

No. 615,555.

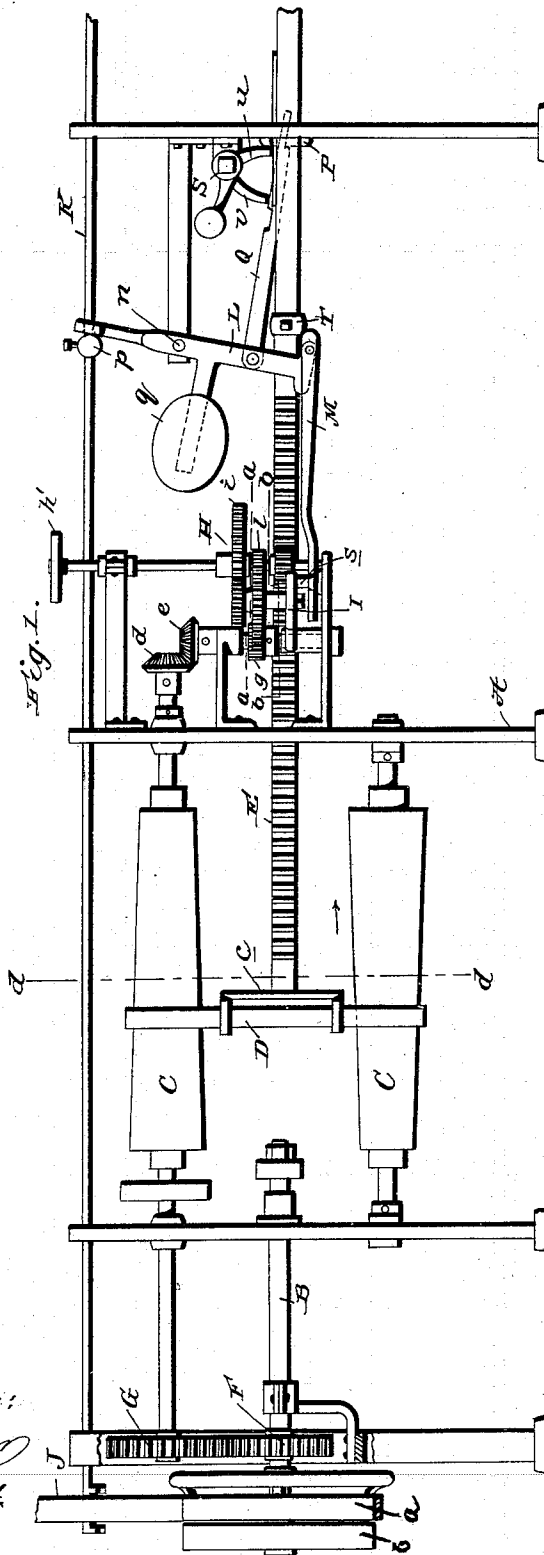
Patented Dec. 6, 1898.

**E. W. HOUGHTON.
SPEEDER MACHINE.**

(Application filed Apr. 30, 1898.)

(No Model.)

4 Sheets—Sheet 1.



witnesses:
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No. 615,555.

