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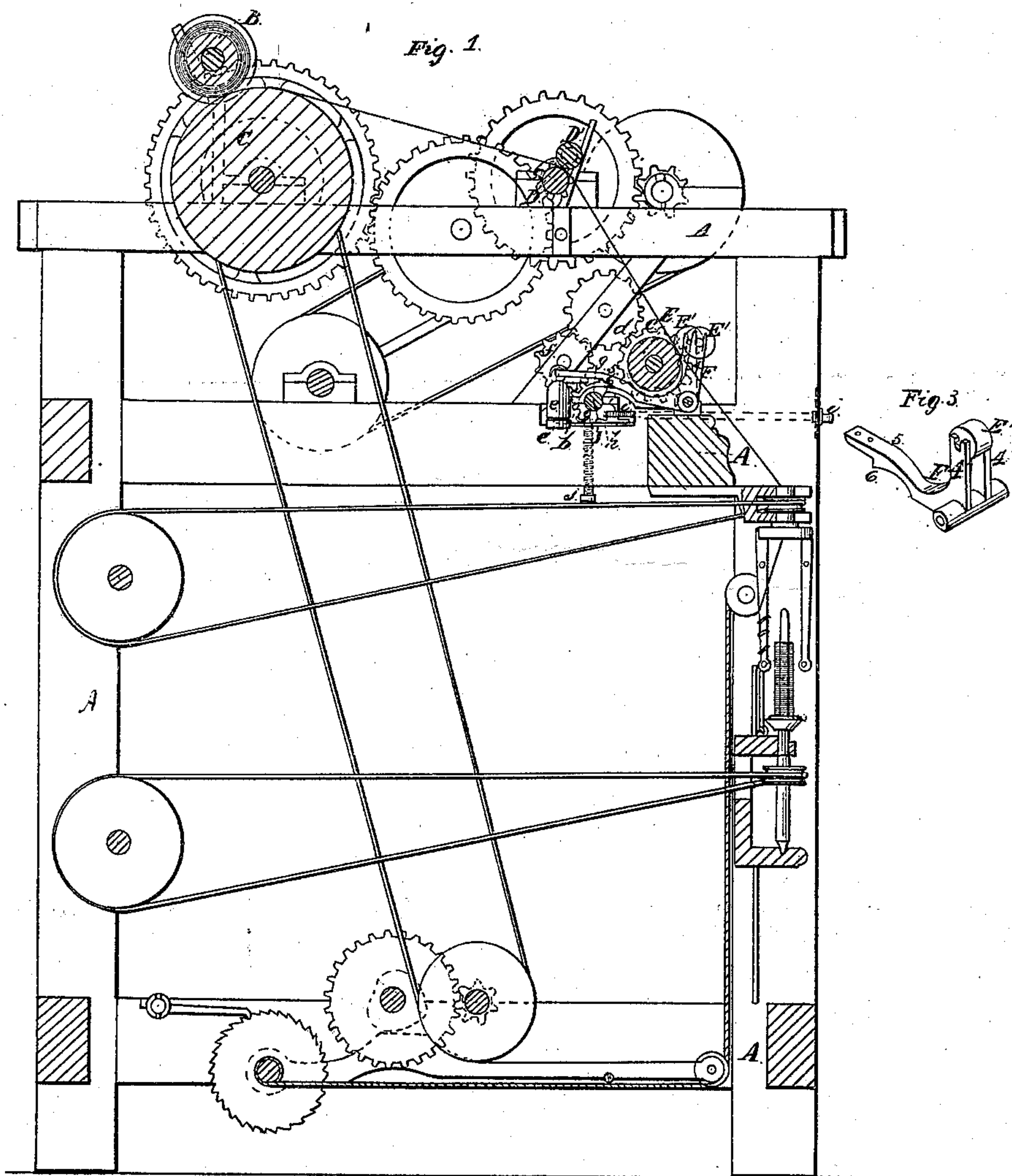
J. H. Bloodgood.

Spinning Mach.

No. 2,370.

Patented Oct. 1, 1861.

33,374.



Witnesses

Henry T. Brown

R. F. Ficklen

Inventor.

J. H. Bloodgood

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Spinning Mach.

