J. JACKSON.

SPINNING MACHINE.

APPLICATION FILED MAY 16, 1906.

902,882.

Patented Nov. 3, 1908.

Fig. 1.

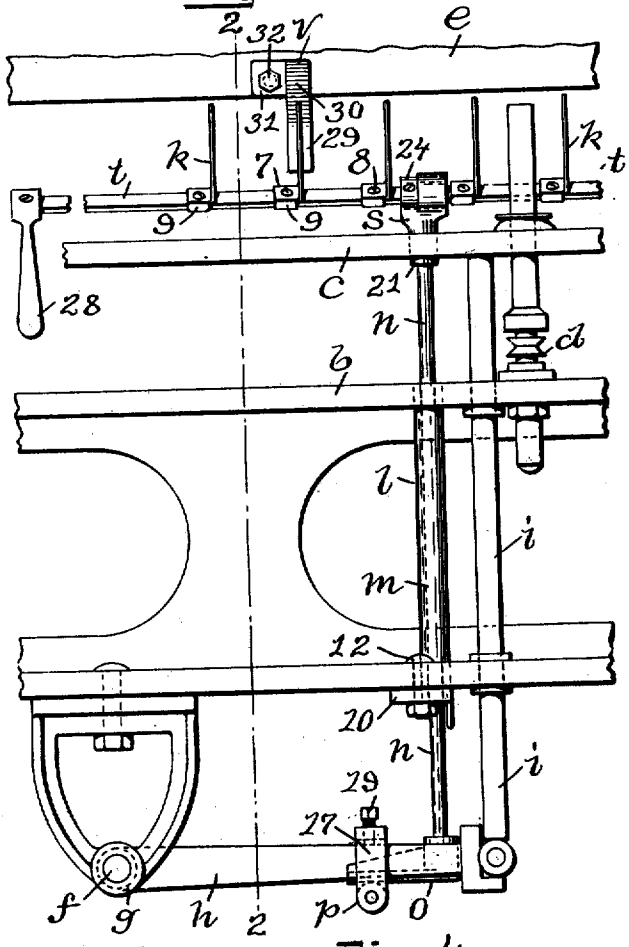


Fig. 2.

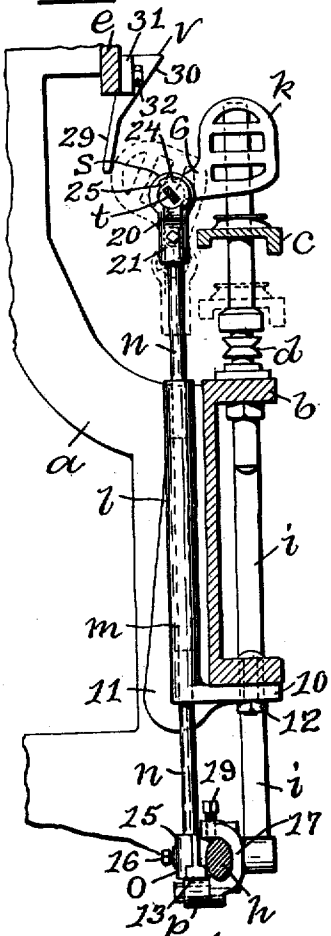


Fig. 3.

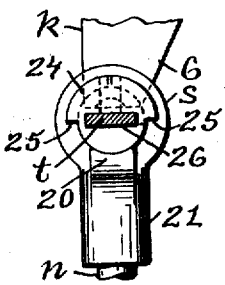


Fig. 4.

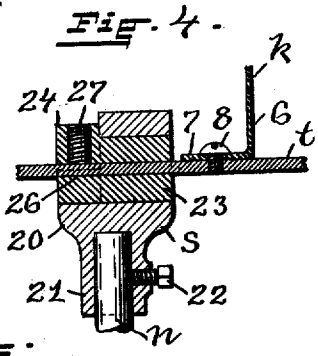
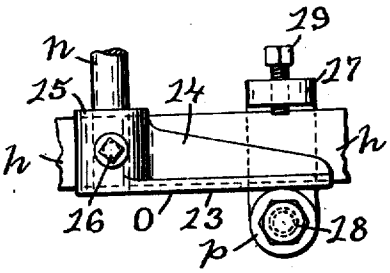


Fig. 5.



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SPINNING-MACHINE.

No. 902,882. Specification of Letters Patent. Patented Nov. 3, 1908.

