

C. B. Hoard. Spinning Mach.

N^o 58,101.

Patented Sept. 18, 1866.

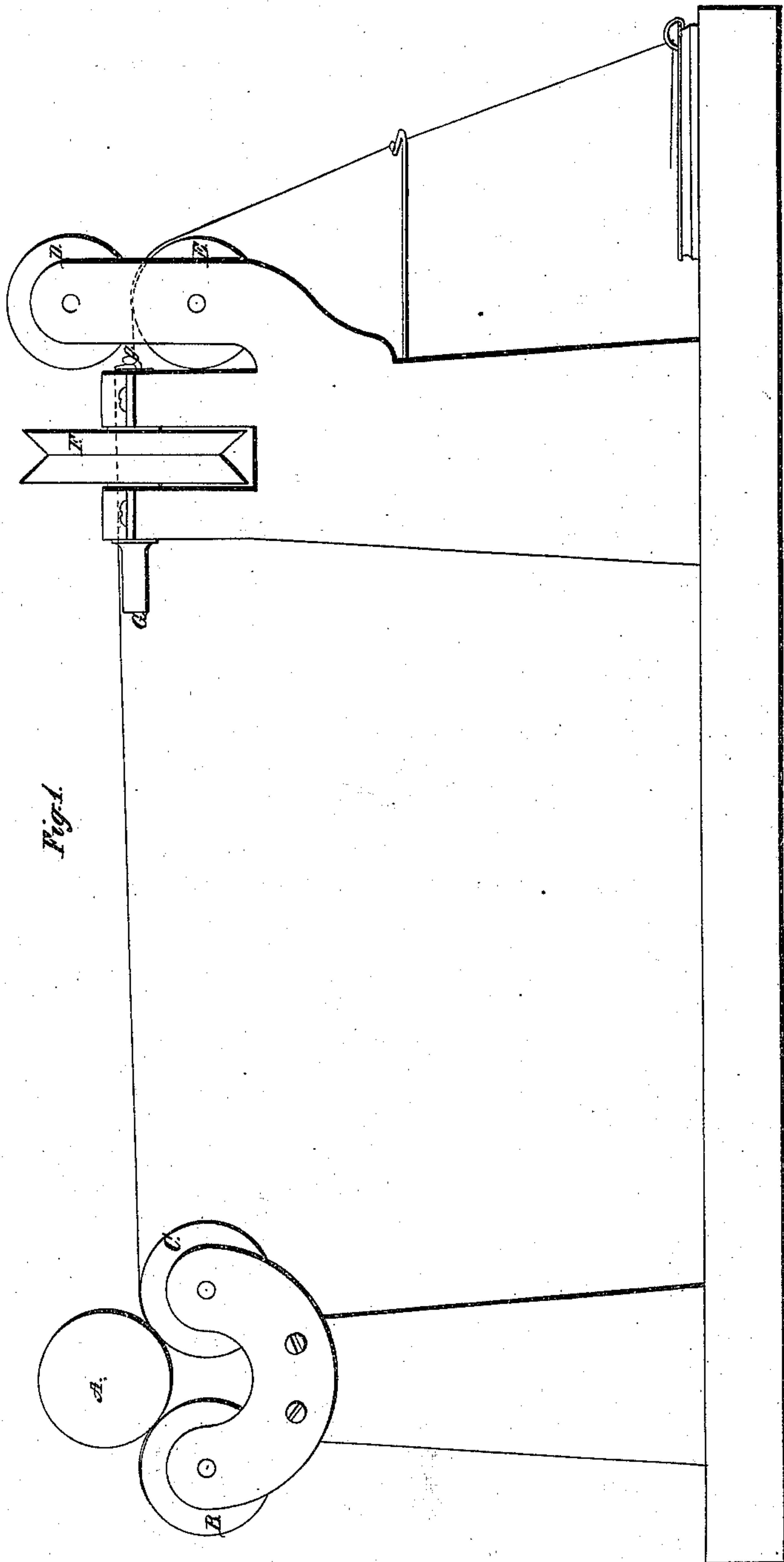


Fig. 1.

