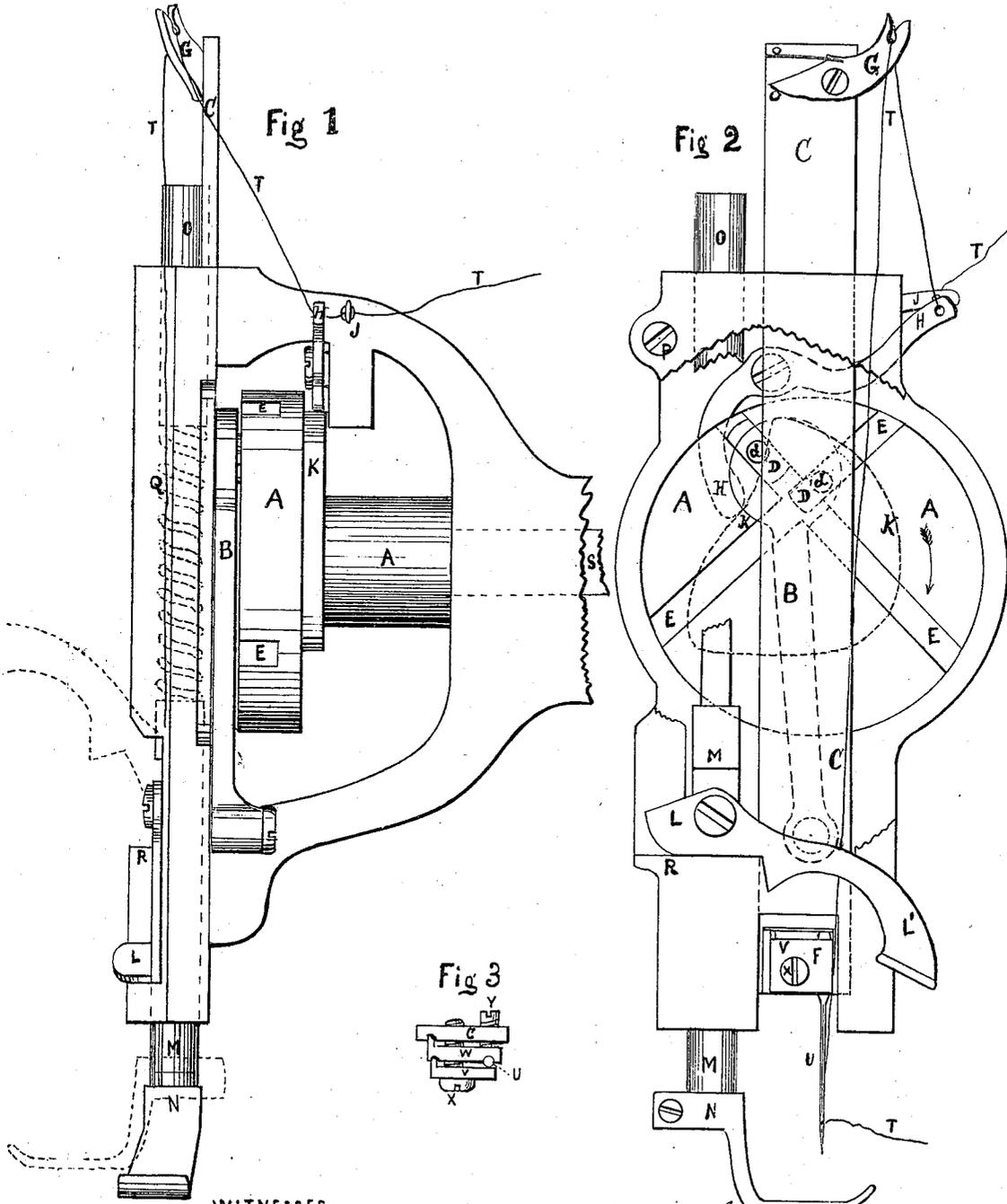


T. HALL.
Improvement in Sewing-Machines.

No. 129,406.

Patented July 16, 1872.



WITNESSES
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IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 129,406, dated July 16, 1872.

