

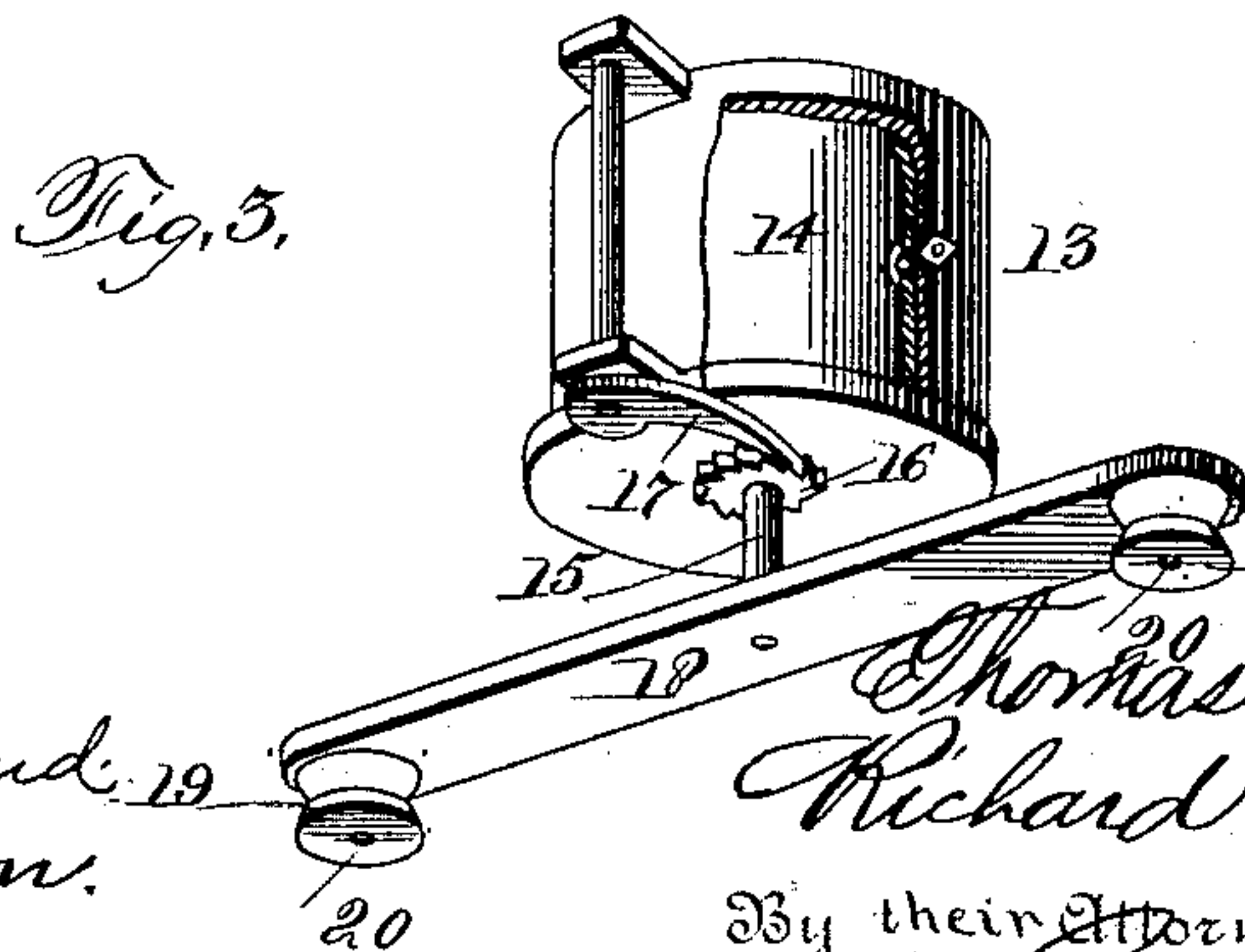
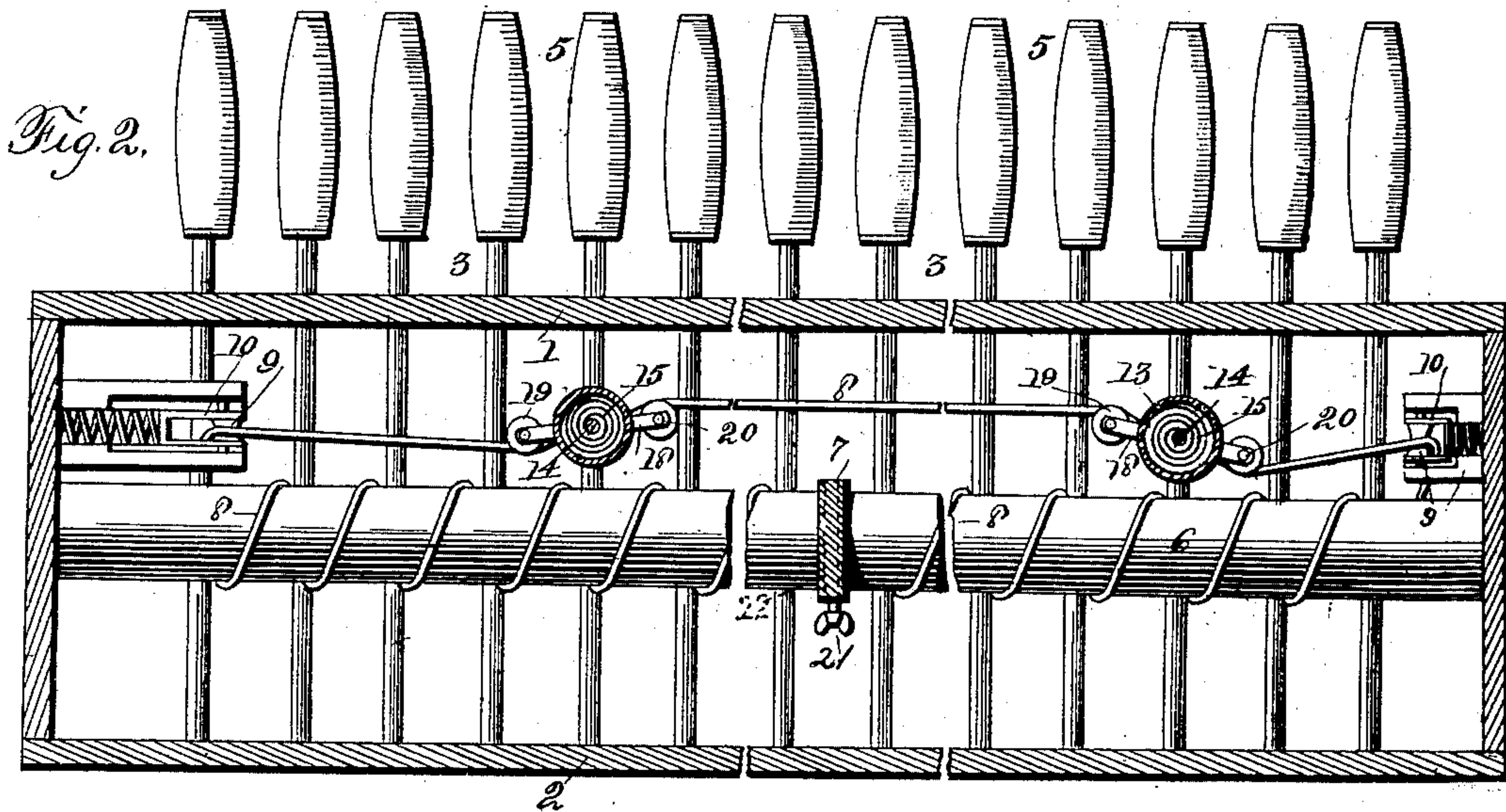
