(No Model.)

# F. MEYER.

## SILK SPINNING MACHINE.

No. 386,713. Patented July 24, 1888.

Fig. 1.

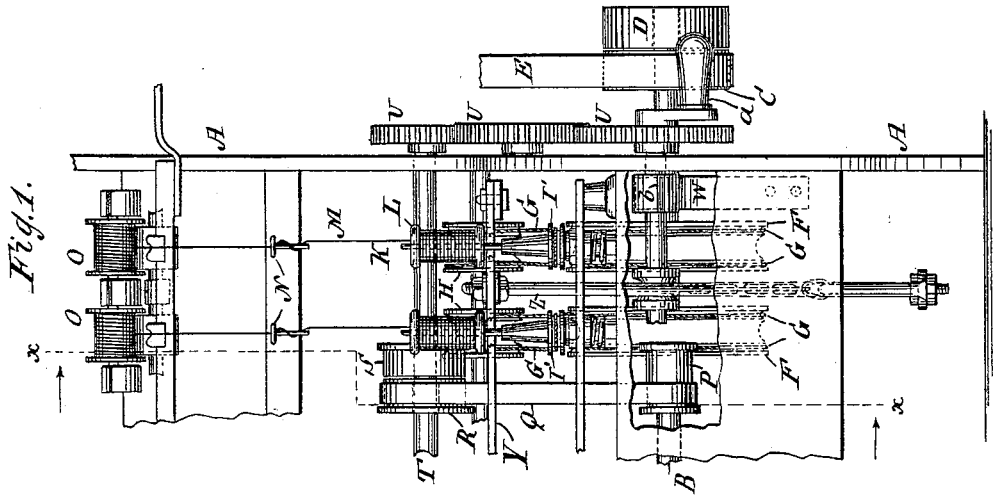


Fig. 3.

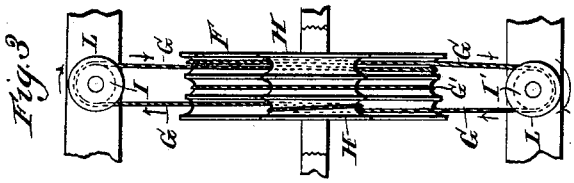
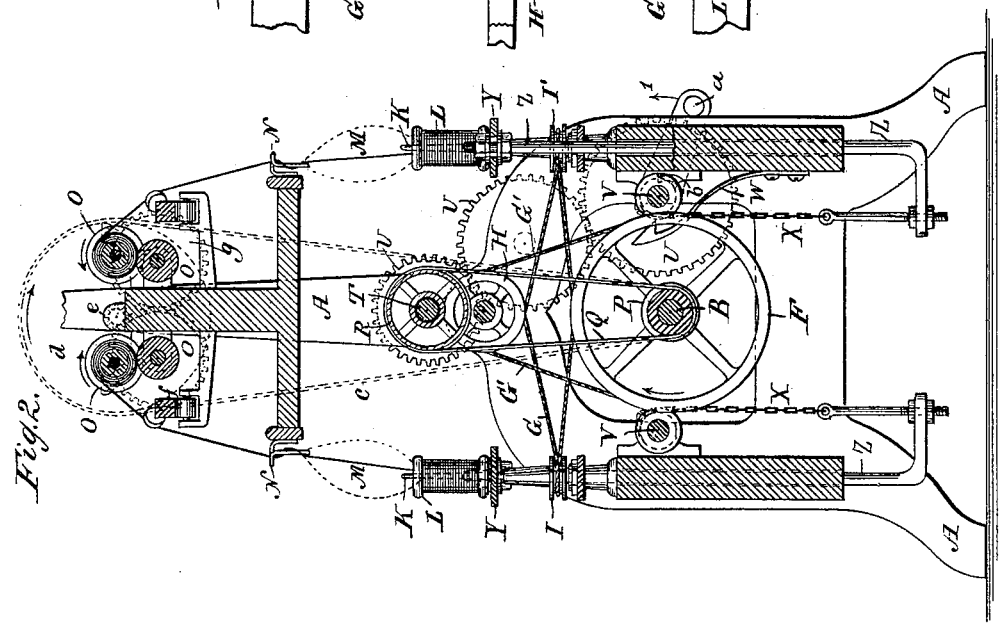


Fig. 2.



