

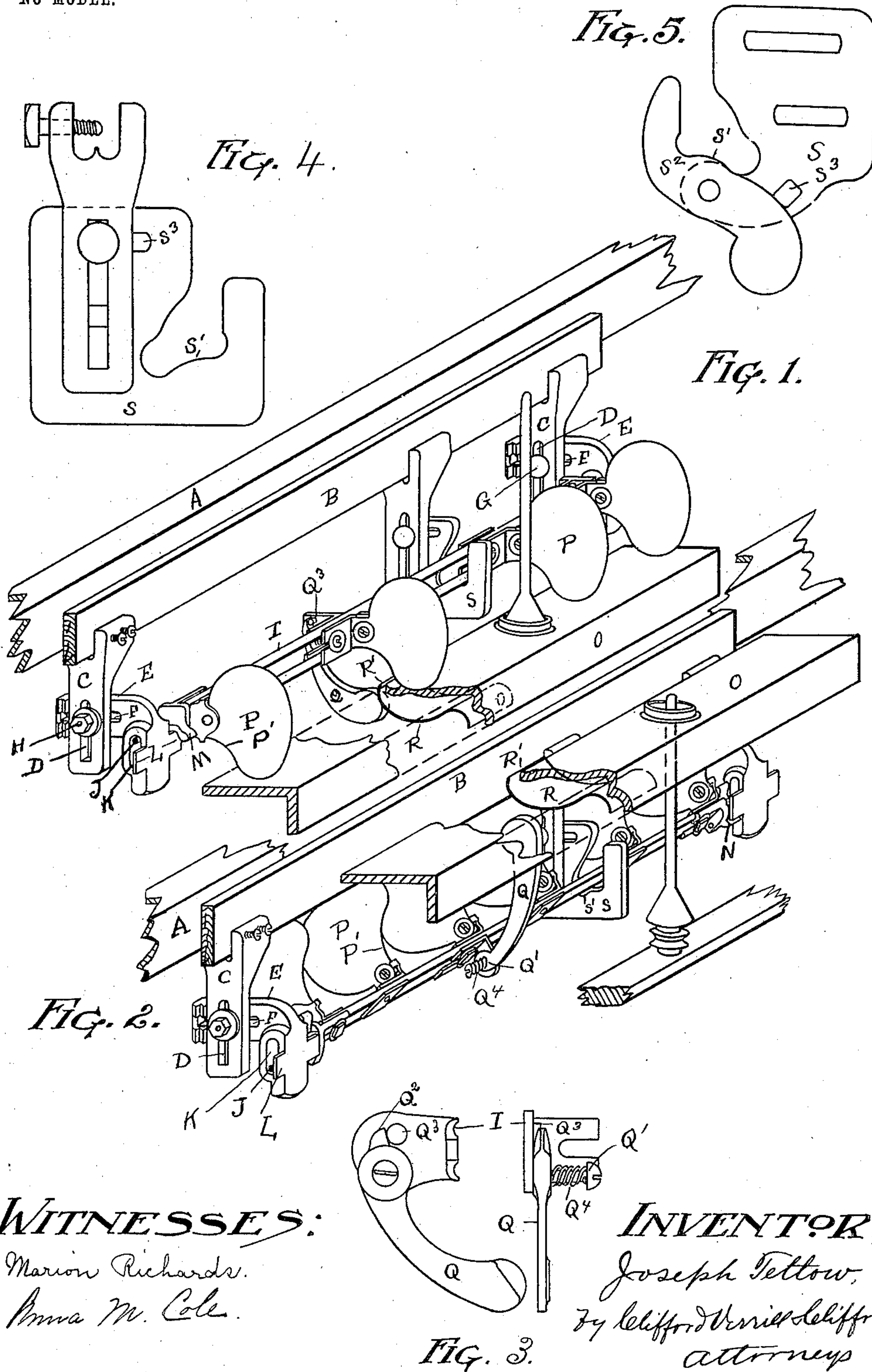
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J. TETLOW.  
SEPARATOR.

APPLICATION FILED MAR. 9, 1903.

NO MODEL.



**WITNESSES:**

Marion Richards.  
Anna M. Cole.

**INVENTOR,**

Joseph Tetlow,  
By Clifford V. Clifford,  
attorney



# UNITED STATES PATENT OFFICE.

JOSEPH TETLOW, OF BIDDEFORD, MAINE.

## SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 741,386, dated October 13, 1903.

Application filed March 9, 1903. Serial No. 146,827. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH TETLOW, a citizen of the United States, residing at Biddeford, in the county of York and State of Maine, have invented certain new and useful Improvements in Separators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in separators for use in connection with ring-spinning frames, the object of which is to prevent the threads from becoming tangled as they balloon out in the operation of spinning.

