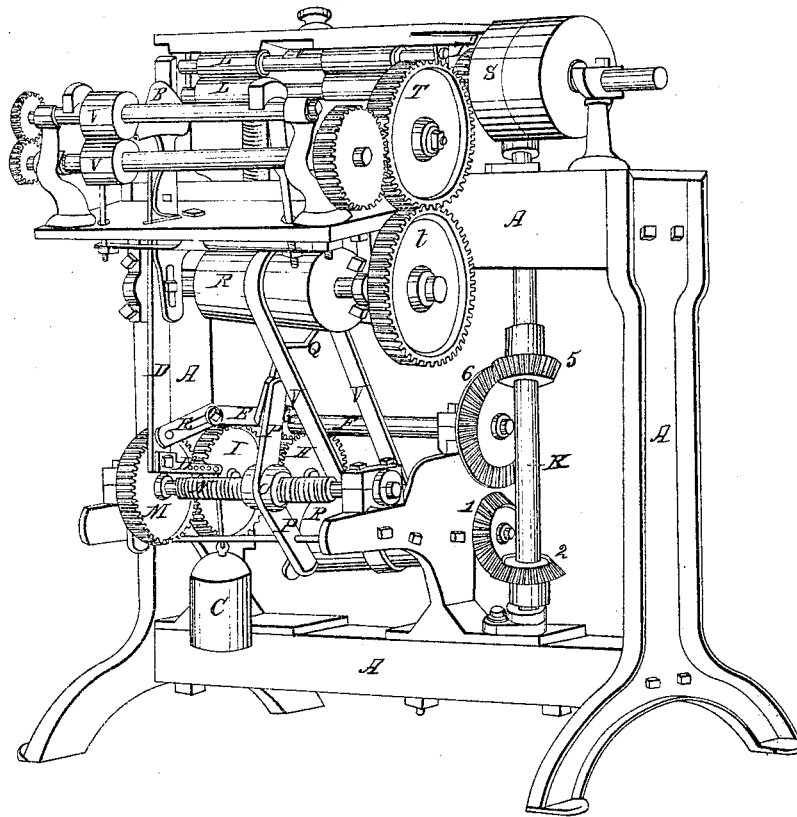


*W. Hayden,*  
*Drawing Regulator for Spinning Mach,*  
*No 7,165,* *Patented Mar 12, 1850.*

*Fig: 1.*



W. Hayden,  
Drawing Regulator for Spinning Mach,  
No 7,165,  
Fig: 2. Patented Mar. 12, 1850.

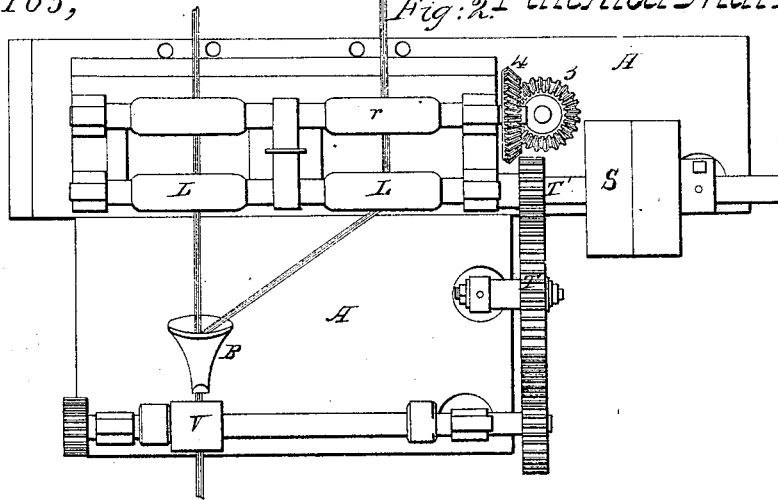


Fig: 3.

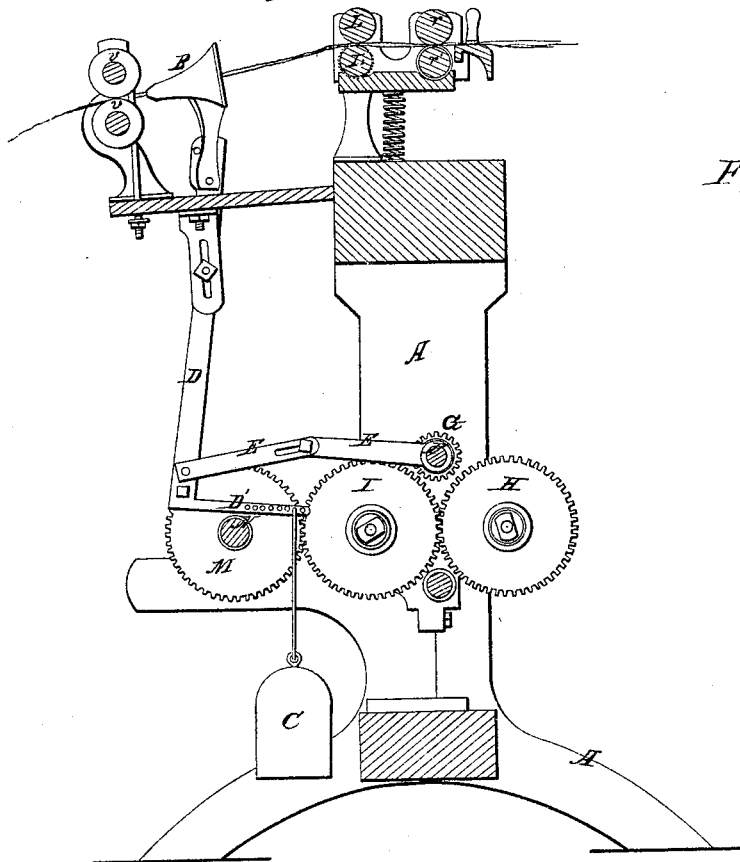
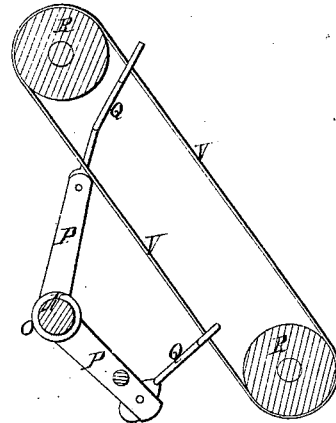


