

P. Keane's Spinning Machines.

117893

Fig: 1

PATENTED AUG 8 1871

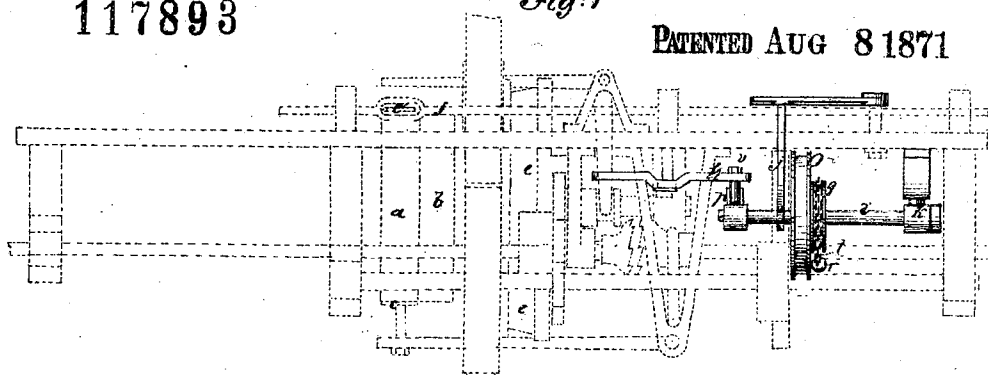


Fig: 2

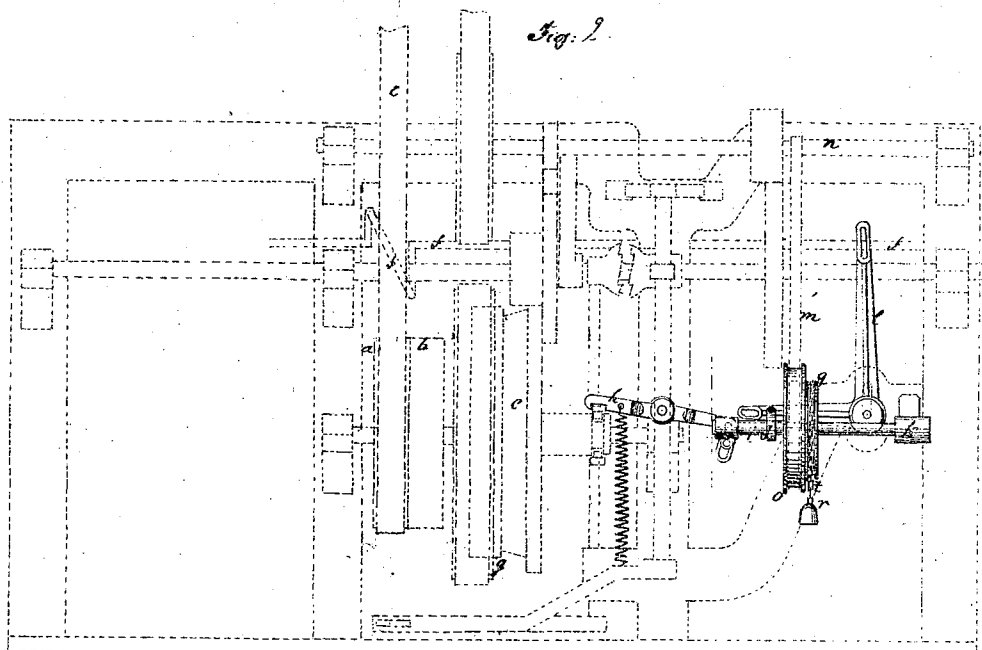


Fig: 4

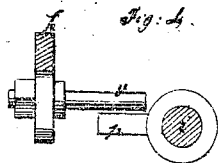
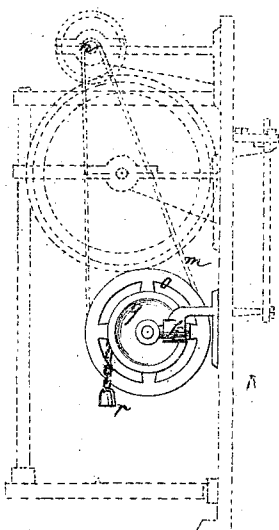


Fig: 3



Witnesses:

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117,893

UNITED STATES PATENT OFFICE.

PATRICK KEANE, OF COHOES, NEW YORK, ASSIGNOR TO HIMSELF AND SAMUEL BILBROUGH, OF SAME PLACE.

IMPROVEMENT IN SELF-ACTING JACKS FOR SPINNING.

Specification forming part of Letters Patent No. 117,893, dated August 8, 1871.

To all whom it may concern:

Be it known that I, PATRICK KEANE, of Cohoes, in the county of Albany and State of New York, have invented a new and useful Improvement in Self-Acting Spinning-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

This invention is intended to so improve the self-acting spinning-jacks, especially the one invented and patented by Wm. H. and Oliver Brothers, as to avoid the great shocks and jars they are subject to in stopping and reversing the motion to effect the backing-off motion.

