Sheet 1. 2 Sheets.

J. Crowfoot.
Spinning Mach.

No. 59,973. Patented Nov. 27, 1866.

Fig. 1.

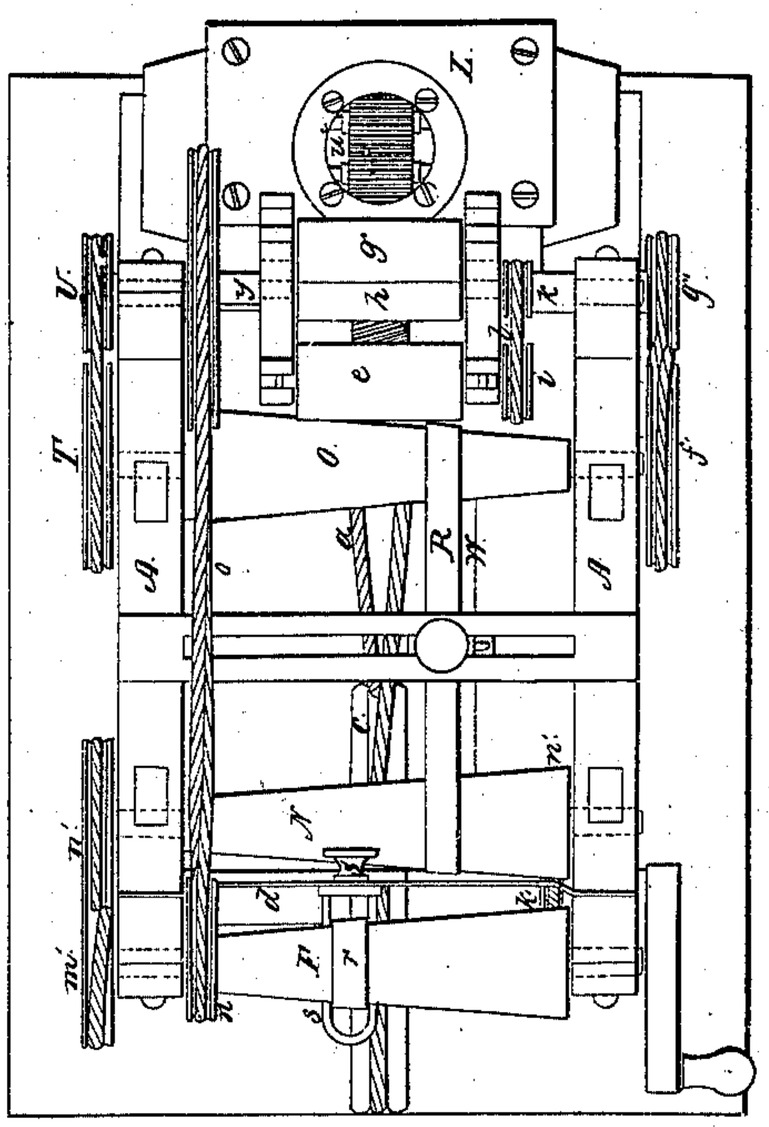
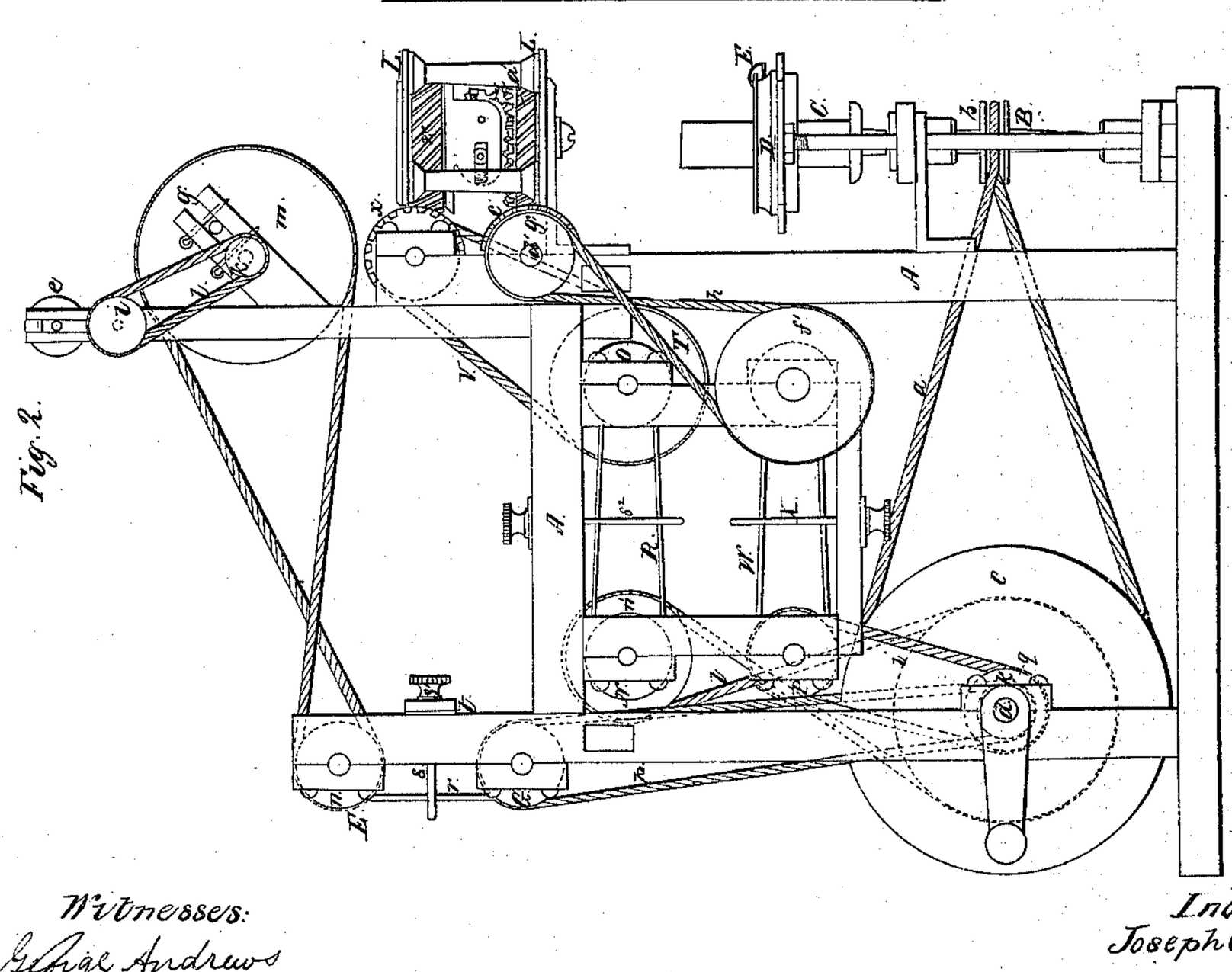


