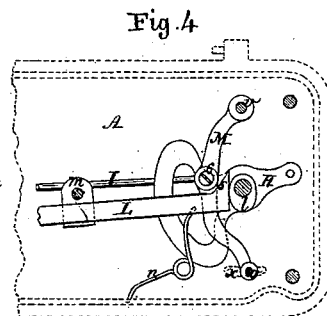
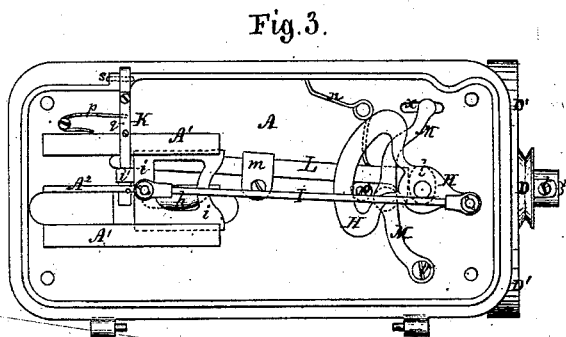
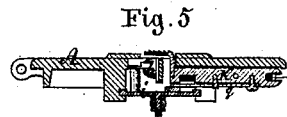
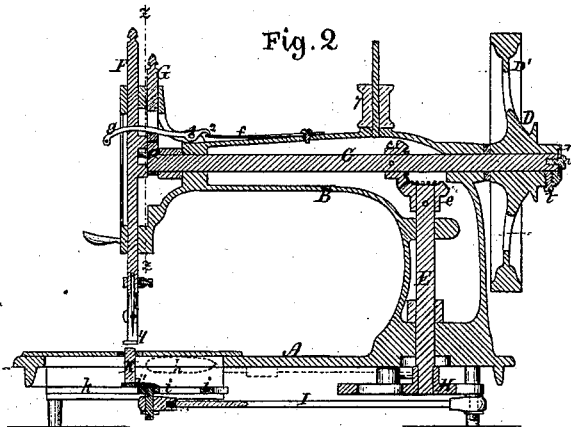
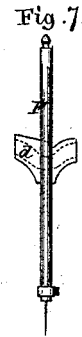
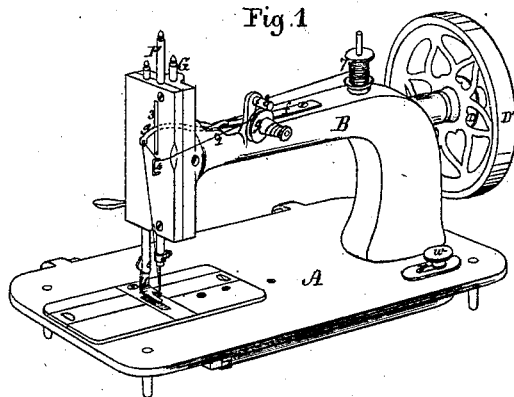


C. PARHAM.
Sewing Machine.

No. 109,443.

Patented Nov. 22, 1870.



Witnesses.
Robt. E. Bruster }
Edmund Masson }

Charles Parham.
By atty. A. B. Stoughton.

UNITED STATES PATENT OFFICE.

CHARLES PARHAM, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **109,443**, dated November 22, 1870.

To all whom it may concern:

Be it known that I, CHARLES PARHAM, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Sewing-Machines; and that the following is a full and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a perspective view of my machine. Fig. 2 represents a longitudinal vertical section through the machine. Fig. 3 represents a view of the under side of the machine. Fig. 4 represents a portion of the mechanism as it would appear in top view by removing the bed-plate of the machine. Fig. 5 represents a vertical cross-section through the cloth-feeding device and shuttle-carrier. Fig. 6 represents a vertical cross-section through the upper front portion of the machine, as at *z z*, Fig. 2. Fig. 7 represents the needle-bar and cam which actuates it.

Similar letters of reference, where they occur, denote like parts in all the figures.

My invention relates to the manner in which the take-up arm is guided by an upright bar operating on the periphery of a cam, against which it is retained in contact by means of a spring operating under the rear end of the take-up arm.

My invention also relates to the manner in which the hand-wheel and driving-pulley are retained in position when running loose on the shaft by means of a washer and set-screw placed in the end of the shaft, thereby taking up also all lateral lost motion.

My invention also relates to the manner in which the cloth-feeding device is operated by means of a long lever having a sliding and vibratory lateral motion, the motion being produced by a cam attached to the upright shaft pressing its beveled rear end against a roller carried by the stitch-regulating lever.

