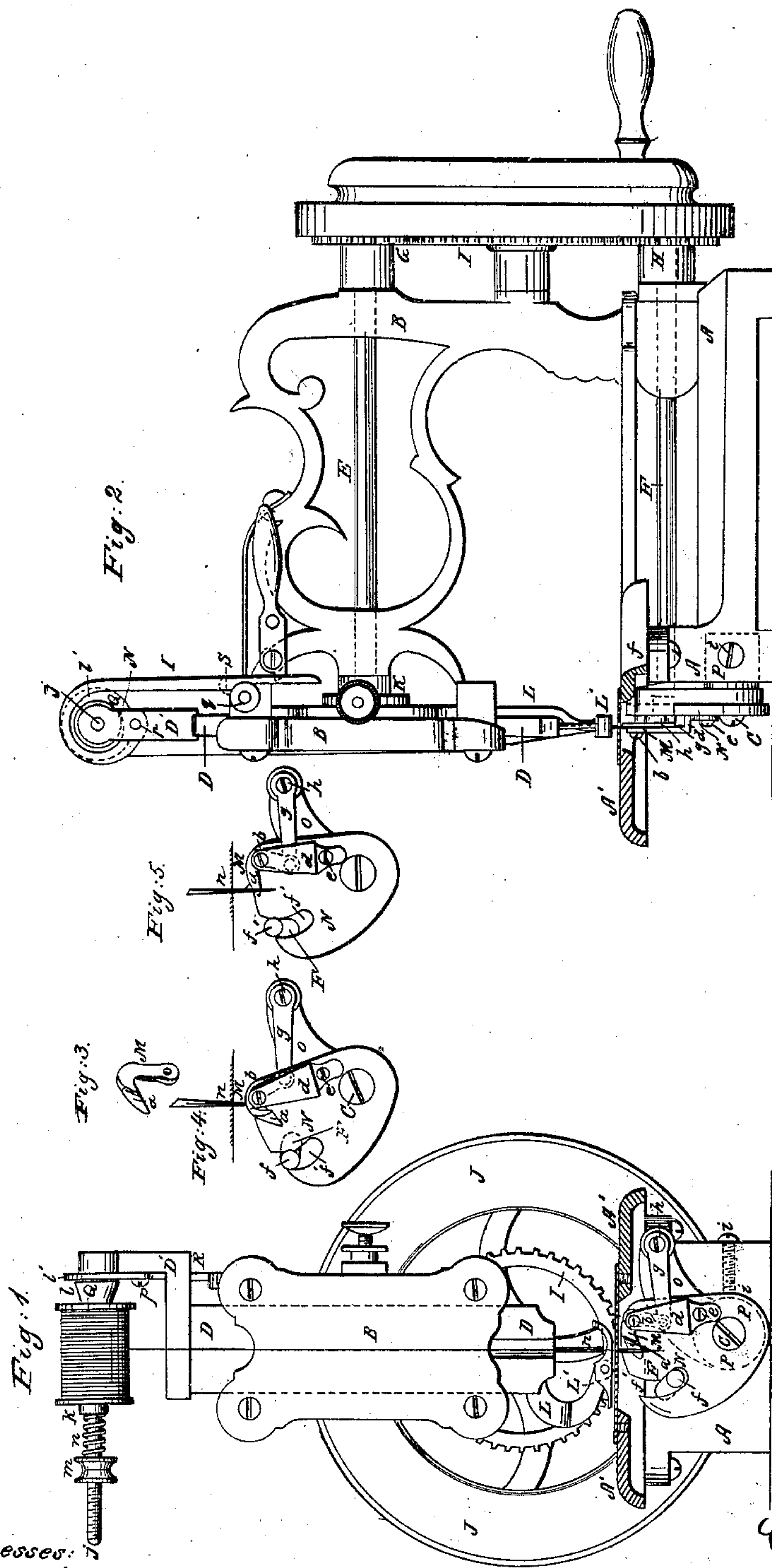


C. RAYMOND.
Sewing Machine.

No. 32,925.

Patented July 30, 1861.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES RAYMOND, OF BRATTLEBOROUGH, VERMONT.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 32,925, dated July 30, 1861.

To all whom it may concern:

Be it known that I, CHARLES RAYMOND, of Brattleborough, in the county of Windham and State of Vermont, have invented a new and useful Improvement in Sewing-Machines; and I 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—

Figures 1 and 2 are elevations at right angles to each other, and both partly in section, of a sewing-machine with my improvements. Fig. 3 is a perspective view of the looper. Figs. 4 and 5 exhibit the needle and looper at different stages of the operation of making the stitch.

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

This invention consists in a certain novel mode of applying and supporting an oscillating looper, and in a novel mode of adjusting the same for correct operation in combination with the needle.

To enable others to make and use my invention, I will proceed to describe its construction and operation.

A is the stand.

A' is the bed-plate, and B the stationary arm.

D is the needle-bar, applied to operate in the usual manner.

E is the needle-operating shaft, and F the looper-operating shaft, arranged parallel with each other in horizontal positions, the latter in bearings under the bed-plate and the former in bearings in the stationary arm. These shafts are furnished with spur-gears G H, of the same size, gearing with a spur-gear, I, secured to the driving wheel or pulley J, and are thus caused to be driven at uniform velocities. The shaft E also carries the feed-cam K, which acts upon the feed-lever L, the feed represented being what is known as a "top feed," and the feeding-foot L' constituting also the presser.