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To all whom it may concern:

Be it known that I, JOHN JACKSON, a citizen of the United States, residing at Pawtucket, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Spinning-Machines, of which the following is a specification.

This invention has reference to an improvement in spinning machines and more particularly to an improvement in mechanism for operating the separators of spinning machines.

The object of my invention is to improve the construction of mechanism by which the yarn separators of spinning machines are operated and controlled.

A further object of my invention is to simplify the construction of the mechanism for operating the separators whereby the cost of manufacturing the mechanism is reduced.

My invention consists in the peculiar and novel construction of mechanism adapted to operate and control the yarn separators of spinning machines, with details of construction, as will be more fully set forth hereinafter and claimed.

Figure 1 is a front view of portions of a spinning machine provided with my improved mechanism for operating the yarn separators and showing the ring rail in a central position and the separators in their operative position. Fig. 2 is a vertical sectional view taken on line 2 2 of Fig. 1, showing the separators in their operative position in full lines, in the position for doffing in broken lines, and the cam on the top rail for automatically throwing the separators into their operative positions. Fig. 3 is an enlarged transverse sectional view through the separator bar, looking at the bearing on the upper end of the actuating rod, showing the separator bar in an intermediate position and the greater part of the separator plate broken away and the stops for limiting the forward and backward movement of the separators. Fig. 4 is an enlarged vertical sectional view taken centrally through the separator bar and the bearing on the upper end of the actuating rod and showing the means for securing the separators to the bar and for rotatably supporting the bar in the bearing, and Fig. 5 is an enlarged detail view looking at the back and showing the means for operatively connecting the lower end of the actuating rod with the lifter arm of the machine.

In the drawings, *a* indicates part of the end frame, *b* the bolster rail, *c* the ring rail, *d* the spindle, *e* the top rail, *f* the rock shaft, *g* the rock shaft bearing, *h* the lifter arm, *i* the lifter rod, *k k* the separator plates of a spinning machine and *l* my improved separator operating mechanism comprising a bracket bearing *m*, an actuating rod *n*, a shoe *o* on the lower end of the rod, a roll *p* adjustably secured to the lifter arm *h*, a bearing *s* on the upper end of the actuating rod, a separator bar *t*, and a cam plate *v* secured to the top rail *e*, as shown in Figs. 1 and 2.

The separator plates *k k* are each stamped from sheet metal in the usual form and shaped to have the off-set arm 6 with the flat L-shaped end 7 by which the separator plate is rigidly secured to the separator bar *t* by a screw 8. A lip 9 is formed on the forward edge of the end 7 which is adapted to engage with the front edge of the separator bar *t* and prevent the separator plates from turning on the bar.

The bearing bracket *m* has a forwardly-extending arm 10 on its lower end (strengthened by the web 11) by which it is secured to the underside of the lower bolster rail by the bolt 12. The actuating rod *n* is supported in a vertical position in the bracket bearing *m* at the back of the bolster rail, as shown in Fig. 2.

The shoe *o* has the flat bottom 13 strengthened by the rib 14 merging into the hub 15 which is adjustably secured to the lower end of the actuating rod *n* by a set bolt 16 in a position for the toe of the shoe to extend toward the rock shaft *f*, as shown in Fig. 1.

The roll *p* is rotatably secured to a clamping arm 17 by a shouldered bolt 18. The clamping arm 17 is shaped to loosely fit the lifter arm *h* and is adjustably secured to the arm by a set bolt 19 in a position for the roll to engage with the flat bottom 13 of the shoe *o*, as shown in Figs. 2 and 5.

The bearing *s* is cut away on one end to form the stop 20 and has the hub 21 adjust-

ably secured to the upper end of the actuating rod *n* by a set bolt 22. A rotatable bushing 23 in the bearing is constructed to have the semi-circular collar 24 at one end the ends of which form the stop shoulders 25 25 and a central longitudinal rectangular shaped hole 26 through which the separator bar *t* extends and in which it is secured by a set screw 27 in the collar 24, as shown in Fig. 4. A handle 28 may be secured to one end of the separator bar *t*, as shown in Fig. 1, for throwing the separator plates into the rearward position, as shown in broken lines in Fig. 2 for doffing.

The cam plate *v* is formed integral and has the downwardly-extending flat arm 29 which extends at a slight angle toward the center of the machine and merges into the upwardly and outwardly extending flat cam face 30 and the side arm 31 by which the cam plate is secured to the top rail *e* by a bolt 32 in a position for one of the separator plates *k* to engage with the cam plate, as shown in Figs. 1 and 2.