Specification describing certain Improvements in Sewing-Machines, invented by THOMAS HALL, of Northampton, in the county of Hampshire and State of Massachusetts.

My invention consists, first, in a means for imparting motion to the needle; second, an arrangement of devices for taking up the slack of the needle-thread; third, the combination, with the face-plate and presser, of a lever for elevating, turning, and holding the presser, as hereinafter described.

The accompanying drawing, forming part of this specification, shows in Figure 1 an elevation from the position of the operator; Fig. 2, an elevation from the end of the arm, part of the front plate being removed; Fig. 3, a section of the needle-bar from the top, showing the needle-holder.

A is a solid wheel or disk, fixed to a shaft, S, which is designed to turn in the direction shown by the arrow on Fig. 2. In the face of the wheel A are two grooves, E, which cross each other at a distance from the center of the wheel; these grooves can be either straight or curved, and can cross each other at any angle suitable to give the needle the desired motion. In each groove is a sliding piece, D. These pieces drive a pitman, B, by pins *d d*. The pitman B is connected at its lower end to the needle-bar C. The action of this device is such that the needle, after going down through the fabric, is caused to rise a short distance so as to form a loop of thread for the shuttle to enter, and again to dip or go down in order to allow the shuttle to pass easily through the loop, then to rise out of the fabric for another stitch. The thread T is passed through the eyes of the take-up device—first, through the stationary guide J; then through the end of lever H; then through eye in G at the end of the needle-bar C. The piece G can be fixed stationary onto the needle-bar, or made with a spring, as shown in Fig. 2. After the shuttle has passed through the loop of the needle-thread the rise of the needle-bar carries with it the thread in the eye G. At the same time the cam K causes the lever H to pull the thread down in an opposite direction to the movement of the needle-bar. By this joint action the loop is quickly taken up. The downward movement of the lever H ceases

before the upward movement of the needle-bar, which allows the thread to be taken up slower, by the action of the needle-bar alone. When the thread has been pulled tight enough the lever H then moves upward and prevents the needle-bar from drawing the thread any further than is desirable to form a perfect stitch. When the needle-bar descends the lever H also moves downward and keeps the slack thread from the point of the needle until the needle enters the fabric, when the lever again rises so as to allow sufficient thread for a new loop to pass around the shuttle. The presser-foot N is fixed on the end of the bar M, which is fitted to slide in the face-plate R and in adjustable tube O. The bar M can be lifted, turned, and prevented from turning, by the lever L, which is pivoted to M by a screw. The end of the lever L rests on a horizontal surface on face-plate R. By lifting the long end of the lever L the bar M is moved upward and can rest on the short end of the lever L, and when in that position can be turned around to a position at right angles to its position when down, as shown by dotted lines in Fig. 1, to facilitate setting and threading the needle; and when the lever is in the position shown in Fig. 2, its short end bears against the face-plate of the machine and prevents the presser from turning. The bar M is pressed down by the spring Q, shown in Fig. 1. The pressure of the spring Q can be varied by moving the sliding tube O up or down, and the tube can be held in any position by the clamp-screw P, Fig. 2. The needle-holder is composed of plates which act similar to an ordinary vise, the needle U being held by the screw X, between the plate V and the plate W, Fig. 3. A projecting flange or rib on one piece, fitting into a groove in the other, makes a fulcrum, and also prevents the plates from turning out of position. The position of the plates, in relation to the needle-bar C, can be adjusted to or from the needle-bar, when holding the needle, by the screw Y, and the whole securely clamped to the needle-bar by the screw X.

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

1. The disk having grooves or guides crossing each other at a distance from its center of ro-

tation, and the sliding pieces connected with and operating the needle-bar of a sewing-machine, substantially as set forth.

2. The take-up lever H when combined with and arranged between the stationary eye and the moving eye fixed to the needle-bar, substantially as described, and for purposes specified.

3. The lever L attached to the presser-bar, and

arranged in connection therewith and with the face-plate to elevate and turn the presser-foot and retain it from turning when down, substantially as described.

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Witnesses:

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