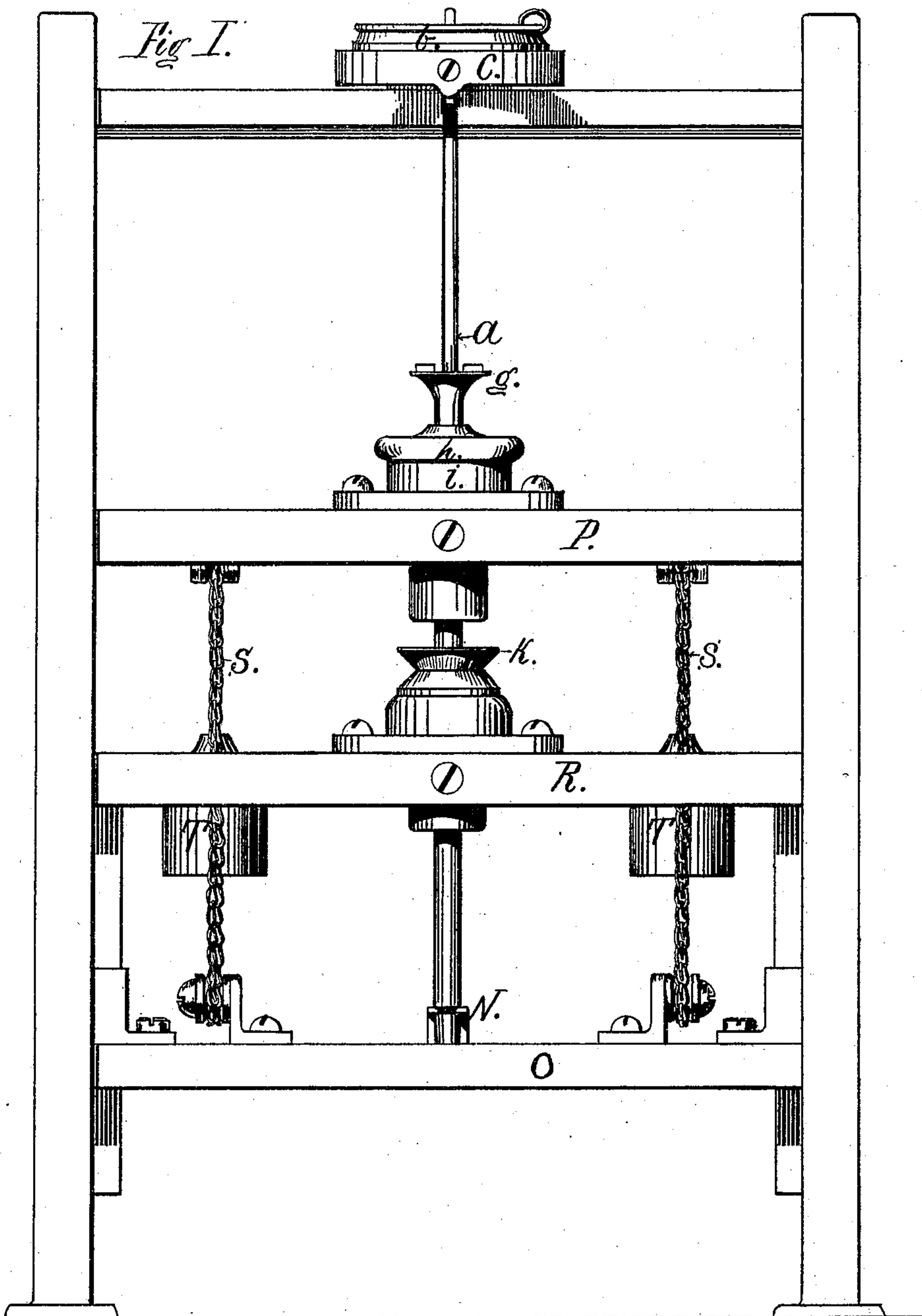


T. MAYOR.
RING SPINNING FRAMES AND TWISTERS.
No. 180,144. Patented July 25, 1876.



Witnesses:

L. P. Langworthy.
J. A. Miller jr.

Inventor:

