

WILLIAM HEIDENTHAL.

Sewing-Machine.

No. 127,765.

Patented June 11, 1872.

Fig 1.

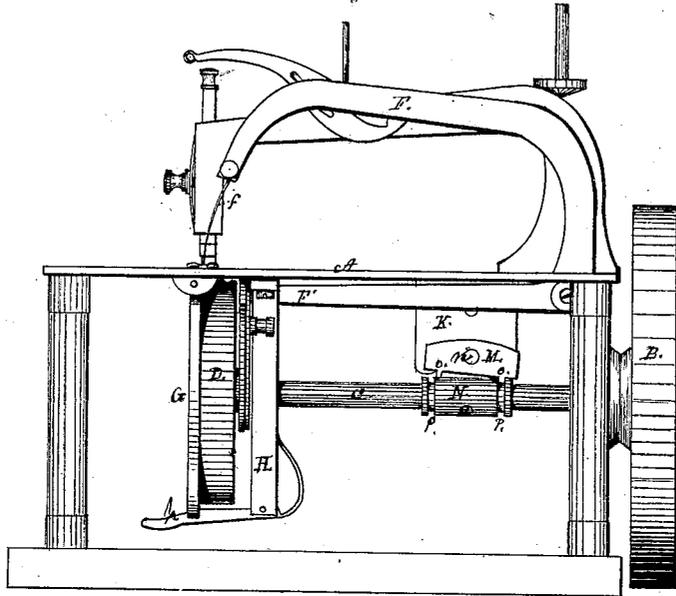
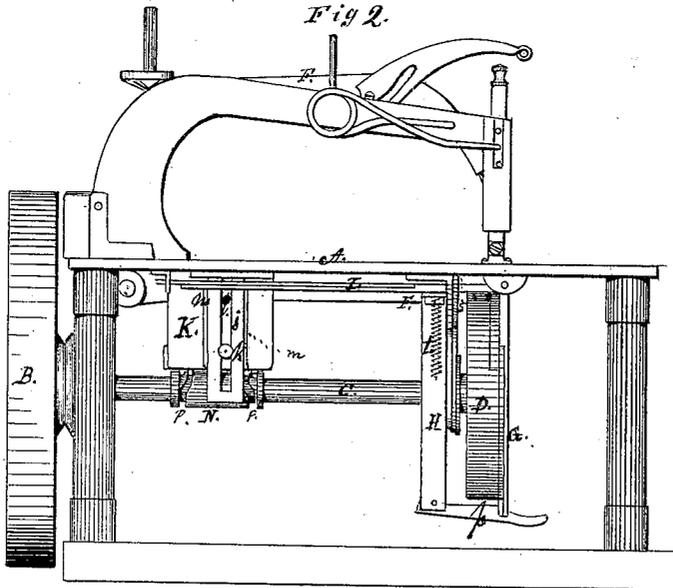


Fig 2.



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Fig. 3.

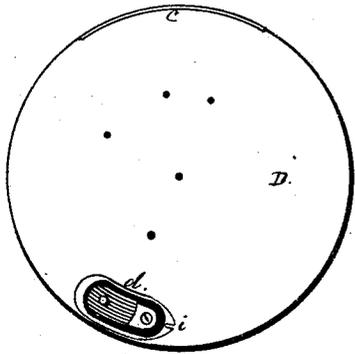


Fig. 4.

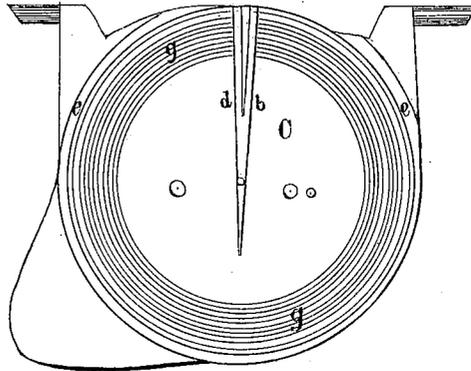


Fig. 5.

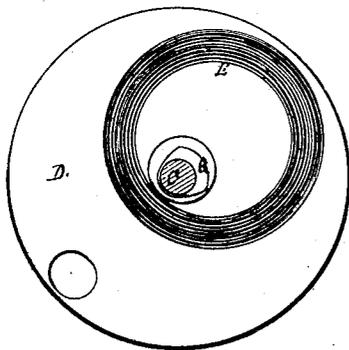


Fig. 6.

