

(No Model.)

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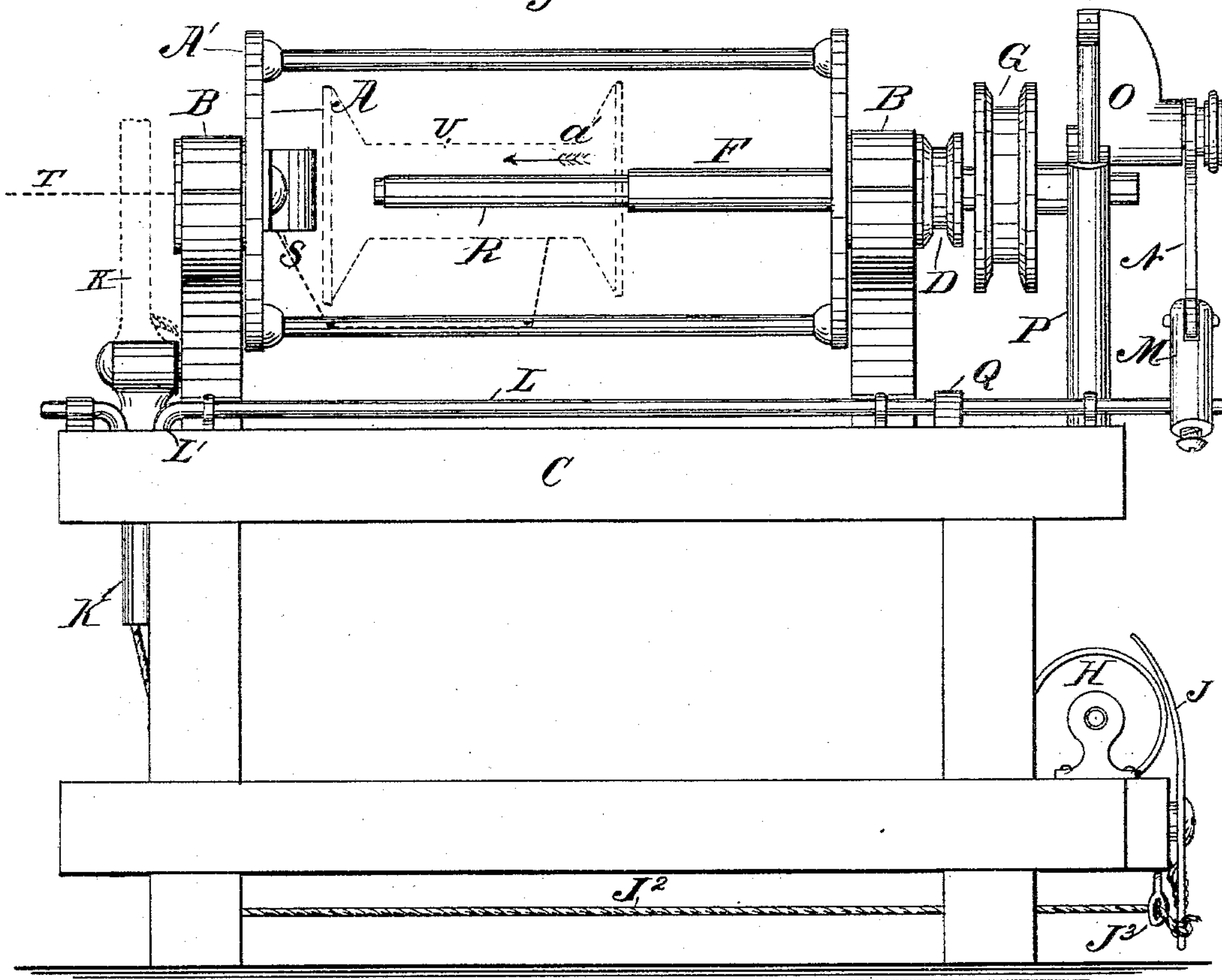
M. FURST.

SAFETY LOCK FOR SPINDLES ON JENNIES.

