

(No Model.)

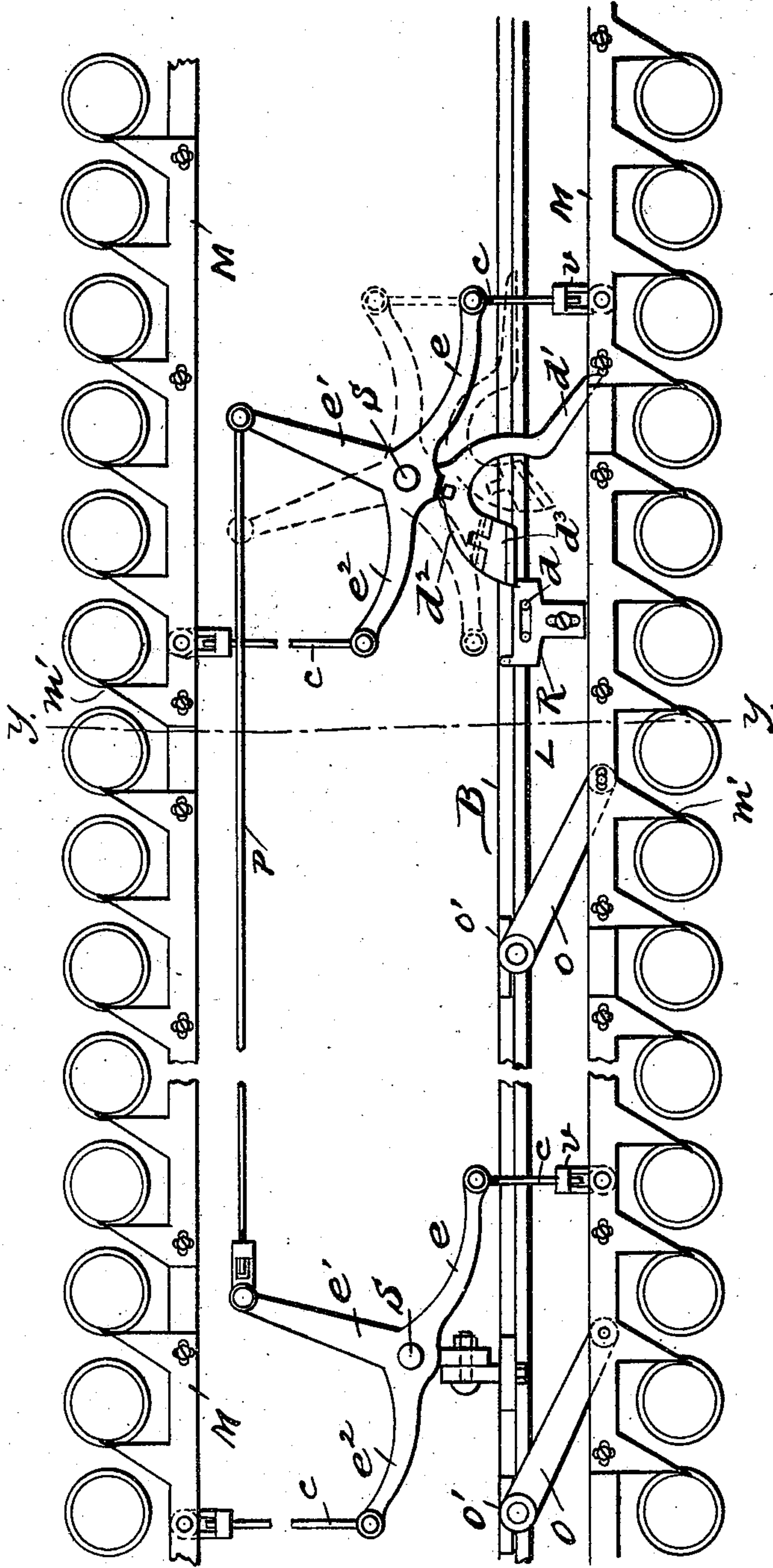
2 Sheets—Sheet 1.

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SEPARATOR FOR SPINNING MACHINES.

No. 556,109.

Patented Mar. 10, 1896.

Fig. 1.