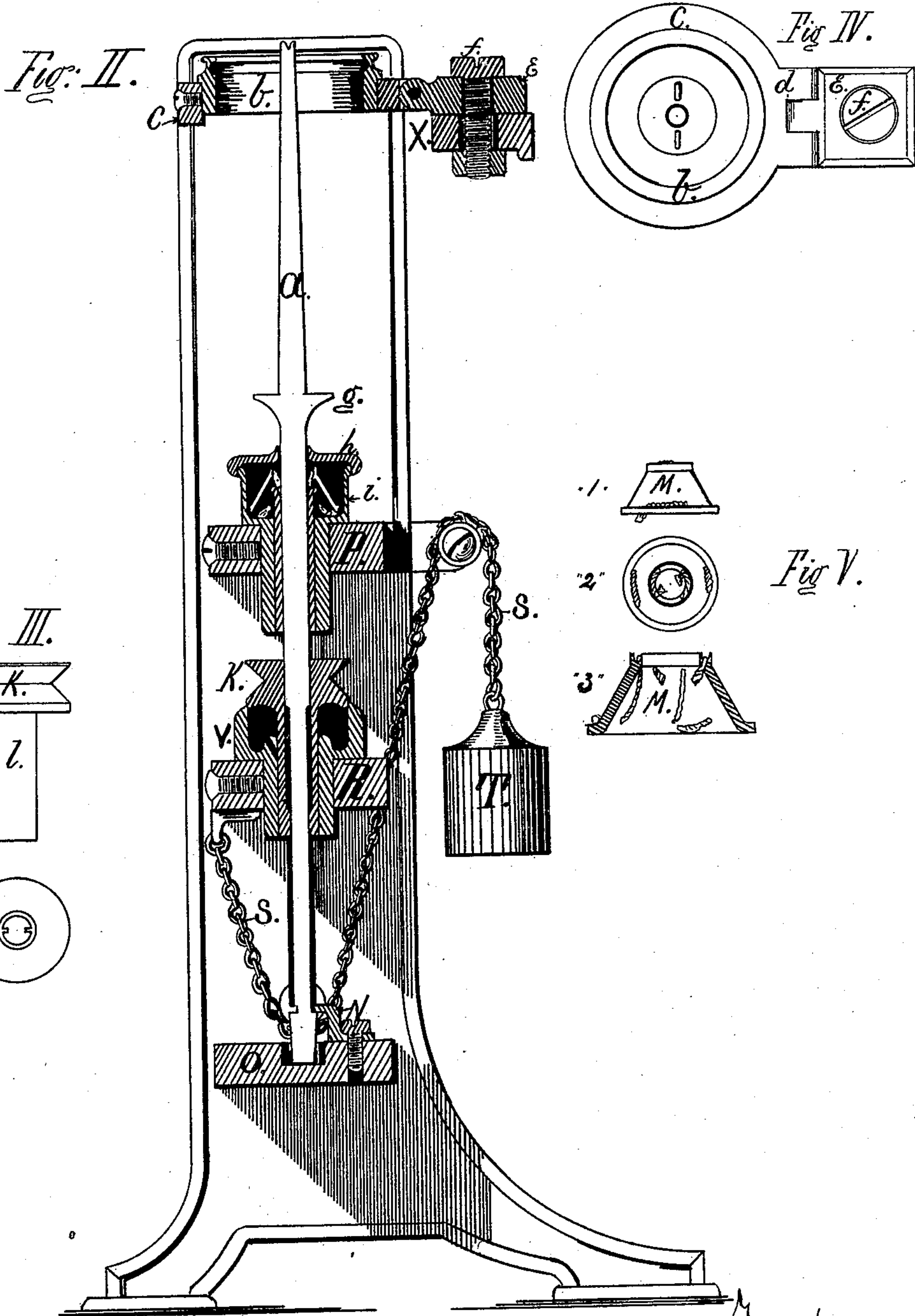
Thomas Mayor
By *Joseph A. Miller*
Attorney.

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UNITED STATES PATENT OFFICE.

THOMAS MAYOR, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN RING SPINNING-FRAMES AND TWISTERS.

Specification forming part of Letters Patent No. **180,144**, dated July 25, 1876; application filed September 30, 1874.

To all whom it may concern :

Be it known that I, THOMAS MAYOR, of the city and county of Providence, in the State of Rhode Island, have invented a new and useful Improvement in Spinning and Twisting Machinery; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure I shows my improved spinning-machine, having a fixed and stationary but yet adjustable ring, and a reciprocating live spindle. Fig. II is a sectional elevation through the center of the spindle, showing the bolsters, step, and the driving-whirl all in section. Fig. III shows the whirl and the splines, which enter the grooves in the spindle, and by which rotative motion is imparted to the spindle. Fig. IV is a top view of the adjustable hinged ring. Fig. V is a top view, a side view, and an enlarged section of the oiling-tube M.

The nature of the first part of my invention consists in so constructing the spindle for a ring spinning-frame that the same may be removed for cleaning without taking the band off the whirl, and that the spindle shall be equally well adapted for spinning or twisting frames having either stationary or reciprocating rings.

