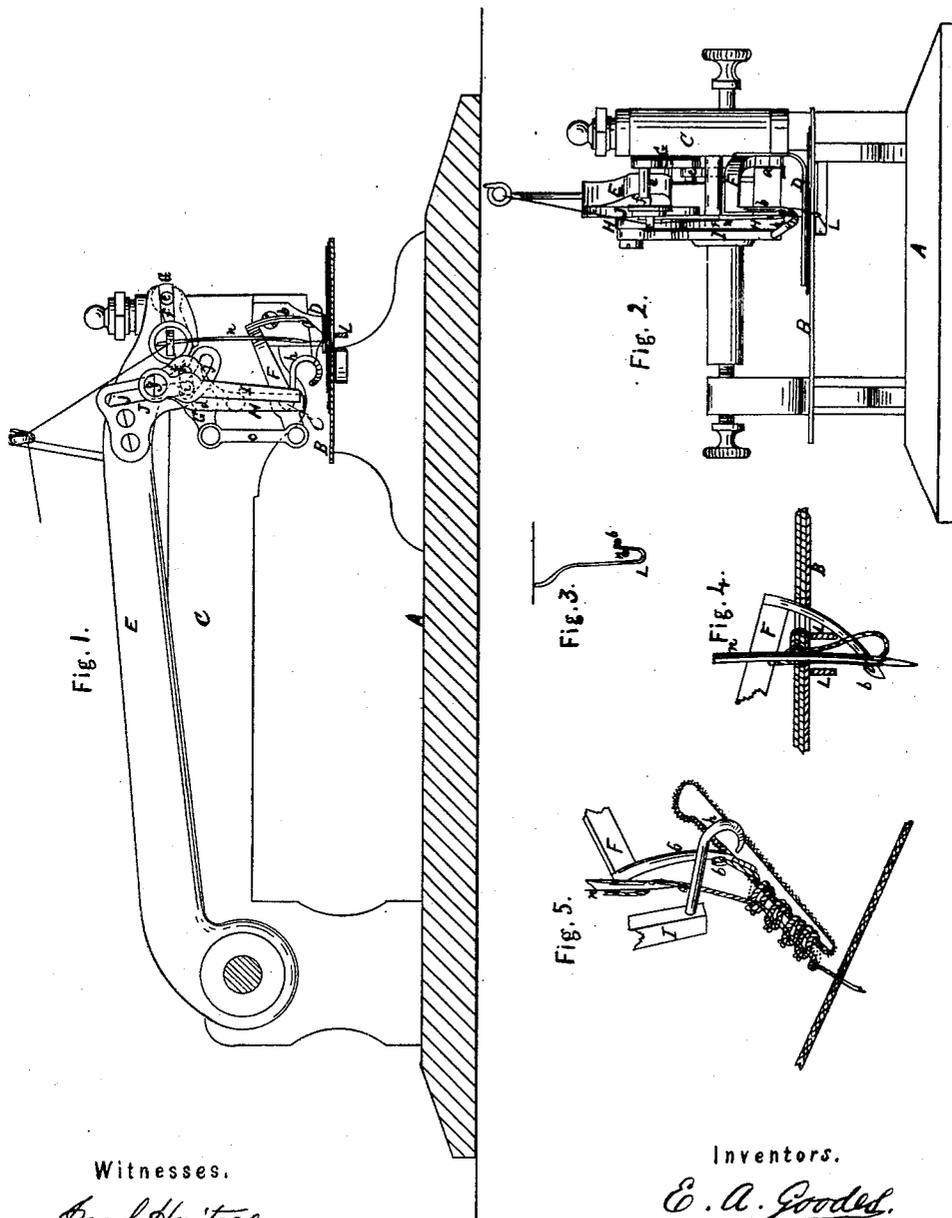


E. A. GOODES & E. L. MILLER.  
SEWING MACHINE.

No. 24,863.

Patented July 26, 1859.



Witnesses.

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## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 24,863, dated July 26, 1859.

*To all whom it may concern:*

Be it known that we, E. A. GOODES and E. L. MILLER, of the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Sewing-Machines; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of a sewing-machine having omitted all the parts not necessary to illustrate our invention. Fig. 2 is a front view of the same. Figs. 3, 4, and 5 are detail views, which will be hereinafter explained.

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

Our invention relates to the formation of a stitch of novel character suitable for working button-holes and eyelet-holes, overseaming, and for other kinds of work in which it is necessary or desirable for the stitches to pass over an edge.

It consists in a certain combination of mechanical devices for making such stitch.

To enable others to make our new stitch and to make and use the machine for producing it, we will proceed to describe the construction and operation of the machine.

A is the bed-plate, B the work-plate, C the stationary arm, D the pressure-pad, E the needle-arm, and *n* the ordinary needle, all constructed and arranged in a well-known manner.

