

*Drawing restored from model and records.
Original lost or mistaid.*

S. F. Pratt
Chief Clerk.

2 Sheets—Sheet 1.

S. F. PRATT.
SEWING MACHINE.

No. 22,240.

Patented Dec. 7, 1858.

Fig. 1.

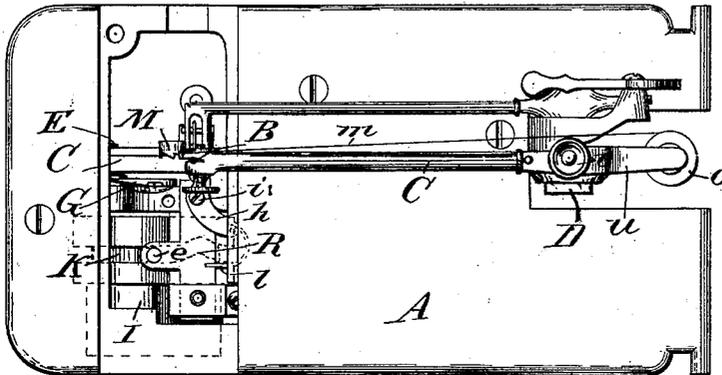


Fig. 2.

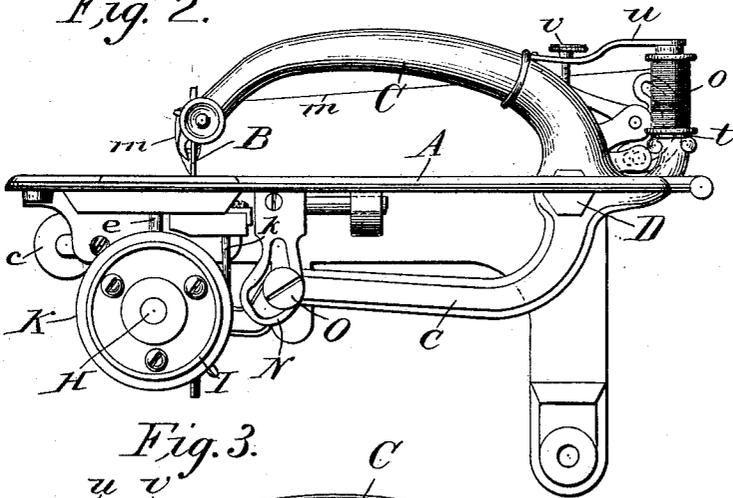
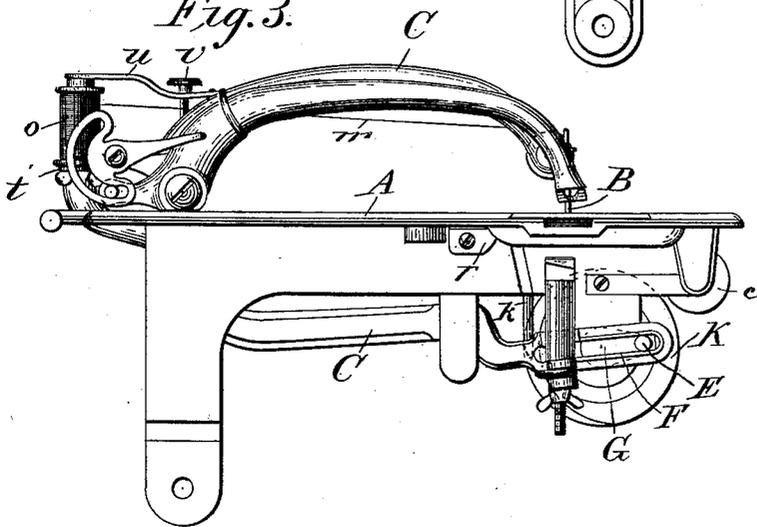


Fig. 3.



UNITED STATES PATENT OFFICE.

SAMUEL F. PRATT, OF ROXBURY, MASSACHUSETTS.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 22,240, dated December 7, 1858.

