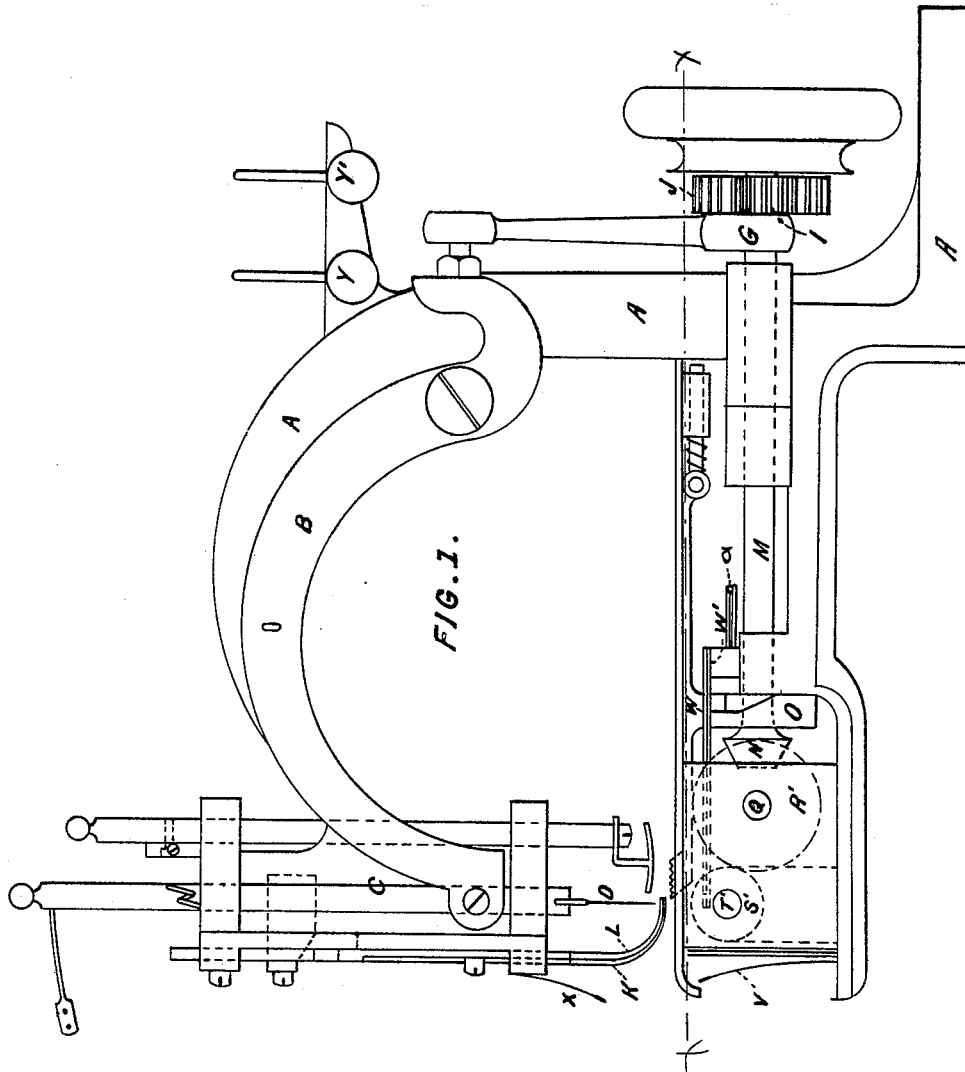


G. STACKPOLE & J. H. APPLGATE.
Sewing and Embroidering Machine.

No. 220,314.

Patented Oct. 7, 1879.



Witnesses,
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Amos W. Hart

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FIG. 2.

