W. T. SMITH.

SEWING MACHINE.

No. 112,189. Patented Feb. 28, 1871.

Fig. 1.

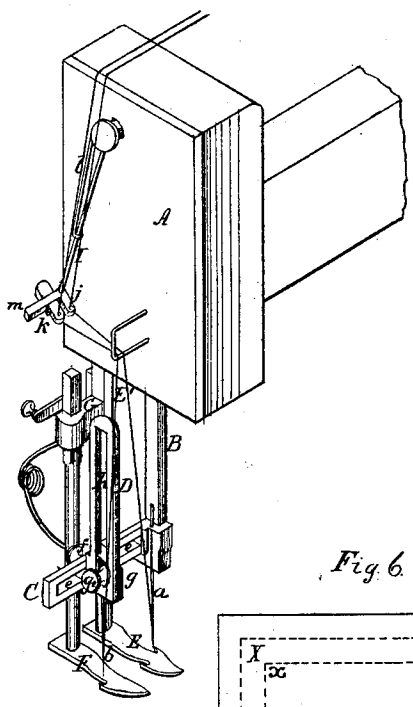


Fig. 2.

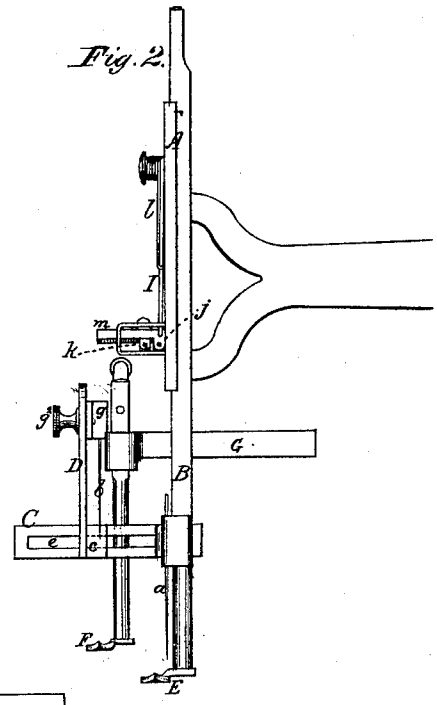


Fig. 6.

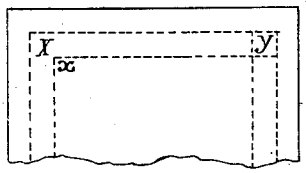


Fig. 3.

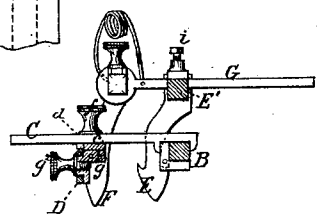


Fig. 4.

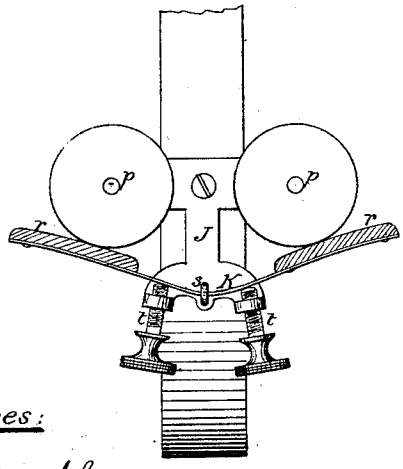
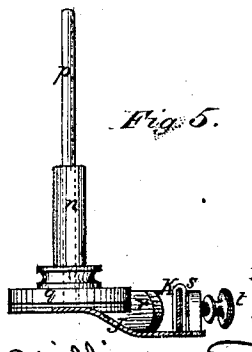


Fig. 5.



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WILLIAM T. SMITH, OF WEST ZANESVILLE, OHIO, ASSIGNOR TO HIMSELF AND WILLIAM T. MAHER, OF SAME PLACE.

Letters Patent No. 112,189, dated February 28, 1871.

IMPROVEMENT IN SEWING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

I, WILLIAM T. SMITH, of West Zanesville, in the county of Muskingum and State of Ohio, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

My invention relates to that class of sewing-machines in which two or more needles are employed; and

It consists in arranging the fixed and adjustable needles upon a single needle-bar, for sewing double rows of stitches, and providing means for adjusting the supplemental needle, so as to avoid crossing the lines of stitching at the angles or corners thereof in turning the material to change the direction of the stitching; also, in the arrangement of a single saddle-shaped bearing-spring in connection with the spool-holders, so as to admit of its adjustment upon the latter to produce the required degree of tension upon the needle-threads and to change the bearing surface of the pads.

In the drawing—

Figure 1 represents a view, in perspective, of the front portion of the needle-arm with my improvements applied thereto, showing both needles and the presser-feet in position when at work;

Figure 2 represents an elevation of the same, showing one of the needles and presser-feet raised out of work;

Figure 3 represents a horizontal section of the fixed and supplemental needle-bars;

Figure 4 represents a top view of the tension device;

Figure 5, a vertical section of the same; and

Figure 6, a diagram, showing the crossing at the angles or corners of the stitching.

