(No Model.)

A. E. RHOADES.

SEPARATOR FOR SPINNING FRAMES.

No. 523,644. Patented July 24, 1894.

Fig: 1.

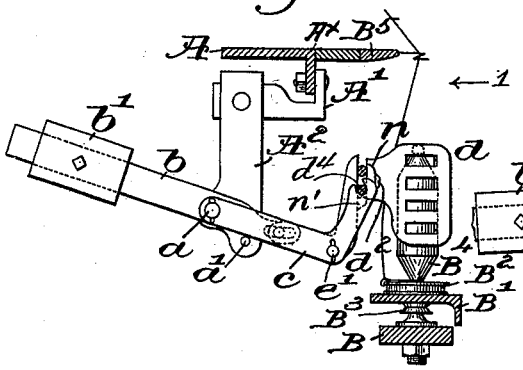

Fig: 2.

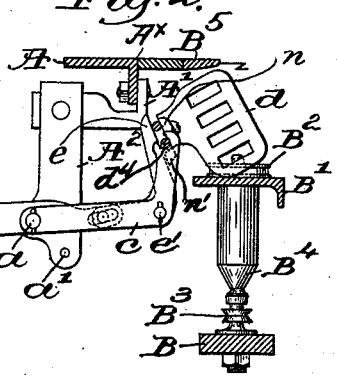

Fig: 3.

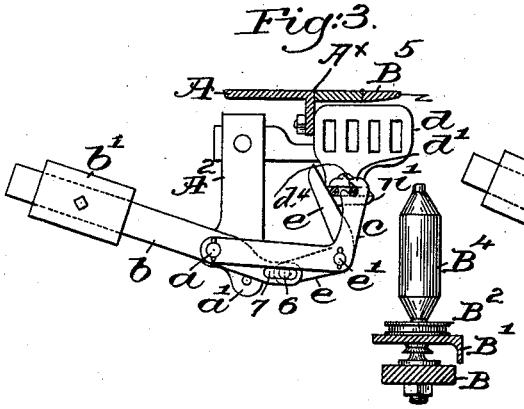

Fig: 4.

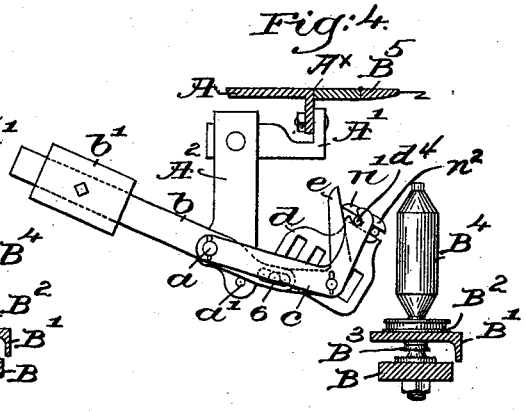

Fig: 5.

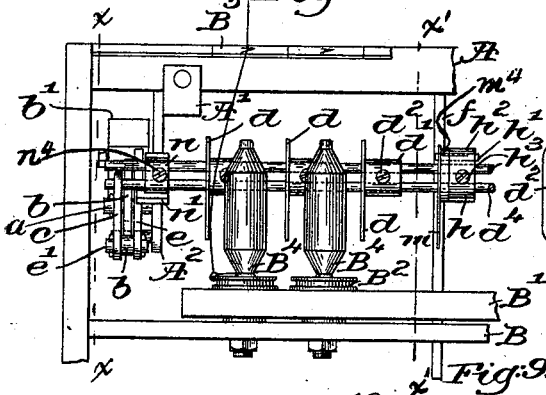

Fig: 6.

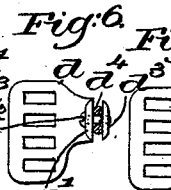

Fig: 7.

Fig: 8.

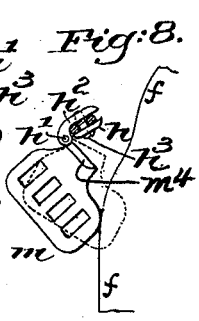

Fig: 9.

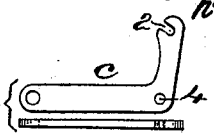

Fig: 10.

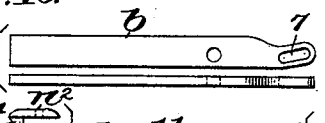

Fig: 11.