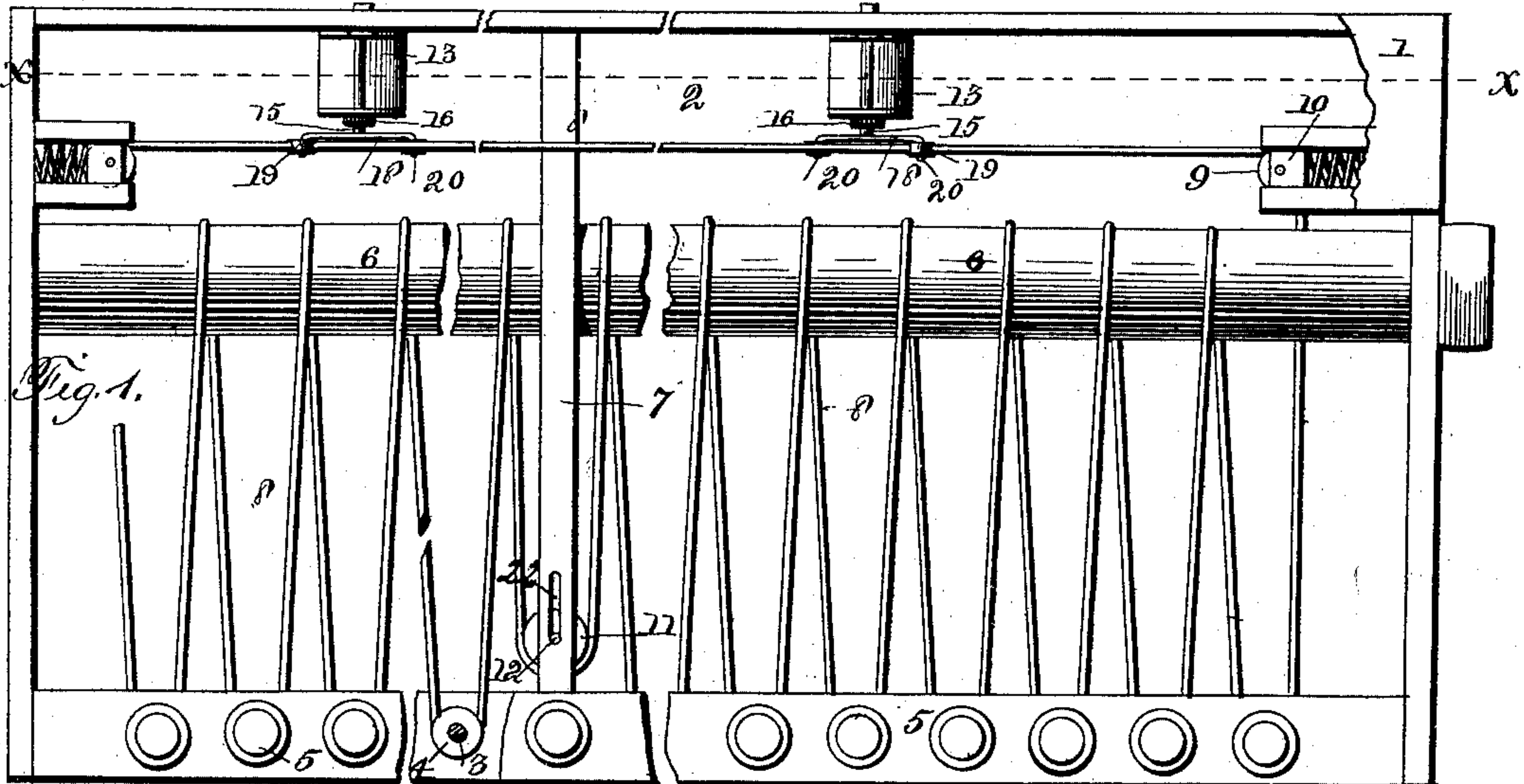
(No Model.)

