Sheet 1. 2 Sheets.

S. J. Whitton.

Evener for Spinning Mach.

No. 86,719. Patented Feb. 9, 1869.

Fig. 2.

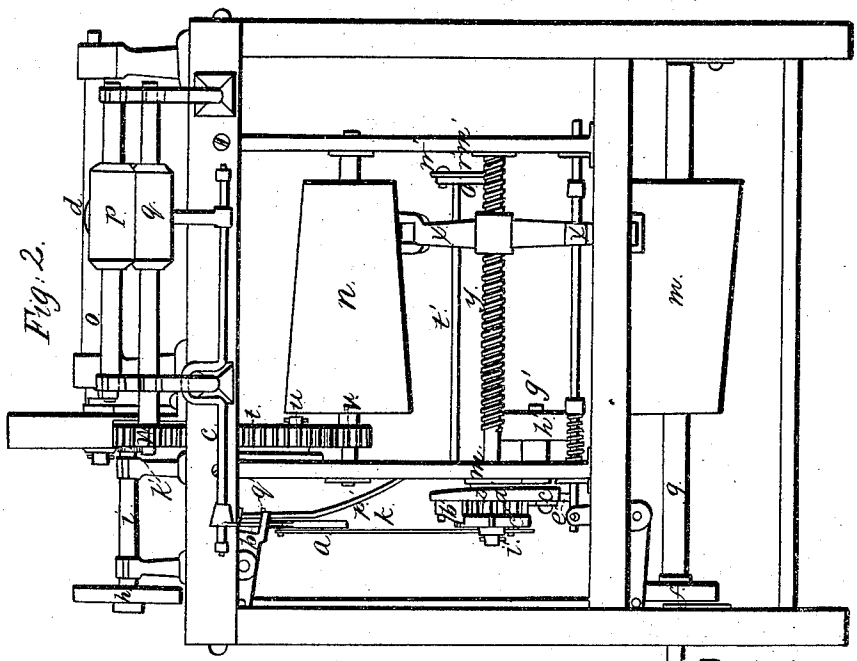
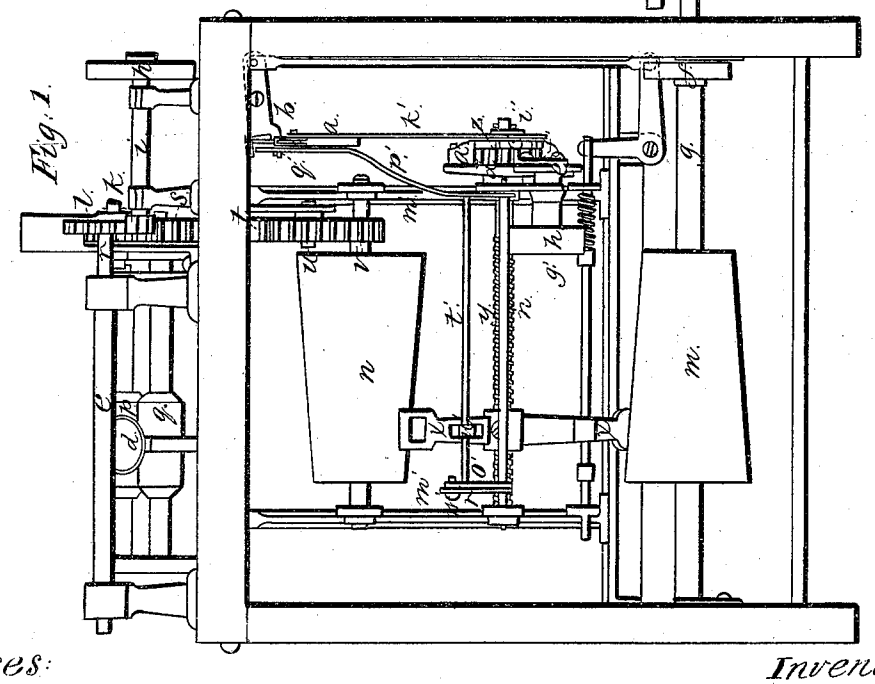


Fig. 1.



Witnesses:

S. N. Piper.

J. R. Snow.

Inventor.

Saml. J. Whitton.

by his attorney.