The self-acting spinning-machines last above named are so arranged at present that the friction-clutch which gives the reverse motion for backing off takes hold before the belt which imparts the direct motion escapes from the driving-wheel, by which the two forces are brought into direct opposition and produce very severe jars or shocks, which, being repeated as often as each full operation of the machine takes place, cause great wear and damage to the machine. I therefore propose to arrange these machines in the manner hereinafter described, so that the friction-clutch shall not come into action to set the spindles in the reverse motion until the driving-belt has entirely escaped from the fast pulley. For this purpose I employ a short belt working over pulleys and driving a trip-stud or projection upon a swinging and rotating shaft which shall be set in motion at the time the belt-shipper acts, and run a suitable time after the belt-shipper has acted, to allow the driving-belt to escape from the fast pulley, and then trip, by its stud or arm, the holding device which keeps the friction-clutch out of action, and let it act upon the driving-gear and perform its office of reversing the motion.

Figure 1 in the drawing represents a top view of a part of a mule in dotted lines, with my arrangement of devices shown in full lines. Fig. 2 is a side elevation of Fig. 1. Fig. 3 is an end elevation, and Fig. 4 is a section of Fig. 2 on the line *x x* of Fig. 2.

a is the loose pulley, *b* the fast pulley, *c* the driving-belt, *e* the friction-cone, and *f* the belt-shifter of a self-acting spinning-machine. The carriage is

caused to run out by the direct action of the driving-belt *c*, and the backing off is effected by the friction-cone *e*, when the driving-belt is shipped, and said cone is allowed to engage with the pulley *g*, by being forced into contact with it by a spring concealed in the hub or by other means. Usually the trip-catch for holding the friction-cone out of contact with the pulley *g* while the driving-belt was at work on the fast pulley, (say the trip-catch *h*,) has been so connected to the belt-shifting rod *f*, that the cone was tripped at the instant the said rod was moved, so that the cone, being moved instantly by a spring, engaged the pulley *g* before the belt escaped from the fast pulley, whereby the two forces moving in different directions, acting on the same shaft at once, produced very great damage to the machine and the work, besides wasting power. Now, for releasing the friction-cone by the action of the belt-shifter, and yet not doing it until the driving-belt has had time to escape entirely from the fast pulley, I arrange a shaft, *i*, in a swiveled bearing, *k*, at one end, and at the other end in the end of an arm, *j*, of a bell-crank, connected by its other arm *l* with the belt-shifter *f*, so that when the latter moves to throw off the belt it will let the end of shaft *i*, supported by it, fall and be in motion by a belt, *m*, working on a shaft, *n*, above and around a large pulley, *o*, on said shaft *i*, said belt being loose when shaft *i* is up, but tightened when pulley *o* is let down, so as to set said pulley in motion. This shaft carries a tripper, *p*, at the end, which is free to swing up and down, and it also carries a grooved pulley or drum, *q*, from which a weight, *r*, is suspended by a chain, *t*, for turning the shaft when freed from the action of belt *m*, so that the tripper *p* will be held against the under side of the end of trip-catch *h* or a pin, *v*, projecting from it, until the belt-shifter *f* moves and throws the end of shaft *i* and the pulley *o* down at the same time that it pushes belt *c* toward the loose pulley. Then the pulley *o* will be set in motion and turned till the tripper *p* comes around to the top of the pin *v*, or the catch pushes it down and releases the friction-cone after the belt has passed entirely off from the fast pulley. As the backing off is done very quickly, the belt-shifter goes back again and frees the pulley *o* from the belt *m* before the weight *r* has been wound up to the pulley *q*, and allows it to fall again, returning

the tripper *p* to the under side of the pin *v* ready for the next operation. The time allowed to elapse between the turning of the drum-belt and the tripping of the friction-cone may be governed entirely by the size of the pulley *o*, which may be varied to suit the case in hand; or cone-pulleys may be employed for the purposes. Of course the bell-crank for setting the tripping apparatus in gear, here represented as being actuated by the belt-shifter, may be actuated by any other device or part of the machine operating simultaneously with the shifter; but it is preferable to have it actuated by the belt-shifter, as here shown.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a self-acting spinning-machine, the combination and arrangement of the shaft *i* with its pulleys *o g* and tripper *p*, the weight *r*, trip-catch *h*, and swiveled bearing *k*, constructed substantially as and for the purpose specified.

2. In combination with the bell-crank *l*, the shaft *i*, pulleys *o g*, weight *r*, trip-catch *h*, tripper *p*, and spring, as described, constructed and arranged substantially as and for the purpose specified.

PATRICK KEANE.

Witnesses:

GEO. W. MABEE,
T. B. MOSHER.