Fig. 2.



Witnesses:
George Andrews
Samuel A Piper

Inventor:
Joseph Crowfoot.
by his attorney
R H Eddy

Sheet 2-2 Sheets.

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Fig. 4.

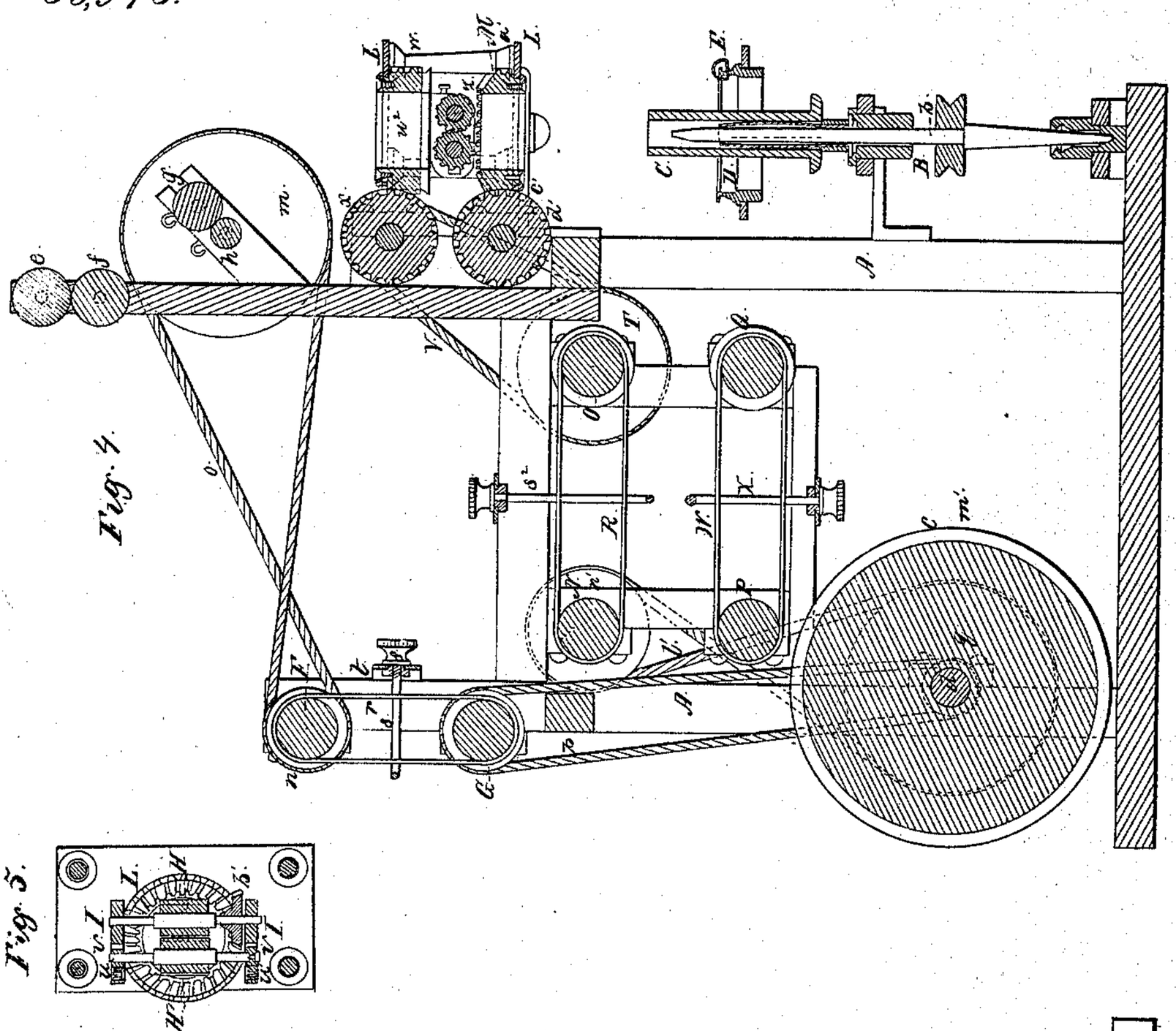
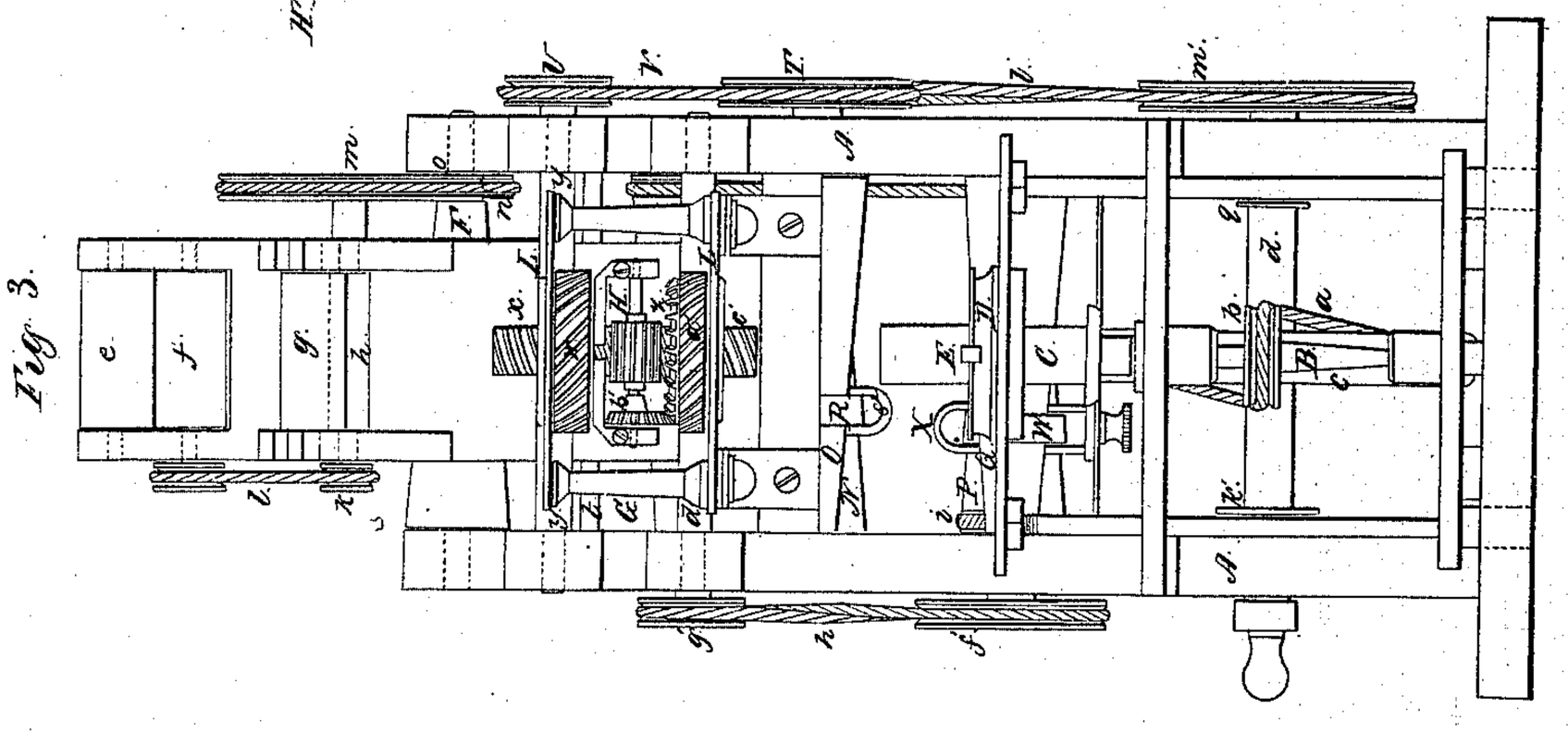


