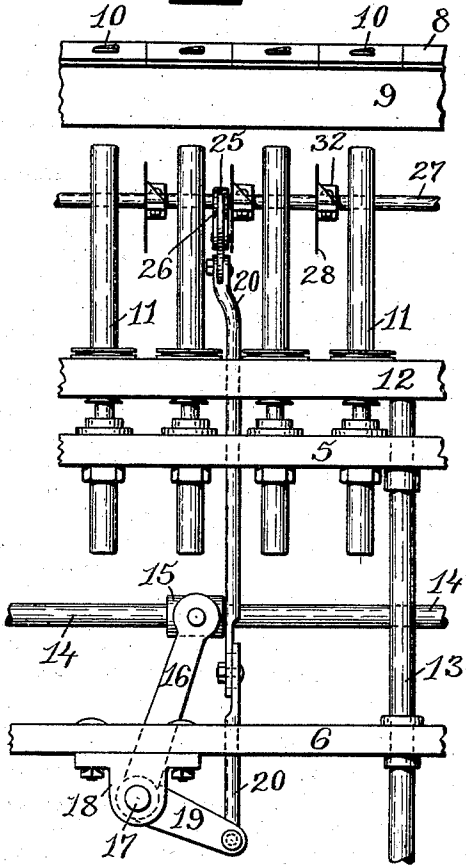


Fig. 2.

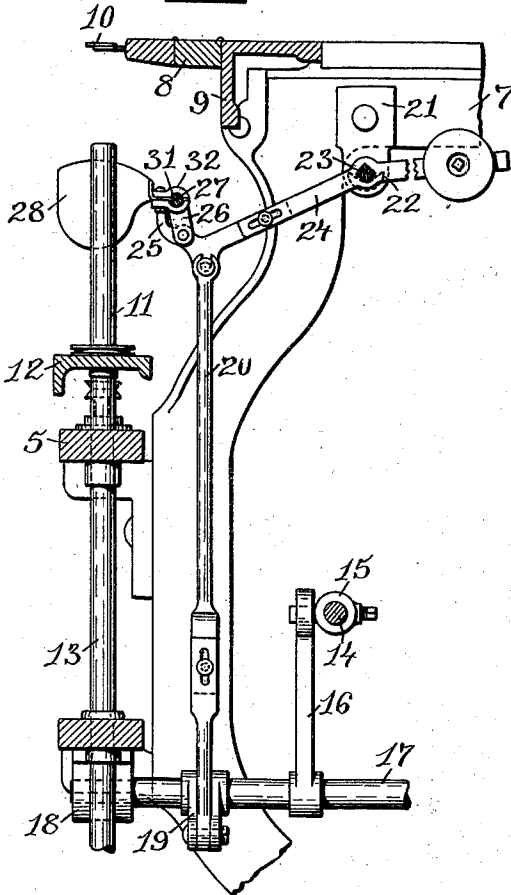
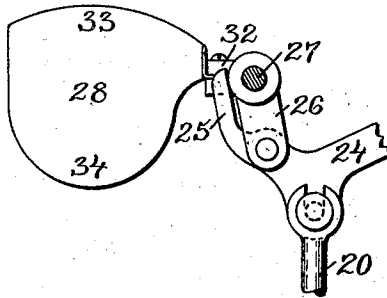
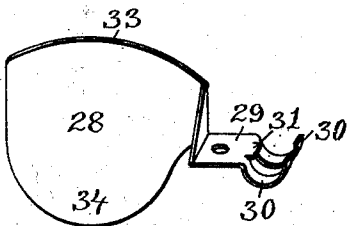


Fig. 4.

Fig. 3.



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SEPARATOR MECHANISM FOR SPINNING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 504,954, dated September 12, 1893.

Application filed March 20, 1893. Serial No. 466,888. (No model.)

To all whom it may concern:

Be it known that I, EDWARD M. WHITTUM, of Fall River, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Separator Mechanism for Spinning-Machines; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to improvements in separators for spinning-machines by which the yarn passing to one spindle is separated from that passing to the adjoining spindle.

The object of the invention is to so construct the actuating-mechanism of a separator that the separator-blades will be constantly in action.

Another object of the invention is to so construct a yarn-separator that while wider blades may be used these may be entirely removed from between the spindles when doffing.

Still another object is to produce a new and effective blade for yarn-separators which will be light and durable.

The invention consists in the combination, with the other portions of a spinning-machine, of the levers by which the separator-shaft is carried, so constructed and arranged that constant upward and downward motion may be imparted thereto, together with the actuating-mechanism for moving the same.

The invention also consists in the manner in which the separator shaft is mounted on the levers, as well as in the construction of the separator-blades, and such other novel features of construction and combination of parts as will hereinafter be more fully described and pointed out in the claims.

Figure 1 represents a front view of portions of a spinning-frame provided with my improved separators. Fig. 2 is a cross-sectional view of portions of the same. Fig. 3 represents a view of the improved separator-blade removed from the machine. Fig. 4 is an enlarged detail view showing the manner in which the separator-shaft is mounted on the levers and the stop for preventing the excessive depression of the blades toward the ring-rail.

Similar numbers of reference designate corresponding parts throughout.

Yarn-separators for spinning-machines are interposed between the bobbins carried on the spindles for the purpose of limiting the ballooning of the yarn as it passes to the bobbins and preventing the yarn passing to one bobbin from interfering with that passing to the bobbins next adjoining; this ballooning of the yarn is most perceptible during the lower part of the wind, the ring-rail being then farthest removed from the thread-board and a greater length of yarn extending between the traveler and the pig-tail. Separator-blades have therefore been constructed and supported to act mainly during the lower wind and to be lifted away from between the spindles during the upper traverse of the ring-rail so that they will not obstruct the traverse of the same. When, however, the yarn breaks during the upper wind, the loose ends are apt to fly against the yarn passing to the adjacent spindles and become entangled therewith. The use of the separator-blades in this portion of the wind is therefore essential, but they must be arranged so as not to interfere with the ring-rail either during its traverse or when, by some accident, it sticks on its downward movement. My improvements are designed to overcome these difficulties as well as to provide a novel separator-blade.