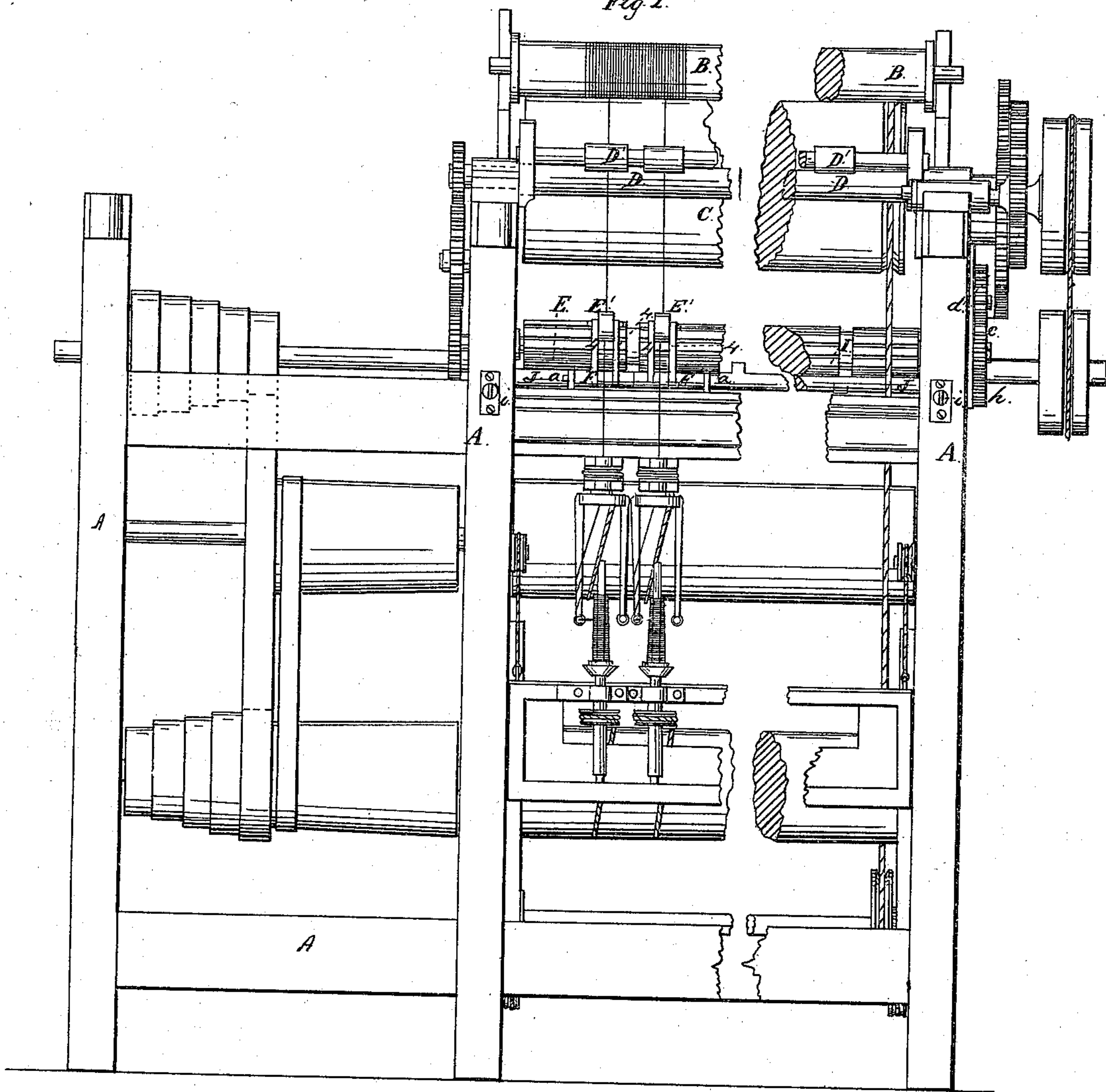
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Fig 2.



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UNITED STATES PATENT OFFICE.

JOHN H. BLOODGOOD, OF NEW YORK, N. Y.

IMPROVEMENT IN MACHINERY FOR DRAWING AND SPINNING WOOL.

Specification forming part of Letters Patent No. 33,374, dated October 1, 1861.

To all whom it may concern:

Be it known that I, JOHN HENRY BLOODGOOD, of the city, county, and State of New York, have invented certain new and useful Improvements in Machinery for Drawing and Spinning Wool and other Fibrous Substances; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a transverse vertical section of a spinning-frame with my invention applied. Fig. 2 is a front elevation of the same. Fig. 3 is a perspective view of one of the yokes used for lifting the top front drawing-rollers.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in the employment between the rolls which deliver the soft roving and the spindles of ordinary spinning machinery of drawing-rolls of cylindrical form so applied and operated as to be separated at intervals of time and at distances capable of accurate regulation, said intervals of time being capable of regulation both as to frequency and duration, whereby the twist produced by the spindles is allowed to run back past said drawing-rolls to a greater or less extent, as desired, and the yarn in consequence drawn with greater perfection and evenness than by the usual systems of spinning and with less risk of breaking in certain kinds of work.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The particular machine represented is especially adapted for worsted-spinning, but serves to illustrate, also, the application of the invention to the spinning of other materials.

A is the framing, which may be of substantially the same general form as the common throstle or worsted frames.

B is the roving-spool containing the roving to be spun, for which in cotton-spinning the usual bobbins are substituted, such bobbins being arranged as in ordinary throstle-frames.

C is the roving-drum which supports said spool and by whose motion the roving is unwound.

D and D' are the back or delivery rolls as

commonly used for wool and similar fibers. In cotton-spinning these rolls have substituted for them the usual cotton-drawing rolls, and generally the rolls can be of any of the ordinary forms suited to the various fibers and their mixtures. These rolls serve to deliver the soft roving to be drawn and spun.

