

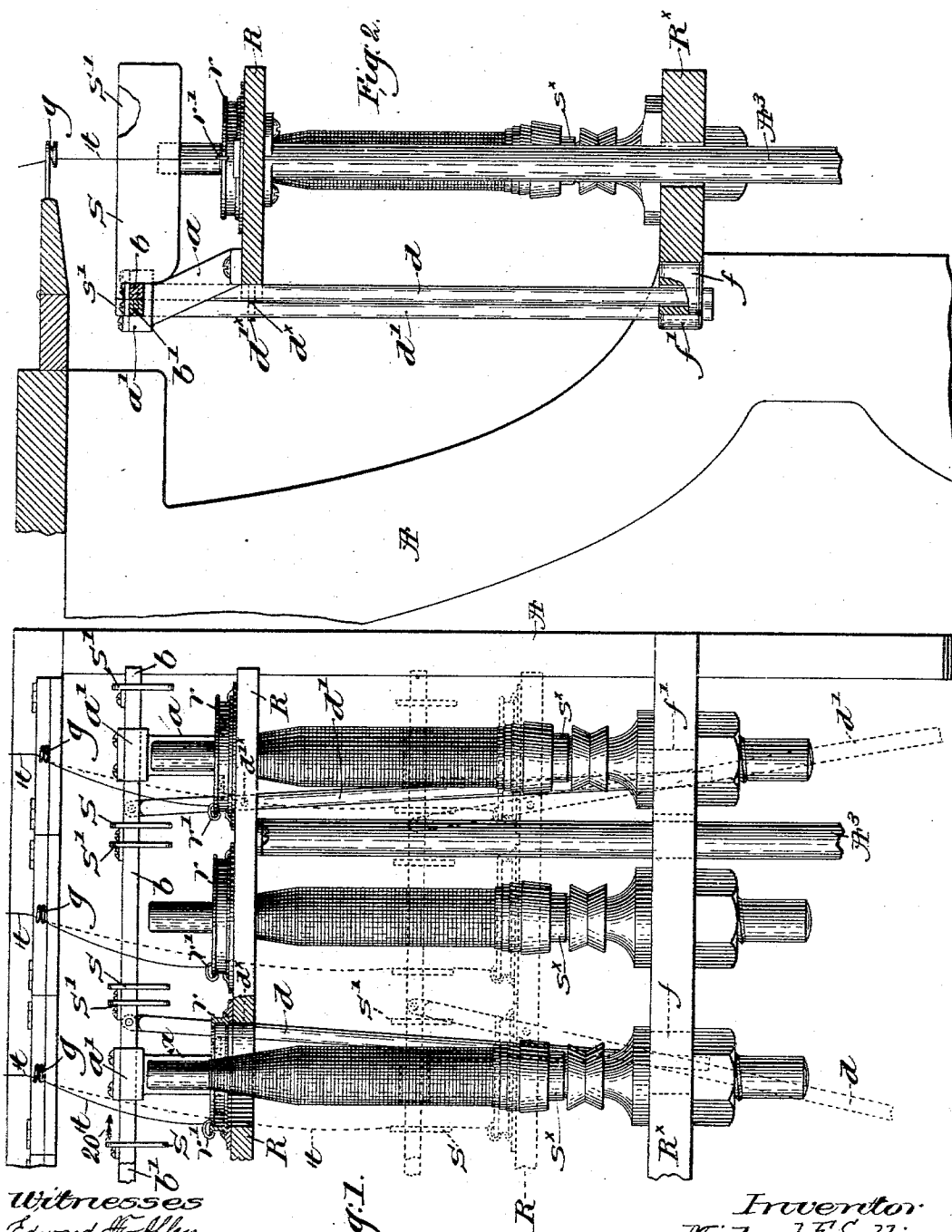
(No Model.)

M. E. SULLIVAN.

TENSION MECHANISM FOR RING SPINNING MACHINES.

No. 562,777.

Patented June 23, 1896.



Witnesses
Edward H. Allen.
Walter O. Lombard

Fig. 1.

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UNITED STATES PATENT OFFICE.

MICHAEL E. SULLIVAN, OF NEW BEDFORD, MASSACHUSETTS, ASSIGNOR TO
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TENSION MECHANISM FOR RING-SPINNING MACHINES.

SPECIFICATION forming part of Letters Patent No. 562,777, dated June 23, 1896.