WITNESSES:

Eduard Wolff.
William Miller.

INVENTOR,

Florian Meyer.

BY Van Santvoord & Hauff.

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

FLORIAN MEYER, OF PATERSON, NEW JERSEY.

## SILK-SPINNING MACHINE.

SPECIFICATION forming part of Letters Patent No. 386,713, dated July 24, 1888.

Application filed September 8, 1887. Serial No. 249,135. (No model.)

*To all whom it may concern:*

Be it known that I, FLORIAN MEYER, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented new and useful Improvements in Silk-Spinning Machines, of which the following is a specification.

This invention relates to improvements in spinning-machines, whereby kinks or improper twists in the fibers, threads, or cords are prevented.

This invention is set forth in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of a portion of a spinning-machine, parts being broken away. Fig. 2 is a section in the plane *x x*, Fig. 1. Fig. 3 is a detail plan view of pulleys for rotating the bobbins.

Similar letters indicate corresponding parts.

In the drawings, the letter A indicates a frame or support.

B is a driving-shaft having a fast pulley, C, and a loose pulley, D. As the driving-belt E is shifted onto the fast or onto the loose pulley, the driving-shaft will move or come to rest.

On the driving-shaft are mounted pulleys F. The rotation of the driving-shaft is communicated to the pulleys F, and thence to the belts G G′, passing from the pulleys F to the pulleys H and to the pulleys I I′. The belt G passes from the pulley F to the pulley I, about said pulley I to the pulley H, about said pulley H to the pulley I′, and about said pulley I′ to and about the pulley F. The pulley H enables the belt G to be brought into position to pass to and firmly grasp the pulleys I I′. The pulley F serves as the driving-pulley, and the pulleys I I′ rotate the bobbins L. The belt G′ passes about the pulleys F and H, and said belt G′ insures rotation of the pulley H. The pulleys F H are provided with several channels or grooves to receive the belts G G′. The rotation of the pulleys I I′ causes rotation of the spindles K and of the bobbins L, mounted thereon.

The spindles K are tapered toward their free ends, so that the bobbins L as they are pressed toward the broad or flaring portion of the spindles become jammed on the spindles and turn with the same. From the bobbins L pass fibers or threads M to the guides N, whence the fibers are drawn off by the drawing mechanism or roller O.

From the driving-shaft B passes the belt *e*, (shown in dotted lines, Fig. 2,) and said belt imparts motion to the pulley *d*, connected with a pinion, *e*. The pinion *e* gears into the gear-wheel *f*, and said wheel *f* gears into the gear-wheel *g*. Said pulley *d*, pinion *e*, and wheels *f g* are shown in dotted lines, Fig. 2. To the wheels *f g* are connected the winding-rollers O, so as to receive motion from the rotation of the wheels *f g*. The winding-rollers O are shown in pairs, one roller of each pair acting as a friction-roller to impart motion to the other roller, on which the thread or fiber is wound, and also serving to press the thread smoothly in place on the roller on which said fiber is wound. The rotation of the bobbins L will twist the fibers.

To the driving-shaft B is fixed a pulley, P. The transmitting-belt Q passes from the driving-shaft B to the transmitting-shaft T. As the transmitting-belt Q is shifted onto the loose pulley R or onto the fast pulley S of the transmitting-shaft said transmitting-shaft will come to rest or move. Trains of gears U connect the transmitting-shaft with the shafts V.