P. Helwig

Sheet 2. 2 Sheets.

S. J. Whitton.

Evener for Spinning Mach.

No. 86,719. Patented Feb. 9, 1869.

Fig. 4.

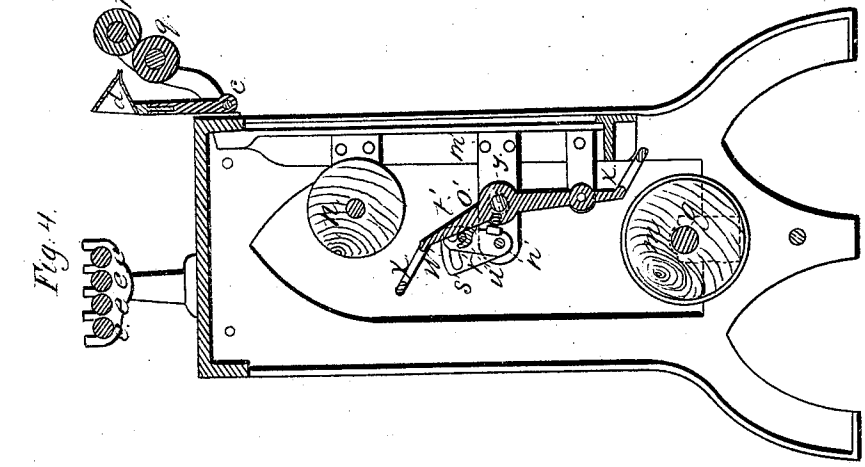


Fig. 3.

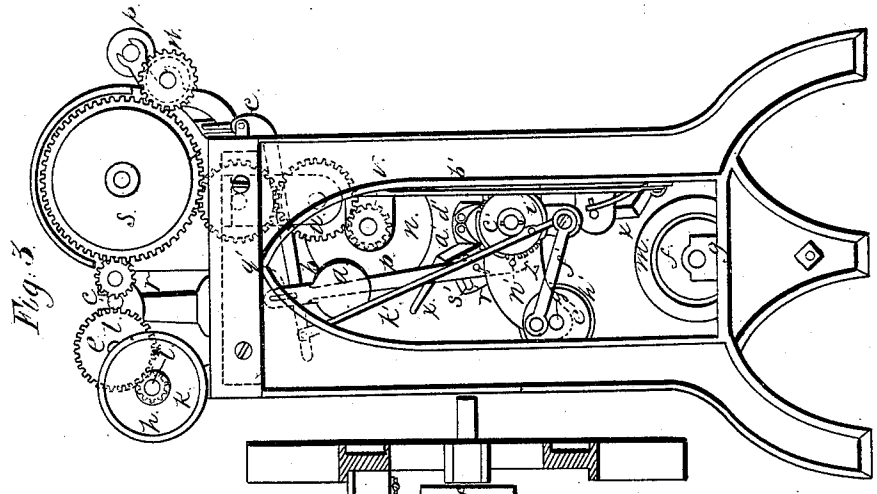
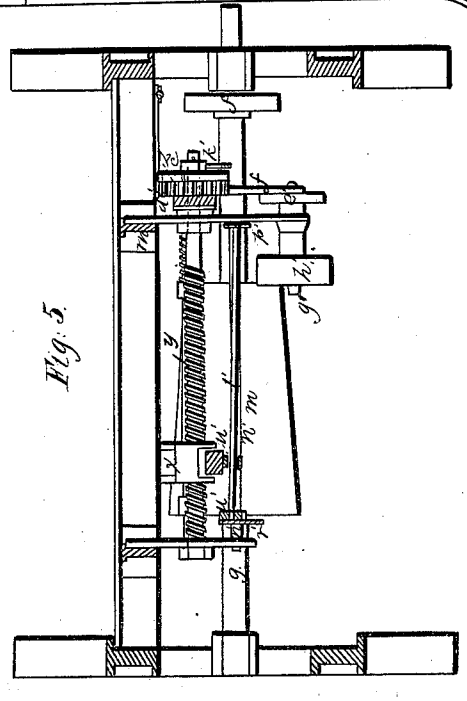


Fig. 5.



Witnesses:

S. N. Piper.

J. R. Snow.

Inventor.

