

J. Edwards.

Belt Shifter for Roving Mach.

Nº 71369

Patented Nov. 26, 1867

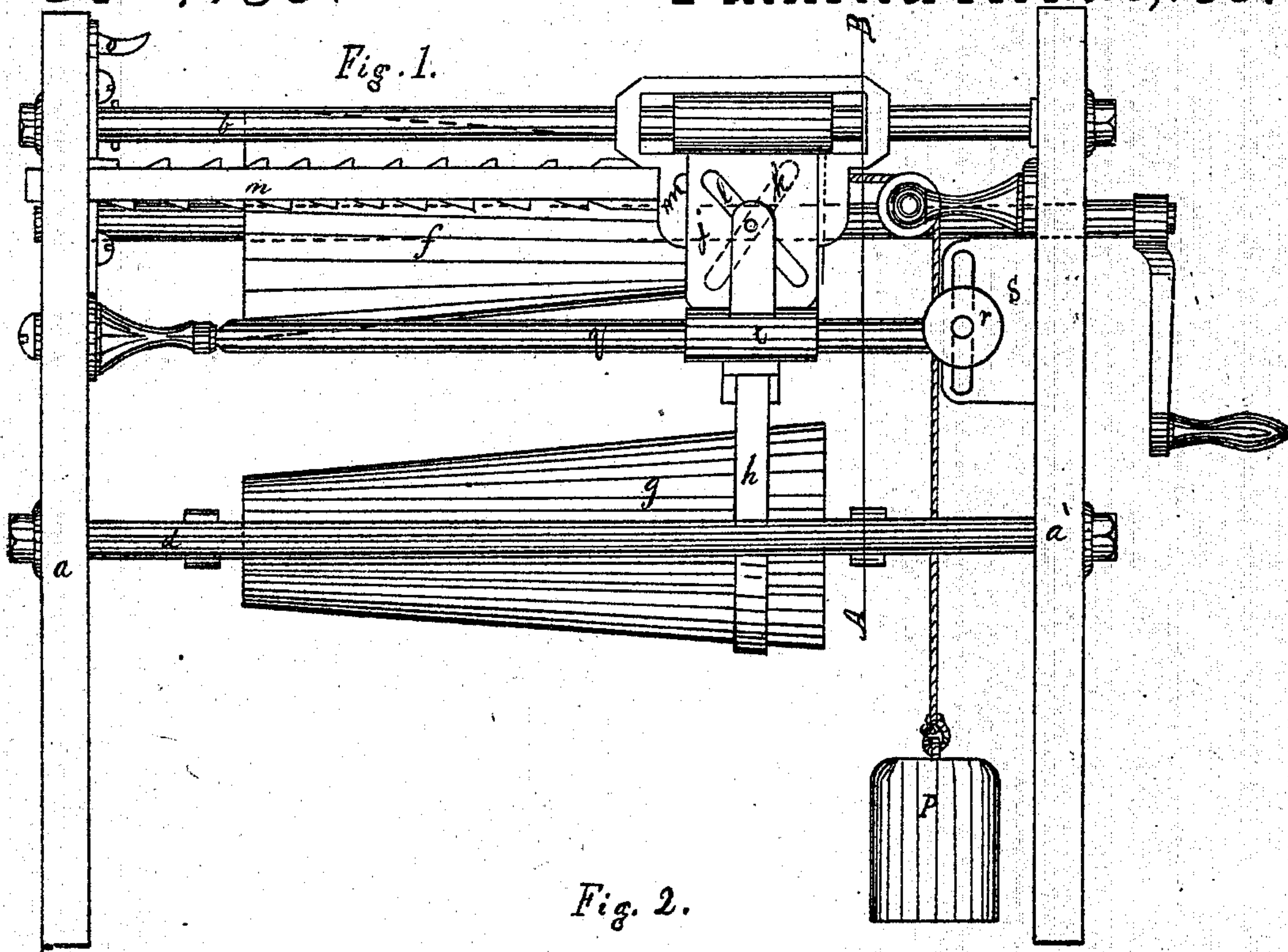
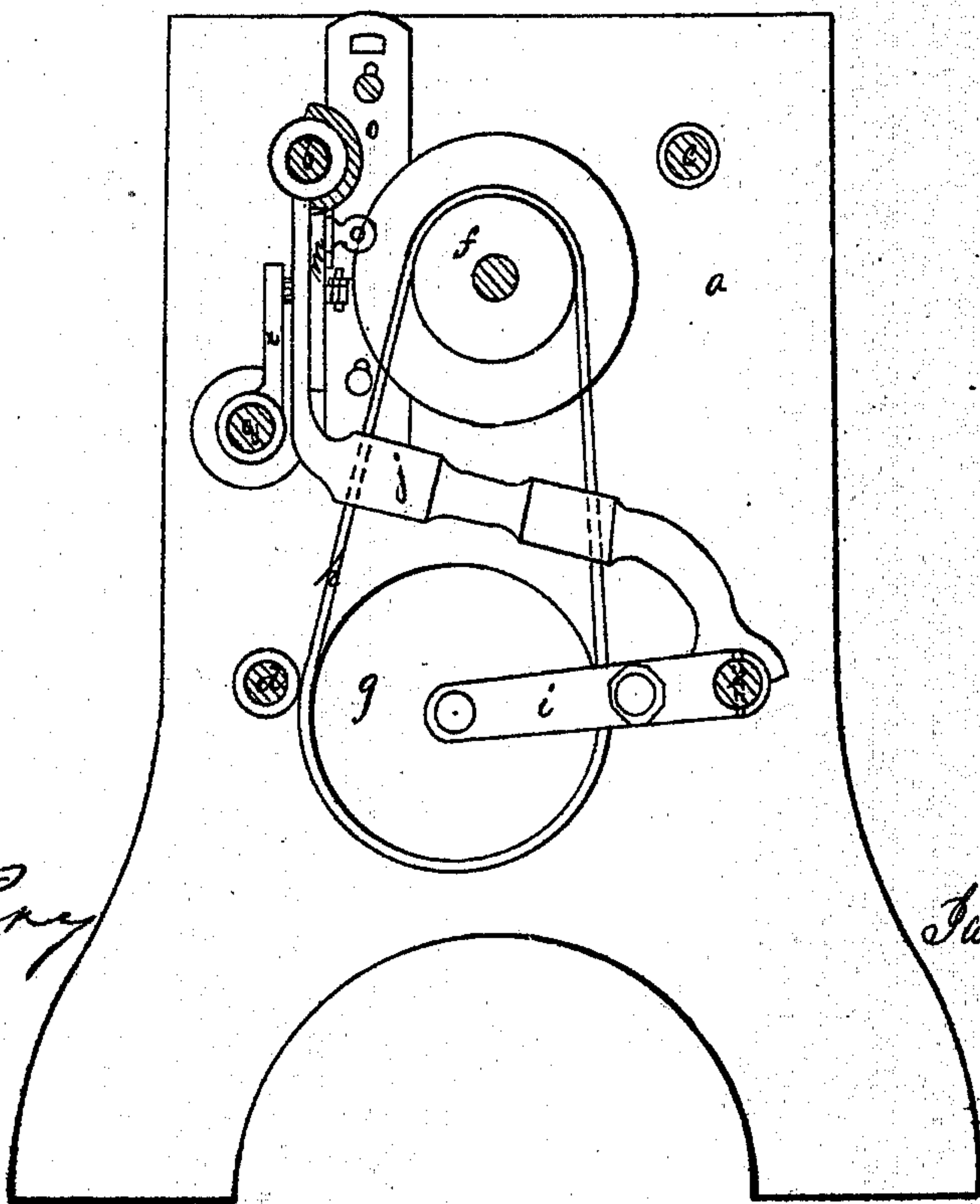


