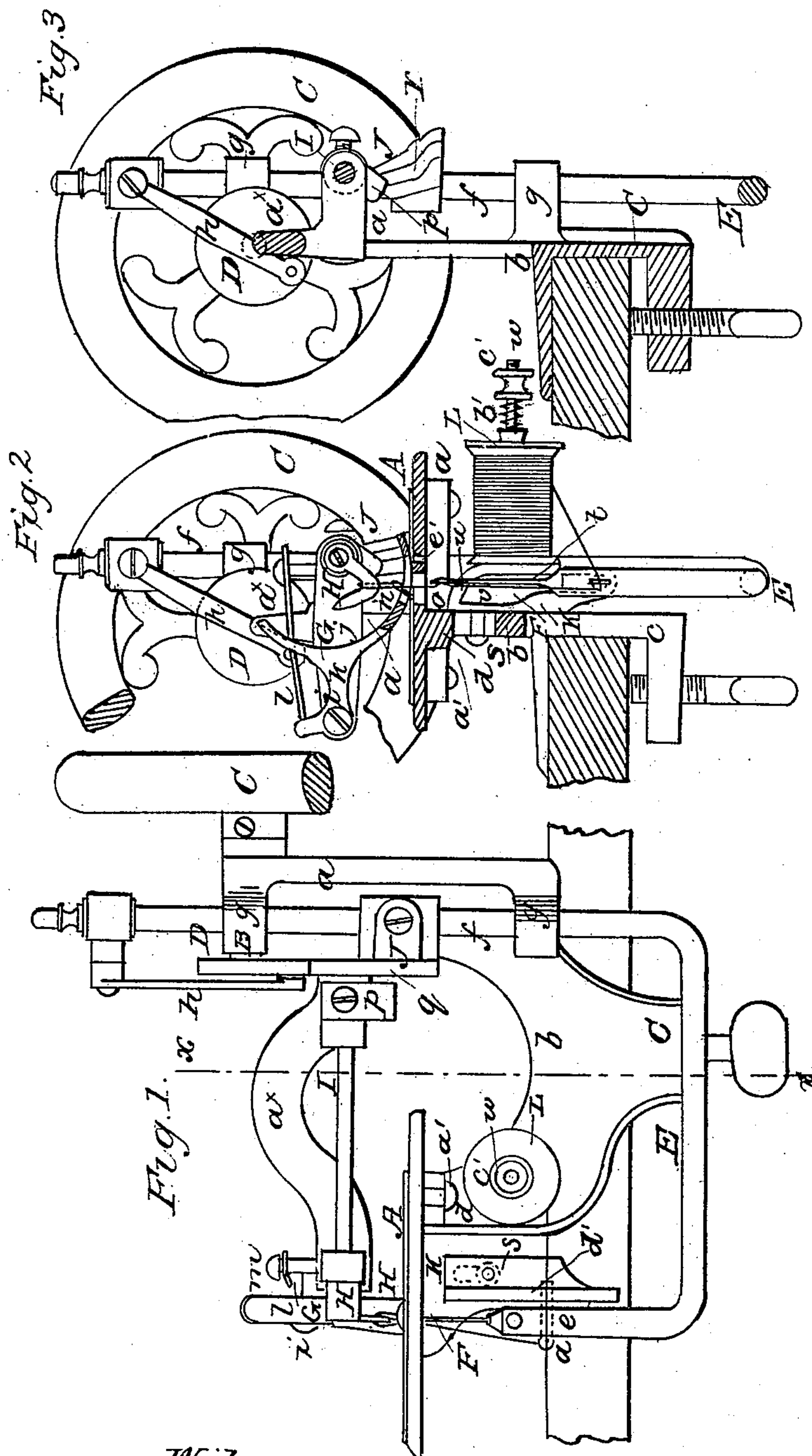


W. S. HILL.
Sewing Machine.

No. 68,196.

Patented Aug. 27, 1867.



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WARREN S. HILL, OF MANCHESTER, NEW HAMPSHIRE.

Letters Patent No. 68,196, dated August 27, 1867.

IMPROVEMENT IN SEWING MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, W. S. HILL, of Manchester, in the county of Hillsboro', and State of New Hampshire, have invented a new and improved Sewing Machine; and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from all others of a similar class, together with such parts as I claim, and desire to have secured to me by Letters Patent.

This invention relates to certain improvements in the single-thread or chain-stitch sewing machine; and it consists in a novel feed mechanism, the mode of operating the looper, and a general arrangement of parts, as hereinafter fully shown and described, whereby a very simple and efficient machine of the kind specified is obtained. In the accompanying sheet of drawings—

Figure 1 is a side view of my invention.

