

T. SHANKS. Sewing-Machine.

No. 212,628.

Patented Feb. 25, 1879.

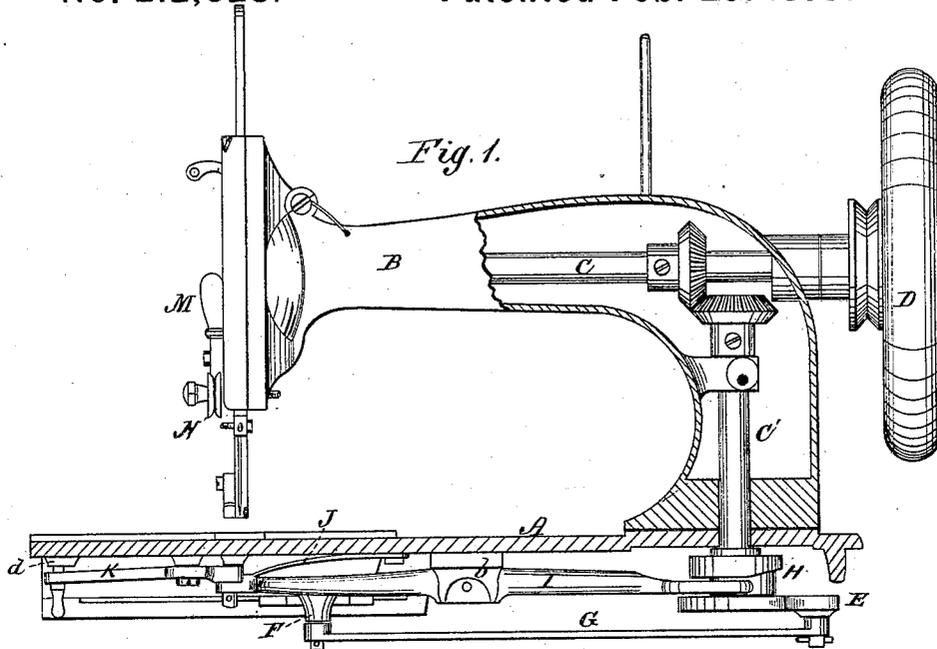
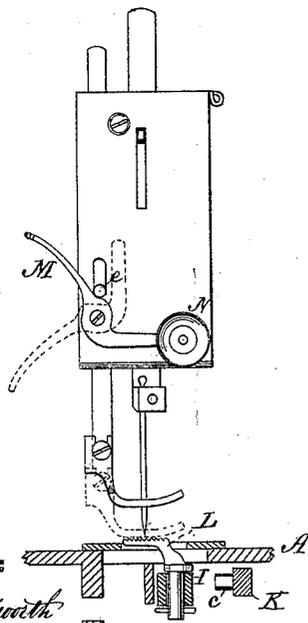


Fig. 2.



WITNESSES:

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Fig. 4.

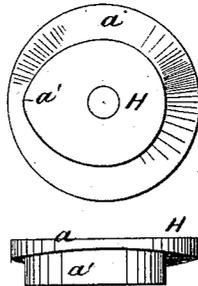
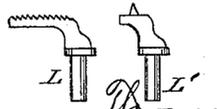


Fig. 5.



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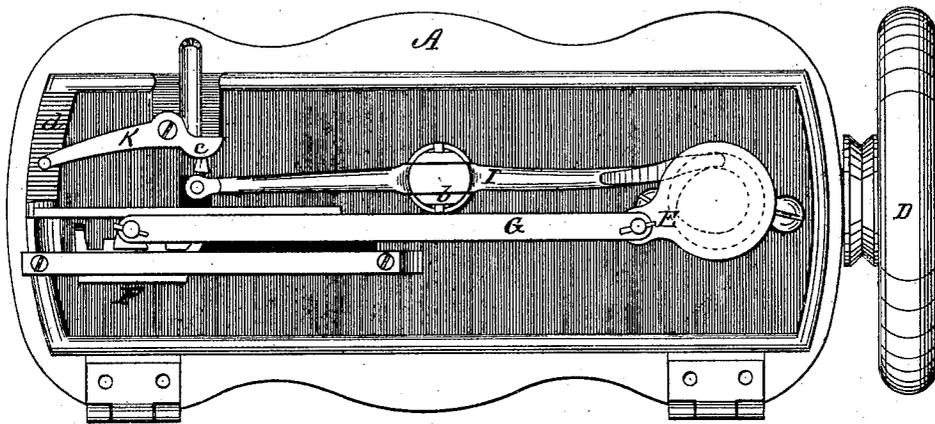
ATTORNEYS.

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Fig. 3.



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UNITED STATES PATENT OFFICE.

THOMAS SHANKS, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 212,628, dated February 25, 1879; application filed March 13, 1878.

To all whom it may concern:

Be it known that I, THOMAS SHANKS, of Baltimore city, State of Maryland, 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—

Figure 1 is a side view of my improved sewing-machine, with the work-plate in section and a portion of the arm broken away; Fig. 2, an end view of the arm of the same, with the work-plate below in section; Fig. 3, an inverted plan view of said machine. Fig. 4 shows details of the compound cam for actuating the feed-lever of the same. Fig. 5 represents details of the removable feed-step, one form being shown with a single tooth to constitute a gatherer.

My invention relates to certain improvements in sewing-machines, designed to improve the feed and to enable the operator to simultaneously slacken the thread or relieve the tension of the thread with the elevation of the presser-foot.