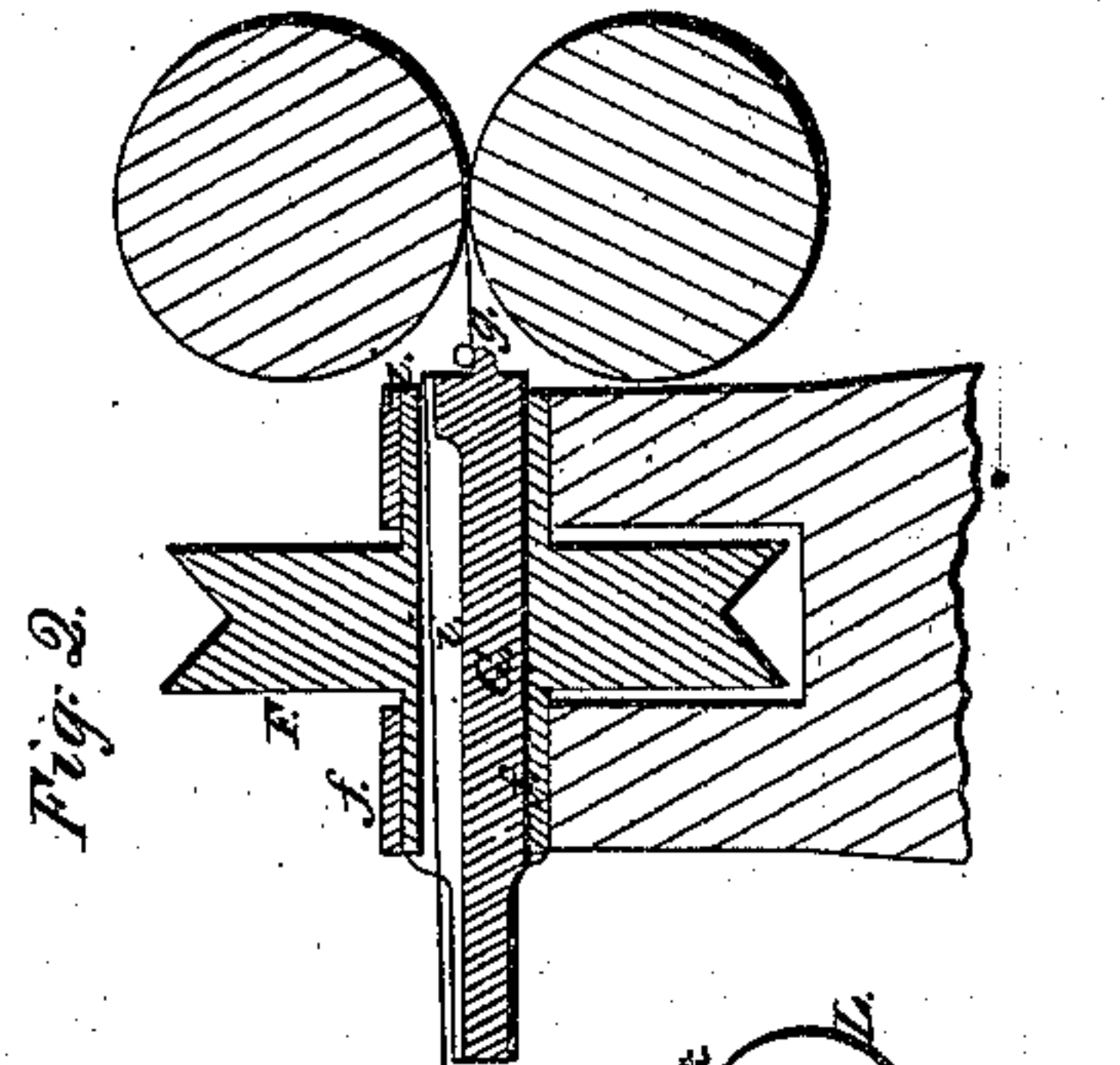


Fig. 2.