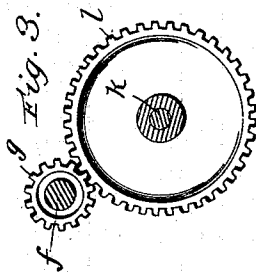
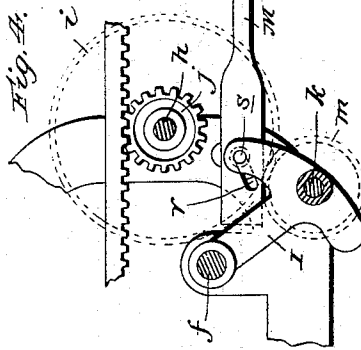
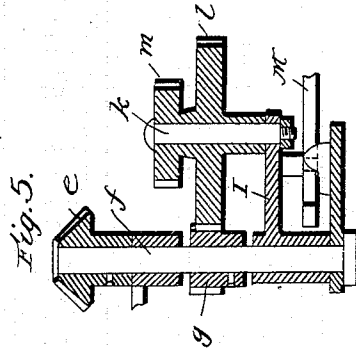
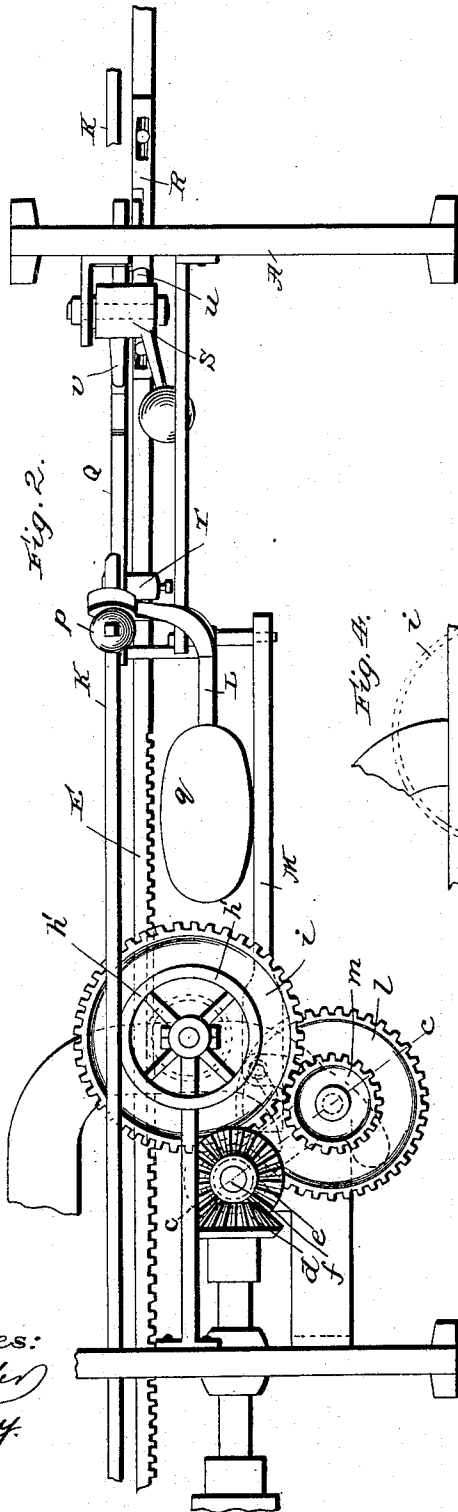
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4 Sheets—Sheet 2.



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Fig. 6.

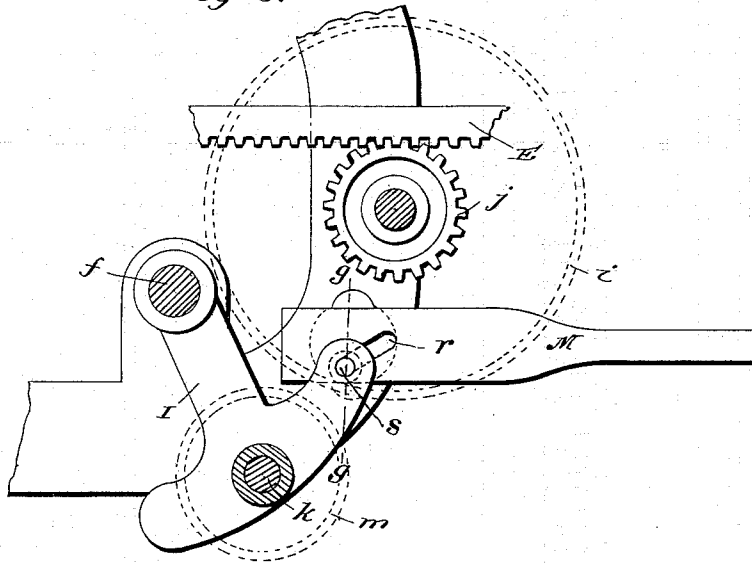


Fig. 7.