To all whom it may concern:

Be it known that I, SAMUEL F. PRATT, of Roxbury, in the county of Norfolk and State of Massachusetts, have invented a new and useful or Improved Sewing-Machine; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, of which—

Figure 1 denotes a top view of it as it appears with the cloth rest or plates removed from the table. Figs. 2 and 3 are side elevations. Fig. 4 is a front end elevation. Fig. 5 is a vertical and transverse section, taken through the cam-shaft. Fig. 6 is a top view of the expanding-hook, its slider, and closing-spring. Fig. 7 is a top view, and Fig. 8 a side view, of the thread-carrier. Fig. 9 is a longitudinal and vertical section, taken through the needle.

The said machine is intended to accomplish the sewing of cloth or other material by the interlooping of two threads, one being carried by an eye-pointed needle—that is, a needle having its thread-eye close to its point—and the other by a thread carrier or adjuster, with which a hook or expansion-hook is employed to effect the formation of loops and their passage through those of the needle, the nature of the principal part of my invention consisting in the combination of the thread carrier or adjuster and the hook when applied and used with a needle operating in manner substantially as described. The needle penetrates the cloth and forms its loops therein, whereas the thread-adjuster and the expansion-hook do not pierce the cloth, but operate so as to form loops outside of it.

The nature of the invention further consists in a peculiar thread-carrier or a hook or barb and a slot, or its equivalent, operating in conjunction or combination to effect the proper seizure of the lower thread and its disposal with respect to the loop of the needle, in order that such lower thread may be seized by the mechanism for drawing it through the needle-loop.

In the drawings, A represents the table or frame of the machine; B, the needle, supported by a carrier, C, which turns on a fulcrum, D, and has reciprocating motion imparted to it by the rotary motion of a crank-pin, E, working in a slot, F, of the lower arm of said needle-carrier C. The pin E is carried by a crank,

G, affixed to one end of a driving or cam shaft, H, which is not only provided with a driving-pulley, I, but a grooved cam, K, and a wiper or ungrooved cam, L, arranged as shown in the drawings.

Arranged in the frame A in manner as shown in the drawings is the thread-carrier M. (Exhibited in end view in Fig. 4, and also in other respects in Figs. 7, 8, and 9.) When in operation, it has longitudinal motion and intervals of rest imparted to it, the same being obtained by means of a slotted cam, N, which extends downward from it, as shown in Fig. 2, and receives a pin or stud, O, projecting from the lower arm of the needle-carrier C. In the front end of the carrier M there is a vertical slot, *a*, for the reception of the thread *b*, leading from the lower spool, *c*, and underneath a hook or barb, *d*, formed on the inner edge of the body of the thread-carrier, as shown in the drawings. This barb stands in such relation to the slot *a* and the thread-carrier between the two (which is bowed and curved in such manner that that part of the thread which is between the slot and the barb becomes, as it were, the chord of an arc) as to enable the hook P (to be hereinafter described) to seize the thread constituting such chord. This hook is represented at P as attached to a horizontal slide, R, from which a stud, *e*, projects and enters the grooved cam K, such cam being for the purpose of producing the necessary intermittent longitudinal movements of the said slide-bar. The hook P is constructed in two parts, *f g*, as shown in Fig. 6, one of which—viz., *g*—is fastened to the slide-bar, so as to be immovable relatively thereto. The other part of the hook—viz., *f*—projects from a lever, *h*, having a fulcrum, *i*, carried by the slider R. The outer end of the said lever carries a projection, *k*, which extends downward and against the periphery of the cam or wiper L, the object of the said cam or wiper being to cause the lever to so turn on its fulcrum as to move the part *f* away from the part *g* of the hook when such may be necessary, a spring, *l*, attached to the slide-bar R, and acting against a projection, *k*, serving to move the lever in the opposite direction, so as to close the two parts of the hook.

Fig. 10 is a side view of the cam or wiper L, while Fig. 11 is a side view of the cam K, as developed on a plane surface.