Sam'l J. Whitton.

by his attorney.

R. H. Eddy

United States Patent Office.

SAMUEL J. WHITTON, OF COLERAINE, ASSIGNOR TO G. AND W. F. DRAPER, OF MILFORD, MASSACHUSETTS.

Letters Patent No. 86,719, *dated February* 9, 1869.

IMPROVEMENT IN REGULATOR FOR DRAWING-FRAMES.

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

To all persons to whom these presents may come:

Be it known that I, SAMUEL J. WHITTON, of Coleraine, in the county of Franklin, and State of Massachusetts, have invented a new and useful Regulator or Evener for Machinery for Drawing a Cotton or other Fibrous Sliver; 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 front elevation,

Figure 2, a rear elevation,

Figure 3, an end elevation,

Figure 4, a vertical and transverse section, and

Figure 5, a horizontal section of the machine.

On January 28, A. D. 1851, a patent for a drawing-regulator was granted to Newell Wyllys, such patent having been reissued, July 12, 1864, and extended for seven years, on January 20, 1865.

The machine of the said Wyllys, although calculated to produce evenness of the sliver, is liable to effect too great a draught of it under certain circumstances; that is, when the sliver may have been drawn to its proper size, it is liable, at times, to be run with so much velocity through the trumpet as to increase the friction therein to such an extent as to cause the trumpet to be drawn forward, in which case, an increased and unnecessary draught of the sliver necessarily follows. The reverse of this happens when the sliver moves with less than average speed.

To prevent this result of the increase or diminution of friction of the sliver in the trumpet, is the object of my additional mechanism; and this mechanism is to produce a greater leverage or action of the weight on the trumpet, in order to hold it back, or prevent it from being pulled forward by increase of friction of the sliver in the trumpet, when such sliver may be of the proper size, and a less leverage or action of the weight under the opposite circumstances. A thoroughly even sliver is what is desirable, and to effect such is the purpose of my addition to the machine, or drawing-regulator, or evener of Wyllys. Therefore,

The nature of my invention consists in the combination of the said machine of Wyllys and a mechanism substantially as hereinafter described, or its equivalent, whereby the weight or leverage on the trumpet shall be either increased or diminished as may be necessary, as the velocity of the sliver may be either increased or diminished under circumstances and from the cause above stated.

While running through the trumpet, should the sliver be too large, it will draw the trumpet forward, and if too small, the trumpet will fall back, and as a consequence, the speed of the drawing-rollers will be changed; but in order to insure thorough evenness of the sliver, the additional mechanism, to be hereinafter explained, becomes necessary.

In the machine of Wyllys, or that as represented in the drawings, when the sliver in the trumpet is of the right size, and the speed and other conditions are favorable, the friction of the sliver in the trumpet will be balanced by the small weight *a*, suspended from an arm, *b*, projected from the trumpet-shaft *c*, the trumpet being shown at *d*.

Should the sliver be too large, and the trumpet, in consequence thereof, be drawn forward, the arm will raise the weight. So, should the sliver be of less size than it ought to be in the trumpet, the weight will depress the arm on which it hangs, and thereby cause the trumpet to fall back.

The first three sets of drawing-rollers, *e e e*, will be driven at one uniform speed, by means of a belt, going around a pulley, *f*, fixed on the driving-shaft *g*, and also about a pulley, *h*, on a shaft, *i*, on which is a pinion, *k*.

This pinion engages with a gear, *l*, fixed on the shaft of the lower roller of the first set of drawing-rollers.

On the driving-shaft *g* is a cone-drum, or pulley, *m*, and above this, another cone-pulley, *n*, which is arranged with its lesser end over the greater end of the cone-drum or pulley *m*.

The upper cone-drum is connected with the back roller *o* of the front set of drawing-rollers, and also with the lower of the calender-rollers *p q*, by a train of gears *r*, *s*, *t*, *u*, *v*, and *w*, the same being as represented in the drawings.

An endless belt goes about the two cone-pulleys, or drums, and through a movable guide, *x*, applied to a traversing-screw, *y*, which, in connection with other mechanism, operates to effect the lateral movements of the belt-guide.