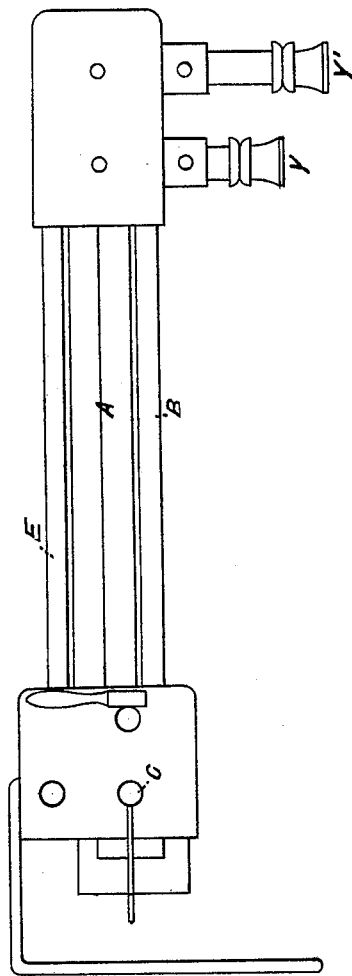
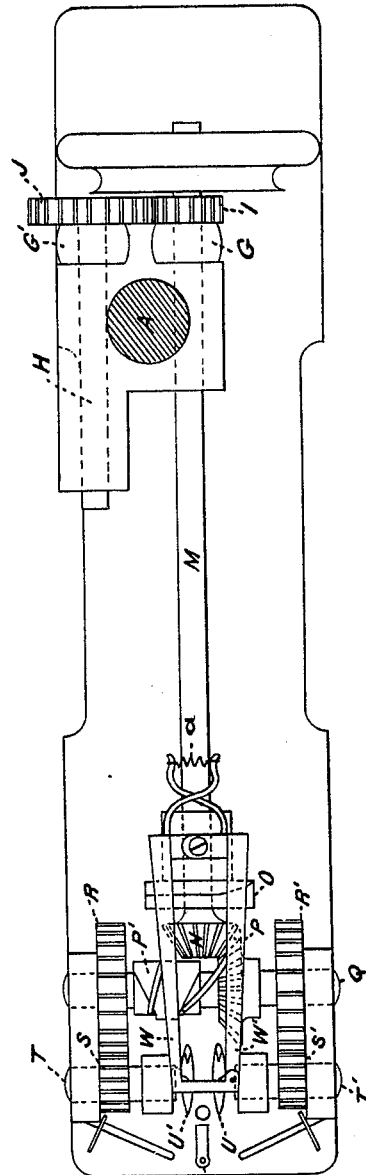


FIG. 3.



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Fig. 5.

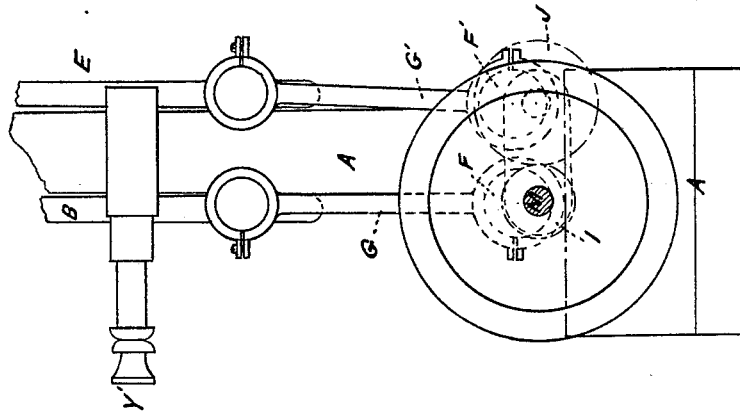


Fig. 6.

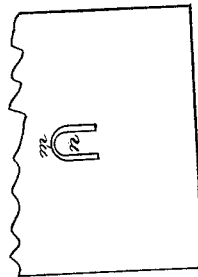
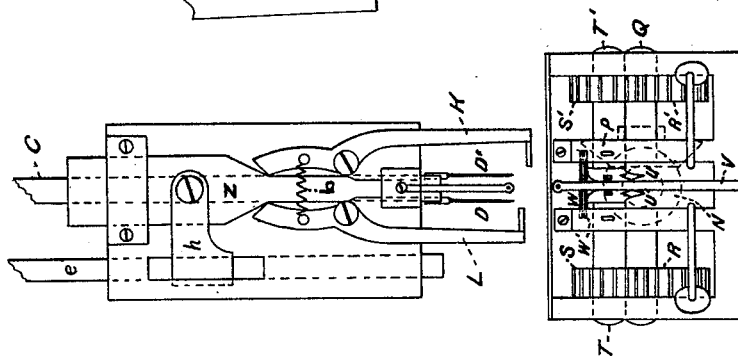


Fig. 4.



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GREENLEAF STACKPOLE, OF ELIZABETH, NEW JERSEY, AND JOHN H. APPLGATE, OF REVERE, MASSACHUSETTS.

IMPROVEMENT IN SEWING AND EMBROIDERING MACHINES.

Specification forming part of Letters Patent No. **220,314**, dated October 7, 1879; application filed June 10, 1879.

To all whom it may concern:

Be it known that we, GREENLEAF STACKPOLE, of the city of Elizabeth, in the county of Union and State of New Jersey, and JOHN H. APPLGATE, of the town of Revere, in the county of Suffolk and State of Massachusetts, have jointly invented certain new and useful Improvements in Sewing-Machines, which improvements are fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side elevation of our improved machine. Fig. 2 is a top view, showing the top of arms and frame. Fig. 3 is a top view of the lower part of our machine on line *x x* of Fig. 1. Fig. 4 is a view of the front end of our machine. Fig. 5 is a view of the back end thereof. Fig. 6 is a top view of the front end of the bed-plate.

