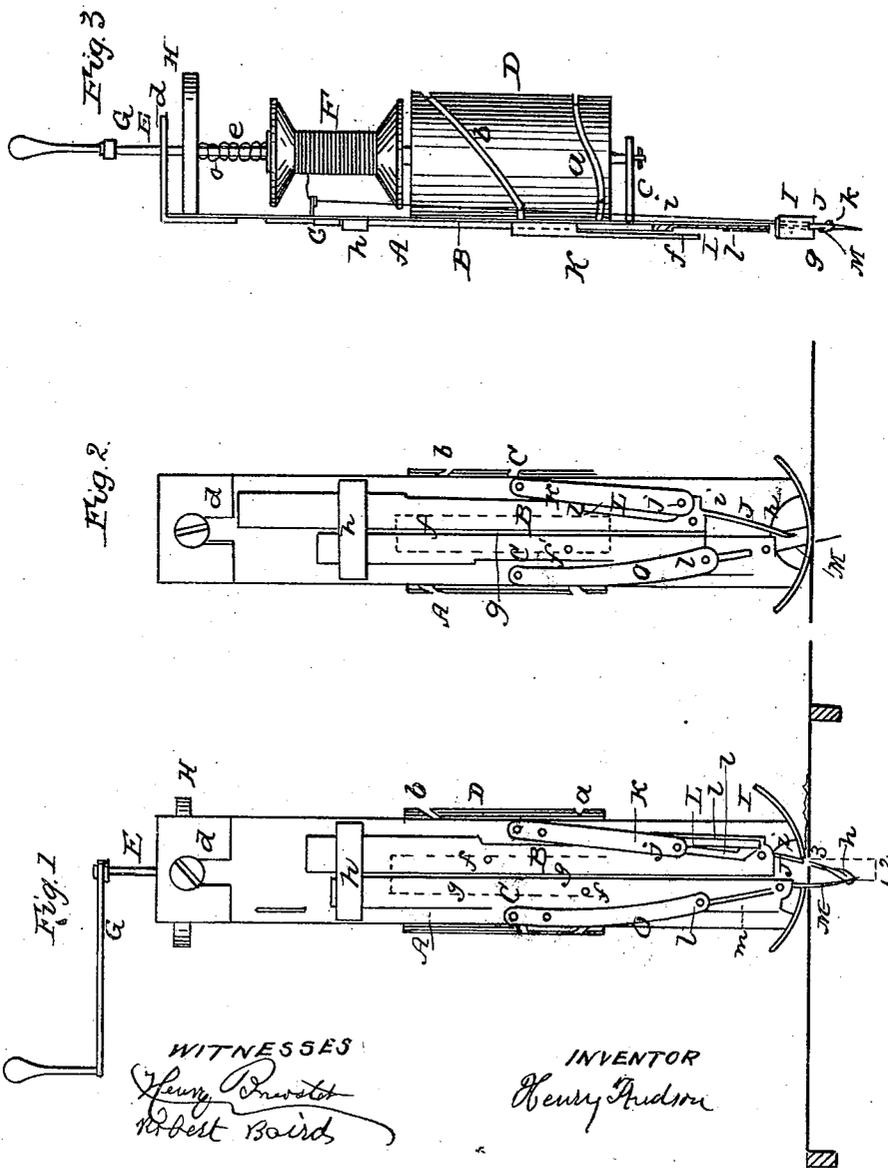


H. HUDSON.
Sewing Machine.

No. 25,968.

Patented Nov. 1, 1859



UNITED STATES PATENT OFFICE.

HENRY HUDSON, OF THREE SPRINGS, PENNSYLVANIA.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 25,968, dated November 1, 1859.

To all whom it may concern:

Be it known that I, HENRY HUDSON, of Three Springs, in the county of Huntington and State of Pennsylvania, have invented a new and useful Sewing-Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 represents a front elevation of my sewing-machine, the needle and looper being down. Fig. 2 is a similar elevation of the same after the needle has been drawn up. Fig. 3 is a side elevation of the same, partly in section.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in carrying a self-feeding stitch-forming device over the surface of a stretched or stationary fabric, so that the fabric will be sewed or quilted in the line or path over which the stitch-former is directed.

To enable others skilled in the art to fully understand, use, and construct my invention, I will proceed to describe it.

A is a plate to which the several parts of my machine are attached, and on the front side of which the needle-bar B and the slide C are moved up and down. Motion is imparted to the needle-bar and to the slide by means of two grooves, *a* and *b*, in a roller, D, which is attached to an arbor, E, which has its bearing below in an ear, *c*, and above in a plate, *d*, both of which are rigidly attached to the plate A, and placed loosely on this arbor is the spool F, the motion of which is retarded by means of a spiral spring, *e*, so that the thread does not run off from the same too freely. A crank, G, serves to give motion to the arbor E with one hand, while the machine is held in the other hand, the bow A serving to give a good and comfortable hold to the machine. The groove A in the roller D serves to give motion to the needle-bar by means of a pin, *f*, which extends through a slot, *g*, in the plate A into the groove *a*, and in a similar manner the groove *b* serves to impart motion to the slide C by means of a pin, *f'*, and both the slide and the needle-bar are guided by a common staple, *h*, in which the two bars move up and down quite freely. The slot *g* is wide enough so that both the pins *f* and *f'* can assume a lateral

movement, as well as one in a longitudinal direction.