Fig. 5.

Fig. 3.



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by his attorney
R H Eddy

United States Patent Office.

IMPROVEMENT IN SPINNING MACHINES.

JOSEPH CROWFOOT, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO HIMSELF, JONATHAN GILL, OFFITCHBURG, THOMAS GILL, OF SPRINGFIELD, AND WILLIAM GILL, OF CAMBRIDGE, MASSACHUSETTS.

Letters Patent No. 59,973, *dated November* 27, 1866.

SPECIFICATION.

TO ALL PERSONS TO WHOM THESE PRESENTS SHALL COME:

Be it known that I, JOSEPH CROWFOOT, of the city and county of Worcester, and State of Massachusetts, have invented a new and useful Wool Spinning Machine; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a top view.

Figure 2, a side elevation.

Figure 3, a front elevation; and

Figure 4, a longitudinal and vertical section of it.

The machine constituting my invention will accomplish not only all which can be done by the wool spinning mechanism, covered by the United States patent, No. 28,220, granted May 8, 1860, to one, Victory, but will do more, that is to say, by means of it the twist of the sliver between the delivery rollers and the draft rollers can be varied, whereas with Victory's machine it must always be the same, or in other words, be constant. As with my machine I can vary the twist of the sliver between the draft rollers and the delivery rollers, I can spin much finer, and produce much better yarn than can be spun on the machine of Victory. The twist should vary as the staple may vary in length; long-staple wool requiring less twist in the sliver than short-staple wool, as is well understood by any wool spinner.