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SPINDLE DRIVING MECHANISM FOR SPINNING MACHINES.

No. 375,605.

Patented Dec. 27, 1887..



Witnesses
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UNITED STATES PATENT OFFICE.

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SPINDLE-DRIVING MECHANISM FOR SPINNING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 375,605, dated December 27, 1887.

Application filed April 11, 1887. Serial No. 234,279. (No model.) Patented in Canada June 6, 1887, No. 26,892.

To all whom it may concern:

Be it known that we, THOMAS CLARKE and RICHARD CHRISTOPHER WILLIAMS, residents of Truro and Hopewell, respectively, in the 5 counties of Colchester and Pictou, Nova Scotia, Dominion of Canada, have invented certain new and useful Improvements in Spindle-Driving Mechanism for Spinning-Machines; and we do hereby declare that the following is 10 a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a top plan view of as much of a spinning-frame or twisting-frame as is sufficient to illustrate our improvement. Fig. 2 20 is a longitudinal vertical sectional view on line *x x*, Fig. 1; and Fig. 3 is a perspective detail view of the tension device, showing portions of the spring barrel or casing broken away.

Similar numerals of reference indicate corresponding parts in all the figures.

25 Our invention has relation to that class of spinning or twisting frames in which the spindles are revolved by means of one band passing alternately around the pulleys upon the spindles and thereupon over the main or drive 30 roller or drum, and having pulleys for evening the tension of the band; and it consists in the improved construction and combination of the same, as hereinafter more fully described and claimed.

35 In spinning and twisting machines the spindles may be run by individual bands passing from the main or drive roller or drum to the pulleys upon the spindles; but by this style of banding the bobbins are liable to wind un- 40 evenly on account of the uneven tension of the different bands, and changes in the atmosphere, either in the temperature of the same or in the degree of moisture of the same, will also affect the bands, so that an uneven quality of thread 45 or yarn is obtained, and in driving the spindles by individual bands the spinning process is often stopped on account of one of the bands breaking, which in a large frame containing a great number of spindles will frequently hap- 50 pen and cause considerable trouble and loss

of time. For the purpose, therefore, of obtaining an even product on all the bobbins, we have constructed a frame in which the endless band is provided with tension-pulleys, which may take up all slack in the band, and which 55 may yield in the case of the tension of the band being too great, either on account of excessive moisture or coolness of the atmosphere, which we will now describe in detail, and particularly set forth in the claims. 60

In the accompanying drawings, the numeral 1 indicates the upper bar of the frame in which the spindles are journaled, 2 being the lower bar; and the numerals 3 indicate the spindles, which are provided with the pulleys 4 and 65 bobbins 5.