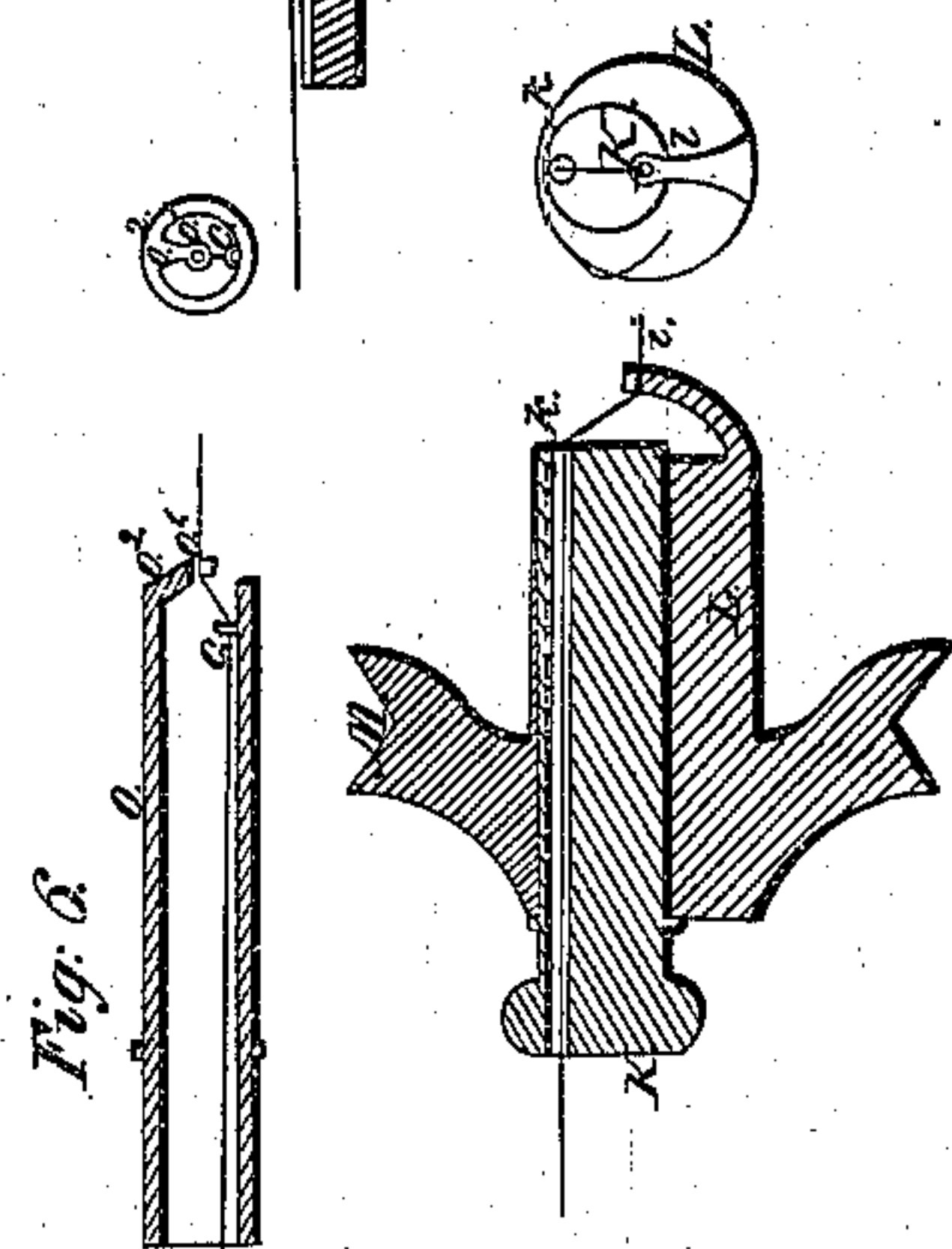


Fig. 3.



Fig. 4.

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CHARLES B. HOARD, OF WATERTOWN, NEW-YORK.

IMPROVEMENT IN SPINNING-MACHINES.

Specification forming part of Letters Patent No. 58,101, dated September 18, 1866.

To all whom it may concern:

Be it known that I, CHARLES B. HOARD, of Watertown, in the county of Jefferson and State of New York, have invented a new and useful Improvement in Spinning Fibrous Materials, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which make part of this specification, and in which—

Figure 1 represents a view in elevation of so much of a spinning-machine as is necessary to illustrate my invention. Fig. 2 represents a section through my improved spindle, with its carrier and the draw-rolls. Fig. 3 shows the details of my improved spindle; Fig. 4, a similar view of a modified form of spindle; Fig. 5, another modification of the same; and Fig. 6, a modification showing my improvement applied to a tube instead of a spindle.

In the continuous spinning of wool or other fibrous materials requiring to be twisted when being drawn previous to the date of my invention, great difficulty has been encountered from the fact that the twist imparted to the roving between the feed-rolls and the twisting mechanism does not continue beyond the eye of the twisting mechanism, and the roving is consequently apt to be drawn unevenly, and often broken apart between the twisting mechanism and draw-rolls.

Numerous attempts have been made to obviate this difficulty by imparting a revolving motion to the draw-rolls across their axes, thus causing them to operate both as twisting and drawing rolls. Edmund Victory's patent is an instance. This plan, while practically successful, involves too complex mechanism for economical working, and is too liable to get out of order.

