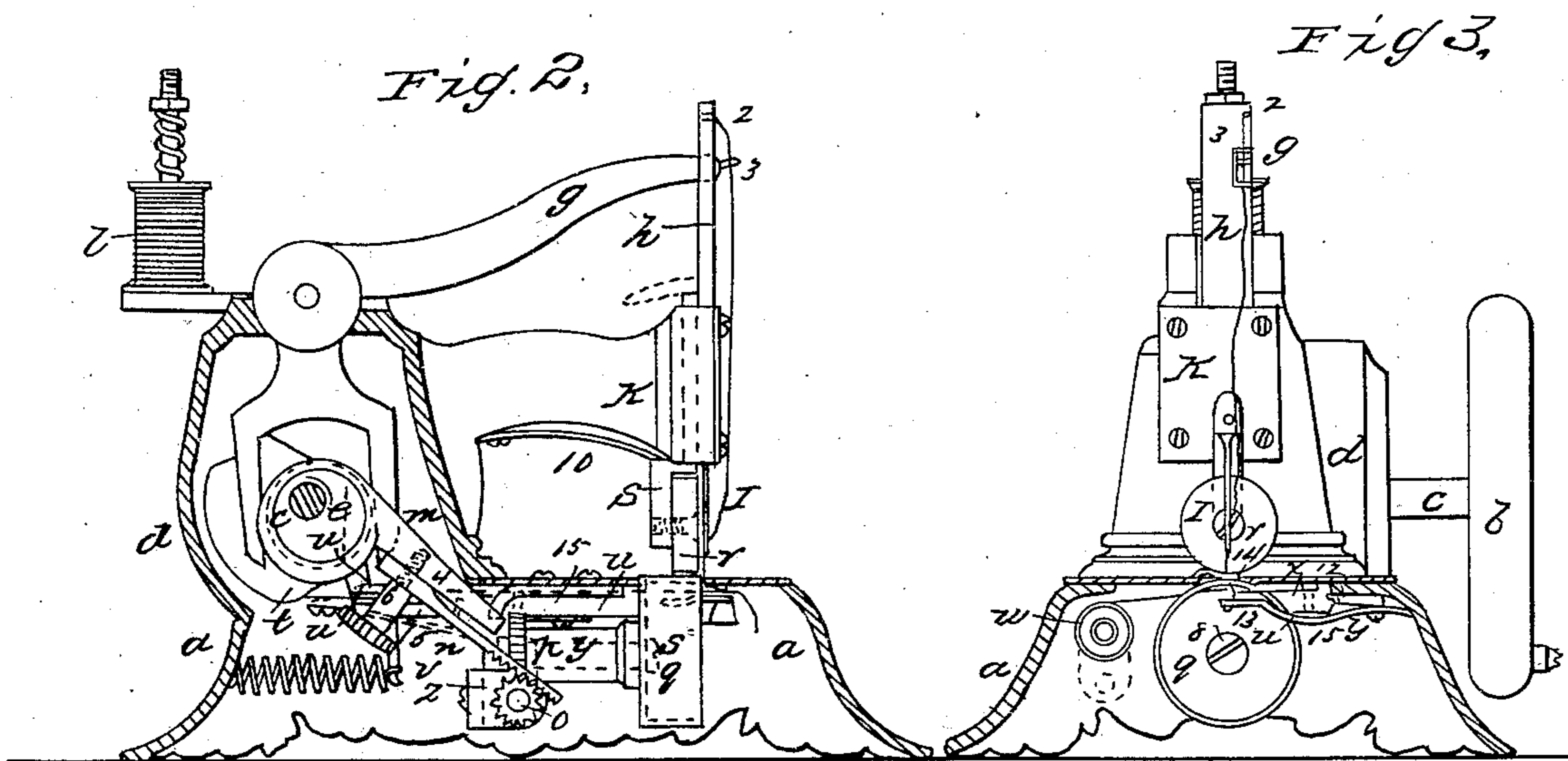


C. RAYMOND.
Sewing Machine.

No. 22,220.

Patented Nov. 30, 1858.



UNITED STATES PATENT OFFICE.

C. RAYMOND, OF BRATTLEBOROUGH, VERMONT, ASSIGNOR TO WILLFORD
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IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 22,220, dated November 30, 1858.

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, 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 construction and operation of the same, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is an inverted plan of the bed and parts attached. Fig. 2 is a side view with the bed shown in section; and Fig. 3 is a similar end view.

The same marks of reference denote corresponding parts.