In the drawings, A denotes the frame for supporting the main operative parts of the machine, it being suitably constructed therefor. B is a spindle carrying a bobbin, C, and opening within a ring, D, provided with a traveller, E. The spindle is to be driven by a crossed band, *a*, going around a grooved pulley, *b*, fixed on the spindle, and also around a driving drum or pulley, *c*, carried by a driving shaft, *d*. At the upper part of the frame are two sets of delivery rollers, *e*, *f*, *g*, *h*. The lower rollers of the said two sets have pulleys *i k*, affixed to their shafts, such pulleys having an endless band, *l*, going around them. On the shaft of the lowermost roller, (viz, that marked *h*,) is a large grooved pulley, *m*, about which, and a pulley, *n*, fixed on one end of a cone drum, F, an endless crossed band, *o*, travels; underneath the drum, F, is a fellow cone drum, G, which is driven or revolved by an endless band, *p*, which goes around it, and a pulley, *q*, carried by the driving shaft, *d*. An endless belt, *r*, provided with an adjustable shipper, *s*, works around the said two cone drums, and serves to communicate motion from the lower to the upper one. The shipper slides in a horizontal slotted bar, *t*, and is formed with a clamp, screw, *s'*, for fixing it in place, or to the said bar. The cone drums, F G, their belt, *r*, and adjustable shipper, *s*, enable us to vary the speed of the delivery rollers. Between the delivery rollers and the spindle, B, are the draft and twist rollers, H H'; they are fluted rollers having their axes arranged in a horizontal plane, and parallel to each other. Fig. 5 is a horizontal section of such rollers; H H', and their supporting head, I. One of such rollers has its journals, *u u*, sustained in slide boxes, *v v*, which are provided with springs which are to be so applied to the head, I, and the boxes, *v v*, as to press their roller toward the other roller. The roller head, I, revolves freely and horizontally within a supporting bracket or frame, L, and has a cylindrical passage, u^2, made down through it. It also has a spiral or helical tooth gear, *w*, extending around it concentrically, such being made to engage with a spiral or helical toothed pinion, *x*, fixed on a horizontal shaft, *y*. Below the draft and twist rollers, H H', is a ring, M, which revolves freely, horizontally, in the bracket or frame, L, and has a bevel gear, *z*, on its upper edge, and a helical toothed gear, *a'*, extending around its circumference; the bevel gear, *z*, engages with a bevel pinion, *b'*, fixed on the shaft of the draft roller, H. Furthermore, the helical toothed gear, *a'*, engages with a helical toothed pinion, *c'*, fixed on a horizontal shaft, *d'*, which is arranged parallel to and underneath the shaft, *y*. Within the frame, A, are two other sets of cone drums, which are shown at N O, and P Q. The upper set of them, viz, those marked N O, have an endless belt, R, running around them, such belt being provided with an adjustable shipper, S^2, which is made and provided with appliances in all respects like the shipper, S, and the means for supporting and fixing it in position. On the shaft of the cone drum, O, is a grooved pulley, T, about which, and another pulley, U, fixed on the shaft, *y*, an endless band, V, travels. The lower set of cone drums, P Q, have an endless belt, W, going around them, it being provided with an adjustable shipper, X; they are connected with the shaft, *d'*, by means of two grooved pulleys, *f'*, *g'*, around which an endless crossed band, *h'*, travels. One of such pulleys is fixed on the shaft of the drum, Q, and the other on the shaft, *d'*. An endless band, *i'*, travels around the cone drum, P, and a pulley, *k'*, fixed on

the driving shaft. Furthermore, another endless crossed band, l', travels around two pulleys, m', n', one of which is fixed on the driving shaft, and the other on the shaft of the cone drum, N. While the driving shaft, d, is in revolution, the two shafts, y and d', will be put in revolution, their rates of speed being determined by the arrangements of the belts of the two sets of cone drums. When the lower of the two shafts moves faster than the other, the draft rollers, H H′, will not only be revolved on their axes, so as to draw on the sliver and stretch it, but they will also be revolved transversely, so as to twist it. The twist may be varied, that is, may be made more or less, as circumstances may require, such being effected by changing the position of the belt of the lower set of cone drums. While the machine is in operation the sliver passes between the rollers of each pair of the delivery rollers, thence down between the fluted draft and twist rollers, thence through the traveller to the bobbin. The ring rail is to be provided with means of raising and depressing it for the purpose of causing the yarn, as fast as it is spun, to wind on the bobbin.

I make no claim to varying the delivery of the sliver by cone drums; nor do I claim varying the draft by such; but

What I do claim as my invention, is the machine substantially as described, by which the sliver not only can be drawn and twisted, but have the twist varied by means as set forth, or their equivalent.

JOSEPH CROWFOOT.

Witnesses:

R. H. EDDY,

F. P. HALE, Jr.