On one end of the screw is a gear, *z*, above which are suspended two pawls, *a' b'*, which stand in opposite directions. On the screw-shaft, and by the side of the gear *z*, and also under the pawls, is a disk, or escapement-wheel, *c'*, which, when turned into a certain position, will keep the pawls out of action on the gear, but when turned out of such position, in either direction, will allow one of them to descend into engagement with the gear.

The pivot-pins of the pawls are supported by or projected from a vibrator, or lever, *d'*, whose fulcrum is the screw-shaft. A continual oscillatory motion is imparted to the lever *d'*, by a crank-wheel, *e'*, and a connecting-rod, *f'*, the said crank-wheel being fixed on a shaft, *g'*. This shaft has a pulley, *h'*, fastened on it. The said pulley is to be driven by an endless belt, going about it from some proper rotator.

The escapement-wheel, or notched disk, *c'*, has a crank-pin, *i'*, extended from it, such being connected with the arm *b*, (hereinbefore mentioned as projected from the trumpet-shaft,) by means of a rod, *k'*, which is jointed to such arm, such being so that the vibratory movements of the trumpet may produce corresponding rotary movements of the disk *c'*.

When the friction of the sliver in and against the

trumpet is balanced by the weight *a*, the disk will be in such a position that neither of the pawls will be in engagement with their gear.

Should the trumpet be moved forward, by reason of an enlargement of the sliver, the disk will be turned so as to let one of the pawls down into action upon the gear, thereby causing the screw to be revolved in a manner to move the belt-guide laterally, and to effect the consequent or similar movement of the belt thereof along its cone-drums. The result of this will be a change in the relative speeds of the draught-rollers. The back ones will not vary their speed, but that of the front ones will be either increased or diminished.

When the sliver may have been drawn to its proper size, the trumpet will be restored to its normal position.

The above, with the framework, as represented, constitutes most of the substantial characteristics, and mode of operation of the Wyllys machine, or drawing-regulator, or evener, as it is termed.

My addition thereto may be thus explained:

Within the frame *m'*, by which the belt-shifting screw is supported, there is arranged a shaft, *n'*, which is parallel with the screw.

From the said shaft, two arms, *o' p'*, are projected, as represented. One of them, viz, that marked *p'*, extend up towards the weight *a*, and receives a pin, *q'*, which projects from the weight.

The other arm turns on its shaft, and alongside of a sector, *r'*, projecting therefrom.

A clamp-screw, *w'*, going through a curved slot, *s'*, made in the sector, and screwed into the arm *o'*, serves to clamp such arm to the sector.

A rod, *t'*, has one end supported in the arm *o'*, and the other in the arm *p'*.

The rod *t'*, arranged over the shaft *n'*, is made to stand more or less obliquely with respect to such shaft, by simply moving the arm *o'*, on the shaft, as a centre, and subsequently setting up the clamp-screw.

The rod *t'* goes through a notched projection, *u'*, or the equivalent thereof, extended from the belt-guide *x*.

From the above, it will be observed that while the said guide *x* is being moved laterally, it will cause the rod *t'* to move more or less either forward or backward, so as to move the longer arm, *p'*, and thereby cause the weight, *a*, to be moved along its supporting-arm; that is, either nearer to or further from the trumpet-shaft.

It will readily be seen that by this means the weight or leverage on the trumpet may be automatically changed, as may be desirable, to counteract the tendency of the increase or decrease of friction of the sliver due to the increase or diminution of velocity of the sliver, when it may be of the right size to impel the trumpet forward or allow it to fall back.

What, therefore, I claim as my invention, is—

The combination of the additional mechanism, viz, the notched projection *u'*, the oblique rod *t'*, and the arm *p'*, or the mechanical equivalents thereof, with a drawing-regulator, or evener, of the kind substantially as described, the purpose of such additional mechanism being as set forth.

Also, the combination of the slotted sector, *r'*, the movable arm *o'*, and the clamp-screw *w'*, or their mechanical equivalent, with the notched projection *u'*, the rod *t'*, and the arm *p'*, when they are combined with a drawing-regulator, and for operating its movable weight, substantially as and for the purpose specified.

SAMUEL J. WHITTON.

Witnesses:

WM. M. PINGRY,

ELROY C. ROBINSON.