The object of our invention is to produce a sewing-machine that will make two lines of stitches at the same time, and weave threads across from one line of stitches to the other, for the purpose of uniting and covering the cut edges of cloth, thereby making a flat seam.

Our invention consists in the application to a two-needle sewing-machine of a set of thread-carriers above the cloth-plate, and a set of thread-carriers below the cloth-plate, for carrying threads across from one line of stitches to the other and interlocking them therewith; also, in the combinations of devices hereinafter described and claimed.

In the accompanying drawings, A is the stationary arm. On one side of this arm is hung a vibrating arm, B, and on the opposite side of said arm is hung a vibrating arm, E.

M is the main shaft, upon which is an eccentric, F. A pitman, G, connects said eccentric to the arm B, thereby giving to said arm a vibrating motion, for the purpose of communicating motion to the needle-bar C, to which it is attached.

A supplementary shaft, H, is placed parallel with the main shaft, and connected thereto by gears I and J, of such relative dimensions as to revolve it at a speed equal to one-half the speed of the main shaft M. On the supplementary shaft H is an eccentric, F', and a

pitman, G', connects said eccentric with the arm E, causing said arm to vibrate at one-half the speed of the needle-arm B. This arm E is for the purpose of giving motion to a bar, *e*, in the head of the machine to which it is connected.

A strap, *h*, connects the bar *e* to a cam, Z, which, in combination with a spring, *b*, gives a vibrating motion to the thread-carriers L and K, for carrying threads across from one line of stitches to the other, and interlocking said threads with the stitches on the upper side of the material operated upon.

A counter-shaft, Q, is connected to the forward end of the main shaft M by beveled gears N and P, of such relative dimensions as to revolve said counter-shaft at a speed equal to one-half the speed of the main shaft. On said counter-shaft Q is a cam, P', which, in combination with a spring, *a*, gives a vibrating motion to the thread-carriers W and W', which are for the purpose of carrying threads across from one line of stitches to the other, and interlocking them below the material operated upon.

Two needles, D and D', are attached to the needle-bar C. Said needles operate in combination with two loopers, U and U', on shafts T and T'. Said shafts receive their motion from the counter-shaft Q by means of gears S and S' and R and R', of such relative dimensions as to cause the shafts T and T' to revolve at the same speed as that of the main shaft M.

That part of the cloth-plate through which the holes are cut for the needles to pass is cut so as to form a tongue, *n*, between the needles. The end of the tongue is rounded, and a space, *m*, left between it and the plate, to permit the cross-threads to pass as the work is fed along, after the cross-threads have been interlocked with the two lines of stitches under said cloth-plate.

We also provide a guide-plate to attach to the cloth-plate in front of the needles, to guide two pieces of cloth, one piece under each needle, their edges meeting between the needles, but being prevented from lapping by the upright part of the guide, so that when the cross-threads are interlocked, with the stitches on

both the upper and under sides of the cloth, the edges of the cloth are covered and united smoothly and firmly together.

It is obvious that the mechanism for carrying threads across and interlocking the same with two lines of stitches may be as readily applied to a shuttle or lock-stitch machine as to the loop or chain stitch machine here shown.

What we claim is—

1. The main shaft M and supplementary shaft H, with the eccentrics F and F' and pitmen G and G', in combination with the vibrating arms B and E, bar *c*, strap *h*, cam Z, thread-carriers L and K, spring *b*, needle-bar C, and needles D and D', substantially as and for the purpose set forth.

2. The combination of the shafts T and T', gears S and S', loopers U and U', shaft Q, gears R and R', cam P, main shaft M, beveled gears P and N, thread-carriers W and W', and spring *a*, substantially as and for the purpose set forth.

3. The combination, with the stitch-forming mechanism of a sewing-machine adapted to form two parallel rows of stitches at one and the same time, of the two vibrating thread-carriers L and K, arranged above the cloth-

plate, the two vibrating thread-carriers W and W', arranged below the cloth-plate, and mechanism for operating said parts with respect to one another, whereby the threads carried by the thread-carriers L and K are interlocked with the threads carried by the stitch-forming mechanism above the surface of the material operated upon, and the threads carried by the thread-carriers W and W' are interlocked with the same below the said material, substantially as and for the purpose set forth.

4. The combination, with the two needles D and D', the two loopers U and U', the two vibrating thread-carriers L and K, arranged above the cloth-plate, the two vibrating thread-carriers W and W', arranged below the cloth-plate, and mechanism for imparting to said parts the necessary movements, of a cloth-plate provided with a tongue, *n*, arranged with relation to the said needles, all as and for the purpose set forth.

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