In ring-spinning the ring-rail reciprocates vertically relative to the bobbin. When the rail is at or near its highest point, the length of yarn from the guide-eye to the rail is short, and therefore has little tendency to balloon. It has been customary to prevent tangling of the threads by the interposition of separator-blades between the bobbins and to move said blades up and down by the ring-rail. Sometimes the blades have been moved vertically by the rail, and sometimes the blades have been pivotally mounted and are turned upwardly and backwardly by the upward movement of the rail. I therefore do not claim, broadly, the use of movable separator-blades between the bobbins.

The object of the present invention is to so construct and arrange the separator-blades that they may be turned entirely out of the path of the ring-rail during the upward traverse of the rail and when the tendency to balloon is inconsiderable and returned into position between the bobbins automatically and quickly when the ring-rail descends to a point where the threads are in danger of tangling. In order to do this, it is necessary that the blades be of considerable vertical extent, and because of the limited amount of vertical movement possible for the blades it is necessary that the blades be of peculiar construction, both as to their shape and as to the position which they occupy relative to the ring-rail.

The object of my invention is, further, to provide means for automatically regulating the movement of the separator-blades both

in their upward and downward movement and to limit the backward movement thereof.

The object of my invention is, further, to provide a support or supports intermediate the ends of the frame which shall furnish a constant bearing for the frame in all positions which it may assume.

In the drawings herewith accompanying and making a part of this application, Figure 1 is a perspective view of my invention and so much of a spinning-frame as is necessary to show the attachment of my improvements thereto, including the ring-rail, parts being broken away, the separator-blades being shown in operative position. Fig. 2 is a similar view showing separator-blades out of operative position. Fig. 3 is a side elevation and front view, respectively, of the finger on the separator-carrying frame, by which the separators are held in operative position for a time after the center of gravity of the frame changes and by which they are returned from inoperative to operative position. Fig. 4 is a side elevation of the intermediate separator-frame support and its hanger, and Fig. 5 is a side elevation showing a different form of the same.

Same letters of reference refer to like parts.

A represents a roller-beam of a spinning-machine. Secured to said beam is a suitable bracket, consisting of a base B, adapted to be secured to the front of said beam, vertically-positioned bars C, having vertical slots D in their lower extremities, and horizontal bars E, having longitudinal slots F therein, said latter bars being thus horizontally and vertically adjustable relative to bars C by means of bolts G and set-nuts H. The separator-carrying frame I has journal-bearings J at the ends projecting into vertical slots K in said bars E, and lugs M, adapted to pivot and slide upon bearing L on said bars. The journal-bearings J and lugs M are positioned relative to each other and to said slots and bearings L so that when the frame, with the attachments hereinafter to be described, is in operative position the center of gravity is such that the frame will normally remain in said position and when tipped beyond a certain point, as by the upward movement of the ring-rail, the journals descend in the



slots and draw said lugs back on the bearings until the center of gravity shifts to the other side and the frame tips back until its further backward movement is opposed, as  
 5 by a stud N impinging the under part of bearing L or in any other convenient manner. Secured to the separator-frame in any convenient manner are a series of separator-blades P, adapted to project between the  
 10 bobbins when in operative position and to be tipped back out of the way of ring-rail and bobbins when not required.

To fully safeguard the yarn, it is necessary that the separator-blades be of considerable  
 15 vertical extent, and to enable the blades to be turned back underneath the roller-beam and out of the way both of the ring-rail and the bobbins it is necessary that a considerable portion of the blades extend below the  
 20 point of attachment to the carrying-frame. The frame to which the blades are attached and which is pivotally mounted in a bracket, as before described, must necessarily be positioned close to the path of the ring-rail, so  
 25 that in order for the blades to remain in position until the rail has ascended to a point where the ballooning renders tangling of the threads impossible the lower extremities of the blades are curved and the rear and un-  
 30 der sides cut away, as seen at P', and the position of the blades relative to the ring-rail is such that when the blades are turned upwardly to horizontal position the rail engages the blades at a point close to where  
 35 they are attached to the carrying-frame, or near the point P'. It will be evident that because of the peculiar construction of the blades and the position of the carrying-frame relative to the path of the ring-rail the blades  
 40 can remain longer between the bobbins than would otherwise be the case and yet permit the blades finally to pass out from between the bobbins and under the roller-beam. Inasmuch as the blades are mounted  
 45 on a pivoted frame, they would tend to remain either in operative or inoperative position under the influence of gravity. We have seen that they are moved upwardly and backwardly by the ring-rail in its ascent. To pre-  
 50 vent the blades from tipping back as soon as the center of gravity changes, which would be before the danger of tangling had ceased, I attach to the under side of the ring-rail a leaf-spring R, which may be curved down-  
 55 wardly and then turned upwardly in front of the edge of the ring-rail, as seen at R', the end of the spring being free. This spring is positioned so as to be engaged by a projecting finger Q, secured to the blade-carrying  
 60 frame substantially at right angles to the blades, whereby the tipping back of the blades is further retarded. At the proper time the finger Q passes out of contact with the spring and the blades tip back on their  
 65 frame beneath the roller-beam until the lug N engages the under side of the bearing L, which limits the backward movement. Con-