The improvements consist in constructing the feed-block with a round pendent stem, which fits detachably in a socket in the end of the vibrating lever which drives it, whereby it is made easily removable without the use of a screw-driver, and whereby also the feed-block is allowed to swivel in its socket during the curvilinear movement of the end of its carrying-lever, so that the operating face of the feed may be always parallel with the line of feed.

The invention also further consists in the particular construction and arrangement of the devices for simultaneously lifting the presser-foot and slacking the thread or relieving the tension, to prevent the bending or breaking of the needle when the work is pulled out, as hereinafter more fully described.

In the drawings, A represents the work-plate, and B the arm containing the horizontal needle-bar shaft C and the vertical shuttle and feed-driving shaft C'. These shafts are connected by bevel-gear wheels and rotated by a band communicating power from a treadle to the band-pulley on the balance-wheel-D, as

usual. Upon the lower end of the vertical shaft C' is arranged a disk and crank-pin, E, which latter communicates motion to the shuttle-carrier F through the pitman G, whose general arrangement is parallel to the machine and shuttle-race to secure a more direct transmission of power and the easier running of the machine.

Upon the lower end of the shaft C', and just between the work-plate and the shuttle-driving crank E, is fixed a compound cam, H, having eccentric faces *a a'*, adapted to transmit motion in planes at right angles to each other. I is the feed-lever, having a universal joint at its fulcrum *b*, and carrying at its end next the needle the removable feed-block. J is a spring, which, in conjunction with the compound cam H, gives to the end of the lever carrying the serrated block the necessary motions to effect the feed.

To regulate the length of stitch a thumb-lever, K, is pivoted to the bottom of the work-plate, so that an elastic cushion, *c*, upon the end of the same is made to oppose and arrest a portion of the movement of the lever and hold said lever against the tension of the spring J, so that only the most eccentric parts of the cams *a a'* touch the universally-jointed lever, and the length of the throw of the serrated block is correspondingly reduced or increased, according to the position of the thumb-lever K. Said thumb-lever is located near the outer edge of the work-plate with its knob in convenient position to be reached, and it is held to its adjustment by a tooth or point upon its upper edge, which engages with a ribbed surface, *d*. To hold this point closely against the ribbed surface a spring may be used.

The position and arrangement of the thumb-lever to the feed-lever, it will be seen, permit the operator to alter the length of the stitch without stopping the machine, and while it is in motion.

L is the serrated feed-block, which is made removable from the lever to permit it to be replaced by others better adapted to the varying thickness or fineness of material. This feed-block has serrations upon its upper surface, as usual, and from the bottom portion of the same depends a stem, which fits into a corresponding hole in the end of the feed-lever.

This removable character of the feed-block permits others of coarser or finer serrations to be used—as, for instance, when sewing heavy woolen goods, long and sharp teeth are required for a positive feed, while for fine thin goods short and fine teeth are best adapted to the same, in that they effect the desired result more uniformly and without tearing or deranging the strands of the fabric.

I am aware of the fact that a removable feed-block has been rigidly secured to the end of a feed-lever by a slot and screw, and I do not therefore claim, broadly, a removable feed-block; but by making said feed-block with a round pendent stem fitting in a round socket in the feed-lever no screw is required to fasten the same, and the feed-block stem is allowed to swivel in its socket to keep its operating-face always parallel with the line of feed and unaffected by the curvilinear movement of the socket carrying the same.

By using a feed-block having a single point or spur a simple and convenient form of "gatherer" is at once provided, as shown at L', Fig. 5.

I will now describe the device for relieving the tension of the thread simultaneously with and by the same movement which lifts the presser-foot.

M is a thumb-lever, pivoted upon the face-plate of the arm of the sewing-machine, and having a cam-head, which, as the lever is deflected, binds against a stud, *e*, and lifts it and the attached presser-foot. This thumb-lever I extend upon the opposite side of its pivot a distance equal to the distance between the pivot of the lever and the tension N, as composed of two spring-pressed disks, and the outer end of the extension upon this lever I make sharp or wedge-shaped. Now, when the lever M is deflected, at the same time that its cam-head lifts the presser-foot, its wedge-

shaped extension passes between and separates the disks of the tension N; then when the work is pulled out from beneath the needle the thread passes loosely down and through the eye of the needle, and the latter is not bent laterally, as it is when the effort of pulling out the thread is resisted by the strain of the tension.

I am aware that it is not broadly new to simultaneously lift the presser-foot and relieve the tension upon the thread, and I therefore only claim the lever M when provided with an extension adapted to secure this result. In making this limitation, however, I do not confine myself to the exact form of tension N composed of two disks, as a single flat spring tension may be arranged to be operated by the extension of lever M in the same manner; or said extension of the lever may be arranged to operate directly upon the thread to slacken it below by pulling it from the tension.

Having thus described my invention, what I claim as new is—

1. The removable feed-block having a round pendent stem, combined with a vibrating lever having a circular socket to receive the stem of said feed-block, substantially as and for the purpose described.

2. The thumb-lever M, combined with and arranged to lift the presser-foot bar, and having an extension adapted to slacken the thread, substantially as described.

3. The pivoted thumb-lever M, having a lifting-cam for the presser-foot and an extension for relieving the tension, in combination with the said presser-foot and with the spring-pressed tension-disks, as described.

THOMAS SHANKS.

Witnesses:

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