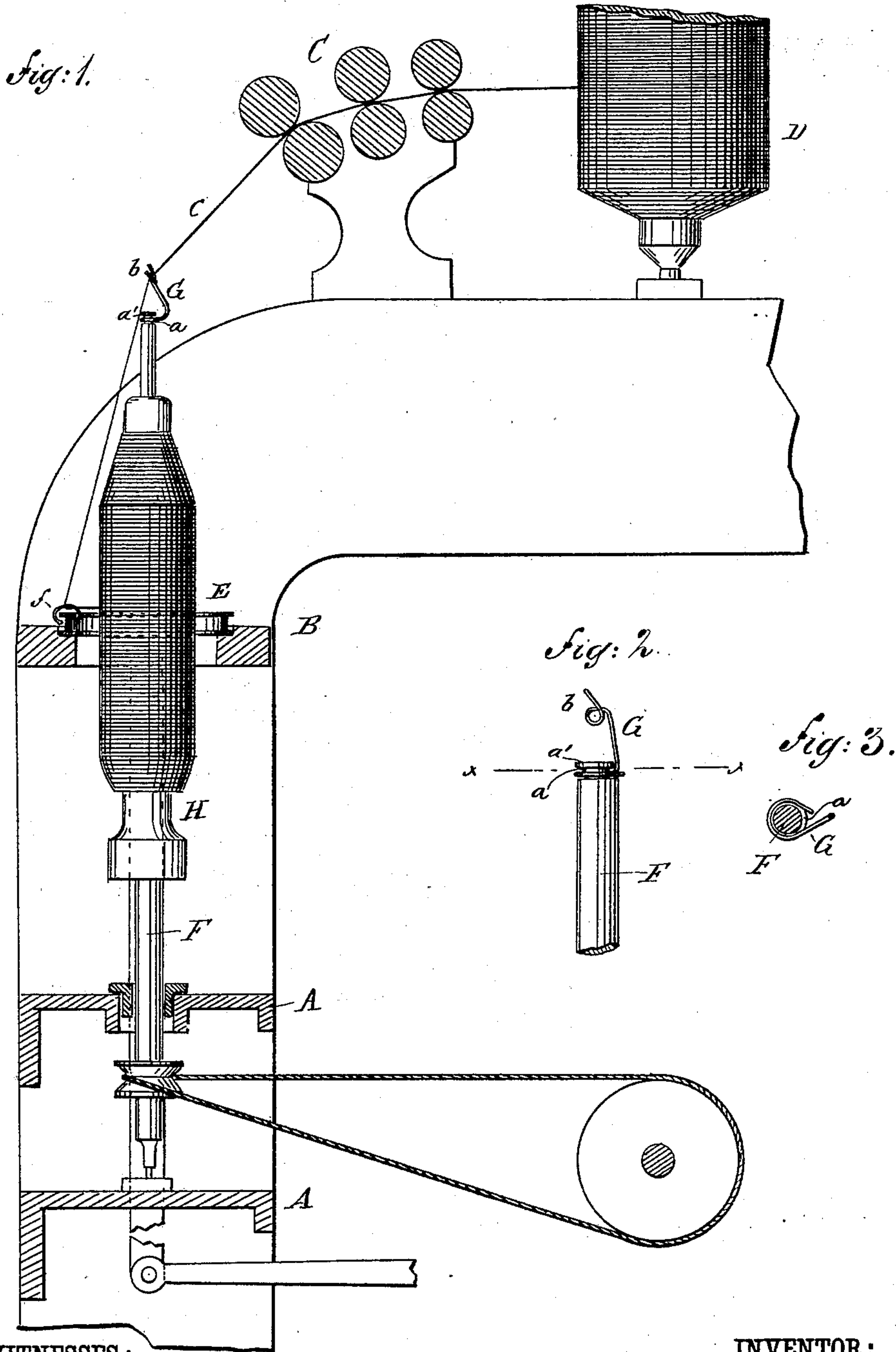


(No Model.)