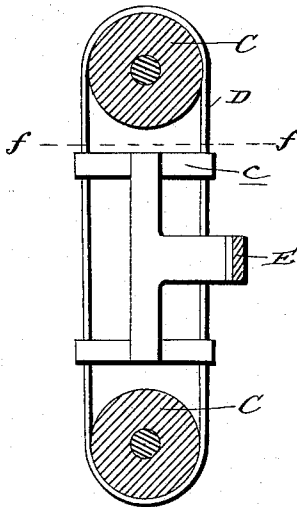


Fig. 8.

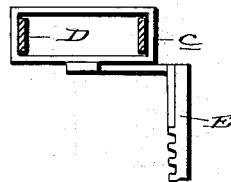
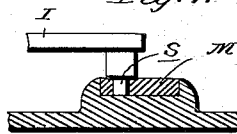


Fig. 9.



Witnesses!

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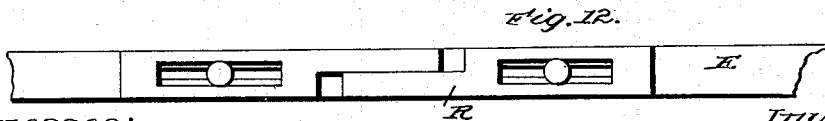
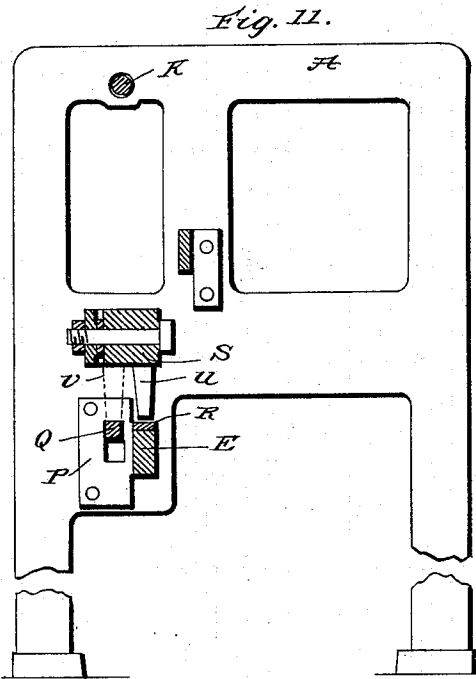
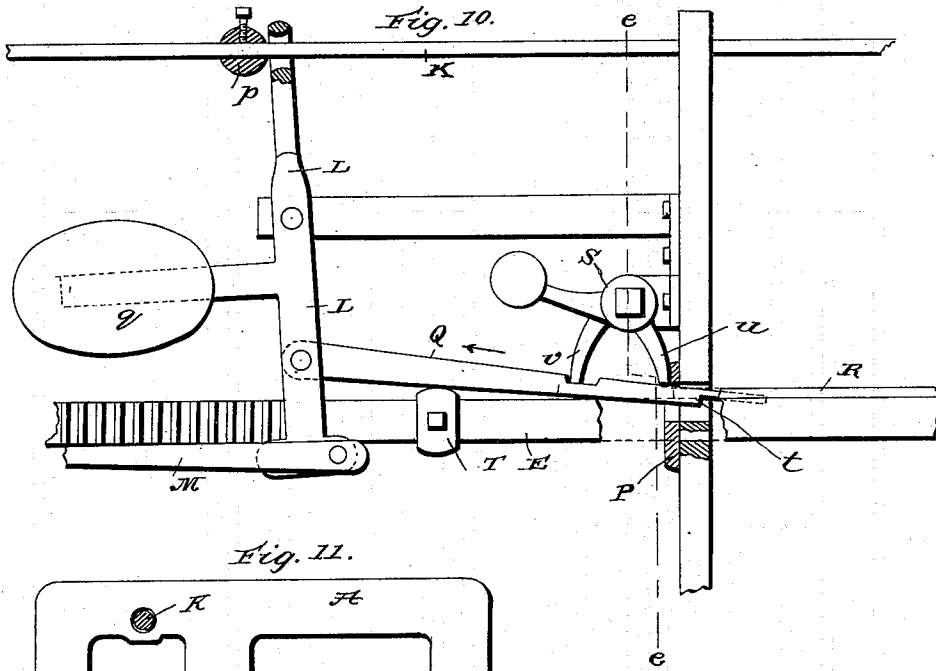
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(Application filed Apr. 30, 1898.)