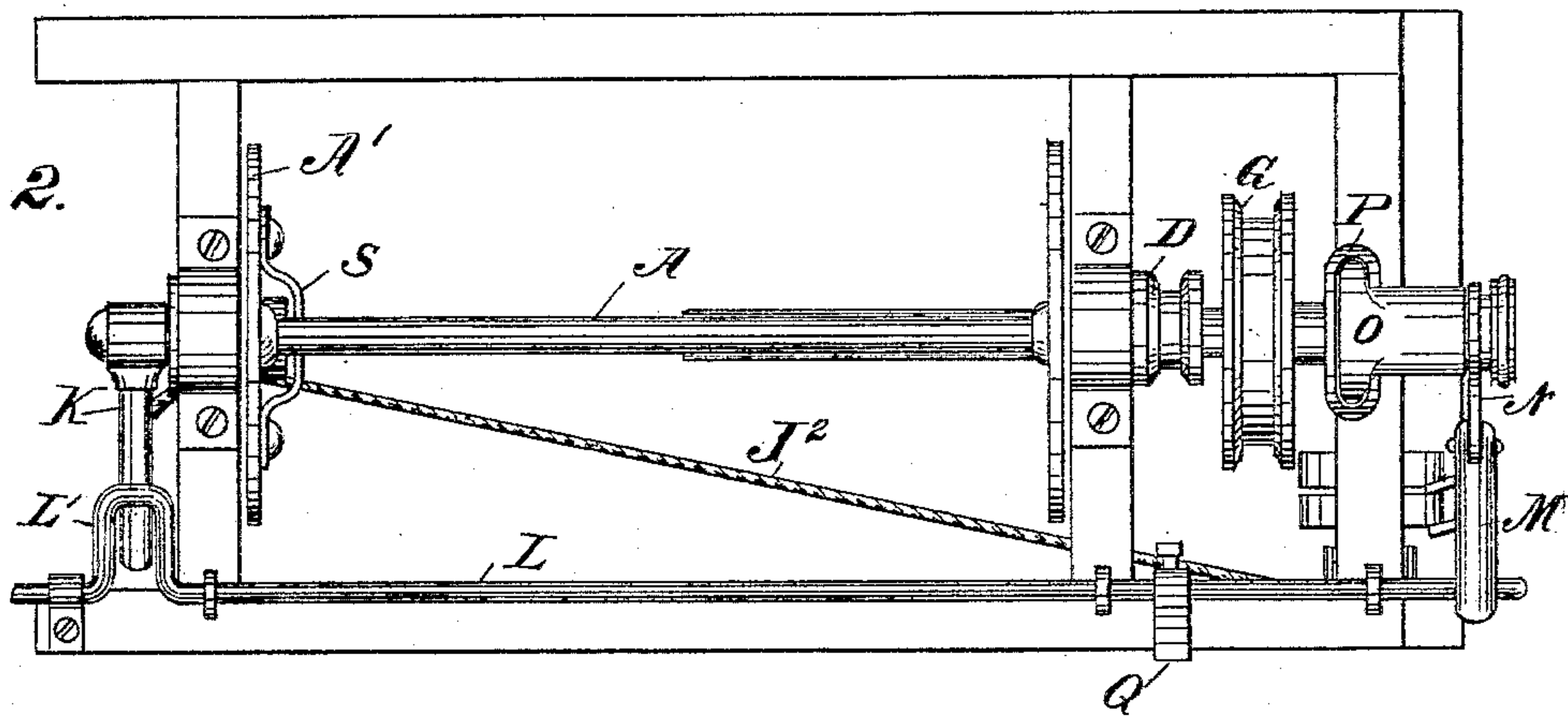
No. 323,315.

Patented July 28, 1885.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

*Charles Lurcott*  
*C. Sedgwick*

INVENTOR:

*M. Furst*

BY

*Mum Co*

ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

M. FURST.

SAFETY LOCK FOR SPINDLES ON JENNIES.

