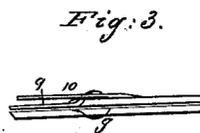
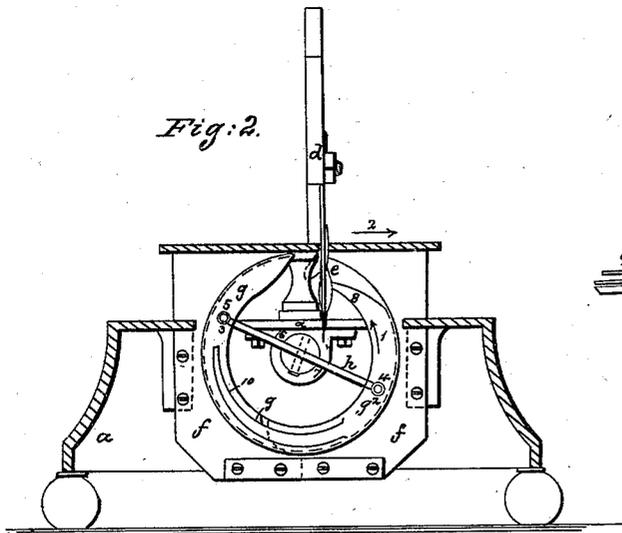
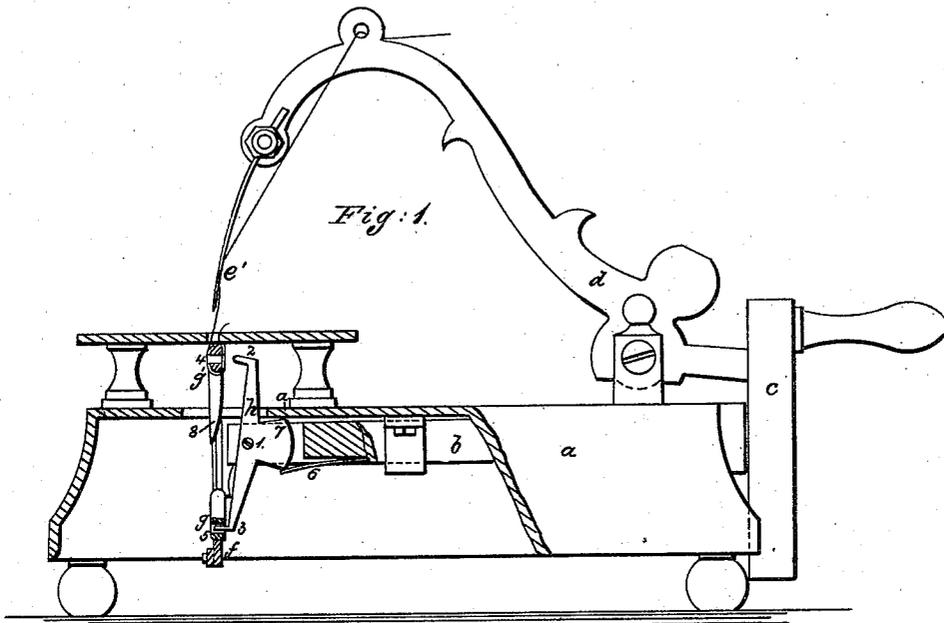


E. H. SMITH.
Sewing Machine.

No. 21,089.

Patented Aug. 3, 1858.



Witnesses:
Lemuel W. Serrell.
Thomas G. Harold.

Inventor:
E. H. Smith

UNITED STATES PATENT OFFICE.

E. HARRY SMITH, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 21,089, dated August 3, 1858.

To all whom it may concern:

Be it known that I, E. HARRY SMITH, of the city, county, and State of New York, have invented, made, and applied to use certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the nature and operation of my said invention, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a side view with the looper and bed in section. Fig. 2 is my annular looper in elevation and the bed-plate in section, and Fig. 3 is the looper in an edge view or plan.

Similar marks of reference denote the same parts.

The nature of my said invention consists in a continuously-revolving looper that passes into, through, and out of the loop of needle-thread, catching said loop and retaining the same in a distended form until the needle in its next descent passes through the loop, and then the looper passes out of said loop, allowing the same to be drawn up by the descent of the needle, and another loop is taken by the point of the looper from the needle-thread as said looper revolves. In connection with this looper I use a spreader that distends the loop for the needle to pass into the same, and I also drive my looper by a peculiar character of revolving and oscillating lever.

It will be understood that the above is in no sense a revolving looper-hook, as that, for example, of A. F. Johnson, patented 1858, or that of J. E. A. Gibbs, of June 2, 1857, as all such hooks, being rigidly affixed to the end of the driving-shaft, do not and cannot pass through the loop, and therefore operate in a different manner from my invention. It also differs from the rotary-shuttle sewing-machine of Blodgett & Lerow in forming a chain instead of a shuttle stitch.

In the drawings, *a* is the bed of the machine, carrying the shaft *b*, on one end of which is a cam, *c*, acting on the heel of the needle-arm *d*, to give the same a vibrating motion.

e is the eye-pointed needle, carrying the thread from a spool in any convenient manner. I would here remark that the needle

might be actuated by any desired means, so long as the movements were timed properly with the looper.

f is a plate formed in two halves and secured to the frame by suitable screws. In this plate a circular opening is made with a V-formed edge, and my revolving looper *g* is inserted within said opening, the same being provided with a V-formed groove around its periphery, into which the edges of the plate *f* pass. This looper is driven by means of the revolving and oscillating lever *h*, the fulcrum of which is a pin, 1, across the center of the shaft *b*, and the ends of the lever *h* are provided with pins 2 and 3, entering holes 4 and 5 in the looper *g*.

6 is a spring acting on a heel-piece from the lever *h*, to keep the pin 2 always in the hole 4, except when said pin is passing the loop of needle-thread, at which time the part 7 of the lever *h*, coming in contact with the under side of the bed *a*, (or its equivalent,) draws the pin 2 out of the hole 4, simultaneously forcing the pin 3 into the hole 5, to keep up the continuous revolution of the looper *g*. The looper *g* revolves in the direction of the arrow 1, and is formed with the point 8 to enter the loop of needle-thread, and the part 9 is removed to allow the descent of the needle.

10 is a wire or equivalent spreader, between which and the looper *g* the needle passes as it descends.

The operation is as follows: The needle passes through the cloth, slightly rises, and forms a loop of needle-thread at the time the point 8 of the looper reaches said loop, passing into the same, and the ring revolves through said loop while the needle rises, and any suitable apparatus moves the cloth along in the direction of the arrow 2. The looper, by its revolution, draws the loop off diagonally, as shown by the red lines, and the spreader 10 opens the loop, so that the needle in its next descent passes between the looper *g* and spreader 10, directly through said loop with unerring certainty, and in the further revolution of the looper, the rear end of said looper passing out of the loop, allowing the same to be drawn up, and a new loop is taken from the needle-thread by the point 8, as before.

I claim—

1. Forming the stitch by means of the detached looper specified, operating in combination with the needle, and passing entirely through the loop in substantially the manner and for the purposes described.
2. The spreader *l* on the side of the looper, for the purposes specified.
3. The revolving and oscillating lever *h*, when

constructed and arranged in the manner described, to drive the looper *g*, substantially as specified.

Dated this 22d day of January, 1858.

E. HARRY SMITH.

Witnesses:

LEMUEL W. SERRELL,
THOMAS G. HAROLD.