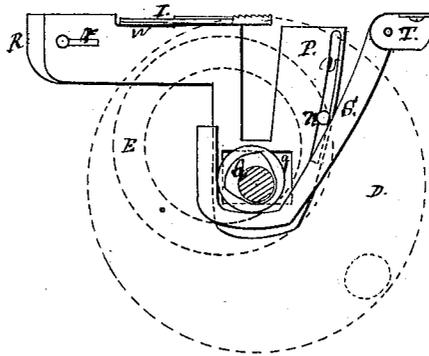
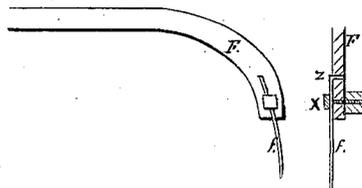


Fig. 7.



Fig. 8.

Fig. 9.



Witnesses,
C. H. Poole
A. L. Young

Inventor,
Wm Heidenthal, Assn
to himself and
Wm S. Carpenter.
By J. B. Woodruff, Attorney

UNITED STATES PATENT OFFICE.

WILLIAM HEIDENTHAL, OF PORT JERVIS, NEW YORK, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO WILLIAM S. CARPENTER, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 127,765, dated June 11, 1872.

SPECIFICATION.

To all whom it may concern:

Be it known that I, WILLIAM HEIDENTHAL, assignor to himself and WILLIAM S. CARPENTER, of Port Jervis, in the county of Orange and State of New York, have invented certain new and useful Improvements in Sewing-Machines; and the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Plate 1—Figure 1 represents a side elevation, showing the rotating shuttle-carrier, cap, spring-catch, and the double-acting cam on the shaft, with the tumbler for giving an additional lateral movement to the feed-bar. Fig. 2 shows the reverse side of the same.

Plate 2.—Fig. 3 shows a face view of the rotating shuttle-carrier. Fig. 4 is an inside face view of the hinged cap, showing the grooves or recesses, one for the needle to work in and the other to hold the shuttle-thread in a desired position. Fig. 5 is the reverse side of the rotating shuttle-carrier, showing the eccentric groove for operating the needle-arm, and the cam on the shaft to operate the feed. Fig. 6 shows the front view of the feed-working mechanism and eccentric groove in the rotating shuttle-carrier in dotted lines. Fig. 7 shows the double-acting cam on a broken-off piece of the driving-shaft. Fig. 8 is a broken-off front-end side view of the needle-arm, showing the method of securing the needle truly. Fig. 9 shows a front-end sectional view of the same.

My invention relates to sewing-machines which make the double-lock single-knot stitch by means of a curved needle, and a rotating shuttle, which moves in the same direction with the feed; and it consists in the construction of the feed mechanism and manner of adjusting the same, and the auxiliary device for giving a lateral movement to the roughened or friction feed-bar for embroidery or working button-holes, as hereinafter described by reference to the drawing and the letters marked thereon.

All of the mechanism is attached to the plate A and driven by the fly and band wheel B and single-shaft C, on one end of which is the eccentric cam-wheel D having in its rear

side a sunken groove, E, in which the under bar F' of the needle-arm F works to impart motion to the needle *f*. On the reverse or face side of the cam-wheel D is made a recess, *d*, into which the shuttle is fitted that carries the under thread to form the double-thread lock-stitch. The shuttle rotates in the same direction that the feed moves the fabric being sewn. The face of the disk-wheel or rotating shuttle-carrier D is covered by a hinged face-plate, G, in which is a groove, *a*, for the curved needle *f*, and there is also another groove or recess, *b*, at the rear of the needle-groove *a*, in which the shuttle-thread is placed by the action of a slight projecting flange, *c*, on one side of the outer edge of the rotating disk, while the shuttle is carried round. The shuttle thread is wrapped around the triangular division-wall between the two grooves *a* and *b*; and when the shuttle again comes round, and the feed takes place, that portion of the shuttle-thread lying in the groove *a* is, by means of an inclined portion of the top of the wall, rolled out, so that the shuttle passes behind it and through the loop of its own thread, wound, as before stated, about the wall, and forms a knot. The point of the shuttle passes through its own loop and the loop of the needle-thread at the same time. The face-plate G is provided with a circular groove, *e e*, for the projecting flange *c* to pass round in without touching. The shuttle-race *g g* is slightly sunken to correspond with the curve of the needle, to which the face of the shuttle is fitted, so that the point of the shuttle runs in the deepest part of this groove; and the needle-thread, being drawn taut, forms a cord from the eye on the curved side of the needle, affords the point of the shuttle sufficient space to enter and pass between the thread and the needle, so that it cannot miss a stitch. The face-plate G is hinged to the under side of the table-plate A, so that it can be opened to insert the shuttle; and is held up to the face of the disk D by a spring-catch *p* at the bottom, pivoted to the suspended post H, so that the shuttle is pressed into the pocket or recess *d*, to prevent it making any noise while passing around, although the space is large enough to allow the needle-thread to pass freely around it. There is a small recess in the front end