I have represented in the accompanying drawing the front plate A of the supporting-arm, which carries the needle-bar and presser-feet. These, and all other parts of the machine, except as hereinafter explained, may be arranged, constructed, and operated as shown and described in a patent granted to me on the 8th day of February, 1870, or in any suitable way.

The needle-bar B carries at its lower end a needle, *a*, and a horizontal slotted arm, C, which also carries a vertical slotted adjustable arm, D, to which the supplemental needle *b* is secured.

This arm D has a right-angled flange, *c*, fitting against the side of the arm C, and a tongue, *d*, fitting into a slot, *e*, of said arm, so as to be clamped by a thumb-screw, *f*, in whatever position the vertical arm D may be adjusted to suit the width of the rows of stitching.

The supplemental needle-holder consists of a right-angled plate, *g*, having also a tongue fitting into the slot *h* of said arm D, as shown in fig. 1, and is clamped by a thumb-screw, g^2, in the position for sewing; or, when elevated out of the way, as shown in fig. 2.

When adjusted for use, the right-angled plate *g* fits snugly against the right-angled flange *c* of the adjustable arm D, which thus serves to brace the needle-holder firmly to said arm, as shown in fig. 3. In this way the supplemental needle *b* can be held down when used, or raised and held up when desired to work one needle only without interfering with the operation of the fixed needle; but this adjustment is more especially for suspending the work of the supplemental needle *b* in turning the fabric to change the direction of the stitches at right angles, so as to prevent the crossing of the stitching at the corners thereof, as shown at X in the diagram, fig. 6 of the drawing.

The presser-foot E is used with the needle *a*, and carries a supplemental presser-foot, F, secured within a square socket in the end of a horizontal slide-bar, G, fitted within a mortise in the bar E′ of the presser-foot E, and clamped by a thumb-screw, *i*, when adjusted to suit the supplemental needle. By this arrangement the two presser-feet can be raised and lowered simultaneously, or the supplemental one can be raised and lowered independently of the other by an eccentric, to suit the adjustment of the needle *b* and to facilitate the turning of the fabric to change the direction of the stitching.

The take-up arm I is pivoted to the front plate and carries a fixed and an adjustable thread-guide, *j* and *k*, to keep the threads with the adjustment of the needles.

The arm I is held by a spring, L, so as to take up the slack in the threads.

The adjustable thread-guide consists of a small guide, *k*, fitted by a dovetail on an arm, *m*, on the end of the take-up arm.

In changing the direction of the needles at the corners of the rows, the supplemental needle would cross between the rows in both directions, as shown at *y* in fig. 6.

By my supplemental needle-carrier D *g* 1 avoid this objection by adapting it to be raised out of work independent of the fixed needle at the point where it is desired to turn the fabric at an angle, and allow the fixed needle *a* to continue the stitching a distance in the same direction equal to the width between the rows, and, on turning the fabric, continue the stitching on the outside row until the needle of the inside row reaches the point *x*, fig. 6, where the stitching of the supplemental needle was suspended, when the latter is again brought into work without breaking a thread or losing a stitch.

The tension device consists of a base-plate, J, which supports both spool-holders and their spring K.

The spools are fitted upon hollow sleeves *n*, whose surfaces are roughened to hold the spools from turning thereon.

These holders are fitted upon spindles *p*, and have base-plates *q*, against which the spring acts.

The spring K has the form of a harness-saddle, and is provided at each end with a pad, *r*, which bears

against the base *q* of the spool-holder *n*, and produces the proper tension upon the threads.

The spring K, being a single plate, is secured to the base-plate by a single staple *s*, so as to allow it to be adjusted endwise to produce an equal tension upon each spool and allow the bearing surface of each pad *r* to be adjusted as they wear smooth.

The adjustment of the spring is made by set-screws *t* secured to the base-plate.

Securing the spring by a single staple, *s*, allows it to be adjusted endwise, and to be easily removed and replaced when desired.

I have shown and described a supplemental needle carried by the ordinary needle-bar, but it is obvious that several supplemental needles may be used and carried by the same needle-bar in the same way, if desired.

Having described my invention,

I claim—

1. The slotted adjustable support D of the supplemental needle *b*, in combination with the horizontal slotted arm C and the needle-bar B, which carries it, as hereinbefore described.

2. The vertical adjustable carrier *g* of the supplemental needle *b*, in combination with its horizontally-adjustable support C, in the manner and for the purpose described.

3. The adjustable thread-guide *k* of the take-up arm I, for the supplemental needle, as described.

4. The flange *e* of the supplemental needle-support D, and the flange *g* of the carrier for said needle, arranged to brace each other when adjusted to work, as described.

5. The combination of the needle-bar B, the horizontal slotted arm C, the adjustable supplemental needle-support D, the adjustable needle-carrier *g*, with the adjustable thread-guide *k* of the take-up I, and the supplemental presser-foot F, the several parts being constructed, arranged, and operating as described.

6. The double-bearing saddle-shaped spring K, in combination with the staple s, frame J, adjusting screws *t*, and the thread-spools, as and for the purpose described.

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Witnesses:

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