

(No Model.)

2 Sheets—Sheet 1.

W. M. ROBINSON.

YARN TENSION DEVICE FOR RING SPINNING FRAMES.

No. 283,663.

Patented Aug. 21, 1883.

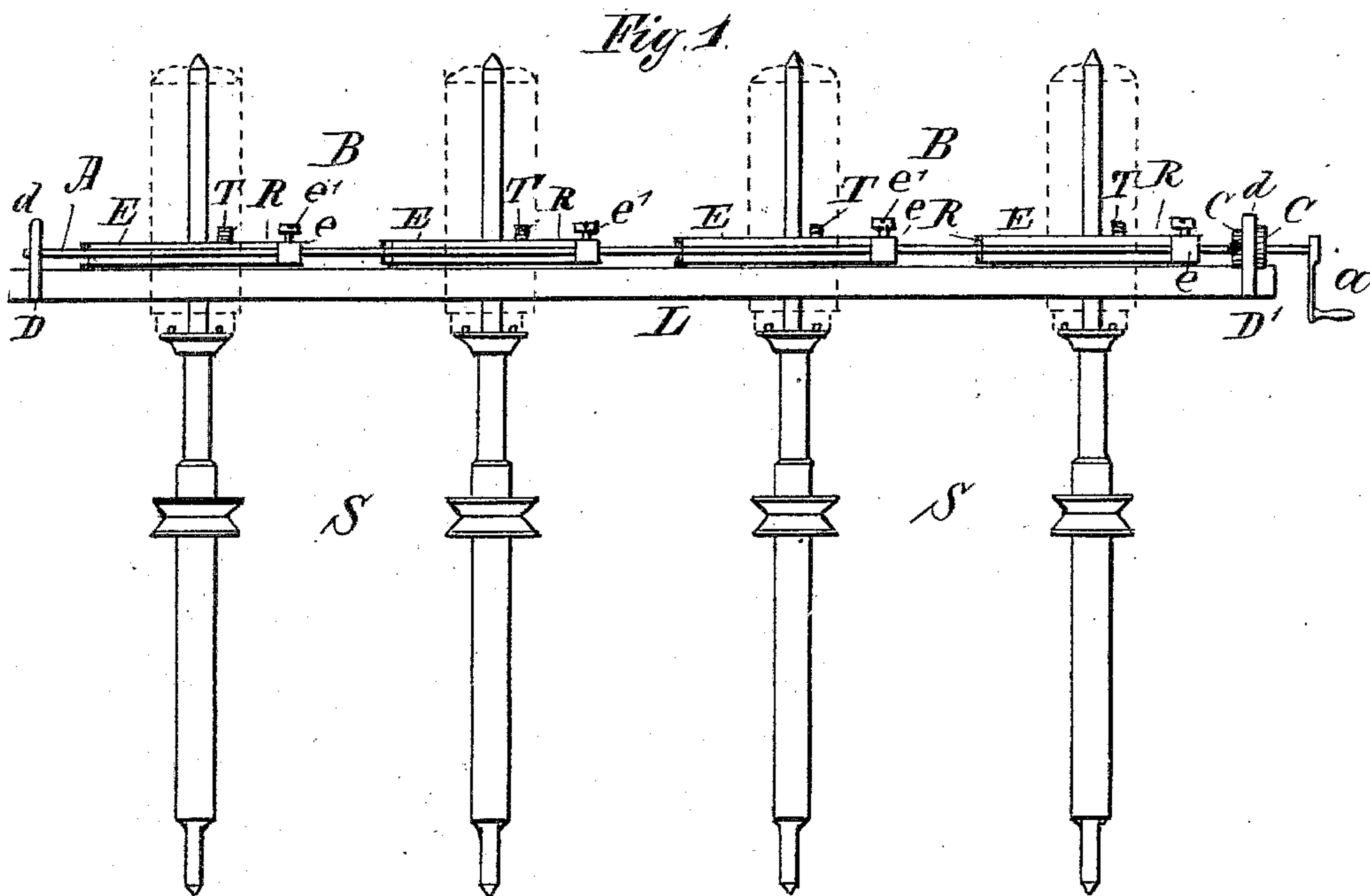
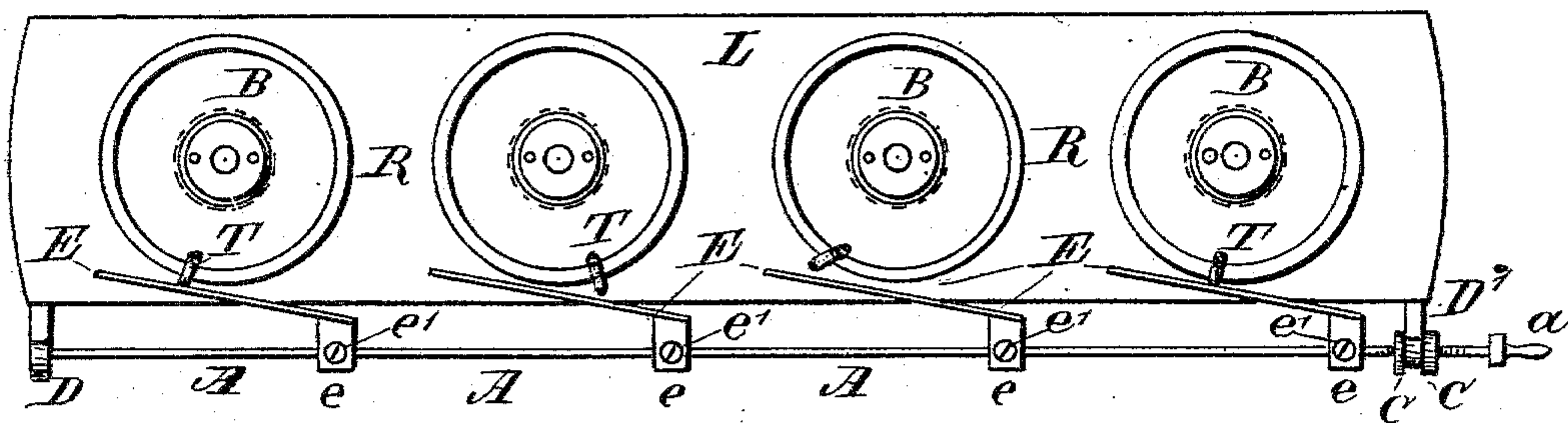