M. E. SULLIVAN.  
RING SPINNING FRAME.

No. 278,197.

Patented May 22, 1883.



WITNESSES:

*Chas. Nida*  
*C. Sedgwick*

INVENTOR:

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BY

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ATTORNEYS.

# UNITED STATES PATENT OFFICE.

MICHAEL E. SULLIVAN, OF NEW BEDFORD, MASSACHUSETTS, ASSIGNOR  
TO PRINCE H. COFFIN, OF SAME PLACE.

## RING-SPINNING FRAME.

SPECIFICATION forming part of Letters Patent No. 278,197, dated May 22, 1883.

Application filed November 15, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, MICHAEL E. SULLIVAN, of New Bedford, in the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Ring-Spinning Frames, of which the following is a full, clear, and exact description.

The object of the invention is to spin from the top of the spindle, so that the yarn will receive its twist in the bite of the rollers at the instant when the sliver is delivered, and to avoid the use of guide-wires which prevent the twist from entering the bite of the rollers as soon as it would without them.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional elevation of a portion of a spinning-frame, the spindle shown being provided with a twister in accordance with my invention. Fig. 2 is a detailed elevation of the upper end of a spindle provided with my loose twister, and Fig. 3 is a sectional plan view of the spindle with its groove and the loose twister, taken on the line *xx* of Fig. 2.

The rails A A, rail B, drawing-rollers C, ring E, traveler *f*, and roving-bobbin D are of the ordinary form and construction, and the rail B, spindle F, and roller C are operated in the ordinary way.

The spindle F is grooved near its upper end, as shown at *a*, so as to form the button *a'* at the upper end thereof, and is provided in the groove *a* with the loose twister G, which is made of steel wire and turned or looped at its upper end to form the eye *b*, as shown clearly in Fig. 2.

The drawing-rollers C are arranged above and a little to the rear of the top of the spindle F, so that the roving *c* will pass diagonally from the rollers to the twister, as illustrated in Fig. 1, and the roving coming from the rollers C is first passed through the eye *b* of the twister, then through the traveler *f*, and is then wound upon the bobbin H.

The roving *c*, passing diagonally to twister G, causes the twister to bind in the groove *a* of the spindle, so that when the spindle is rapidly revolved the twister will be carried around with it, causing the thread to be twisted

between the twister and the drawing-rollers. The twister G has a tendency to untwist the roving between itself and the traveler *f*; but this is counteracted by the rotary motion of the traveler. The effect of this is to make only a slight twist, which will prevent the roving from binding so tightly on the bobbin as to break the thread.

By placing the small loose loop above and in a line with the center of spindle, I spin from the top central point, the yarn passing through the traveler and then on the spindle or bobbin. The loop serves as a tension-regulator adjustable on the spindle, and receives a rotary motion from it. This, with the tension of the yarn, imparts to the traveler the required motion, and as the tension is greatest at the top of the traverse or ring rail, the strain, coming on the loop, causes it to press against the spindle. The friction thus produced imparts motion to the traveler, causing it to move rapidly around the ring, so as to ease the tension. As the traverse lowers and the strain is removed from the loop the pressure on the spindle is lessened and the traveler is allowed to travel around the ring as the tension and delivery of the rolls require. Thus there is no danger that the threads of two spindles will clash when the traverse is at the bottom, and I am enabled to run three times as heavy a traveler on the same number of yarn. The weight of the yarn is readily controlled between the loop and traveler, and the yarn itself winds very solidly on the bobbin.

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

The combination, with the drawing-rolls C, rotary spindle F, provided with a groove, *a*, the traveler *f*, and ring E, of the twister G, having a loose bearing in the groove of said spindle F, and an eye, *b*, extending beyond a straight line leading from the rolls to the ring, whereby a loose twist will be given to the roving between the rolls and twister and further twisting or untwisting prevented, as described.

MICHAEL EDWARD SULLIVAN.

Witnesses:

A. EDWIN CLARKE,  
PRINCE H. COFFIN.