Now, it is the object of my invention to obviate the objections of both the above-named plans; and to this end my improvement consists in the employment between the feed and draw rolls of a twisting mechanism so constructed as to present or deliver the roving properly twisted for drawing so close to the bite of the draw-rolls as to cause them to seize hold of and draw the twisted roving evenly from the delivery of the feeding-rolls to the draw-rolls, and deliver the same properly drawn to the mechanism which imparts its final twist, the arrangement, at the same

time, being such as to permit the roving, when broken back of the draw-rolls, to be conveniently "pieced up," or put into proper working position.

In the accompanying drawings, which exemplify one mode of carrying out the objects of my invention, A B C represent feed-rolls of the ordinary construction, to be arranged and driven in any convenient way, and they may be so arranged that their distance from the draw-rolls D E may be varied at pleasure. The twisting mechanism consists, in this instance, of a pulley, F, mounted on a hollow arbor, *f*, turning in suitable bearings. A spindle, G, is inserted into and revolves with this arbor, and carries on the end next the draw-rolls a central eye, *g*, through which the roving passes. A notch or groove, *i*, is cut in one side of the spindle for the passage of the roving. This groove is enlarged and deepened at the back, as shown in Fig. 3, and may even be cut entirely through the spindle, as shown in Fig. 4.

The roving passes through the groove and eye to the drawing-rolls. The groove, being eccentric to the eye and spindle, insures the twist, while the enlargement of the groove leaves the roving free to twist and be drawn between the eccentric groove or eye and the feed-rolls, while, by slitting the rear end of the spindle, the prongs act as a spring to hold the spindle securely in the arbor.

In order to insure an even draw upon roving of the shortest fiber, I arrange the eye *g* to revolve as closely as possible to the bite of the draw-rolls without touching them. The angle formed by the thread in passing from the groove to the central eye should be sufficiently square or acute to insure the uniform twist of the roving, while allowing it to pass freely through the groove and eye without breaking.

It is obvious that the speeds of the various parts of the mechanism may be varied absolutely or relatively to each other to adapt them to the proper working of fibers of different lengths and qualities. It is also obvious that the details of the mechanism may be varied in several ways without departing from the spirit of my invention. For instance, in Fig. 5 I have shown the central eye as formed by a hook, *l*, attached to an arbor, L, carrying

a whirl or pulley, M, perforated eccentrically to receive a spindle, K, likewise eccentrically perforated, the arrangement being such that when the roving parts back of draw-rolls the spindle may be turned in the arbor until its perforated groove *k* coincides with the eye to thread or replace it more readily, and then be turned back again to give the proper angle to the roving to insure the drawing twist. A suitable stop prescribes the limits of the revolution of the spindle K in its arbor.

In Fig. 6 another modification of my improvement is shown, to adapt it to spinning with a tube alone, instead of a spindle. To do this, I arrange a hook, *c*, on the inner side of the tube O on the end nearest the draw-rolls, and place an eye, *o'*, on a short pin, *o''*, projecting from the end of the tube, so as to bring the eye central and near the bite of the draw-rolls. These modifications will produce precisely the same result as the device first described when arranged in the same relation to the drawing-rolls, but might be less convenient in spinning.

The operation is as follows: The roving passes from the feed-rolls through the groove of the spindle to the eye, where it receives the proper drawing twist, and then into the draw-rolls, which reduce it to roving of proper size for the thread to be spun. From the draw-rolls the roving passes through the traveler on the ring to the spool or bobbin on the spindle, receiving the proper final twist.

I am aware that it has been attempted to effect the results I have attained in spinning by passing the roving straight through a tube or spring-clamp removable from a tube situated between the feed and draw rollers, as, for example, in the patent of H. Silver, and therefore I do not claim, broadly, such a device; but

What I do claim, and desire to secure by Letters Patent, is—

1. A removable tube or spindle for twisting roving while being drawn when the twist is imparted from one side of the tube or spindle, and the roving is conveyed to the bite of the draw-rollers from the center of the tube or spindle, substantially in the manner described.

2. The combination of a removable twisting tube or spindle, constructed substantially as described, with a revolving tube driven by a whirl, substantially in the manner set forth.

3. The combination of a removable tube or spindle with the whirl tube and drawing-rollers, when constructed, arranged, and operating substantially in the manner and for the purpose set forth.

In testimony whereof I have hereunto subscribed my name.

C. B. HOARD.

Witnesses:

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