(No Model.)

4 Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

EDWARD W. HOUGHTON, OF WOONSOCKET, RHODE ISLAND.

SPEEDER-MACHINE.

SPECIFICATION forming part of Letters Patent No. 615,555, dated December 6, 1898.

Application filed April 30, 1898. Serial No. 679,317. (No model.)

To all whom it may concern:

Be it known that I, EDWARD W. HOUGHTON, a citizen of the United States, residing at Woonsocket, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in Speeder-Machines, of which the following is a specification.

My invention relates to speeder-machines, and contemplates the provision of simple means for effectually preventing the alteration of the position of the cone-belt on the cones from the time the bobbins commence to fill until they are full, thereby insuring a uniform tension in the roving and precluding regulation of the roving tension by the speeder tender or operator, who as a general rule does not possess the ability necessary to the proper regulation of such tension.

The invention will be fully understood from the following description and claims when taken in conjunction with the annexed drawings, in which—

Figure 1 is a side elevation of so much of a speeder as is necessary to illustrate the application of my improvements. Fig. 2 is an enlarged detail plan view. Figs. 3 and 4 are detail horizontal sections taken on the lines *a a* and *b b*, respectively, of Fig. 1. Fig. 5 is a detail section on the line *c c* of Fig. 2. Fig. 6 is an enlarged section similar to Fig. 4 with the adjustable gear and its appurtenances in the positions they assume when the train of gearing is interrupted. Fig. 7 is a detail section taken in the plane of line *d d* of Fig. 1. Fig. 8 is a detail section in the plane of line *f f* of Fig. 7. Fig. 9 is a detail section in the plane of line *g g* of Fig. 6. Fig. 10 is an enlarged side elevation, partly in elevation, of the rack-locking mechanism. Fig. 11 is a section in the plane of line *e e* of Fig. 10. Fig. 12 is a plan view of the extensible plate on the cone-rack.

In the said drawings similar letters designate corresponding parts in all of the several views.

A is the main frame of a speeder-machine.

B is a drive-shaft carrying fast and loose pulleys *a b*.

C C' are oppositely-disposed top and bottom cones or cone-pulleys.

D is a belt connecting the same.

E is a cone-rack carrying a guide *c*, which receives the belt D, as best shown in Figs. 7 and 8.

F G are intermeshed gears on the drive-shaft B and the shaft of cone C, respectively, whereby motion is transmitted to said cone-shaft, and H designates gearing intermediate of the shaft of cone C and the cone-rack for transmitting motion to the latter. This gearing comprises intermeshed beveled gears *d e* on the cone-shaft and another shaft *f*, a gear *g* on said shaft *f*, a shaft *h*, provided with a hand-wheel *h'* and carrying a gear *i* and a pinion *j*, which latter engages the cone-rack, and a shaft *k*, which carries gears *l m*, designed to mesh with the pinion *g* and the gear *i*, respectively. The shaft *k* is journaled in a lever I, fulcrumed on the shaft *f*, and it will be readily observed that when said lever is in the position shown in Fig. 4 the train of gearing intermediate of the cone-shaft and the cone-rack is complete to move said rack and cause the belt D to traverse the cones C C' in the direction indicated by arrow, while when the lever is in the position shown in Fig. 6 the train of gearing is interrupted. With the train interrupted the speeder attendant is free to turn the shaft *h* through the medium of the hand-wheel *h'*, and thereby shift the cone-belt to the starting-point or large end of cone C and small end of cone C'.