In the drawings 5 indicates the bolster-rail, and 6 the lower rail of a spinning-machine, 7 being one of the samsons to which the brackets carrying these rails are secured.

At the upper portion of the machine is the thread-board 8 secured to the beam 9 in which guide-eyes or pig-tails 10—10 are fastened. In bolsters, set into the bolster-rail, are journaled spindles 11—11 which are driven by bands passing around a driving-drum and around the spindle-whirls, or in any other usual way. The ring-rail 12 is mounted on the rods 13 which are vertically movable through perforations in the lower rail and bolster-rail and are operated in the usual way to elevate and depress the ring-rail.

The rod 14 is supported in bearings and is reciprocated by any ordinary mechanism which forms part of the well-known driving-mechanism of the frame. Clamped to this

rod is the sleeve 15 and pivotally secured to the sleeve is the downwardly-extending lever 16 the lower end of the same being rigidly secured to the shaft 17 rotatable in bearings 5 secured to the lower rail one of which bearings is the bearing-block 18.

Also rigidly secured to the shaft 17 and extending practically at right angles with the lever 16 is the arm 19 to the outer end of which is pivoted the adjustable actuating-rod 20 the upper end of which is furnished with a yoke or slotted bearing, as shown in Figs. 2 and 4, the separator lever 24 being furnished with a stud or pin pivoted in this 15 yoke and readily removable therefrom, so that when doffing, the separator blades and shaft may be released from the actuating-rods and dropped back against the samson. It is evident that any suitable number of these 20 actuating-devices can be used.

Firmly secured to the upper cross-frame of the samson 7 and located intermediate the beam 9 and the center of the spinning-frame are pendent-brackets 21 having at their lower 25 portions rocker-bearings 22 on which rest one edge of the square-shaft 23, and mounted at intervals on this shaft are the adjustable separator-levers 24 furnished at their rear or inner ends with counter-weights and having at 30 the forward ends the curved-stops 25.

Pivoted to the forward portions of the separator-levers are the short arms 26 in the upper ends of which is secured the separator-shaft 27 carrying the separator-blades 28. 35 When in the doffing the separator-blades are thrown backward, it is apparent that the separator-shaft and blades will have a backward movement equal to the length of the arms 26 as well as the ordinary upward movement. 40

The separator-blades 28 are stamped from sheet metal and have shanks 29 bent at right angles with the plane of the blades and then turned partially upward, these shanks having perforations in their main portions and 45 curved-arms 30—30 for partially engaging a shaft; from between the arms extends the key 31 which is adapted to enter a key-slot in the separator-shaft, as is indicated in Fig. 50 2, the separator-blades being secured to the shaft by two-part clamps 32 the bolts of which pass through the perforations in the shanks of the blades. These blades are shaped, as is shown in the drawings, having 55 a curved upper edge 33 adapted to allow the blades to be thrown back against the beam on the upper traverse and the downwardly-curving guards 34 which limit the necessary downward traverse of the separator as it extends considerably below the separator-shaft and is constantly between the spindles except 60 while thrown back for the doffing operation.

By pivoting the separator-levers back of the beam and consequently making the same

of greater length than heretofore I am able to keep them in constant motion. By pivoting the levers to the actuating-rod, as is shown in the drawing, (the top of the rod being a yoke to receive a transverse-pin on the lever,) the levers can be readily disconnected from 70 the rods and dropped back against the samson until the separator-shaft comes in contact therewith, the advantage being that with a short space between the spindles and the roller-beam a wider blade can be used.

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

1. In a separator for spinning-machines, the combination with an actuating mechanism, 80 of an adjustable counterweighted lever pivoted intermediate the beam and the center of the machine, a separator-shaft pivotally supported on the forward portion of the lever, and separators mounted on said shaft, as described. 85

2. In a separator for spinning-machines, the combination with an actuating mechanism and a lever actuated thereby, of an arm pivoted to the forward portion of the lever, a stop 90 for limiting the movement of the arm, a separator-shaft mounted in the upper end of said arm, and blades carried by the shaft.

3. In a separator for spinning-machines, a separator-blade having the shank 29 furnished with the bent-arms 30—30 and the key 31, and a clamp for securing the same to a shaft, as described.

4. In a separator for spinning-machines, the separator-blade 29 having the upper curved-edge 33, the depending-guard 34, and a shank 29 furnished with the bent-arms 30—30 and the key 31, as described.

5. The combination with the reciprocating-shaft 14, the sleeve 15 clamped thereto, the lever 16 pivoted to the sleeve, the rotatable-shaft 17 to which the lower end of the lever is rigidly secured, the arm 19 mounted on said shaft, and the actuating-rod 20 pivoted to the end of the arm, of the bracket 21 located within the frame of the machine and having the rocker-bearing 22, the rocker-shaft 23 supported therein, the counter-weighted lever 24 mounted on said shaft and pivoted to the upper end of the actuating-rod, a separator-shaft carried by said lever, and separators mounted on the shaft, as described.

6. The combination, in a separator for spinning-machines, with an actuating rod having a yoke at the upper end, of a separator lever having a transverse pin adapted to engage in said yoke, a separator-shaft supported by the lever, and blades carried by the separator-shaft.

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