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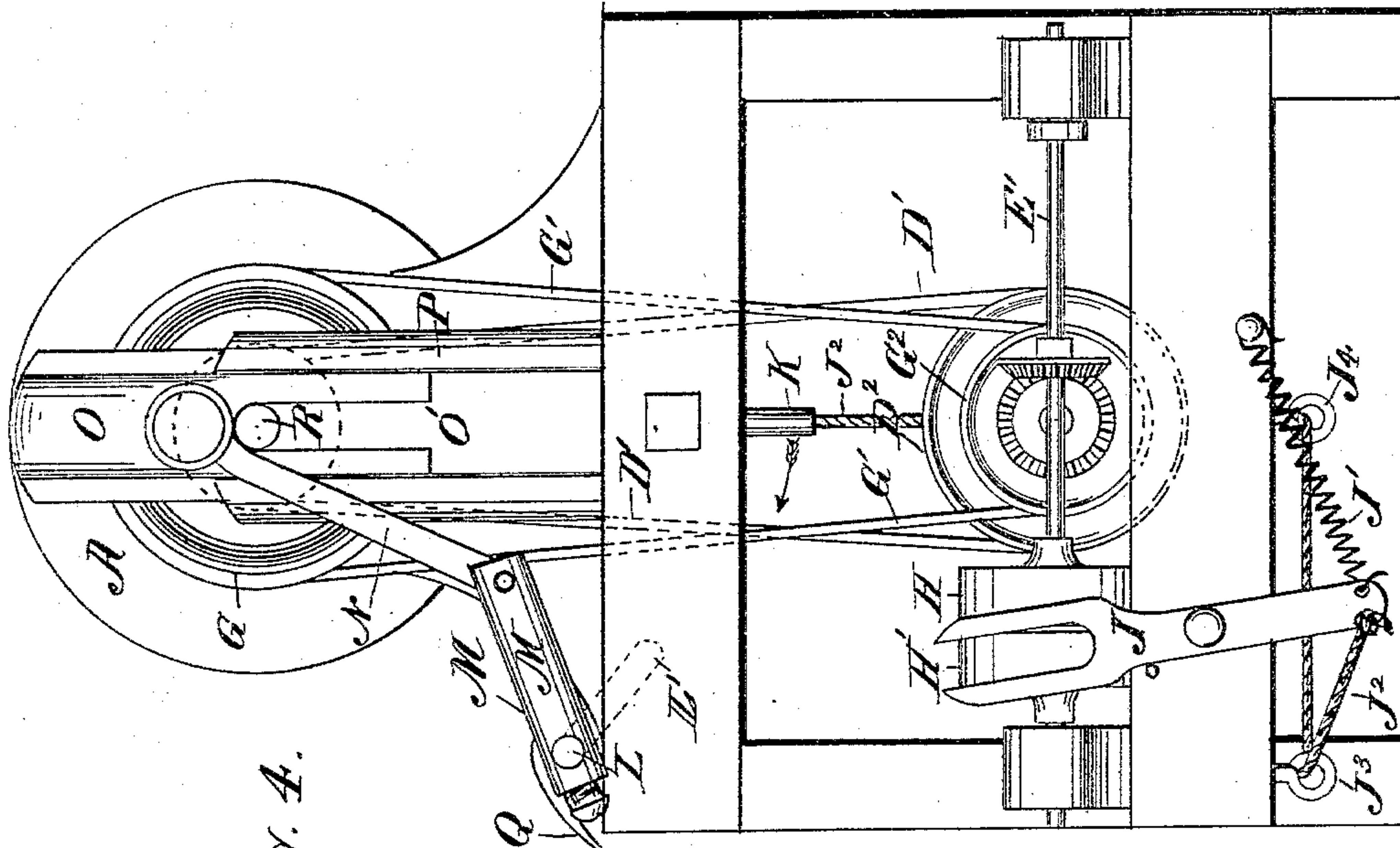


Fig. 4.