The drive roller or drum consists of sections 6, journaled longitudinally in the frame and separated by transverse partitions 7, having the axial shaft of the drum journaled in them, 70 and the band 8 passes alternately around a pulley of a spindle and thereupon over the drum, back to another pulley of another spindle, and so forth. At the ends of the frame the band passes from the pulleys of the spin- 75 dles at the ends around end pulleys, 9, which may either be journaled in spring-cushioned bearings 10, as shown in the drawings, or in similar yielding bearings, or they may be journaled in rigid frames, as desired. At the 80 transverse partitions of the frame the band is passed from the ends of the drum-sections around a pulley, 11, journaled upon a shaft or bolt, 12. This bolt is adjustably secured in a slot, 22, in the partition by means of the thumb- 85 nut 21, so that it may be adjusted nearer to or farther from the drum, as desired. Spring casings or barrels 13 are secured, projecting from the back portion of the frame, and a flat helical spring, 14, is secured with its outer end 90 to each casing and with its inner end to a shaft, 15, journaled in the end pieces of the drum, the spring winding upon the shaft. The shaft is provided outside of the head of the drum with a ratchet-wheel, 16, which is engaged by 95 a pawl, 17, and at the end of the shaft two arms, 18, project in opposite directions, having grooved guide-pulleys 19, journaled upon studs 20 upon the ends of the arms. The straight portion of the band between the end 100

pulleys passes around these pulleys at opposite sides of the same, passing from the outside of one pulley to the outside of the other pulley; and it will be seen that when
 5 the shafts of the pulleys have been revolved a suitable number of times the tension of the springs will bring the pulleys to bear against the band, tightening the same and holding it at the same tension when the band is
 10 slackened or tightened by atmospheric influences.

The desired tension of the pulleys is attained by winding the spring upon the shaft of each drum by revolving the shaft, and by thereupon
 15 securing the shaft by means of the pawl engaging the ratchet-wheel, when the band may be passed around the pulleys and the pawl released, when the spring will act upon the band, keeping it at one tension.

It will be seen that the spring-casings having the tension-pulleys will thus take up all slack in the band and yield to contraction of the band; but in very long bands the slack caused by wear upon the band may be too
 20 great to be taken up by the pulleys, especially as this slack remains permanent, and for the purpose of taking up this slack the guide-pulleys upon the partitions will serve by their adjustability upon the same. It is also desirable
 25 at times to have the band of a sufficient length to have a reserve in the case of breakage of the band, and the guide-pulleys upon the partitions may be adjusted sufficiently far away from the drum to take up the surplus length,
 30 being moved toward the drum as the band is shortened by breakage and consequent splicing of the band.

By having the single band passing over the drum and alternately over the pulleys of the
 40 spindles, as is done in single-band machines, the band, if broken, will only present one knot or

splice, which will be hardly perceptible, as we prefer to use a smooth splicing, while in frames having individual bands there will be a knot for every spliced band, which will render the revolutions of the spindles very uneven and consequently the quality of the thread or yarn uneven and rough. 45

Having thus described our invention, we claim and desire to secure by Letters Patent 50 of the United States—

1. In a spinning or twisting frame, the combination of the spindles, the drive-drum, horizontally-revolving pulleys placed in the rear at the ends of the drive-drum, a band passing
 55 alternately over the drive-drum and around pulleys upon the spindles and passing from the spindles at the ends of the gang around the end pulleys along the rear side of the frame, a spring-actuated shaft, arms secured to one end
 60 of said shaft, and guide-pulleys having the band passing around their opposite sides, arranged in pairs upon the ends of said arms, as and for the purpose shown and set forth.

2. In a spinning or twisting frame, the combination of the spindles, the drive-drum composed of sections and having the ends of these sections separated by transverse partitions in the frame, a band passing alternately over the
 65 drive-drum and around pulleys upon the spindles, the slotted partitions, a bolt in each partition, and a pulley upon each bolt and having the bands passing around them from the drum, as and for the purpose shown and set forth. 70

In testimony that we claim the foregoing as
 75 our own we have hereunto affixed our signatures in presence of two witnesses.

THOMAS CLARKE.

RICHARD CHRISTOPHER WILLIAMS.

Witnesses:

A. MACLEAN,

PETER MCPHIE.