Application filed April 14, 1896. Serial No. 537,430. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL E. SULLIVAN, of New Bedford, county of Bristol, and State of Massachusetts, have invented an Improvement in Tension Mechanism for Ring-Spinning Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of means to equalize the difference in and compensate for variation of the strain upon the yarn in ring-spinning machines, the strain being greatest when the yarn is nearest the bobbin and gradually decreasing as the yarn reaches the outer portion of the yarn load. The traveler which will suit the yarn when at the bobbin will be too light when the yarn is going to the outer side of the yarn load, and my invention overcomes this defect.

In United States Patent No. 535,029, granted to me and others March 5, 1895, I have shown and broadly claimed means for attaining a like object, this present invention being an improvement thereon in certain features to be hereinafter described, and particularly pointed out in the claims.

Figure 1 is a front elevation of a sufficient portion of a ring-spinning frame to be understood, with my invention applied thereto, and Fig. 2 is a side elevation and partial section thereof.

The frame A, ring-rail R, rings r , the travelers r' thereon, the spindle-rail R^x , spindles s^x , and yarn-guides g are and may be all of usual and well-known construction, the same forming no part of my invention, the ring-rail R being raised and lowered by suitable means (not shown) connected to or acting upon lifter-bars A^3 .

As herein shown, I have mounted upon the ring-rail at its rear side a series of brackets a , having suitable bearings a' to receive two horizontal longitudinally-movable separator-carriers $b b'$, to which are respectively attached series of separator-blades $S S'$.

As herein shown, the shanks s' of the blades S' are made long enough to project over the carrier b , so that relative horizontal movement of said carriers $b b'$ and their blades can take place without interference.

Referring to Fig. 1, it will be obvious that movement of the carriers $b b'$ horizontally, in opposite directions, will move the blades S of one series toward or from the blades S' of the other series, said blades being so located on their respective carriers or supports that each spindle is provided with a pair of blades, movable toward and from it.

The movement of the separator-blades may be accomplished in various ways, and I have herein shown simple means therefor, consisting of lever-like arms $d d'$, pivotally connected at their upper ends to the blade carriers or supports $b b'$, respectively, and fulcrumed on the ring-rail R at $d^x d'^x$, the connections with the carriers $b b'$ permitting the necessary slight lost motion. The lower ends of said arms d and d' are loosely extended through suitable stationary guides $f f'$, mounted on the spindle-rail R^x or some other fixed part of the frame, and farther apart than the fulcrums $d^x d'^x$ of said arms, so that when the ring-rail descends the carrier b will be moved in the direction of arrow 20, Fig. 1, and the carrier b' in the opposite direction. This brings the pairs of separator-blades nearer together, as shown in dotted lines, Fig. 1, contracting the path for the yarn travel, and acting against it with considerable friction, thus exerting tension thereupon to equalize the slip of the traveler on the ring, the traveler at such time having the greatest freedom of slip, the yarn going to the outer side of the yarn load on the bobbin. As the ring-rail rises the blades are gradually moved away from each other, so that the tension upon the yarn t gradually diminishes as the strain thereupon due to the traveler increases as the yarn nears the bobbin.

The separator-blades, as herein shown, rise and fall with the ring-rail, and move toward or from each other horizontally to vary the tension upon the yarn by contracting or expanding the path of the yarn travel.

I claim—

1. In a ring-spinning frame, a ring-rail, a pair of separator-blades mounted thereon to act upon the travel of the yarn, and means to move said blades horizontally away from or toward each other as the ring-rail rises or falls, respectively, to vary the tension upon

the travel of the yarn, substantially as described.

2. In a ring-spinning frame, a ring-rail, two
5 horizontal longitudinally-movable blade-carriers thereon, the separator-blades of a pair being secured respectively to said carriers, to embrace the travel of the yarn, and means to move the carriers longitudinally in opposite directions as the ring-rail rises or falls,
10 to decrease or increase the tension upon the travel of the yarn, substantially as described.

3. In a ring-spinning frame, a ring-rail, a series of rings and travelers, and a pair of horizontally-movable separator-blades above each
15 ring, to act upon the yarn, combined with means to move said blades away from or toward each other to vary the tension exerted thereby on the yarn travel during the winding operation, substantially as described.

4. In a ring-spinning frame, a ring-rail, a series of rings and travelers thereon, a pair of longitudinally-reciprocable blade-carriers mounted thereon, a series of blades secured to each carrier and projecting across the ring-rail, to form pairs of separator-blades above
25 each ring, and rocking arms connected to and to reciprocate said carriers in opposite directions, to move the blades of each pair toward or from each other, to thereby vary the tension upon the yarn travel, substantially as
30 described.

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

MICHAEL E. SULLIVAN.

Witnesses:

S. F. SMITH,

GEO. OTIS DRAPER.