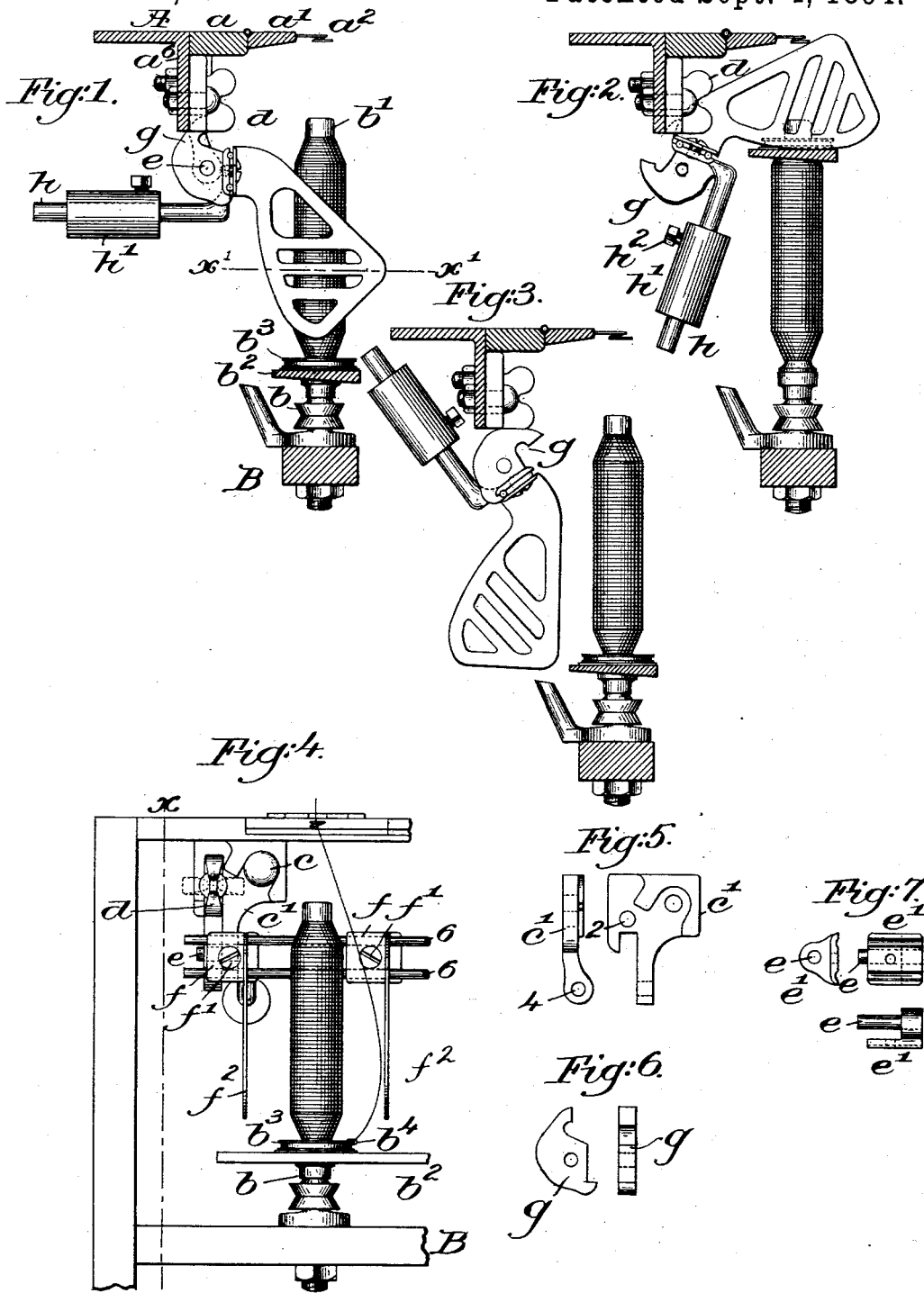


(No Model.)

G. O. DRAPER.
SEPARATOR.

No. 525,451.

Patented Sept. 4, 1894.



Witnesses.
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UNITED STATES PATENT OFFICE.

GEORGE O. DRAPER, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO GEORGE DRAPER & SONS, OF SAME PLACE.

SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 525,451, dated September 4, 1894.

Application filed January 9, 1894. Serial No. 496,239. (No model.)

To all whom it may concern:

Be it known that I, GEORGE O. DRAPER, of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Separators, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

Many different forms of separators have been devised and applied to spinning frames to obviate the striking together of the yarns going to adjacent spindles, but as the speed of the spindles is increased, which is the present tendency, the evil called ballooning is enhanced, and to meet and compensate for this I have aimed to provide a practical separator with a much greater surface against which the yarns will strike, and I have had to devise novel supporting mechanism to practically adapt said separators to the limited space offered for their reception as spinning frames are now commonly constructed.

I have discovered by experiment that the separator should be of such shape that when occupying its working position between spindles and the ring rail being down, the greatest width of the separator should be at about the center of the traverse stroke; also that the separator should rise during the ascent of the ring rail but without interfering with the guide board or with the roller beam; that the separator should be of such shape that it will be impossible, in whatever position of the separator blade, for the yarn to whip or pass around a corner of the blade, and that the separator must be capable of being moved out from between the spindle when doffing the bobbins. To meet these requirements I have in this instance chosen to illustrate my invention in connection with what is known as the Doyle separator, see United States Patent No. 202,420, dated April 16, 1878, that is, a form of separator which is pivoted so as to follow the ring rail for part of its traverse.