J is a belt connecting the speeder and an engine or other source of motive power. K is a shipper-rod engaging said belt, and L is a lever which is fulcrumed at *n* and arranged to be engaged by a tappet *p* on the shipper-rod and is provided with a suitable weight, such as *q*. To the lower end of the lever L is connected a pitman M, which is provided with an inclined slot *r*, (see Figs. 2 and 6,) which receives a lug *s* on the lever I, whereby when the lever L is rocked by the movement of the shipper-rod in the direction indicated by arrow the lever I is rocked to carry the gears *l m* into mesh with the gears *i g*, respectively, and complete the train of gearing between the shaft of cone C and the cone-rack. When the lever L is rocked in the opposite direction, the said train of gearing is interrupted, and the operator or speeder-tender may then shift the cone-belt by turning the hand-wheel *h'*. It follows from this that

at any time between the starting of the machine, when the cone-belt is at the large end of cone C and small end of cone C' and the bobbin-spindles, (not shown,) which are driven from cone C', are rotated at a high rate of speed, and the finishing of the cops on the bobbins, when the cone-belt is at the small end of the cone C and large end of cone C' and the bobbin-spindles are rotated at a comparatively slow rate of speed, the operator or speeder-tender is able to move the cone-belt on the cones, and thereby change the tension of the roving, thus producing uneven work. The regulation of the tension of roving between the bite of rollers and flier is a matter of such importance that it should not be intrusted to speeder-tenders or operators, but should be controlled by the overseer of a mill or his skilled assistants.

My invention consists in the provision of simple mechanism, applicable to the speeder thus far described and other speeders, adapted to render it impossible for a speeder-tender to alter the position of the cone-belt on the cones from the time the bobbins commence to fill until they are full. This mechanism is best shown in Fig. 10, and comprises a keeper P, a gravitating-latch Q, pivotally connected with the lever L and shouldered at *t* or otherwise adapted to engage the keeper P, a plate R on the upper side of the cone-rack E, a weighted lever S, having an arm *u* arranged to bear on the plate R and another arm *v* arranged to bear on and hold the latch in engagement with the keeper P, and a tappet T on the cone-rack E for engaging the latch and raising the same out of engagement with the keeper.

The operation of my improved mechanism is as follows: The speeder-tender in starting the machine with empty bobbins moves the shipper-rod K in the direction indicated by arrow to place the belt J on the fast pulley *a*. Such movement of the shipper-rod by reason of the tappet *p* engaging the lever L rocks said lever L, and in consequence draws the latch Q in the direction indicated by arrow (see Fig. 10) and places the same in engagement with the keeper P and at the same time moves the lever I to complete the train of gearing between the shaft of cone C and the cone-rack to set such rack in motion. At this time the arm *u* of lever S bears on the plate R, and the arm *v* bears on the latch Q. It follows from this that so long as the arm *u* bears on the plate R the latch will be held in engagement with the keeper P, and in consequence it is without the power of the speeder-tender to stop the movement of the cone-rack until the cone-belt has traversed the cones sufficiently to fill the bobbins. The length of plate R is proportionate to that of the bobbins, and consequently when the bobbins are full the plate will be disengaged from the arm *v* of lever S. At this time the tappet T on the cone-rack will engage the latch Q and raise the same against the weighted lever S,

out of engagement with the keeper P. With this done the lever L will be rocked by its weight to move the shipper-rod and stop the machine and also to move the lever I and interrupt the train of gearing to the cone-rack. The cone-belt is then returned to the starting-point on the cones by hand in the manner described, and the operation set forth is repeated.