Fig. 2.



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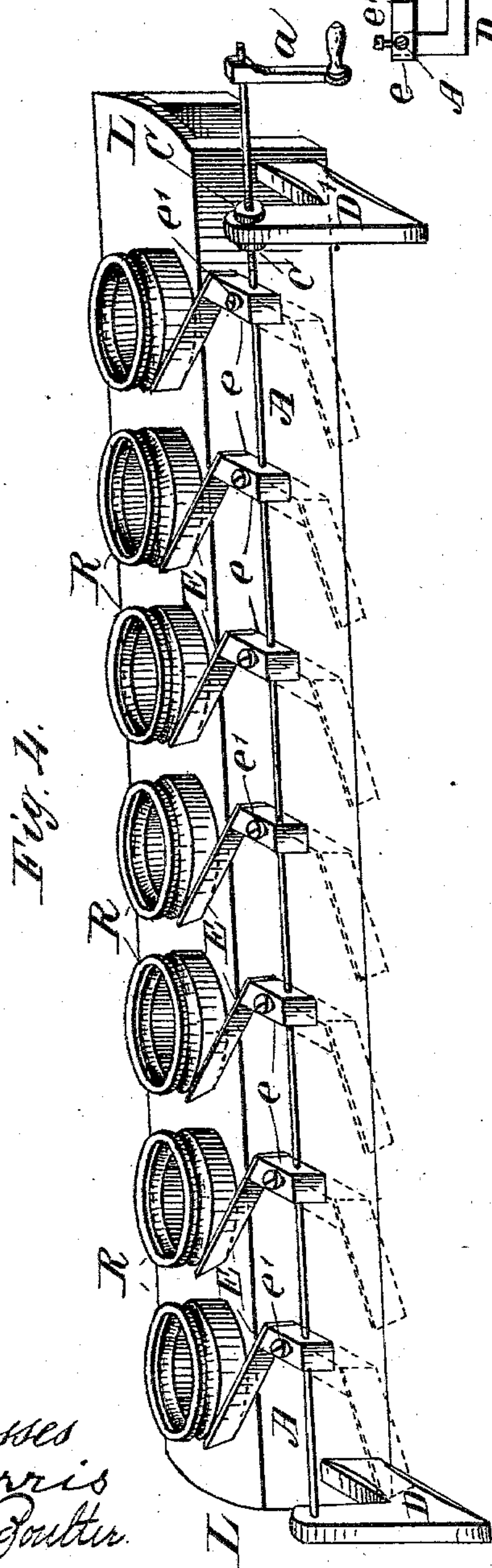
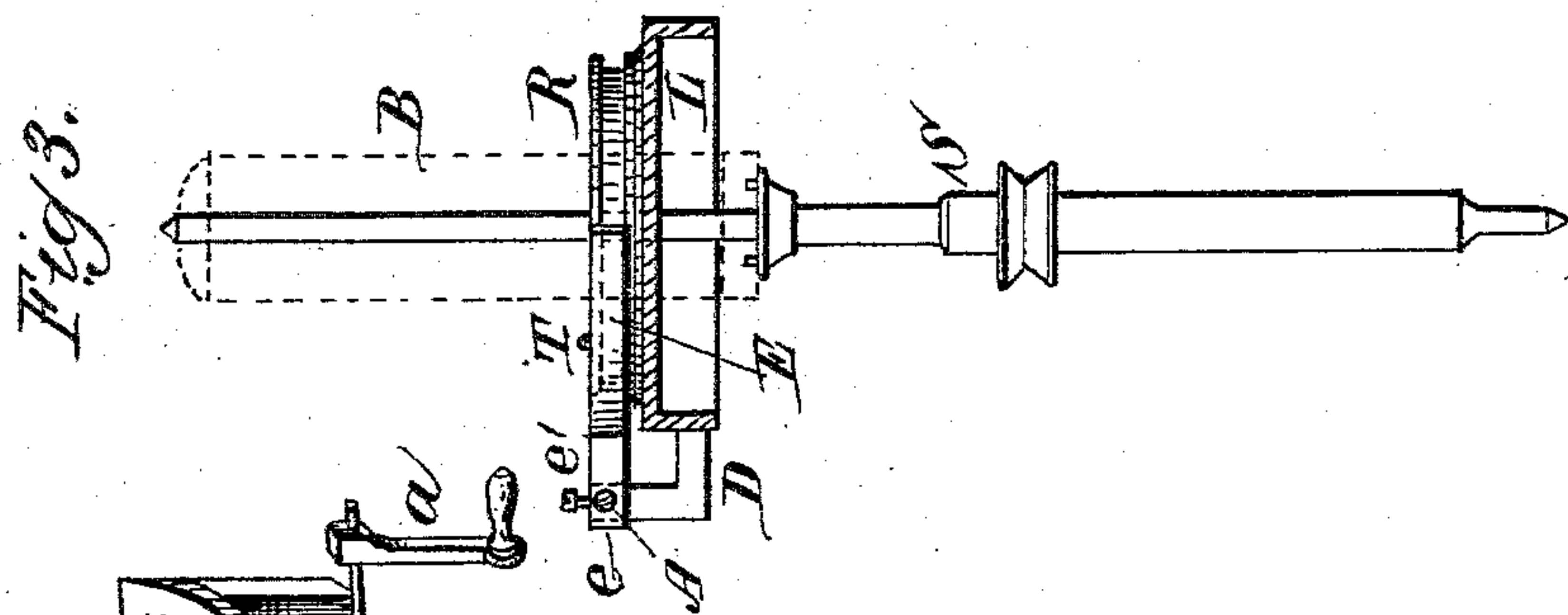
Inventor
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UNITED STATES PATENT OFFICE.

WILLIAM M. ROBINSON, OF PETERSBURG, VIRGINIA.

YARN-TENSION DEVICE FOR RING-SPINNING FRAMES.

SPECIFICATION forming part of Letters Patent No. 283,663, dated August 21, 1883.

Application filed November 3, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. ROBINSON, a citizen of the United States, residing at Petersburg, in the county of Dinwiddie and State of Virginia, have invented certain new and useful Improvements in Yarn-Tension Devices for Ring-Spinning Frames; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

In ring-spinning machines of usual construction difficulties are encountered in regulating the tension of the yarns or threads, and in preventing the same from lashing against one another.

It is a well-known fact that the tension of the thread and the velocity of the traveler vary according to the angle of said thread to the traveler, which angle varies according as the yarn is run from the smaller to the greater diameter of the bobbin and as the bobbin fills. Various attempts have heretofore been made to overcome this difficulty and regulate the tension of the yarn or thread; but all devices for this purpose that have come to my knowledge fail to entirely remedy the difficulty.