In my invention I have by raising the pivoted point of the separator been enabled to enlarge the surface thereof so as always to be in effectual working position when above the ring rail, and the shape shown for the blade enables it to present its broadest portion opposite the center of the bobbin when

the rail is at or near the bottom of its traverse, and as the pivotal point is located the wide end of the separator blade comes in front of rather than under and behind the guide board when the rail is at the upper part of its traverse.

I have devised novel means to enable the separator blade to be readily turned down preparatory to doffing the bobbins.

Figure 1, in partial section and elevation represents a sufficient portion of a ring spinning or twisting frame with my improvements added to enable my invention to be understood, the ring rail being at the bottom of its traverse, the section being in the line α Fig. 4. Fig. 2, is a like section but with the ring rail at the top of its traverse it holding up the separators. Fig. 3, is also a like section but with the separator blades turned down for doffing. Fig. 4, is a front elevation of part of one end of a frame in the position shown in Fig. 1. Fig. 5, in two views shows the stand. Fig. 6, in two views shows the dog, and Fig. 7, in three views shows the casting.

In the drawings A indicates part of the roller beam, a the attached rail, a' the guide board having the guide eyes a^2 .

B is the spindle rail, b the spindle, b' a bobbin, and b^2 a ring rail having a ring b^3 and traveler b^4 , all as usual.

To the depending flange or front a^5 of the roller beam I have attached by a bolt c , a stand c' having holes 2 and 4, and a slot 3, there being such a stand near each end of the frame. The hole 2 receives the shank of a stop device d shown as a button adapted to be moved so as to occupy either the position represented by full lines Fig. 4, or by dotted lines in that figure. The hole 4, is adapted to receive the pivot e of a casting e' having at its outer face as shown best in Fig. 7 two semi grooves adapted to receive the guide bar composed as shown of two rods, one of the foot pieces f of a separator f^2 being applied to the opposite side of the guide bar, a suitable screw f' holding the foot and casting e together. The stud e constitutes the pivotal point for the guide bar and its attached separators. The casting e' constituting part of the guide-bar has connected to it a dog g hav-

ing a toe 8 adapted to enter the slot 3 and to pass entirely through said slot when the stop device is in the position shown by dotted lines in Fig. 4 for in the regular operation of the machine the stop device covering slot 3 when in position to be struck by dog *g*, acts as a stop for the guide-bar as the ring rail completes its descent, see Fig. 1, but by turning the stop device partially around into the dotted line position Fig. 4, the ring rail being down, the guide-bar may be further turned to enable the separator blade to be turned down into the position shown in Fig. 3 and out of the way preparatory to doffing the bobbins. The separator blades being in the position Fig. 3 may be locked in that position as therein shown by again turning the stop device so that its lower end will act on the then upper edge of the dog.

The guide bar has secured to it in suitable manner an arm *h*, having an adjustable weight *h'* to act as a counterbalance for the separator blades the weight being held in adjusted position by the set screw *h*². It will be noticed that the pivotal point of the separator guide bar is well up toward the top of the spindle and toward the top of the traverse of the ring rail and that the separators are of peculiar shape, that is they are quite long and wide at some and narrow at other places they being made broad where the extra surface is required and narrower at other places where great extent of surface is not required as the less the weight of the separator the less the strain on the ring rail and other parts in operating the separators.

Viewing Fig. 1 the line *x'—x'* represents substantially the center of the traverse of the ring rail, and consequently substantially the middle of the yarn load on the bobbin from end to end and it will be seen that this is the normal position of the separator as the ring rail in its descent leaves the separator and completes the last part of its descent and the first part of its ascent, the yarn at such time ballooning the most, and consequently the

greatest width of the separator blade is interposed between the spindles.

When the ring rail rises from the position Fig. 1 into the position Fig. 2, the separators are lifted and their wider positions as indicated are brought in front of the guide board and their outer or free ends are made to travel out beyond the ring rail and by bringing the separators up substantially to the guide eyes, said separators act to present walls between the spindles from the top of the ring rail to substantially the guide eyes *a*².

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

1. A separator guide-bar, an attached separator, and pivots about which said bar and separator may swing as a center, combined with a movable stop device which in one position acts to prevent the said guide-bar and separator from descending below a fixed point, and which in another position allows said guide-bar and separator to descend below said point for purposes of doffing, substantially as described.

2. In a spinning and twisting frame, a roller beam, a stand supported thereon; a separator, a guide-bar to support said separator, said guide-bar being pivoted on said stand; and a dog connected with said guide-bar and projecting to the rear of said separator, combined with a stop device mounted on said stand and adapted to act upon a part of said dog when the separator is turned downwardly and backwardly out of the range of movement of the ring-rail, said dog holding said separator backwardly from the ring-rail during the operation of doffing, substantially as described.

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

GEORGE O. DRAPER.

Witnesses:

JOHN C. EDWARDS,
FREDERICK L. EMERY.