In the operation of my improved separator actuating mechanism the separator bar *t* is supported on two or more of the actuating rods *n* and their operative parts. The separators are held in their operative positions by the forward stop shoulder 25 on the bushing 23 engaging with the stop 20 on the bearing *s*, as shown in Fig. 2. The separator plates *k k* now have a vertical reciprocating motion corresponding to the motion of the ring rail *c* through the roll *p*, the shoe *o*, the actuating rod *n*, the bushing 23 and the separator bar *t*. The separator plates may be adjusted relative to the ring rail for different heights of bobbins by adjusting the shoe *o* on the lower end of the actuating rod *n* and adjusting the bearing *s* on the upper end of the actuating rod. The separator plates are thrown beyond the center into their backward or inoperative position for doffing, as shown in broken lines in Fig. 2 by a forward and upward movement of the handle 28 which partly rotates the separator bar and bushings in the bearing *s*. The separator plates are now held in their backward position supported by the rear stop shoulder 25 engaging with the stop 20. On the first upward movement of the ring rail *c* and the separator plates *k k* the upper rounded end of one of the separator plates will engage first with the downwardly-extending arm 29 and then with the cam face 30 of the cam plate *v* which throws the separator plates beyond center toward the front, where they automatically assume their operative positions between the bobbins by gravity, or the separators may be made to assume their operative positions by the downward movement of the handle 28. By adjusting the roll *p* lengthwise on the lifter arm *h* a lesser or a greater vertical movement may be given to the separator plates.

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

1. In a spinning machine, in combination with a top rail, a rock shaft, a lifter arm carried by said shaft, of a separator bar, separator plates on said bar, a vertical tubular bearing, an actuating rod reciprocably mounted in said bearing, a bearing mounted on the upper end of said rod and formed with a cutaway part to provide a pair of opposite stops on its vertical sides, a rotatable bushing in said bearing having a semi-circular collar at one end forming stop shoulders at the extremities thereof to engage said stops, the top face of said stop bearing being semi-circular to form a continuation for the bushing bearing, said bushing having an opening therein receiving said separator bar, a cam plate to engage the separator plates carried by the top rail, and means connecting said actuating rod with lifter arm.

2. In a spinning machine, the combination with the bolster rail *b*, the top rail *e*, the rock shaft *f*, the lifter arm *h*, and the separator plates *k k*, of a separator operating mechanism *l* comprising a bearing *m* secured to the bolster rail *b*, an actuating rod *h* adapted to have a vertical reciprocating motion in the bearing *m*, a shoe *o* having the flat bottom 13, the rib 14, and the hub 15 secured to the lower end of the actuating rod *n* by a set bolt, a clamping arm 17, a roll *p* rotatably secured to a clamping arm 17 shaped to loosely fit the lifter arm *h* and adjustably secured to the lifter arm by a set bolt in a position for the roll to engage with the flat bottom 13 of the shoe *o*, a bearing *s* cut away on one end to form the stop 20 and having the hub 21 secured to the upper end of the actuating rod *n* by a set bolt, a rotatable bushing 23 in the bearing *s*, the semi-circular collar 24 the ends of which form the stop shoulders 25 25 said bushing being formed with a central hole 26, a separator bar *t* adapted to extend through the hole 26 in the bushing 23, a handle 28 secured to the separator bar *t*, means for securing the bushing 23 to the separator bar *t* and a cam plate *v* formed integral to have the downwardly-extending arm 29 merging into the upwardly and outwardly extending flat cam face 30 and the side arm 31 secured to the top rail *e* in a position for one of the separator plates *k* to engage with the cam face 30, as described.

3. In a spinning machine, in combination with a top rail having a cam plate, a separator bar, separator plates on said bar to en-

gage said cam plate, of an actuating rod for said bar, a rock shaft, a lifter arm on said shaft, a shoe secured to said actuating rod, a clamping arm of U-shape secured to said lifter arm, a bolt projected vertically through the upper part of said clamping arm to engage said lifting arm, a horizontal shouldered bolt carried by the lower part of said clamping arm, and a roll on said last named bolt between the head thereof and the clamping arm.

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

JOHN JACKSON.

Witnesses:

ADA E. HAGERTY,

J. A. MILLER.