E E E' E' are the front drawing-rolls, of cylindrical form, the lower ones E E fluted, the upper ones E' E' covered with leather. These are arranged in a manner very similar to the front rolls in common worsted-frames, except that the top rolls have their bearings in what I call "yokes" F F, which may be variously constructed, but which are represented in the drawings as constructed in the form of elbow-levers with three arms 4 4 5, of which 4 4 contain the bearings for the journals of one top roll E', and 5 is loaded by a weight *e* or spring to press the said roll toward its corresponding roll E with sufficient force to enable it to hold and draw the roving. The several yokes may all be arranged to oscillate upon the same horizontal pin *a* or upon separate pins arranged in the same line. The arms 5 5 of the several yokes are situated over a horizontal shaft J, which is fitted to bearings *b* at the end of the frame and at suitable intermediate intervals, and this shaft is furnished with a series of wipers *g g*, one for each yoke F, the said wipers being arranged upon the shaft in a spiral relation to each other, so that they shall one after another come in contact with the arms 5 5 of their respective yokes F F and so raise the said arms and throw the rolls E' E' forward or upward away from their respective rolls E E, keeping said rolls separated just as long as the said wipers are in contact with the said arms. The weights *e e* or springs applied to the arms 5 5 bring back the rolls E' E' to the rolls E E as soon as their respective wipers pass the jogs 6 provided on the arms 5 5 of the yokes. The wiper-shaft J is driven by a train of gears *c d f h* from the shaft of the rolls E E and the frequency of the intervals of separation of the rolls E' E' and E E varied by changing one of the gears *c h* for a larger or smaller one. The bearings *b* are made adjustable back and forth by means of screws *i* and up and down by means of screws *j* screwing through the framing A, the adjustment by the screw *i* serving to regulate

the duration of the intervals of separation of the rolls, and the adjustment by the screw *j* serving to regulate the distance of separation thereof. The delivery-rolls and the front drawing-rolls *E E'* are driven and have their relative speeds varied in the usual manner.

The spindles for producing the twist in the yarns may be of various kinds, according to the preferences of spinners and to the nature of the fiber to be spun, it being only essential that the contrivance shall give the required twist and a tension delicate enough to avoid breaking the tender strand as it passes, but slightly twisted between the delivery and front drawing-rolls when the latter are separated, while at the same time it must produce tension enough to wind the yarn regularly and firmly upon the bobbin and to prevent it from springing back.

The operation of the invention is as follows: The roving is taken from the spool *B* or bobbins by the delivery-rolls, which in cotton-spinning would also be drawing-rolls, and is by them delivered continuously and regularly, and thence proceeds to the drawing-rolls *E E'*, which have a surface velocity sufficiently greater than that of the delivery-rolls to produce the required draft or extension. From these latter rolls the roving proceeds to the spindles, receiving as it passes the requisite twist, and is finally wound upon the spindle-bobbin in the finished state, as in all spinning-frames. Now, if the roving in passing from the delivery-rolls to the drawing-rolls *E E'* has no twist, it is obvious that any strain produced by the greater velocity of the latter will tend to draw apart the thinner or weaker parts without in any degree affecting the thicker parts, by which it would be either torn asunder or rendered very unequal in size. To obviate this is the object of my invention, for as the roving passes between the two sets of rolls the top roll *E'* is raised at intervals of sufficient frequency and duration to allow a portion of the twist which is given by the spindle or flier to run back beyond the rolls *E E'* as far as the delivery-rolls. By this means the lighter and thinner parts, offering

the least resistance, receive sufficient twist to render them stronger than the thicker parts, which are less twisted, and therefore when the rolls again close and begin to draw the thicker parts are reduced and the yarn rendered uniform and even before receiving the final twist. Of course the quantity of twist allowed to run back must always be adapted to the size and quality of the yarn and the degree to which it is to be extended in drawing and must never be so great as to resist all extension or so little as to prevent the proper leveling of the yarn, and I have therefore provided the various contrivances hereinbefore described to effect the necessary adjustments.

I do not claim, broadly, effecting the separation of the drawing-surfaces for the purpose of letting the twist produced by the spindles run back past said surfaces, as I am aware that this has been done by the substitution for drawing-rolls of cylindrical form of drawing-rolls with flat faces or recesses in their peripheries; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The employment between the delivery-rolls and the spindles of drawing-rolls of cylindrical form so applied and operated that they may be separated at intervals capable of accurate regulation, substantially as herein described, and for the purpose herein set forth.

2. The employment for effecting the separation of the drawing-rolls and regulating the frequency, duration, and amount of said separation of a system of mechanism substantially similar to that described, in combination with the movable rolls *E'*.

3. The combination of the drawing-rolls *E E'*, capable of separation, as herein described, with any of the usual forms of drawing-rolls as applied to the various staples used in the manufacture of yarns for the purpose of rendering the process of spinning more perfect.

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Witnesses:

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