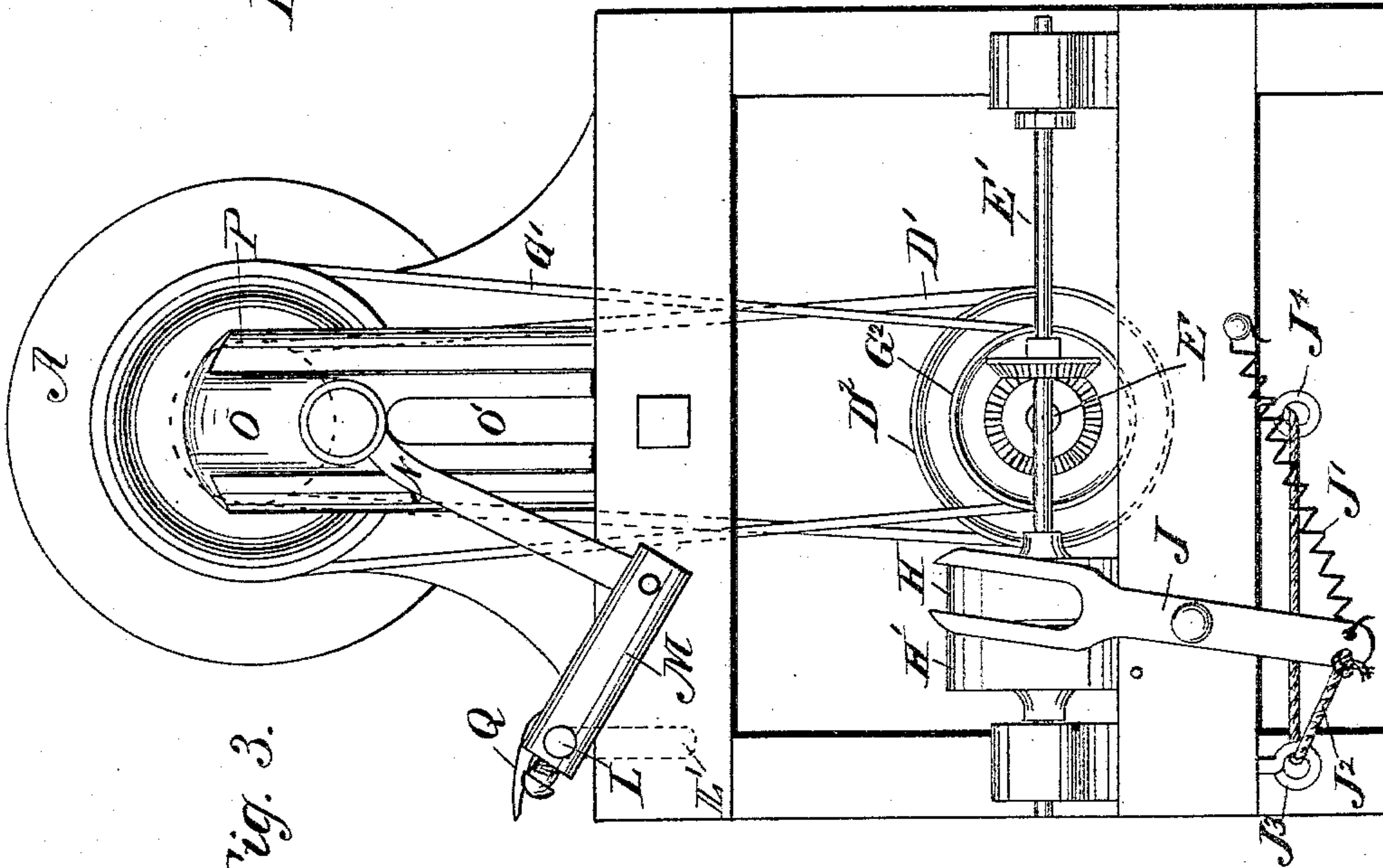


Fig. 3.

WITNESSES:

Charles Lurcott  
C. Sedgwick

INVENTOR:

M. Furst

BY

Munn & Co

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

MICHAEL FURST, OF BROOKLYN, NEW YORK.

## SAFETY-LOCK FOR SPINDLES ON JENNIES.

SPECIFICATION forming part of Letters Patent No. 323,315, dated July 28, 1885.