For the purpose of fitting the plate R for use when bobbins of various lengths are to be employed said plate is preferably made extensible after the manner shown in Fig. 12.

The plate R is preferable, but is not essential to the practical operation of my improved mechanism, since when desired the cone-rack may be provided with a depression at the proper point to permit the lever S to rock for the purpose described. Such a depression is a full equivalent of the space at the end of the plate R, which permits of the depression of the lever-arm *u*.

Having thus described my invention, what I claim is—

1. The combination of a drive-shaft provided with fast and loose pulleys, a belt-shipper rod provided with a tappet, oppositely-disposed cones, one of which is connected with the drive-shaft, a belt connecting said cones, a cone-rack provided with a depression and carrying a tappet, motion-transmitting means intermediate of one cone and the cone-rack, the said means comprising two or more inter-meshing gear-wheels, a movable gear-wheel support, a stop-motion device consisting of a weighted lever connected with said movable support and arranged to be engaged by the tappet of the shipper-rod, a keeper, a latch connected with the stop-motion device and arranged to engage the keeper and be engaged by the tappet on the cone-rack, and a weighted lever having one arm bearing on the latch and another arm bearing on the cone-rack, substantially as specified.

2. The combination of a cone-rack having a depression and carrying a tappet, means for moving the rack endwise to shift a cone-belt, said means comprising two or more inter-meshing gear-wheels, a movable gear-wheel support, a stop-motion device consisting of a weighted lever connected with said movable support, a keeper, a latch, connected to the stop-motion device and adapted to engage the keeper and be engaged by the tappet on the cone-rack, and a latch-lock consisting of a weighted lever having one arm bearing on the latch and another arm bearing on the cone-rack, substantially as specified.

3. The combination of a cone-rack provided with a tappet, means for moving the rack endwise to shift a cone-belt, a suitable stop-motion device, a keeper, a latch connected with the stop-motion device and arranged to engage the keeper and be engaged by the tappet on the cone-rack, and a suitable latch-lock engaging the latch and the cone-rack, substantially as specified.

4. The combination of a cone-rack provided with a tappet, means for moving the rack endwise to shift a cone-belt, a belt-shipper rod provided with a tappet, a suitable stop-motion device arranged to engage the tappet on said rod, a keeper, a latch connected with the stop-motion device and arranged to engage the keeper and be engaged by the tappet on the cone-rack, and a suitable latch-lock engaging the latch and the cone-rack, substantially as specified.

5. The combination of a cone-rack provided with a tappet and also provided with a plate, means for moving the rack endwise to shift a cone-belt, a suitable stop-motion device, a keeper, a latch connected with the stop-motion device and arranged to engage the keeper and be engaged by the tappet on the cone-rack, and a latch-lock consisting of a weighted lever having one arm arranged to engage the latch and another arm arranged to engage the plate on the cone-rack, substantially as specified.

6. The combination of a cone-belt-shifting device, means for moving said device, a stop-motion device, and a lock for the stop-motion device, substantially as specified.

7. The combination of cones, a cone-belt-shifting device means for moving said device, a stop-motion device, and a lock for holding the stop-motion device against movement until the belt has completed its traverse of the cones, substantially as specified.

8. The combination of a cone-belt-shifting device, means for moving said device, a stop-motion device, and a lock, for the stop-motion device, controlled by the belt-shifting device, substantially as specified.

9. The combination of cones, a drive-shaft connected with the cones and carrying fast and loose pulleys, a belt on the cones, a device for shifting said cone-belt, means for moving said device, a shipper-rod, a stop-motion device arranged to engage the shipper-rod, and a lock, for the stop-motion device, controlled by the belt-shifting device, substantially as specified.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

EDWARD W. HOUGHTON.

Witnesses:

GEO. W. SPAULDING,

E. LE ROY SPAULDING.