The nature of my said invention consists in a peculiar manner of applying and regulating the feeding-rollers that move the cloth, whereby more or less motion is given to the rollers to feed the cloth while the needle is out of said cloth; also, in a new construction of looper that forms a double chain-stitch, said looper being formed of two pieces, the first of which passes through the loop and spreads the same, and then the second moves up and the needle takes a loop therefrom, and then the two, retiring, drop the first loop around the second, and so on.

In the drawings, *a* is the bed of the machine. *b* is the fly-wheel or driving-pulley on the shaft *c*, supported in the cam-house *d*. *e* is an eccentric giving motion to the fork *f* and needle-arm *g*, that are set and move on the fulcrum-pin 1. *h* is the needle-bar, and *i* is the needle. *k* is the arm receiving the needle-bar. *l* is the spool of needle-thread, and 2 and 3 are eyes, through which the thread (shown by red lines) passes to the needle *i*. These parts thus far may be of any desired character, and operate as usual.

I will first proceed to describe the feeding device, which is as follows: Around the eccentric *e*, or its equivalent, I put a band or eye, *m*, and stock, to which a rack, *n*, is attached by a screw, 6, passing through a slot, 7. *o* is a pinion, which the rack-teeth *n* fit into. This pinion *o* is on a shaft set in a standard, *z*, and has around its shaft a worm-thread taking a wheel, *p*, on a sleeve around a stud, 8, on the

other end of which sleeve is a roller, *q*, passing through the bed *a*. *r* is a roller on a stock, *s*, in the arm *k*, which roller may have a rounded edge sectionally, and is to be kept down to the roller *q* or intervening material by a suitable spring, 10; and a finger-piece may be provided at 11 by which to raise said roller *r*. The operation of this part is that, as the rack *n* and stock *m* move back and forth by the eccentric *e* between the spring-finger 5 and the part 4 of the bed, the outer end of the rack has also an up-and-down motion, which causes the teeth to strike into and turn the pinion *o* at the time the needle *i* is out of the cloth, which motion, being communicated through the worm *p* to the roller *q*, feeds the cloth along with a definite and certain motion, and according to the distance which the rack *n* is projected from the stock *m*, (the screw 6 and slot 7 allowing of the same,) so the end of said rack will pass more or less over the pinion *o*, and remain in contact a greater or less time before the end draws away and out of the teeth on the said pinion as it proceeds to its extreme retracted position, and by consequence the feed will be more or less each stitch.

The looping device is composed of a looper, 13, on the end of a slide, *u*, that moves in V-formed ways 12 and receives a reciprocating motion from the cam *t*, to which the end of this slide *u* is kept in contact by a suitable spring, *v*. The side of this slide *u*, next the bed *a*, is grooved out to receive a bar, *x*, the end of which is formed as a point, 14, that becomes a carrier of the second thread (shown in blue) from the spool *w*. The bar *x* has a pin, 15, projecting through the slot 16 in the slide *u*; and *y* is a spring friction-plate, which holds the bar *x* stationary, unless moved by the ends of the slot 16, taking the pin 15. 18 is a wire that may be used to guide the loop of needle-thread as it forms by the rising of the needle. The roller *q* is shown hollow, for the convenience of operating the loopers. The parts being properly timed, the cam *t* causes the looper 13 to enter the loop of needle-thread, the carrier 14 remaining stationary until the wider part 17 of the looper 13 has spread the loop of needle-thread on each side of the position from which the needle *i* has by this time withdrawn, when the end of the slot 16 taking

the pin 15, the slides *w* and *x* move together, and the carrier 14 is brought up into the position shown in Fig. 4, being on the opposite side of the needle's path to the looping-point 13. The looper 13 is then forced back by the cam *t*, the carrier 14 and bar *x* remaining stationary, and the said looper 13 draws its loop of needle-thread out of the way of the again descending needle, which needle takes a loop of second thread by passing between it and the carrier 14, at which moment the first loop is dropped from the point 13, and both looper and carrier move back to the position Fig. 1, (by the slot 16 taking the pin 15,) the first loop is drawn up by the descent of the needle, the needle rises, forms the loop, and the parts proceed, as before detailed.

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

1. The arrangement of the adjustable rack *n*, having a reciprocating and vibrating motion, and operating in combination with the pinion *o* and feeding-wheel *q* to regulate the feed, in the manner described.

2. The slide *u*, carrying the looper 13, and provided with the slot 16, receiving the pin 15 on the bar *x*, that is formed with the carrier 14 for the second thread, whereby the thread-carrier 14 is actuated by the reciprocations of the looper 13, substantially in the manner and for the purposes specified.

In witness whereof I have hereunto set my signature this 18th day of May, 1858.

CHARLES RAYMOND.

Witnesses:

GEO. NEWMAN,

EDW. KIRKLAND.