Application filed March 27, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, MICHAEL FURST, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Safety-Lock for Spindles on Jennies, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved lock for locking spindles in jennies in such a manner that the machine cannot be started until the spindle is in its proper place, thus preventing accidents which are easily caused if a spinning-machine is started when the spindle is out of place.

The invention consists in certain combinations of parts and arrangements of the same, as will be fully set forth and described hereinafter.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of a spinning-machine provided with my improved lock. Fig. 2 is a plan view of the same, parts being shown in section. Figs. 3 and 4 are end views of the same, showing the lock in different positions.

The flier A, which is journaled between two standards, B, of the frame C, is revolved by a belt passed over a pulley, D, connected with the hub of one of the end plates of the said flier. A belt, D', passes over the pulley D, and over a pulley, D<sup>2</sup>, on a horizontal shaft, E, journaled in the frame C. A tube, F, which is passed upon the end of the spindle, passes through the pulley D, and on the said tube F is mounted a pulley, G, over which a belt, G', passes, which also passes over a pulley, G<sup>2</sup>, mounted on the shaft E. By suitable gearing the shaft E is revolved from the shaft E', on which are mounted the fixed pulley H and the loose pulley H'. A driving-belt passes over the pulley H and through a shifting-fork or other shifting device, J, pivoted in the end of the frame C, which fork is acted upon by a spring, J', which holds the fork in such a position as to keep the driving-belt on the loose pulley H', as is shown in Fig. 4. A cord, J<sup>2</sup>, secured to the lower end of the belt-shifting fork J, passes through an eye, J<sup>3</sup>, on the frame C, an eye, J<sup>4</sup>, on the opposite end of the frame,

and is secured to a latch-lever, K, pivoted on the end of the frame C. A shaft, L, is held to revolve on the top of one of the side bars of the frame, the said shaft L being parallel with the longitudinal axis of the flier A, and the said shaft is provided at or near one end with a crank, L', or with an adjustable arm or any other suitable projection, which is of such length that if the said projection or arm is in a horizontal position and projects toward the middle of the frame it will be struck by the lever K in case the same is swung up. At the opposite end the shaft L is provided with an arm, M, which is about at right angles to the crank or arm L', and to the free end of the arm M a connecting-rod, N, is pivoted, the opposite end of which is pivoted to a slide, O, the lower end of which is provided with a slot, O', forming a fork extending to about the middle of the length of the slide O. The slide O is held to slide vertically in a grooved standard, P, on the frame C, which standard is provided with an aperture in line with the central aperture of the flier and the central line of the bore of the tube F. On the shaft L is mounted an adjustable arm, Q. The spindle R is of such length that when its inner end is placed securely in the socket S, formed on the inner surface of the left-hand plate A' of the flier, the opposite or outer end of the said spindle will be withdrawn from the vertical guide P such a distance that the slide O can move vertically—that is, can be raised or lowered at will.

The operation is as follows: If a fresh spool is to be placed on the spindle R, the slide O is moved upward until the upper end of the slot O' in the lower end of the said slide is above the spindle-aperture in the standard P, so as to permit drawing the spindle outward. The spindle is withdrawn a short distance and then the slide O is released and rests on the spindle. The spindle can then be withdrawn sufficiently to permit placing a fresh spool in the flier, and then the spindle is pushed by hand in the direction of the arrow a', Fig. 1. If the slide O is swung upward, the arm M is swung upward, as shown in Fig. 4, and thereby the arm L', which is almost at right angles to the arm M, will be caused to project from the shaft L toward the opposite side of the



