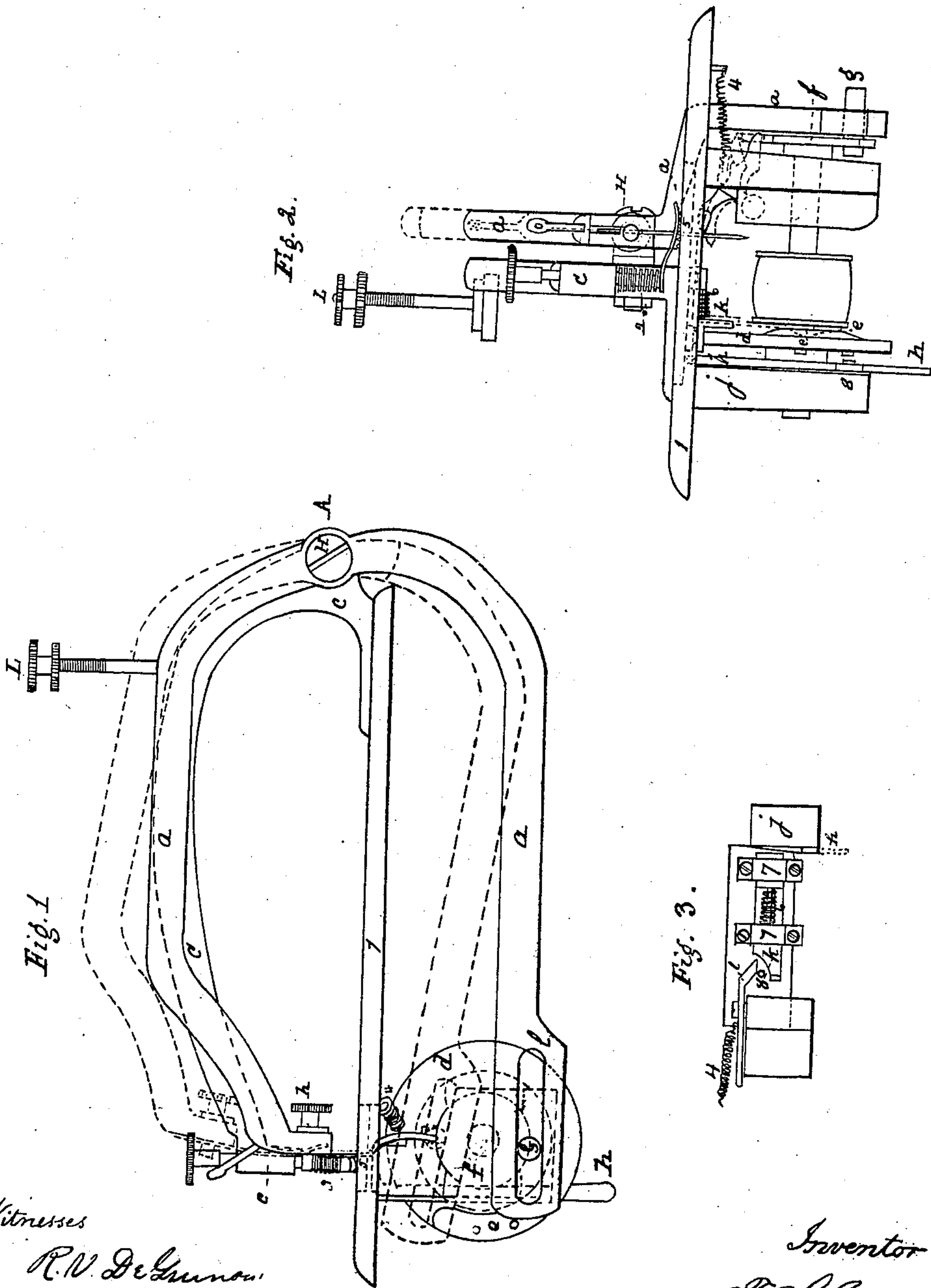


F. S. COATES.  
SEWING MACHINE.

No. 19,684.

Patented Mar. 23, 1858.



Witnesses

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## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 19,684, dated March 23, 1858.

*To all whom it may concern:*

Be it known that I, FAYETTE S. COATES, of the city of New York, in the county and State of New York, have invented a new and useful Improvement in Sewing-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and forming part of these specifications, in which—

Figure 1 is a side elevation, showing the action of the needle-carrier by the red lines. Fig. 2 is an end elevation of the same, showing the action of the hook and feed. Fig. 3 is a plan view, showing the feed with the loop-expander attached.

Similar letters of reference in each of the three figures indicate corresponding parts.

The nature of my invention consists in attaching to chain-stitch or single-thread sewing-machines a device for the purpose of opening the loop. This arrangement is easily and cheaply accomplished by means of a small spring attached to the feed, and working in conjunction with the hook in such a manner that the loop is opened so wide that the needle must pass through, however great the deflection in ordinary sewing.

I am aware that other devices have been patented for a like purpose; but the expense generally attending their construction has rendered them nominally useless as applied to cheap sewing-machines, if not otherwise defective.

*a a*, Fig. 1, is a U-shaped needle-arm, the red lines showing the action of the same. The motion is communicated to the arm by means of the stud *g*, working in the slot *L*, the said stud being placed in the end face of the cam *F*.

*C C C* is a stationary arm, made fast to the bed-plate 1 by means of screws or otherwise. The said arm is for the threefold purpose of supporting the pressure-gage *M* and spool-rack *I*<sup>2</sup> and the needle-arm *a a*, having its bearing at *H*.

*B* is a thumb-screw for the purpose of adjusting the needle to the proper position and maintaining the same.

The hook *I*, Fig. 2, has its axis fixed to the vertical hanger *J*, and its motion is also shown by the red lines, the said motion being com-

municated to the hook by means of the cam *F*, the end of the hook being pressed back on the periphery of the cam by means of the spiral spring 4. Motion is also communicated to the feed *K*, Figs. 2 and 3, by means of the cam *d*, the feed being underneath the bed-plate 1, and being parallel thereto, and secured by guides 7 7, the feed being pressed against the face of the cam *d* by means of the spiral spring 6, and at each revolution of the cam sending the cloth or material sewed forward by means of the teeth projecting through the bed-plate, as seen at 5, Fig. 2. The end of the feed abuts against the lever *H H*, the lever having a wedge end, and its fulcrum being at 8', Fig. 2. It will be seen that according as the said lever is pressed forward or backward the stitch is shortened or lengthened.

Attached to the feed, and making part of the same, is a small spring, 8, Fig. 3, bent at an angle of about forty-five degrees and slightly curving toward the side of the feed, this spring catching the loop in connection with the hook *I*, and greatly expanding the same, the hook and feed moving to and from each other. The needle, with the thread, descending through the bed-plate 1, Fig. 2, and the hook *I* moving forward, catches the thread and forms a loop, and on the return motion of the needle the feed *K*, with the spring 8 attached, moves forward from the opposite direction and catches the thread, thereby greatly expanding the loop, and holding the loop in such position that the needle will be sure to pass through on its return-stroke.

I am aware that there are many devices for opening or spreading the loop in single-thread sewing-machines; therefore I do not claim as new the expansion or spreading the loop in such machines; but

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the spring 8 with the feed *K* and hook *I*, for the purpose of expanding the loop in sewing-machines, as above set forth.

F. S. COATES.

Witnesses:

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