Witnesses:

Charles Hammigan.
C. B. Read

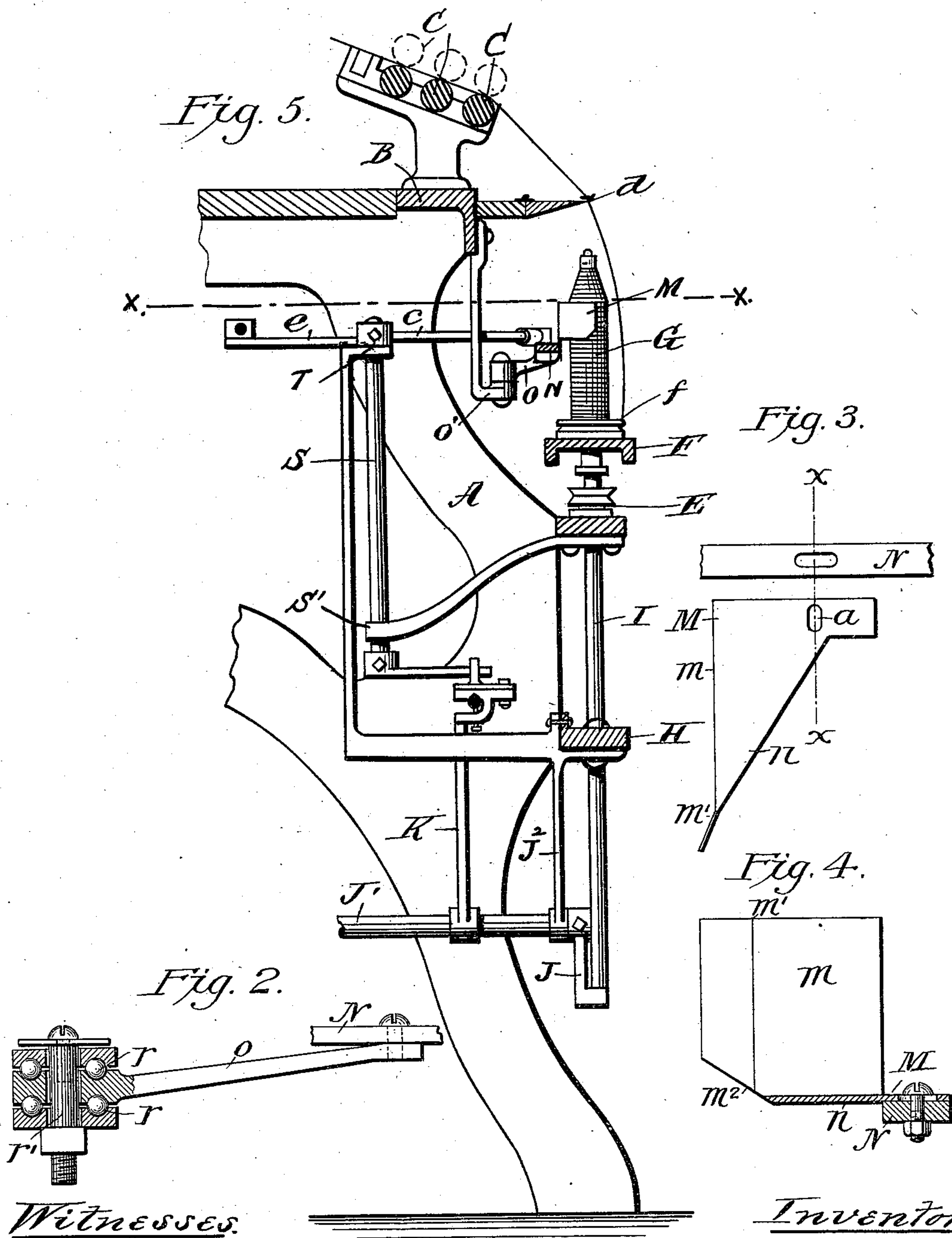
Inventor

William E. Sharples
By Benj Arnold
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UNITED STATES PATENT OFFICE.

WILLIAM E. SHARPLES, OF FALL RIVER, MASSACHUSETTS.

SEPARATOR FOR SPINNING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 556,109, dated March 10, 1896.

Application filed April 13, 1894. Serial No. 507,411. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. SHARPLES, of Fall River, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Separators for Spinning-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to what are known as "separators" of a ring-spinning frame, which are used to prevent the threads between the guide and the traveler from being thrown out by centrifugal force and striking against the next thread. It is an improvement upon the invention disclosed in my United States Patent No. 410,255 and refers more particularly to the arrangement of the parts that move the separator to and from the rings, and to the mode of pivoting the arms that sustain the weight of the separators, and to the way of adjustably connecting the separator-plates with the bar and connections that move the bar.

Referring to the drawings, Figure 1 represents a horizontal section of a ring-spinning frame, taken on line $x x$, Fig. 7. Fig. 2 represents one of the arms that support the separators. Fig. 3 is a top view of a separator-plate and part of its bar. Fig. 4 is a side elevation of a separator-plate attached to its bar. Fig. 5 represents a vertical transverse section of one side or half of a frame on line $y y$ in Fig. 1.

A is a part of the end frame of the machine.

B is the roller-beam.

C C are the drawing-rolls.

40 d are the guide-eyes.

E are the spindles.

F is the ring-rail and f the rings.

G are the bobbins.

H is the step-rail.

45 I is a lifting-rod through which the ring-rail is raised.

J is one of the levers that engage the lifting-rods, and is secured to a transverse rock-shaft J' . J^2 is a support to one of said shafts.