Attached to the under side of the plate A is the shoe I, which consists of a plain curved strip of sheet metal, perfectly smooth at the under side, so that it slides easily on the cloth, and provided with an oblong slot, *g'*, through which the needle and the looper pass as they work up and down. The needle J is curved in different directions, as clearly represented in the drawings, and the first bend, *h*, occurs a little above the eye, and the second bend at *i*, a short distance below the needle-bar, and both ends of the needle from the bend *h* to its point, and from the bend *i* to the place where the needle joins the needle-bar, are parallel, or nearly so, with the sides of the latter, while that part of the needle between the bends *h* and *i* is inclined toward the sides of the needle-bar, and on the amount of this inclination depends the feed motion, as will be presently more fully explained. The needle-bar is guided in its up-and-down motion by a guide-pin, *j*, which is attached to an arm, K, which is rigidly fastened to the plate A, and this guide-pin extends into a groove, L, one branch, *l*, of which is parallel with the sides of the needle-bar, while the other branch, *l'*, of the same is inclined, and the degree of the inclination corresponds with the inclination of that part of the needle between the two bends *h* and *i*, and both the branches *l l'* of the groove L form inclined planes, the lowest part of the branch *l* being at its lower end and the lowest part of the branch *l'* at its upper end, and the arm K is made to act as a spring, which presses the guide-pin *j* slightly down in the groove L. By this arrangement the pin *j* can easily pass from the highest part of the branch *l* to the lowest part of the branch *l'* as the needle-bar moves up, while it cannot pass from the upper end of the branch *l'* back into the branch *l* of the groove L, but is compelled to follow the branch *l'* down to its highest part, from which it passes easily to the lowest part of the branch *l*, and the needle-bar moves in a vertical direction as long as the pin *j* moves in the branch *l*, while it assumes a lateral motion when the pin *j* enters into and moves into the branch *l'* of the groove L, and the pin *j* moves in the branch *l* while the needle-bar descends, and it enters into the branch *l'* when the same has arrived at

its lowest point, and while the needle-bar is drawn up the pin *j* moves in the branch *l'* of the groove *L*. As the needle descends, while the needle-bar is guided by means of the vertical branch *l* of the groove *L*, the machine will be pushed along on the cloth by means of the inclined part of the needle, and the amount of the feeding motion is thus made to depend upon the distance 1 2 of the point of the needle in a horizontal direction from a vertical line, 2 3, drawn through that point of the needle to which it descends into the cloth, (see Fig. 1,) and as the needle-bar is drawn up its motion is guided by the inclined branch *l'* of the groove *L*, so that the needle is withdrawn from the cloth in line with its inclined part, and consequently has no effect on the machine, so that the same remains stationary, nor does the needle exert any strain on the cloth whereby the hole would be expanded.

Besides the two bends *h* and *i*, the needle has another bend, *k*, (see Fig. 3,) in a direction at right angles with the two first bends and little above the eye, and this bend gives the looper *M* a chance to catch into the thread and retain it until the needle descends again. The looper *M* is fastened in an inclined position in the slide *C*, which is moved up and down by the action of the groove *b* in the roller *D* on the pin *f'*, and it (the slide) is guided in its up-and-down motion by a guide-pin, *l*, which is attached to an arm, *O*, which is rigidly fastened to the plate *A*, and this pin extends into a groove, *m*, in the upper surface of the slide. The direction of this groove is parallel to the direction of the looper, so that the latter is pushed into and withdrawn from the cloth without exerting any extra strain on the same.

The operation is as follows: The cloth or substance to be sewed is rigidly fastened in a suitable frame, and well stretched, the needle is threaded, and the end of the thread drawn a certain distance through the needle, and the

machine is ready for operation. One hand serves to hold the machine down on the cloth in an upright position and to direct its motion and the other hand serves to turn the crank. The stitch made by this machine is the chain-stitch, and the grooves *a* and *b* in the roller *D* are so arranged that the looper just leaves the cloth when the inclined part of the needle begins to act, so that the looper causes no obstruction to the feed motion of the machine, and with each descent of the needle this machine is pushed along on the cloth, and before the looper has entered it (the machine) can be turned in any direction, so that its motion can be governed by the hand which holds it.

This machine is particularly adapted to quilting; but it can also be used with great advantage for certain kinds of embroideries and for all such work where it is desirable to have the cloth stationary.

Any desired ornamental configuration may be readily quilted or stitched by my improvement. If the fabric is too large to be inclosed in a frame, it may be hung vertically from a ceiling, and the operator may employ step-ladders to place himself in the proper position for applying the machine laterally to the surface of the fabric. The size of the fabric, it will thus be perceived, is no obstacle to the employment of my improvement.

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

The carrying of a self-feeding automatic stitch-forming device (like that herein shown and described, or its equivalent) over the surface of a stretched or stationary fabric, substantially as and for the purpose herein set forth.

HENRY HUDSON.

Witnesses:

HENRY BREWSTER,
ROBERT BAIRD.