The object of this invention is to provide a means within the control of the operator whereby he is enabled to regulate the resistance the traveler meets in its rotation around the ring, and consequently the tension of the thread or yarn at any time from the doffing of the bobbins until the latter are full; and to that end the invention consists, generally, in the means for regulating the tension of the thread or yarn in ring-spinning frames by the application directly to the traveler of a yielding or resilient power; and it further consists in the details of construction and the arrangement of mechanism whereby the desired results are obtained.

In the accompanying drawings, Figure 1 is an elevation, Fig. 2 a plan view, Fig. 3 a sectional side elevation, of so much of a ring-spinning frame as is necessary to illustrate my invention; and Fig. 4 is a detached isometrical view, showing the lifting-rail rings and

the improved traveler-brakes, and mechanism for applying the brakes and adjusting them relatively to the rings.

Like letters of reference indicate like parts wherever such may occur in the above figures of drawings.

S is the spindle, B the bobbin, L the lifting or ring rail, R the rings, and T the travelers, all of any usual or preferred construction.

The ring-rail is provided with two or more bearings, in which is mounted the operating-rod A for the brakes, by means of which the resistance the travelers meet with in their rotation is modified or regulated. These bearings are preferably formed of rectangular brackets D D', in the vertical arm d of which the operating-rod A is rotatably and adjustably mounted. The rod A terminates in a crank or operating lever, a, and carries at that end, on opposite sides of the outer bearing, D', two adjusting-collars, C, engaging with suitable screw-threads formed on the rod. By means of these collars the rod A can be adjusted longitudinally in its bearings D D', as plainly shown in Fig. 4. Upon the rod are mounted the friction-brakes, one for each traveler. These brakes consist of a thin steel leaf-spring, E, secured to a bearing-block, e, carried by the rod A, and adjustably secured thereto by means of a set-screw, e', the free ends of which springs rest upon the ring-rail. In this manner the brakes are adjustable independently of one another upon the rod relatively to the travelers and rings, and they are made adjustable, collectively, relatively to said travelers and rings by adjusting the rod longitudinally of the rail L in its bearings, features which are also more plainly shown in Fig. 4.

The rod A being free to rotate in its bearings, all the brakes may be moved out of the way when the bobbins are to be doffed, as shown in dotted lines in said Fig. 4.

The independent adjustment of the brakes is of some importance, as I have found that the resistance which the travelers meet with in their rotation varies slightly—variation which is due, probably, to the difference in the winding of the thread of the several bobbins—and by this means the brakes may be adjusted with great nicety on the rod, so as to obtain a uniform action of the brakes upon all the travelers.

The tension of the thread or yarn is adjusted by moving the spring E closer to or farther away from the traveler within certain limits, so as to cause it to bear more or less upon the traveler as it passes between the spring and ring, thereby breaking its momentum and regulating the tension of the thread as the circumstances may require. For instance, if the speed of the traveler is that required to maintain the proper tension of the thread or yarn at the start, and this speed increases as the bobbins begin to fill, the brakes are applied to sufficiently counteract the resistance the traveler meets with in its rotation, and maintain the proper tension. In this manner the regulating of the tension is entirely within the control of the operator.

I am aware that brakes have heretofore been employed for the purposes herein stated, and that such brakes have been made adjustable. These, however, were made of a rigid material, and I have found that they do not answer the purposes for which they were intended, for the reason that at each contact of the traveler with the non-yielding brake said traveler is caused to recoil, thus disturbing, instead of regulating, its movements, which is not the case with the yielding or resilient brake which forms the subject-matter of this invention.

Having now described my invention, what I claim is—

1. The combination, with a ring-rail, ring, and traveler of a ring-spinning machine, of a yielding or resilient brake and means for adjusting the same, whereby the said brake may be caused to exert a greater or less amount of resistance upon the traveler to regulate the tension of the thread, as described, for the purposes specified.

2. The combination, with the ring-rail, rings, and travelers of a ring-spinning machine, of the pivoted rod A, means for adjusting the same longitudinally, of the rail and the yielding or resilient brakes E e, arranged for application to the travelers to regulate the tension of the thread, substantially as described.

3. The combination, with the ring-rail, rings, and travelers of a ring-spinning machine, of the pivoted rod A, means for adjusting the same longitudinally, of the rail and the yielding or resilient brakes E e, adapted to be adjusted longitudinally of and on said rod, whereby such brakes may be simultaneously applied to all the travelers with more or less force, substantially as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WM. M. ROBINSON.

Witnesses:

ALEX. HAMILTON,
ALEXANDER DONNAN.