of the shuttle, and a corresponding nib, *i*, in the recess *d*, fitting into it for the purpose of keeping the shuttle in a proper position. The feed mechanism is so constructed as to admit of the fabric being moved forward and laterally, giving it a zigzag motion at the same time; or each motion independent of the other. The roughened surface for the feed is made on the end of a flat bar of metal, *I*, turned at a right angle at the front or feeding end, and which rests in a notch in the vertically-movable plate. The long bar *I* extends back on the under side of the plate *A* and parallel with it and the driving-shaft *C*, and is provided with a depending slotted arm, *j*, and is pivoted to another slotted swinging lever. This arm is attached by a thumb-screw to a pivoted plate, *m*, secured to the plate *K*, projecting from the under side of the plate or table *A*, so that the thumb-screw and nut can be moved in the slot *l* of the arm and the slot of the pivoted plate, to admit the necessary lateral motion of the feed-bar *I*, for embroidery and button-holes. A tumbler, *M*, having two pins, *o o*, is fitted onto the pivoted plate *m* by a square pin, which passes through a slot in the plate *K*. The tumbler *M* is secured on the pivot-bar by a thumb-nut, *u*, so that it can be easily removed when not required for embroidery or working button-holes. The projecting pins *o o* on the tumbler, if button-holes are to be worked, when a lateral feed is desired, are placed so as to work alternately into the grooves *p p* in the double-acting cam *N* on the driving-shaft *C*. The cams engage the pins or toes alternately, oscillate the tumbler, and move it and the oscillating-plate and feed-bar *I* laterally with it. The cloth-feeding bar *I* is operated by movable plate *P* on the under side of the table-plate *A*, near the rear side of the cam-wheel *D*. The plate *P* has a square opening, *g*, through the lower portion of it, to receive the cam *Q* on the shaft *C*, and is sustained by a pin in the lug *R* passing through a slot *r* at the upper corner. A hooked bar, *S*, is pivoted to a lug, *T*, under the table, and

the bar is moved by the cam *Q*. The plate *P* has an adjustable screw, *u*, in its slot *v*, against which the hooked bar *S* bears and causes the plate *P* to move laterally to operate the feed *I* to make stitches of different lengths. The roughened-surface feed-bar *I* rests in a notch, *W*, in the top of the movable plate *P*, and works with it, being raised up and carried forward by the cam *Q* and hooked bar *S*, and down and backward by the spiral spring *t*, connected with the feed-bar *I*, and the hanger *H*, which forms one of the bearings for the shaft *C* to run in.

What I claim as my invention is—

The combination of the rotary shuttle-carrier *D*, its flange *c*, and shuttle, with the face-plate *G*, provided with grooves *a* and *b* and dividing-wall, as and for the purposes herein set forth.

2. The disk-wheel *D* having a recess, *d*, in its face for carrying a shuttle, and an eccentric groove *E* in its opposite side for operating the needle-arm, substantially as herein described.

3. The hinged face-plate *G* and shuttle-race *g* having in its face vertical grooves *a* and *b*, the former to receive the needle in its downward movement, and the latter to receive the shuttle-thread and hold it, as set forth, in position for the shuttle to pass through it.

4. The combination of the feed-bar *I*, movable plate *P*, the hooked lever *S*, the adjustable thumb-nut *u*, and the cam *Q*, constructed and arranged for operating the feed, as set forth.

5. The tumbler *M*, combined with the double-grooved cam *N*, the pivoted plate *m*, and the feed-bar *I* with its slotted arm *j*, connected by a pin with the plate, for giving a transverse lateral movement to the feed, for working button-holes and embroidery.

In testimony whereof I have hereunto subscribed my name this 9th day of April, 1872.

Witnesses: WM. HEIDENTHAL.

W. J. KETCHUM,
J. B. WOODRUFF.