My invention also relates to the manner in which the length of the stitch is regulated by means of a lever operated by a thumb-screw, so as to bring the roller which it carries nearer or farther from the cam on the vertical shaft,

thus varying the lateral motion of the long lever, and, consequently, the length of the stitch.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

To the bed-plate A of the machine is attached the frame B, which carries, in suitable bearings, the main shaft C, to which motion is transmitted by means of the pulley D. This shaft C carries a bevel-gear, *c*, which meshes with another bevel-gear, *e*, attached to the upright shaft E, and gives motion to all the mechanism placed under the bed-plate of the machine.

To the forward end of the shaft C is attached the cam *a*, which carries the roller *b*. This roller operates in the groove of a cam, *d*, attached to the needle-bar F, giving an up-and-down motion to the needle-bar at each revolution of the shaft C.

In the rear of the needle-bar, and directly over the cam *a*, there is a short upright bar, G, which is susceptible of an up-and-down motion, and serves as a guide for the take-up arm *g*. This arm is pivoted to the frame at I, and is kept in contact with the lower portion of the upright bar G by the spring *f*, which presses under its rear portion at 2.

There is a groove, 3, cut in the front part of the frame B, through which one end of the take-up arm *g* projects to receive the needle-thread.

To the lower end of the vertical shaft E the crank H is attached, and to this crank is pivoted the connecting-rod I, which transmits motion to the plate *i*. This plate carries the shuttle-driver and shuttle *h*, and works in horizontal grooves *k*, cut into guides A', formed on the bottom of the bed-plate A. The plate *i* also carries a small plate, *v*, beveled on its upper face to raise up the cloth-feeder K above the bed-plate of the machine and take a new hold on the cloth.

To the vertical shaft E is attached, near its lower end, the cam *l*, which operates against the end of the long lever L. This lever is retained in position by the guide *m*, which allows it to have a sliding and also a vibratory or lat-

eral motion. The rear end of the lever L has an elbow, which is beveled at 5, where it strikes the roller 6, attached to the stitch-regulating lever M, causing it to move laterally when its rear end is pressed by the cam *l*.

The lever L is kept in position against the cam *l* by the spring *n*, and the leather stop *o* keeps it from moving too far sidewise. The forward end of the lever L engages with the cloth-feeder K, and move it to one side in feeding the cloth, from which position it is retracted by the spring *p*, which also presses the cloth-feeder K downward to release it from the cloth.

The cloth-feeder is formed with the usual serrated teeth. It carries, also, a plate, *q*, which is adjusted by two set-screws, so as to project the serrated teeth (more or less) into the cloth. The cloth-feeder K is also connected to the machine by means of the pin *s*. The plate *i* being placed directly under the line of the needle, shuttle face-plate A², and cloth-feeder K, the shuttle is operated, and the cloth-feeder is raised by a simple and positive motion.

The pulley D and hand driving-wheel D' can be loosened on the shaft C by slacking up the set-screw *t* when operating the bobbin-winder, the pulley and wheel being then retained in proper position on the shaft by means of the washer *r* and screw *u*, attached to the end of the shaft C.

In operating with this machine, the thread is passed from the spool 7 to the guide 8, and around the tension-wheel 9 to the guide 4, in front of the machine, then through the eye of the take-up arm *g*, and down to the eye of the needle. If the shaft C is then revolved, the roller *b*, operating in the cam-groove *d* of the needle-bar, will cause the latter to move up and down, while the take-up arm *g* follows the motions imparted to it by the cam *a* independent of the abrupt motions of the needle. During

this time the shaft E revolves, and the crank H will cause the shuttle *h* to play forward and backward, the small beveled plate *i'* raising up the cloth-feeder K at the proper time, while the long lever L moves it forward. When actuated by the cam *l* and roller 6 of the regulating-lever M, this lever is pivoted to the frame at *v*, and secured by a thumb-screw, W, passing through a slot, *x*, in the bed-plate of the machine, so as to bring the roller 6 nearer to or farther from the incline 5 and make long or short stitches. The machine is also provided with a presser-foot, *y*, to keep the cloth down.

Having thus fully described the construction and operation of my machine, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The combination, with the take-up arm of a sewing-machine and the cam *a*, which operates it, of the upright guide-bar G and spring *f*, substantially as and for the purpose set forth.

2. In combination with the cloth-feeder bar K, constructed as specified, the long lever L, operating with a sliding and vibratory or lateral motion, by means of the cam *l*, bevel 5, and roller 6, substantially as and for the purpose set forth.

3. In combination with the long lever L, operating as described, the bent lever M and roller 6, when one end of the lever M is pivoted to the bed-plate and the other is kept in position by a thumb-screw, for the purpose of regulating the length of the vibration of the lever L and the length of the stitches, substantially as described.

CHARLES PARHAM.

Witnesses:

SAML. P. PARHAM,
JAMES J. METER.