M is the looper, made in the form of a pointed hook, nearly flat at the point and for some distance therefrom, and with a shoulder, *a*, on the side next which the needle *n* works to spread the loop, the lower part of the shoulder being rounded off in such manner as to permit it to pass freely into the loop. The said looper is pivoted by a screw-pin, *b*, to the face of a

plate, N, which is arranged to oscillate in planes parallel with the feed movement on a horizontal pin, *c*, situated below the bed-plate. The pin *b*, upon which the looper oscillates in planes parallel with the planes of oscillation of the plate N, also passes through a small bracket, *d*, which is secured to the plate N by a screw, *e*, and which serves both to support the outer end of the pin and to prevent the lateral oscillation of the looper, a portion of whose flat outer side works close to the flat inner face of the upper portion of the said bracket. The looper will be understood to have a double or compound oscillating movement—viz., the movement upon the pin *b* and the movement with the plate N upon the pin *c*. The oscillating movement of the plate N is produced by a crank, *f*, on the shaft F, working in a slot, *f'*, in the said plate. The oscillating movement of the looper upon the pin *b* is produced by the oscillating movement of the plate N, owing to the looper being connected by a bridle-rod, *g*, with a fixed pin, *a*. This pin *h* is secured in arm O, cast with or otherwise secured to a cylindrical socket, P, which is fitted to a hole provided for it in the stand A, and which is secured by means of a binding-screw, *i*, screwing through the front of the stand. The pin *c*, upon which the plate N oscillates, is screwed into the center of the socket P, and hence when the binding-screw *i* is unscrewed to permit the socket P to be turned the pin *h* is adjustable in an arc concentric with the axis of the pin *c*, which permits it (the pin *h*) to be brought nearer to or farther from the needle, by which means the looper is adjusted to work farther or not so far into the loop.

Q is the thread-spool, arranged upon a horizontal pin, *j*, carried by an arm, D', secured to the top of the needle-bar. The said spool is firmly held between two cones, *k l*, fitted to the pin *j* by means of a double nut, *m*, fitted to a screw-thread on the said pin, a spiral spring, *n*, being coiled round the said pin between the said nut and the cone *k*, and the said spring and nut holding the base of the cone *l* in contact with the arm D' with the requisite force to cause friction enough between them to produce a desirable tension on the thread.

R is a lever attached by a fulcrum-pin, *p*, to the arm D', and *q* is a roller attached to one side of the stationary arm B. This lever and

roller constitute my improved clamping device. The lever is so arranged that the point *r* of its shorter arm may be brought to bear against a narrow cylindrical surface, *l'*, provided around the base of the cone *l*, and its weight is so disposed by the coiled form of the upper part of its longer arm as to tend to keep the point *r* out of contact with the surface *l'* of the cone *l*, and to keep its longer arm in contact with the roller *q*. The edge of the longer arm, which is toward the roller, has a short inclination, *s*, (see Fig. 1,) which in the downward movement of the lever with the needle-bar comes into contact with the roller *q* just as the looper is about passing out of and liberating the loop. The lever during the greater portion of the movement of the needle does not bear on the cone *l*; but when in the downward movement the inclination *s* passes the roller the latter acts upon said inclination to press back the lever, and so to force its point *r* against the cone *l* in such manner as to prevent the turning of the said spool and drawing off of any more thread during the completion of the descent of the needle, by which means the needle in completing its descent is made to draw up the loop so near the cloth that the looper cannot interfere with it in its advance to form the next loop. The loop is not, however, drawn up tight by this operation, but is tightened by the next upward movement of the needle.

The operation of the looper is illustrated by Figs. 1, 4, and 5. The needle and looper movements are so adjusted that the looper-plate *N* commences to move in the direction of the arrow shown upon it in Fig. 1—that is to say, in a direction to carry the looper into the loop at the same time as the needle commences its descent—and that the said plate commences to move

back again at the same time as the needle commences to rise. During the first-mentioned movement of the plate the looper is caused by the bridle-rod *g* to turn over in the direction of the arrow shown near it in the above-mentioned figure, and during the return movement of the plate the looper turns back again. In that figure the needle is descending and the looper just passing into the loop. Fig. 4 shows the position to which the looper has moved after the needle has completed its descent and made about half of its upward movement. In this condition of the needle and looper the loop, which is shown in Fig. 1 as having been drawn nearly up to the cloth, has been drawn up tight against the cloth; and Fig. 5 shows the relative positions of the needle and looper at the time when, during the descent of the needle, the inclination *s* on the lever *R* is just passing the roller *q*, the looper being just passing out of the loop through which the needle is descending.

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

1. Securing the pin *c*, on which the looper-plate *N* oscillates, and the fixed pin *h*, to which the bridle-rod *g* is attached, to a socket, *P*, which is adjustable, as and for the purpose herein specified.

2. The bracket *d*, constructed with a flat inner face and applied in combination with the plate *N*, the looper-pin *b*, and the looper *M*, substantially as and for the purpose herein specified.

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Witnesses:

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