



# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 201,797, dated March 26, 1878; application filed October 23, 1877.

To all whom it may concern:

Be it known that I, PETER LANGLOIS, of Port Henry, in the county of Essex and State of New York, have invented a new and Improved Sewing-Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a partial plan view of the feed portion of the work-plate, with the needle and presser-foot in horizontal section, and the sliding plate which covers the feeding devices removed. Fig. 2 is an underneath view or inverted plan, with the cam-bosses in section. Fig. 3 represents details of the feed devices.

The object of my invention is to provide an improved set of feeding devices for a sewing-machine, designed to secure a more positive and uniform feed; and to this end the invention consists in locating a swiveling feed-step upon a peculiarly-constructed four-motioned feed, and combining it with the same and with operating devices, as hereinafter more fully described.

In the drawing, A represents the base-plate of the sewing-machine, having beneath the same hangers B B, which form bearings for the longitudinal driving-shaft C. Upon said shaft are arranged two cylindrical bosses, D D', having cam-grooves, one of which cam-grooved bosses, D, operates the vertically-oscillating elbow-lever E, which drives the needle-bar, and the other of which operates the horizontally-oscillating elbow-lever F, which drives the shuttle, all as heretofore used.

In the end of one of the bosses, D, is formed a cam-groove, *a*, in which plays a cam-roller carried by the extremity of a lever, G, said lever being pivoted to oscillate horizontally below the work-plate.

Upon the end of the shaft C is also arranged a boss, H, having in its end a cam-groove, *b*. These devices—the lever G and the cam-grooved boss H—serve to impart motion to the feed devices, which will now be described.

I is a plate, fastened vertically to the main frame A by means of a screw-nut, *c*, and provided with four lugs, *d d d d'*. J is a horizontally-reciprocating frame, moving between the lugs *d* and *d'*, and guided in its move-

ment by its extensions *e e'*. This frame extends out flush with the lugs *d d'*, but is recessed in its center to receive the vertically-reciprocating bar K, which, with said frame J, is held in plate I by a plate, L, screwed to lugs *d d'*.

The bar K is provided at its top with a lip, *f*, and in the lip is horizontally pivoted a swiveling circular feed-step, *g*, serrated or toothed upon its upper surface, and having a central eye, which extends also through the lip, and forms a movable passage-way or throat for the needle.

In operating these devices so as to impart to the feed-step *g* a four-motioned (or forward, downward, backward, and upward, movement) the forward-and-backward movement is imparted through lever G, one end of which is connected, by a screw or otherwise, with the extension *e* of the frame J, while the upward-and-downward movement is effected by the cam-groove *b* in the boss H, which operates upon a projection, *i*, formed upon the vertically-reciprocating bar, and extending through an opening in the plate L to the said cam-groove.

In following the operation of the devices as thus described, it will be seen that the feed is effected by the four rectilinear movements of the feed-step *g*, while the swiveling plate secures the easy turning of the work and a better and more uniform stitch, the arrangement being such that said feed-step with its eye not only alternately advances to and retreats from the range of the needle to secure a positive feed, but is concentric with the needle when the work is being turned.

It will be seen, also, that the cam-grooves *a* and *b* impart, through the connecting devices, positive motion for the downward as well as the upward, and for the backward as well as the forward, movement of the feed-step, which is a feature of great importance with such a feed as is herein described, for the reason that if springs were employed for the alternate movement they would not act quickly enough when the machine is driven at a high rate of speed, and the result would be a failure to secure the nice registration of the eye of the feed-step with the needle, which would inevitably break the latter.

In fastening the feed-step to the lip of the vertically-reciprocating bar, the same may be riveted, as shown, or a flat-headed screw with a hole drilled through the same may be used; or, as a further modification, the disk or step may have a perforated screw-threaded shank, and a nut screwed upon the same on the opposite side of the lip.

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

The vertically-reciprocating bar K, carrying

a horizontally-swiveling perforated feed-step, *g*, and having a projection, *i*, in combination with the horizontally-reciprocating frame J, the boss H, having cam-groove *b*, the lever G, and the boss D, having cam-groove *a*, substantially as and for the purpose described.

PETER LANGLOIS.

Witnesses:

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