Fig. 2.



WITNESSES.
Abiel Perry
Geo. E. Perry.

INVENTOR:
Jabez Edwards

United States Patent Office.

JABEZ EDWARDS, OF LOWELL, MASSACHUSETTS.

Letters Patent No. 71,369, dated November 26, 1867.

IMPROVEMENT IN BELT-SHIFTER FOR ROVING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JABEZ EDWARDS, of Lowell, in the county of Middlesex, and State of Massachusetts, have invented new and useful Improvements in Roving-Machinery; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in providing for roving-machinery a device which operates directly on the cone-belt, whereby the rate at which the roving is wound on the bobbins, as it passes from the rollers, may be instantly controlled and adjusted.

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

Figure 1 represents a side elevation of a part of a roving-machine with my improvement attached.

Figure 2 represents a section through A and B of fig. 1.

Similar letters in the different figures indicate corresponding parts.

a a represent parts of the framework of a roving-machine, which are connected and held by the rods *b, c, d,* and *e.* *f* is the driving-cone, which connects with the driven-cone *g* by the belt *h,* the cone *g* being attached to and running in the frame *i,* which is hung and swings on the rod *e.* *j* is the belt-guide, which slides on the rods *b* and *e.* Through the plate of the belt-guide *j* the inclined slot *l* is made. *m* is the sliding plate, which slides on the rod *b.* Through this plate *m* the inclined slot *k* is made, the reverse from the slot in the plate of the belt-guide *j;* or these slots *l* and *k* in the plates may be, one of them vertical and the other inclined, which would accomplish the same results. Attached to the plate *m* is the rack *n,* which slides back and forth through a socket or bearing, and is held and controlled by the latch *o.* There is also attached to the plate *m* a cord or chain which passes over a pulley, and to which is suspended the weight *p.* The object of this weight is, when the latch *o* is disengaged from a tooth on the rack *n,* to draw the plate *m* forward, and with it the rack *n,* to the next succeeding tooth. Any other device may be used in place of the rack *n,* latch *o,* and weight *p,* that will give the same movement to the plate *m.* *q* is the regulating-rod, which is hung by means of a pivoted bearing at one end. The other end is adjustable, and is held by the screw *r,* which secures it to the slotted stand *s* in the required position. Sliding freely on this rod *q* is the stud-slide *t,* which is provided with a stud, *u,* passing through the inclined slots *l* and *k,* and is secured in such manner as to allow it to move up or down freely in the slots.

In all roving-machines it is of the utmost importance that the speed of the bobbins should be so adjusted to that of the rollers as to wind the roving on the bobbins at the same rate at which the rollers deliver it. If the speed of the bobbin is such that it does not wind it fast enough, it becomes entangled, or if too fast, stretching of the roving is the effect, making it too fine and uneven. In either case breakage is likely to occur. As the diameter of the bobbin increases while filling, there must be a corresponding change in its relative speed at every layer of roving, or it will not take up the roving at a uniform rate. To produce the required changes of the speed of the bobbins, there are generally used two cones or conical drums, one of them running at a uniform rate of speed and driving the other, by means of a belt passing over both, which may be so guided on the cones as to produce any required speed of the driven-cone and also the bobbins, at the same time, as they are connected to and controlled by the driven-cone by means of gears. To guide and control the belt, which should be moved towards the larger end of the driven-cone as each successive layer of roving is wound on the bobbins, there is a belt-guide, to which is attached a weight by means of a cord or chain, which, passing over a pulley, serves to draw it forward in the proper direction. There is also attached to the belt-guide a rack with a latch, which, by taking into the teeth of the rack, serves to retain it in its proper place. The teeth of the rack should be at such distances apart that when a layer of roving is wound on the bobbins, and the latch is disengaged from one tooth, and the weight moves the rack forward until the next succeeding tooth comes in contact with the latch, it will guide the belt on the cones, so as to give to the bobbins the speed required to wind on the next layer at the proper rate. It frequently happens that from changes in the amount of dampness in the atmosphere, and also from other causes, the same kind of roving will not always increase the diameter of the bobbins at the same rate. When the atmosphere is damp it so affects the fibres of the cotton that it will

wind more compactly on the bobbins than when dry, and consequently it will not fill the bobbins so fast in a damp as in a dry atmosphere. The consequence is that unless a corresponding change is made in the machine, the bobbins will not wind up the roving fast enough in damp weather, thus allowing it to become loose and entangled, or winding it too fast in dry weather stretch or break it. It is therefore of great importance that when any of these changes occur, the rate at which the belt is moved by the belt-guide on the cones should be so changed as to give that speed to the bobbins by which they will wind up the roving at the proper rate.

In the various kinds of roving-machines, as they are at present constructed, there are several devices for making the required changes, all attended with considerable inconvenience and loss of time. They also do not admit of so nice and exact an adjustment as is desirable.

With my device the required change may be readily produced by simply moving the adjustable end of the rod *q*. When the rod *q* is parallel with the rod *b*, the belt-guide *j* and plate *m* both move at the same rate. When it is required that the belt-guide *j* shall move at a slower rate than the plate *m*, by lowering the adjustable end of the rod *q* the stud-slide *t*, as it moves towards the adjustable end of the rod *q*, draws the stud *u* downward, which, by its action in the slots *l* and *k*, produces the required effect. By raising the adjustable end of the rod *q*, the opposite effect is produced, causing the belt-guide *j* to move at a greater rate than the plate *m*. The slots *l* and *k* may be inclined in the opposite direction; and by moving the rod *q* in the opposite direction the same result is obtained as above. By this device the adjustment may be effected to any degree of exactness, as the effect produced on the belt-guide *j* is in exact proportion to the amount that the end of the rod *q* is moved.

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

1. I claim the plate *m* and belt-guide plate *j*, with inclined slots or their equivalents, substantially as and for the purpose set forth.
2. I claim the rod *q* and stud-slide *t*, with stud *u*, for the purpose substantially as herein described.
3. I claim the combination and arrangement of the plates *m* and *j*, with inclined slots *k* and *l*, or their equivalents, rod *q*, and stud-slide *t*, with stud *u*, when operating substantially for the purpose described and set forth.

JABEZ EDWARDS.

Witnesses.

ABIEL PEVEY,
GEO. E. PEVEY.