Fig: 4.



# UNITED STATES PATENT OFFICE.

WHITING HAYDEN, OF WINDHAM, CONNECTICUT.

## REGULATOR FOR DRAWING-ROLLERS.

Specification of Letters Patent No. 7,165, dated March 12, 1850.

*To all whom it may concern:*

Be it known that I, WHITING HAYDEN, of the town and county of Windham, State of Connecticut, have invented a new and useful Machine for Regulating the Draft of Cotton Upon the Drawing-Frames, called the "Drawing-Regulator;" and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing, forming a part of this specification.

Figure 1 is a perspective view of the drawing regulator. Fig. 2 is a plan of the top of ditto. Fig. 3 is a vertical section on the line *x x* of Fig. 2. Fig. 4 is a vertical section through the screw, nut, belt-guides and cones.

Similar letters in the several figures refer to corresponding parts.

The nature of my invention consists in the application of a certain apparatus or combination of mechanical devices to the drawing frame, by means of which the speed of the rolls accomplishing the draft upon the sliver of cotton is regulated by the size or volume of said sliver of cotton itself, thus causing the work of the machine to be uniform and perfect, as delivered to the rolls, and the apparatus to effect the same to be self acting.

To accomplish this, I apply to the drawing frame A, A, A, A, a movable or slowly oscillating trumpet or tube, B, such as that used by Pray & Stafford of sufficient size to permit the passage of the sliver of cotton, and at the same time, small enough to be instantly effected in its position by the volume of said sliver of cotton, the effect being to throw the trumpet or tube forward when it is too large, and by the gravity of the weight C backward when too small, and retaining its proper position, when it is running at the proper size, by means of the said weight C, suspended from the lower or short end or arm D' of the lever D, which may form a right or obtuse angle with the branch D. I then connect this lever by a broken or jointed bar E, E, with the shaft F, upon which is a gear G, working into the gear H, or I, according to the position of the trumpet lever, D D' and moved by the upright shaft K on which there is a bevel pinion 5 matching into a bevel wheel 6 on the said vibrating shaft F—the said shaft K also imparts motion to either the back or front drawing rolls L, L, according to the position of the small bevel wheel on its upper end. There is a third gear M, working

into the gear I, and connected with the screw shaft N, upon which shaft there is a nut O, traversing the entire length of the screw. To this nut are attached two arms P, P, terminating in belt guides Q Q for regulating and shifting the position of the belt V, upon the cones, R, R, the upper, or driving cone receiving its motion directly from the pulley S, through the gears T, t T'.

The operation of the machine is thus: The sliver of cotton in its passage from the drawing rolls, through the tube or trumpet B, to the delivery rolls U, U, becoming too large, draws said trumpet B forward, toward said delivery rolls U U—and throws the small gear G, into match with the gear H, thus instantly giving motion to the chain of gears H, I, M which operates the screw shaft, N, shifting the belt V upon the cones R R in such manner, as to reduce the speed upon the back drawing rolls by means of the bevel wheel I on the cone shaft matching into bevel wheel 2 on shaft K on whose upper end is a bevel gear 3 matching into a bevel gear 4 on the back roller *r*<sup>2</sup>; the speed of the front drawing rolls L continuing the same, consequently performing a greater draft upon the cotton, reducing its size, and relieving the tube or trumpet, which is instantly returned to its proper position by the weight C. When the sliver of cotton becomes too far reduced in size, the reverse of the operation above described is produced, by the working of the gear G, into the gear I,—and so also, when the sliver of cotton is running at its proper size, the gear G, plays freely between said gears H, and I, so as not to interfere with either.

The upright shaft K, may be used to give motion to either the front or back drawing rolls, as the operator may choose, by a proper arrangement of the gears.

What I claim as my invention and am desirous of securing by Letters Patent, is—

The combination of the tube B, lever D D, weight C, jointed bar E, E, oscillating shaft F and pinion G, gears H, I, M, screw shaft N, nut O, arms P P, with their belt guides Q Q, belt V, cones R R, shaft K and bevel gears 1, 2, 3, 4, 5, 6 for changing and regulating the speed of the rolls for equalizing the drawing or making the sliver the required size, substantially in the manner described in the foregoing specification.

WHITING HAYDEN,

Witnesses:

JOEL R. ARNOLD,

DANIEL W. HAYDEN,