F is a lever working on a fixed stud, *a*, that is secured firmly to the stationary arm C, and having attached to one end a hooked looping-needle, *b*, the longitudinal form of which is that of an arc described from the center of the stud *a*. The said lever F is connected by a link, *c*, with one end of a lever, G, which works on a fixed fulcrum, *d*, secured in the arm C. The opposite end of the said lever G carries a pin, *e*, which enters a slot, *f*, in the end of the needle-arm, and so causes the needle-arm, as it operates in the usual manner, to give motion to the lever G, which, operating through the link *c* on the lever F, causes the hooked looping-needle *b* to descend and ascend simultaneously with the eye-pointed thread-needle *n*, the said needle *b* passing through an opening in the work-plate near where the needle

*n* passes through, and its point and hook passing close by or in contact with the needle *n*, just above the eye thereof, while the latter is protruded through the work-plate nearly to its greatest distance. The above movement will be understood by a comparison of Figs. 1 and 4, in the former of which the needles have only just commenced their descent, and in the latter of which they are represented as having completed it.

H is a small standard secured to the stud *a*, having pivoted to its upper part by a pin, *g*, an arm, I, at the lower end of which is a hook, *h*. The said arm I and hook *h* are arranged to swing above the work-plate B in planes parallel to those in which the hooked needle *b* moves, and so that the said hook *h* will pass close to the needle *n* on the opposite side thereof to the hooked needle *b*. To the upper part of the arm I there is attached a pin, *i*, which enters a slot, *j*, in a cam-plate, J, that is secured to the needle-arm, and a slot, *k*, is provided in the standard H for the pin *i* to work through. The action which this slot *j* has upon the pin *i* as the needle-bar E moves up and down causes the arm I to swing back and forth and carry the hook past the needle *n*, making the said hook advance quickly as the needle *n* completes its ascent and retire quickly as the said needle commences its descent, and keeping it nearly stationary during the greater portion of the operation of the needles *n* *b*. The operation of this hook may be understood by a comparison of Figs. 1 and 5, the perspective view, Fig. 5, showing it advanced and the needles in the highest position, and Fig. 1 showing it drawn back again after the needles have descended but a short distance.

L is a stationary pointed tongue, of steel or other metal, arranged close under the work-plate in such relation to the needles *n* and *b* that they will both pass near its point, but on opposite sides thereof. It is desirable that this tongue L should be elastic laterally to prevent its interfering with the operation of the needles *b* *n*, and for that reason, as well as for greater convenience of application, we propose to give it the curved form shown in the horizontal view, Fig. 3; but the form of any other part than its point is of comparatively little importance. The thread of the needle *n* is shown in the several figures in red color.

The sewing operation is performed in the fol-

lowing manner with a single thread, which comes to and through the eye of the needle *n* in the same manner as the needle of other sewing-machines: The cloth or other material to be operated upon is placed on the work-plate, with the edge of the button or eyelet hole or other edge to be sewed over at a suitable distance from the path of the perforating-needle *n*, and so that the hooked needle *b* passes by the edge of the hole or seam and passes the protruded portion of the needle *n* below the work-plate. As the needle *n* returns and leaves its thread below the material slackened in the form of a loop on the side next the needle *b*, the latter needle returns also, and its hook catches the loop and draws it around the point of the tongue *L*, which holds it, as shown in Fig. 2, so as to prevent its slipping out of the said hook. The needle *b* draws up the loop through the hole or past the edge of the material while the needle *n* and thread are drawn up from the cloth, and the hook *h* advances to the position shown in Fig. 5 as the needles complete their upward stroke, that it may catch and retire with one side of the loop as the needles commence to descend again, and thus to spread it, as shown in Fig. 1, so that the needle *n* may pass through it and carry the next loop through it. The tongue *L* is so formed that the loop slips off it at the necessary stage in the operation. Every loop is operated upon in succession in the same manner by the hooked needle *b* and hook *h*—that is to say, is drawn up over the edge of the material to the side where it entered, and on that

side has its successor passed through it. The stitch is shown in Fig. 5 as being worked on part of a button-hole, the edge of which is represented by blue outlines.

The feed-motion employed in connection with our improved stitch-making apparatus may be of any known kind.

The apparatus may be adapted to any or most of the machines in use, and put on and taken off as required.

Two threads may be used without changing the construction of any of the parts above specified, except that of the hooked needle *b*, which will require to have a second hook to catch the second thread, which should be so conducted from a spool or bobbin below the work-plate as to be caught by the said hook and drawn in the form of a loop through the loop of the thread from the needle *n*, and drawn with the latter loop over the edge of the material, and to be caught and spread by the hook *h* along with the latter loop, that the needle *n* may pass through it also.

What we claim as our invention, and desire to secure by Letters Patent, is—

The combination of the needles *n* and *b*, the hook *h*, and the tongue *L*, the whole applied, arranged, and operating substantially as herein described.

E. A. GOODES  
E. L. MILLER.

Witnesses:

JACOB HERITAGE,  
CHARLES FRANK CRIPPS.