versely, as the ring-rail descends the spring engages the end of the finger Q and turns  
 the blades once more down upon the rail be- 70  
 tween the bobbins. It is sometimes desirable when the blades are tipped back under the roller-beam to have the path of the ring-rail unobstructed. For this purpose I pivot  
 the finger Q to the blade-carrying frame, as 75  
 seen at Q', Fig. 3, and provide means for locking the finger in operative position and for unlocking it, so that it can be made to assume a position substantially parallel to  
 the blades, and thus when the blades are 80  
 tipped out of the path of the ring-rail the finger will not be thereby projected into the path of the rail. The finger may be locked in any convenient manner, as by a lug Q<sup>2</sup>, en-  
 gaging an offset Q<sup>3</sup>. The finger may be held 85  
 yieldingly locked, if desired, by means of a spring Q<sup>4</sup>, mounted on the pivot, so that the finger may be moved against the spring until it clears the offset.

In consequence of the length of the blade- 90  
 carrying frame and the weight that it supports it becomes necessary to provide an intermediate support between the ends, and inasmuch as the frame has a vertical as well  
 as a backward-and-forward sliding move- 95  
 ment it is necessary in order that the frame may be constantly supported to provide a peculiarly-shaped support. This I have shown in Figs. 4 and 5. My intermediate frame-  
 support S is attached to the roller-beam or 100  
 the base of the bracket in any convenient manner and is provided with a bearing-surface S', extending downwardly and rearwardly. Thus when the blade-carrying frame  
 tips back the top rests upon the bottom of 105  
 the lower part of the bearing-surface S', as seen in Fig. 2. As has been before stated, it is important that the ring-rail may travel as near the blade-carrying frame as possible,  
 and in order that the frame-support may not 110  
 extend into the path of the ring-rail I form the support in the manner shown in Fig. 5, in which a portion of the bearing-surface is on a swinging section S<sup>2</sup>, so that as the rail  
 ascends it tips the blade-carrying frame back- 115  
 ward and downward, releasing the pivoted section, which then tips toward the roller-beam, the lower part of the pivot-section being heavier than the upper part. This takes  
 place at the time that the ring-rail is adja- 120  
 cent the support. When the blades tip back into position as the rail descends, the bearing of the frame returns to the outer end of the support, moving the pivoted section into the position shown in Fig. 5. Further move- 125  
 ment is prevented by a stop S<sup>3</sup>.

Having thus described my invention and its use, I claim—

1. The combination with a separator-frame having a series of separator-blades secured 130  
 thereto, said blades having a considerable extension above and below the point of attachment, said frame being pivotally mounted in suitable brackets, the contour of the lower



extension adjacent the frame curving upwardly and toward the frame, whereby the blades are adapted to be tipped upward and backward until they pass out from between the bobbins and under the roller-beam, of a ring-rail positioned to reciprocate in a vertical plane near the pivot-point of the separator-frame, whereby the blades are moved by the ring-rail and are free to make a quarter-rotation before they pass out between the bobbins.

2. The combination with a separator-frame provided with a series of separator-blades, said frame being pivotally and slidably mounted on suitable supports and having a finger secured thereto at substantially right angles to the blades, of a ring-rail provided with a spring attached to the under side thereof, said rail being positioned so as to actuate the blades upwardly by direct engagement therewith as it ascends and downwardly by the engagement of said finger with said spring.

3. The combination with a separator-frame provided with a series of separator-blades, said frame being pivotally and slidably mounted on suitable supports and having a finger secured thereto at substantially right angles to the blades, of a ring-rail provided

with a spring attached to the under side thereof, said rail being positioned so as to actuate the blade upwardly by direct engagement therewith as it ascends and downwardly by said finger extending into the path of the spring attached to said rail and means for disengaging said finger so as to render it inoperative.

4. The combination with a separator-frame pivotally mounted in suitable brackets and adapted to have a rotary and sliding movement, of an intermediate frame-support having a supporting-surface extending rearwardly and downwardly.

5. The combination with a blade-carrying frame pivotally mounted in suitable brackets and adapted to have a rotary and sliding movement, of a frame-support having a supporting-surface extending rearwardly and downwardly, a portion of said supporting-surface being formed on a section pivotally attached to the main part.

In testimony whereof I affix my signature, in presence of two witnesses, this 4th day of March, 1903.

JOSEPH TETLOW.

In presence of—

THOMAS L. TALBOT,  
MARION RICHARDS.