By means of the slotted cam N and the upward and downward movements of the stud O, the thread-carrier is moved backward, then allowed to remain at rest for awhile, and is next moved forward and allowed to remain at rest for another period. The forward movement of the thread-carrier causes its thread to be seized by the barb *d* in order that the thread extending between the said barb and the upper part of the slit *a* may be properly presented to the expanding hook P after the thread-carrier has been retracted, such portion of the thread being carried back of the needle.

In the operation of the machine the needle having a thread, *m*, proceeding from a spool, *o*, arranged as shown in the drawings, is first made to descend through the cloth and next to rise a little, in order to spread its loop. This having taken place, the expanding hook P is next moved toward the needle and passes aside of the same through its loop and against the thread of the thread-carrier M, the inclined front end of the hook striking the thread and elevating it as the hook continues to move forward, which it will do until the barb passes beyond the thread, so as to seize the same.

The next operation of the machine is the retraction of the expanding hook P, during which the thread of the thread-carrier will be seized by the hook and drawn in the form of a loop through the loop of the needle, the part *f* of the hook being moved in the meantime away from the part *g*, so as to spread or open the loop on them in a proper manner to enable the needle to pass through such loop during the next descent of the said needle, preparatory to which the cloth may be supposed to have been so fed along by the feeding apparatus as to incline the loop sufficiently for the needle to enter it. After the needle has entered the loop of the lower thread the hook P should advance a little in order to disengage from it the loop held by it. Next, the hook is again retracted and closed preparatory to another forward movement into another loop of the needle. Whenever the hook is being drawn backward the thread-carrier should be in the act of being moved forward, so as to enable the thread to be drawn off its barb *d*. Furthermore, the thread-carrier should have such lateral movements as will cause it to clear the needle and to fetch the thread of the carrier as close up to the needle as possible preparatory to such thread being seized by the hook P. In Fig. 7 is represented a small cam, *o'*, on the inner edge of the thread-carrier. Such figure also shows a projection, *p*, of the frame A, the cam operating against the said projection during the forward movement of the carrier. This moves the carrier laterally in one direction, a spring, *r*, serving to effect its movement in the opposite direction.

The drawings show part of the feeding apparatus, but as such constitutes no portion of my present invention it is not necessary to enter into any further description of the same.

The spool *o*, carrying the thread, has the lower end of its shaft or spindle pivoted on a step or washer, *t*, supported by the needle-carrier. The upper end is pivoted against a tension-spring, *u*, whose rear end is fastened to the needle-carrier. A regulating-screw, *v*, extends through the tension-spring and screws into the needle-carrier. With such an arrangement or application of the tension-spring to the spindle of the spool, the spring not only performs the function of a bearing to the spindle, or a support for its bearing, but is rendered capable of being sprung away therefrom, so as to permit the spindle to be detached from its bearings or supports without the necessity of disturbing or revolving the tension-adjusting screw.

In most, if not in all other kinds of tension apparatus, the device for regulating the tension has to be moved preparatory to the detachment of the spool, and as a matter of course the regulation of the tension is disturbed, and subsequently it has to be obtained anew; but with my said application and arrangement the spindle may be removed without any disturbance or turning of the tension-screw.

Having thus described my invention, I claim—

1. For interlooping two threads in order to sew cloth or other material by means of an eye-pointed needle, or its equivalent, the combination of a thread carrier or adjuster, M, and a hook, P, so acting together and with the eye-pointed needle, or its equivalent, as not only to cause the thread of the carrier to be laid or presented in rear of the needle in a proper manner to be seized by the hook, but to cause the hook to pass through the loop of the needle, seize the thread of the carrier, and next recede and draw the said thread in the form of a loop through the loop of the needle and properly present it for the needle to pass through it during its next downward movement after the cloth may have been fed along the length of a stitch.

2. The thread-carrier M, constructed with the slit *a*, or its equivalent, and barb *d*, operating, in the manner described, to present the lower thread to the reciprocating looper-hook, which will draw it through the loop formed in the needle-thread.

In testimony whereof I have hereunto set my signature.

S. F. PRATT.

Witnesses:

R. H. EDDY,
F. P. HALE, Jr.