machine-frame C. If the machine is to be started, the lever K must be swung upward in the direction of its arrow, Fig. 4, in order to cause the cord  $J^2$  to pull on the lower end of the shifting-fork J, and throw the belt from the loose pulley H' upon the driving-pulley H. If the arm L' projects laterally and inwardly from the side of the frame C, it prevents the arm K from being swung up sufficiently to throw the fork J, as the said arm or lever K would strike against the projection L'. The projection L' remains in this position as long as the slide O is raised, and the slide O cannot be lowered—that is, the position of the arm L' cannot be changed—until the spindle R is pushed in the direction of the arrow  $a'$ , or until it is in its proper position, as the outer end of the spindle will always project into the standard P until the inner end of the spindle is pushed into the socket. It is thus evident that the machine cannot be started as long as the slide O is raised—that is, as long as the spindle is not in the proper place. If the machine is to be started, the spindle R is pushed into its proper position, when the slide O drops, swinging the arm M downward, thereby swinging the projection L' downward into a vertical position, and thus permitting of swinging the arm K upward sufficiently to shift the fork J and throw the belt from the loose pulley H' upon the driving-pulley H. The arm K is held in a raised position by means of the thread T in its passage to the spool U, as shown in dotted lines, Fig. 1. As long as the thread is not ruptured it will hold the arm raised and the driving-belt, through the medium of the shifting-fork J and cord  $J^2$ , on the fixed pulley H; but as soon as the thread breaks, the spring J', connected to the shifting-fork J, will shift the belt to the loose pulley and draw the arm K down.

To prevent the operator from removing the safety-catch—that is, from lifting the slide O out of the standard P—I have provided the arm Q, which, when the slide has been raised as much as is necessary, strikes against one of the top side bars of the frame C, thus preventing farther rotation of the shaft L, and consequently also preventing raising the slide O any farther, as the slide and the shaft are connected by means of the arm M and the connecting-rod N. All accidents caused in spinning-mills by starting the spinning-machine before the spindle is in place are thus avoided, as a machine provided with my improved lock cannot be started until all the parts are in their proper positions.

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

1. The combination, with a spindle, a flier, a belt-shifter, a latch-lever connected thereto, and means for operating the said spindle and flier, of a slide for receiving the end of a spindle, and a projection connected with and

adapted to be thrown into and out of the path of the latch-lever by the movement of the said slide, whereby provision is made for preventing the machines from being started when the spindle is not in place, substantially as herein shown and described.

2. The combination, with a spindle, a flier thereon, a belt-shifter, a latch-lever connected thereto, and means for operating said spindle and flier, of a slide for receiving the end of the spindle, a rock-shaft provided with a projection at one end and an arm at the other, and a link connecting said slide and arm, substantially as herein shown and described.

3. The combination, with a spindle, a flier, a belt-shifter, a latch-lever connected thereto, and means for operating said spindle and flier, of a rock-shaft provided with arms at its ends at about right angles to each other, a slide held in front of one end of the spindle and provided with an opening to receive said spindle, and a link for connecting the said slide to one of the arms of the rock-shaft, substantially as herein shown and described.

4. The combination, with a spindle, a flier thereon, a belt-shifter, a latch-lever connected thereto, and means for operating said spindle and flier, of a rock-shaft provided with arms at its ends, a slide having an opening for and held in front of one end of the spindle, a link connecting said slide to one arm of the rock-shaft, and a stop on said rock-shaft for limiting its movement, substantially as herein described.

5. The combination, with a spindle, a flier thereon, a belt-shifter, a latch-lever connected thereto, and means for operating said spindle and flier, of an apertured guide-standard at one end of the spindle, a forked slide held in said standard, a rock-shaft provided with arms at its ends at about right angles to each other, and a link connecting said slide to one of the arms of the said rock-shaft, substantially as herein shown and described.

6. The combination, with the spindle R, the flier A, the belt-shifting fork J, the latch-lever K, connected to said fork, and means for operating said spindle and flier, of the guide-standard P, provided with an aperture in line with the aperture of the fliers, the forked slide O, held in said standard, the rock-shaft L, provided with the projection L' and the arm M, and the connecting-link N, substantially as herein shown and described.

7. The combination, with the spindle R, the flier A, the slide O, the rock-shaft L, provided with the projection L' and the arm M, and the connecting-rod N, of the shifting-fork J, the spring J', the cord  $J^2$ , and the lever K, substantially as described.

MICHAEL FURST.

Witnesses:

OSCAR F. GUNZ,  
C. SEDGWICK.