Detents W limit the rotation of the shafts V in one direction. The shoulders or notches *b* on the shafts V are in each case formed so as to catch the detents W when each of the shafts V moves in one direction and to limit the motion of each shaft in that direction. Chains or connections X connect the shafts V to the arms Z. The arms Z are free to rise and fall a certain distance, and the winding of the chains X on the shafts V raises the arms Z. By turning the handles *a*, connected to the shafts V, in the proper direction, the chains X are unwound from the shafts V, so that the arms Z descend. The rising and falling of the arms Z actuate the rails Y, so that said rails move toward and from the drawing mechanism O.

The operation of the device is as follows: The parts being in the position shown in Fig. 1, with the belt E on the fast pulley C and the belt Q on the loose pulley R, the shaft B will rotate and the shaft T will remain at rest. The

rotation of the shaft B rotates the bobbins L, so as to twist the fibers M as they pass from the bobbins and are taken up by the drawing mechanism O. The motion of the parts will cause the fibers M to bulge or slacken in passing from the bobbins L to the guides N, as indicated by dotted lines in Fig. 2. If, now, the machine should be suddenly stopped, the twist in the fibers M, together with the slack between the bobbins L and guides N, would cause the formation of kinks or loops in the fibers between the bobbins and guides. Such kinks are objectionable, as they may at times interfere with the proper operation of the device. The formation of such kinks is avoided by my invention, as will be now described. At the moment that the driving-belt E is shifted onto the loose pulley D to stop the device the transmitting-belt Q is shifted onto the fast pulley S. The belt Q then grasps the pulley S sufficiently to rotate said pulley before the belt E has entirely lost its hold on the pulley C. The rotation thus imparted to the transmitting-shaft T, and through the gears U to the shafts V, continues until the shoulders *b* of the shafts V are brought against the detents W, whereby the rotation of the shafts V is arrested. This rotation of the shafts V winds up the chains X and moves the arms Z, the rails Y, and the bobbins L toward the drawing mechanism O. The bobbins L rotate with the spindles K; but said bobbins are capable of longitudinal motion on said spindles, so that the motion of the rails Y toward the drawing mechanism O will lift the bobbins, while on the return of the rails Y to their original position the bobbins L will sink by their own weight and resume their original position on the spindles. The distance between the bobbins and the drawing mechanism is thus shortened, and if, on the complete stoppage of the device, any kinks should be formed in the fibers M, such kinks will be straightened out when the bobbins L move away from the drawing mechanism O to return to their original positions. The handles *a*, when moved in the proper direction—as, for example, that of arrow 1, Fig. 2—will return the rails Y and bobbins L to their original position and straighten out the kinks.

In the drawings are shown a series of bobbins and rails; but the invention is applicable to a single bobbin also.

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

1. The combination, with the drawing mechanism or rollers O and the spindle K, adapted to receive a bobbin, of the driving-shaft B, having a fast pulley, P, the transmitting-shaft T, having a loose pulley, R, and fast pulley S, the belt Q, the shaft V, having a handle, *a*, the gears U, chain X, arm Z, and rail Y, whereby the bobbin is moved toward and from the drawing mechanism, substantially as described.

2. The combination, with the drawing mechanism or rollers O and the spindle K, adapted to receive a bobbin, of the guide N, the movable rail Y, the arm Z, shaft V, connected to the arm Z, and means for imparting motion to said shaft to actuate said rail, substantially as described.

3. The combination, with the drawing mechanism or rollers O, the spindle K, adapted to receive a bobbin, and the rail Y, having arm Z, of the shaft V, having handle *a* and notches *b*, the chain X, for connecting the arm Z and shaft V, and the detent W, substantially as described.

4. The combination of the drawing mechanism or rollers O, the movable rail Y, having arm Z, the spindle K, adapted to receive a bobbin, the shaft B, the transmitting-shaft T, the shaft V, having handle *a*, the chain X, connecting the shaft V and arm Z, and mechanism for actuating the drawing-rollers, spindles, and transmitting-shaft from the shaft B, and for actuating the shaft V from the transmitting-shaft, substantially as described.

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

FLORIAN MEYER. [L. S.]

Witnesses:
GARRET EMANS,
THOMAS HINES.