Fig: 12.

Witnesses.

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Attys

UNITED STATES PATENT OFFICE.

ALONZO E. RHOADES, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO GEORGE DRAPER & SONS, OF SAME PLACE.

SEPARATOR FOR SPINNING-FRAMES.

SPECIFICATION forming part of Letters Patent No. 523,644, dated July 24, 1894.

Application filed July 31, 1893. Serial No. 481,940. (No model.)

To all whom it may concern:

Be it known that I, ALONZO E. RHOADES, of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Separators for Spinning-Frames, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

In modern spinning frames the spindles are run at such high speed that the yarn is very apt to "balloon," as it is called, in which event, the yarns being spun by adjacent spindles strike and break down ends. To obviate the yarns striking each other, separators are employed between adjacent spindles, and these separators have to be raised and lowered to keep them from interfering with the movement of the ring rail, and so that the separators may be turned out of the way when the bobbins are to be doffed from the spindles.

The particular features in which my invention consist will be hereinafter described and pointed out in the claims at the end of this specification.

My improved separators are so supported that for doffing they may be swung up or down as will be described, and they are also so arranged as to be moved out of the way of the ring rail on its upward traverse, in this instance the ring rail itself pushing them out of the way.

One part of my invention consists in so placing the pivot or center from which the arc of movement of the separators as a whole is described, that the force required to move the separators is lessened.

Figure 1, shows in section a sufficient portion of a ring spinning frame with my improvements added to enable my invention to be understood, the ring rail being down the view being taken from the left of the dotted line *x*, Fig. 5. Fig. 2, is a similar view with the ring rail elevated. Fig. 3 shows the ring rail down and the separator turned up and back preparatory to doffing. Fig. 4 is a like view with the separator turned down and back for doffing. Fig. 5 is an elevation of the parts shown in Fig. 1, looking in the direction of the arrow 1. Fig. 6 is a partial section, the view being taken from the right of the dotted line *x'*, Fig. 5. Figs. 7 and 8 are sectional views, looking to the left from the right hand side of Fig. 5 and showing the separator *m* in two different positions. Figs. 9, 10, 11 and 12 are details to be referred to.

In the drawings A represents part of the roller beam and $A^{\times}$ the front of the same; B a spindle rail; B' a rising and falling ring-rail having rings B^2; B^3 a spindle; B^4 a bobbin; and B^5 a guide board, all of which are and may be of usual construction.

The roller beam has connected to it a stand A' having connected to or forming part of it a leg A^2 having a fulcrum stud or rod *a*, on which are pivotally mounted two levers *b*, *c*, the lever *b* having preferably a counterbalance weight *b'*, a suitable pin or projection *a'* on the stand determining the distance that the levers *b* and *c* may descend under the weight of the separators *d*.

Since Figs. 1, 2, 3, 4 and 5 of the drawings show only one end of the machine, I herein refer to certain parts in the singular, but it will be understood that they are duplicated at the other end of the machine. For example, there is a stand corresponding with stand A', and similarly a leg A^2, levers *b* and *c* and fulcrum stud *a*, at each end or side of the machine.

The separators *d* are shown as slotted plates having feet *d'* see Fig. 6 each clamped by a screw d^2 and block d^3 to a guide bar d^4 composed as shown, of two rods extending across the frame, one rod, herein shown as the lower one, having its end supported by a notch 2, see Fig. 9, in the lever *c*, the other rod, the upper one, when the separator is in the positions, Figs. 1, 2, 3 and 5, having its end supported frictionally by the inclined face 3 of the auxiliary lever *e*, pivoted by a pin *e'* to the lever *c*, the levers *e* and *c* each having suitable holes 4, 5, for the reception of said pin, a pin 6 projecting from the auxiliary lever *e* entering a slot 7 in lever *b*, shown by full lines Fig. 3, and by dotted lines Figs. 1,

2 and 4. This construction enables the lever *e* to be tipped on the pin *e'* independently of the lever *c*, and yet, at all times the lever *e* may be kept pressed toward the guide bar to exert a yielding pressure thereon, as required, according to the changed position of the guide bar carrying the separators.

Opposite the "samsons" or intermediate frames, or legs, *f*, especially when they are near the ring rail, see Fig. 5, the separators have to be applied to the guide bars in a different manner; Figs. 7 and 8, showing such different mounting in two positions.