50 K is one of the vertical arms also secured to the rock-shafts.

L is a rod that connects the arms K on the

rock-shafts, which rod, by virtue of its connection with the rock-shafts, is moved longitudinally back and forth by mechanism (not shown in the drawings) in a well-understood way, which mechanism causes the levers J to raise the ring-rail.

All the foregoing parts of a spinning-frame are well known to makers and operators of such machinery.

M are the separators that are located at about the height of the upper quarter of the bobbin to move back and forth, out, so as to stand between the bobbins at the proper time, and in again to avoid the ring-rail as it rises. The plates M are shown in larger size in Figs. 3 and 4. Each separator consists of a vertical plate m , having a flange n bent out horizontally to secure it to the bar N. A part of the plate m is bent off sidewise at m' to cause the outer end of the plate to lie closer to the bobbin, and the lower corner at m^2 is cut off to allow it to clear the ring and come forward sooner than it otherwise could and remain longer between the bobbins, not having to wait for the ring-rail to get clear down.

The plates M may be made separate or in sections and are attached to the bar N by bolts that pass through holes in the plates and the bar, the holes a in the plates being made oblong in one direction and those in the bar oblong in the direction at right angles thereto, so as to allow of adjustment on the bar in any direction horizontally.

The bar N is held on a pivot in the free ends of the arms O, which are pivoted to brackets O' , attached to the roller-beam. As these arms O support the whole weight of the separator it is important to reduce the friction on their pivots as much as possible, and for this purpose I recess each end of the hub of the arm O and insert balls r in the recesses and bore out the hole through the hub larger than the pivot r' , so that no part of the hub will come in contact with any stationary part, but the whole will depend for support upon the balls, as shown in Fig. 2.

The means for moving the bar N and separators out to operate on the thread and back to allow the ring-rail to rise consists of a vertical rock-shaft S, held at its top by the upper end of a bracket attached to the step-rail H and at its lower end by a bracket S' , ex-

tending in from the upper spindle-rail. A hub T, with three arms e e' e^2 , is made fast near the upper end of rod S, on a level with the separator-bar N, and an adjustable connection consisting of a rod c , having an eye on one end to fit on a stud in the end of one of the arms, e , and a screw-thread made on its other end to screw into a socket-eye v , attached to the bar N, affords means for adjustment. The opposite arm, e^2 , is connected to the separator-bar on the other side of the machine in the same way, and the intermediate arm, e' , of the three is connected by a rod P to a like arm arranged in like manner near the other end of the machine. The side arms, e and e^2 , are connected to the separators at that end as just described for this end. By this arrangement one device operated by the rod L will work the separators for the whole machine. A clamp R is secured to the rod L, which has a projection d on its upper side. A hub is made fast near the lower end of the rod S. This hub has an arm d' , curved in two directions, and an arm d^2 with a broad flat end plate d^3 hinged to it. These arms are so arranged as to have one of them in the path of the projection d in the clamp R when the other arm is out of the path and when the projection d in passing in one direction—say to the right—strikes the arm d' and pushes it back out of the way. The arm d^2 will be turned into the path so as to be struck by the projection d in returning and bring the arm d' into the path again.

From the foregoing it follows that when the rod L is moved to the right to raise the ring-rail the projection d on the clamp will strike against the angle of the arm d' and turn the rod S and draw back the bar N and separators by the connections and arm e and allow the ring-rail to rise; but on the return motion of the bar L to the left to let the ring-

rail down the projection d will strike the arm d^2 , now in the position of the dotted lines, Fig. 1, and turn the rod S, so as to move the bar N forward by the arm e and push the separators in between the bobbins as the ring-rail goes down. When the separator-bar is pushed back to be out of the way in doffing, the arm d^2 is brought into the path of the projection d , but the hinged plate d^3 , against which the projection strikes going in one direction, will raise and allow the projection d to pass under and fall back ready for the projection to strike on its return as before described.

Having thus described my improvements, I claim as my invention—

1. The combination with the ring-rail and its rings of a series of separators each consisting of a vertical plate portion and a horizontal flange part to hold it on its bar, the said vertical plate portion having an angular bend in it at the point m' , and the lower corner of the vertical portion and one end of the horizontal flange cut off at an incline at m^2 , with supports for and means for moving said separators toward and from the bobbins, substantially as described.

2. In combination with a series of separators, a vertical rocker-shaft supported by the spindle-rail, a hub having two side arms attached to the upper end of said vertical rocker-shaft, adjustable connections between said side arms and the separators on each side, a two-armed hub secured to the lower part of said rocker-shaft, a projection fast on the rod that raises the ring-rail, a relief-plate hinged to one arm of the lower hub, and rod L, substantially as described.

WILLIAM E. SHARPLES.

Witnesses:

GEORGE T. WILEY,
RICHARD P. BORDEN.