Figure 2, an end view of the same, with the cloth-plate in section.

Figure 3, a transverse vertical section of the same, taken in the line *x x*, fig. 1.

Similar letters of reference indicate like parts.

The frame of the machine is composed of an upright column, *a*, from which an arm, *a'*, projects laterally, a base portion, *b*, with clamp *c*, and a short elevated portion, *d*, the cloth-plate *A* being secured to the latter by screws *a'*. The clamp *c* admits of the machine being secured to the edge of a table or other fixture, as shown clearly in figs. 2 and 3. The different parts of the frame may all be cast in one piece. In the upper part of the upright column *a* there is fitted a horizontal shaft, *B*, having a fly and crank-wheel, *C*, on one end, and a crank-pulley, *D*, on its opposite end. *E* is the needle-rod, of cylindrical form, and bent so as to form three sides of a quadrangle, the needle *F* being fitted in the upper end of a short side, *e*, of the rod, and a long side, *f*, fitted in bearings *g* on the upright column *a*, the side *f* being allowed to work freely up and down in said bearings. This needle-rod is operated by a rod, *h*, from the crank-pulley *D*. To the outer end of the arm *a'* of the frame the presser-foot *G* is attached by a screw, *i*. This foot is composed of a curved portion, *j*, at the end of an arm, *k*, of bent or right-angular form, a spring, *l*, fitting into a projection, *m*, at the upper end of the arm *k*, and having a tendency to keep the presser-foot down upon its work, (see fig. 2.) The presser-foot has an oblong slot, *n*, made through its lower part, through which the needle *F* works, the usual slot *o* being made in the cloth-plate for the needle to work through, (see fig. 2.) *H* is the looper, attached to one end of a shaft, *I*, the bearings of which are on the arm *a'*. On the opposite end of this shaft there is secured an arm, *p*, having a pin, *q*, projecting from it, which is fitted in a curved groove, *r*, in a plate, *J*, secured on the side *f* of the needle-rod *E*, (see more particularly fig. 3.) *K* is a plate, which is attached by a set-screw, *s*, to the frame of the machine, just below the cloth-plate *A*, (see figs. 1 and 2.) This plate *K* has a slot in it, the lower portion, *t*, of which is vertical and perfectly straight, and the upper edge, *u*, curved, (see fig. 2,) the upper part *v* of said slot opposite the curved edge *u* being considerably wider than the lower portion. *L* is the spool fitted on an arbor, *w*, projecting horizontally from the frame below the cloth-plate, the thread passing through an eye, *a''*, on the short side *e* of the needle-rod, and then through the eye of the needle, (see figs. 1 and 2.) The tension of the thread is regulated by a spring, *b'*, on the arbor *w*, bearing against the end of the spool, the pressure of the spring being regulated by a screw-nut, (see fig. 2.)

From the above description it will be seen that by turning the crank-wheel *C* and rotating the shaft *B*, a reciprocating motion will be given the needle-rod *E*, and the needle *F* forced up through the cloth-plate, the cloth thereon, and through the slot in the presser-foot, and then drawn down below the cloth-plate. The looper *H* performs its usual function, and it is operated from the needle-rod *E* by the groove *r* in the plate *J*, and the pin *q* of the arm *p* fitting in said groove. The needle *F*, besides performing its usual function, also feeds the cloth along. This is accomplished as follows: The short side *e* of the needle-rod has a pin, *d'*, projecting laterally from it, and this pin works within the slot of the plate *K*. Each time the needle-rod rises, and after the needle has passed through the cloth, the pin *d'* comes in contact with the upper curved edge *u* of the slot in plate *K*, and throws the needle forward and consequently the cloth. As the needle descends the pin *d'* does not follow the curved edge *u* back, for if this were the case the cloth would be moved back again. The wide part

v of the slot allows the needle to descend vertically a sufficient distance to prevent the backward movement of the cloth, and the pin *d'* then enters the vertical narrow part *t* of the slot. In the cloth-plate A, underneath the presser-foot, there is a hole, *c'*, through which braid may pass to be sewed to the cloth. By having the presser-foot G of the form and arranged with a spring, *l*, as described, it may be readily raised to insert the cloth under it by simply pressing back its upper end. The length of stitch may be varied by adjusting the plate K higher or lower.

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

1. The combination of the needle-arm E, constructed as described, with the sliding-pin *d'* and cam K, substantially as and for the purpose specified.
2. The needle-rod E and its grooved cam-plate J, for operating the looper, substantially as described.

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