In Figs. 7 and 8, and at the right in Fig. 5, the separator there marked *m* has an ear m^4 shown best in Fig. 8, which is provided with a hole to receive a pin *h'* at the upper end of a block h^2 provided with a screw threaded hole adapted to receive a screw h^3 extended through a small block *h* and between the rods constituting the guide bar.

Mounting the separators *m* as described opposite the "samsons," enables the said separators to be turned back with the guide bars as in Fig. 3, but when the guide bar is turned over to the left, viewing Fig. 7, or down into the position, Fig. 8, the particular separator *m* simply drops and hangs against the "samson," and the contact with the "samson" does not interfere with the motion of the guide bar. The guide bar, near the lever *e*, see left of Fig. 5, and also Figs. 3, 4 and 11, has clamped upon its opposite sides by screw n^4, two blocks *n*, n^2, the one marked n^2, shown separately in Fig. 11, being represented as somewhat longer and as provided with a projection *n'*, which projection, when the separator or guide bar is turned down and back into the position Fig. 4, strikes the upper end of the auxiliary lever *e*, and causes the series of levers to assume and remain in the position represented in that figure. The projection *n'* is shown by dotted lines in Fig. 1.

When the separators are turned up and back into the position, Fig. 3, the lever *e* is also acted upon, but this time by one of the rods of the guide bar, and the lever *b* and the levers *c* and *e* are made to assume the positions shown in Fig. 3.

Figs. 1 and 2 show the working positions of the parts, the ring rail being down in Fig. 1, and up in Fig. 2. This is the first instance known to me in which the separators may be turned up as in Fig. 3, or down as in Fig. 4 for doffing.

As shown best in Figs. 1 and 2 the center of movement of the separators when moved by the ring rail is at *a*, a point located back of the front A^x of the roller beam A.

Hitherto when separators have been so arranged on pivots as to be turned on them by the movement of the rail, or at the time of such movement, their pivots have been placed in front of the roller beam and their action was through a much greater arc requiring more power to turn them, and they were even turned so far as in some cases to throw their center of gravity on the other side of the pivot requiring positive mechanism to insure bringing them down.

By placing my pivots on the other side of the roller beam I make sure that the separators can never turn too far as the front of the roller beam itself limits their movement, and the center of gravity cannot get over.

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

1. The combination of a guide bar, a series of separators mounted thereon, and movable supports for said guide bar, said supports being adapted to permit the separators to be turned up and over and also down and under as desired for doffing, substantially as described.

2. In a spinning frame, a guide bar, and separators mounted thereon, combined with a lever, and with a pair of levers operatively connected therewith, substantially as described, one of the levers of the pair serving as a support for the guide bar, while the other of the levers of the pair of levers co-operates frictionally with the guide bar in its changed position, substantially as described.

3. The guide bar and its attached separators, a supporting lever, and levers *c* and *e* connected loosely therewith, combined with a cam projection movable with the guide bar and adapted to act upon the lever *e* when the guide bar is turned down and the separator turned back for doffing, substantially as described.

4. The guide bar and a clamp secured thereto, combined with a separator pivoted upon said clamp, to operate, substantially as described.

5. In a spinning frame, a guide bar, a series of separators mounted thereon, and lever supports for such guide bar in which the guide bar has a rotary motion to permit the separators to be turned over backwardly or downwardly, the said lever supports being pivoted back of the front of the roller beam, substantially as described.

6. In a spinning frame, the guide bar, supports for the same, a block h^2 secured to said guide bar, and a separator pivoted with relation to said block, whereby when the guide bar is turned down, the said separator is left pendent on its pivot, substantially as and for the purposes set forth.

7. In a spinning frame, the following instrumentalities, viz:—a series of spindles, a guide bar, a series of separators mounted thereon, a lever, as *b*, a pair of levers, *c*, *e*, loosely connected with said lever *b*, one of the said pair of levers supporting the guide bar, and the other of said pair of levers acting in a yielding manner against the guide bar as the latter is turned on its points of support;

and a ring rail adapted to meet the said separators and raise them and said lever, the separators being adapted to be turned up and over and down and under, substantially as described, when the spindles are to be doffed, substantially as described.

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

ALONZO E. RHOADES.

Witnesses:
GEO. OTIS DRAPER,
S. F. SMITH.