The second part of my invention relates to the application of a stationary ring to twisting-frames in which two or more threads are twisted together.

In the drawings, *a* is the spindle, which is supported in the step-rail O, and held to the said step-rail O by the hook N, so that when reciprocating motion is imparted to the step-rail the spindle will reciprocate with it. The whirl K rests in and is supported by the bolster secured to the rail R, in which it freely revolves. The spindle *a* passes through the whirl K and the tube *l*, made in one piece with the whirl K. The spindle has two grooves made in the same, and the tube *l* has two splines or feathers, which enter into the grooves in the spindle, so that when rotary motion is imparted to the whirl K the whirl and the spindle will revolve together, while the spindle may be also reciprocating vertically. Secured

to the rail P is the bolster *i*, the upper part of which forms an oil-cup, which is closed by a cap, *h*. Surrounding the spindle, and extending into the oil-cup, is a bolster-tube, firmly secured to the bolster *i*, the interior of which, forming the bearing for the spindle *a*, is lubricated by means of wicks secured to the conical tube M, so that one end of each wick shall be at all times immersed in the oil in the oil-cup, while the other end extends to the spindle *a* above the bolster-tube, and so supply the oil to the bearing of the spindle. Above the oil-cup the spindle is enlarged, so as to form the projecting rim or table *g*, from which one or more pins or tenons project, so that a bobbin having corresponding holes in its base will rest firmly, and revolve with the spindle *a*, being held in a true vertical position by the blade of the spindle, which extends into the bobbin. The ring *b* is secured to the bracket C, which again is secured to the block E by a hinge, so that when the block-piece E is secured to the rail X by the screw *f* the ring, being a stationary fixture, may still be lifted sufficiently to allow the operative to find any broken end on the bobbin and piece the same. The holes in the ring-block E and rail X are made larger than the screw *f*, so that the ring may be placed exactly concentric with the spindle, and firmly secured to the rail X. The weight of the reciprocating step-rail is balanced by the weights T, secured to chains or bands S, and passing over pulleys or sheaves, so that when reciprocating motion is imparted to the step-rail, and by the same to the spindles, the same power may be sufficient both to raise and lower the same.

The advantages of this arrangement are, primarily, the application of a light spindle for spinning and twisting yarn or thread to a ring-frame having a stationary ring, and in which reciprocating motion is imparted to the spindle, so that the length of yarn being spun, or the length of threads to be twisted, may be at all times the same between the traveler on the ring and the delivery-roll or the guide-hooks, no matter on which part of the bobbin the same is being wound. This length being always uniform, the length of the bow formed by the rapid rotation of the

spindle, and the form or diameter of the same, will also be uniform, while the drag of the traveler, the tension, and twist will all be uniform, and at a certain speed a known quantity, so that absolutely uniformly-twisted thread can be manufactured, which is not the case with twisting-machines in which all the above conditions constantly vary and to a large extent.

The spindle, as shown, may be used on a spinning or twisting frame having reciprocating rings, as well as on frames having stationary rings. In the first instance the spindle would be a stationary live spindle driven by the whirl K through the splines or feathers in the tube *l*, whereas in the second instance, besides the rotary motion imparted to the spindle by the whirl, reciprocating motion would be also imparted to the same by the reciprocation of the step-rail O. In either case the spindle may be removed and cleaned without taking the band off the whirl K by releasing the hook N. The whirl K and tube *l* may be raised sufficiently for oiling without removing the band. The two bolsters secured to the rails P and R can be easily adjusted so that the spindle will run with little friction by having the same fit loosely in the rail, and secured to the same by screws passing through holes larger than the screws, and which secure the bolster to the top of the rail, as is shown in Fig. I.

In a spinning as well as twisting machine the ring must be absolutely concentric with the spindle, and by making the ring adjustable and securing each ring to the rail X separately the same can be placed absolutely true. The object of the hinge is to allow the operative to raise the same just sufficiently to find a broken end, so as to avoid loss of time when a cop is spun. The lifting of the ring greatly facilitates the operation of piecing. When a cop is to be spun on this spindle, the projection or table *g* is not required; but otherwise the spindle is made in all respects as herein shown and described.

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

1. The combination of the stationary adjustable and hinged ring-guard C, supporting the spinning-ring, with the reciprocating live spindle *a*, arranged to support the cop or bobbin and the non-reciprocating whirl, substantially as and for the purpose set forth.

2. The combination, with the reciprocating live spindle *a*, of the non-reciprocating whirl K, provided with the sleeve *l* and the bolster V, arranged to support the whirl, substantially as and for the purpose described.

THOMAS MAYOR.

Witnesses:

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