

C. J. WOODWARD.

Feeding-Mechanism for Sewing-Machines.

No. 130,264.

Patented Aug. 6, 1872.

Fig. 1.

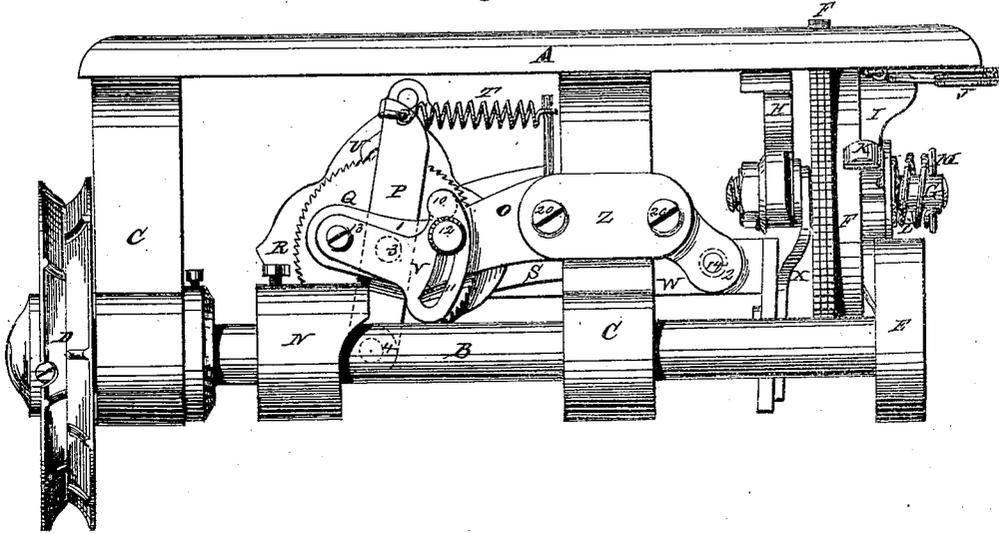
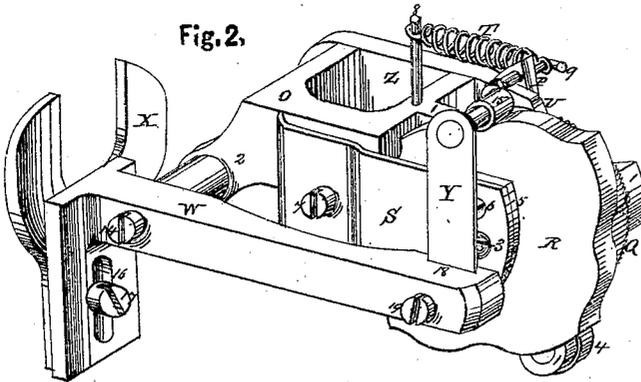


Fig. 2.



WITNESSES.

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IMPROVEMENT IN FEEDING MECHANISMS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. 130,264, dated August 6, 1872.

Specification describing a Wave-Feed Attachment for Sewing-Machines, invented by CHARLES JAMES WOODWARD, of Brooklyn, in the county of Kings and State of New York.

This invention relates to means for producing fancy stitching in wave-patterns on shoe-uppers, &c.; and the improvement consists in the construction of an attachment or special mechanism for use in connection with a laterally-yielding rotary feed-wheel, as hereinafter set forth.

The device causes the feed-wheel to move slowly back and forth, laterally, while it is rotating forward, so as to produce a waving or undulating line of stitching. It is applied beneath the table, and may receive its motion from a special cam on the main shaft of the machine. It is adjustable by simple means as to length of stitch, length of lateral stroke, and wear, or may be thrown out of action, and by a system or set of interchangeable cams or pattern-wheels may produce a variety of different patterns in the class named. The device or portions thereof may constitute permanent parts of a machine.

In the accompanying drawing, Figure 1 is a rear elevation of a portion of a sewing-machine with wave-feed attachment applied. Fig. 2 is a front perspective view of the major attachment, removed from the machine.

A represents the table, B the main shaft, C C hangers therefor, D the driving-pulley, E the feed-cam, and F the rotary feed-wheel, of a sewing-machine. The latter is supported on a stud-shaft, G, projecting from a bracket or hanger, H, and operated through a lever, I, spring J, and friction-clutch K, and it works in a laterally-enlarged slot, and is supported on its shaft by a coiled spring, L, abutting against a pin or shoulder, M, so as to yield laterally. To give such feed-wheel a variable lateral action, and by simple and superior means, the following attachment has been devised: A crown-cam, N, is applied to the machine-shaft B, and a bracket, O, to one of the hangers C thereof, or to other convenient or special support in proper position, the latter having arms or wings 1 2 at opposite ends to support the remaining parts. The arm 1 has a stud-shaft, 3, which may be a set-screw, as shown, on which are pivoted and journaled a rock-lever, P, a ratchet-wheel, Q, and a cam

or pattern-wheel, R. A spring friction-brake, S, holds the same in place, its primary action being to steady the movements of the pattern-wheel. The rock-lever P is extended below its fulcrum, and furnished with a friction-roller, 4, by which it engages with the driving-cam N. A spring, T, is applied to the upper end of the lever P to accomplish its retraction, and a pawl, U, to engage with the ratchet-wheel Q to rotate it. The cam R is permanently attached to the ratchet-wheel Q by rivets or screws. The friction-brake S has a wooden or leather facing, 5, attached by screws 6, and is adjusted by a screw, 7, and supported by the same and by the end of the stud-shaft 3, which it is slotted to embrace. The spring T is stretched between pins 8 9 on the bracket O and lever P. The arm 1 of bracket O is extended beyond the stud-shaft 3, to support an adjustable stop, V, to engage with the lever P, to limit its retraction or retain it out of contact with the cam N; the object being to vary the stroke of the lever for the purpose of regulating the length of the stitch or to stop the action. This stop has a stud, 10, to engage with the lever, and a sector-slot, 11, to receive a clamp-screw, 12, and is pivoted by set-screw 13. The arm 2 of bracket O extends to near the feed-wheel F, where it supports a stud-shaft, 14, to constitute the fulcrum of a lever or rocking frame, W, having attached at this short end a fork, X, to engage with the feed-wheel, as illustrated in Fig. 1, and at its opposite extremity an arm, Y, with friction-roller 15, by which to engage with the pattern-wheel Q. The fork X is adjustable in height by means of slot 16 and clamp-screw 17, to vary the extent of lateral action imparted therethrough, and the arm Y slides in a dovetailed slot, 18, and is adjustable by means of clamp-screw 19 to take up wear or to accommodate different sizes of pattern-wheel. The bracket O is made in the form of a yoke to embrace the hanger, and is attached by a cap, Z, and screws 20.

The operation of the device is as follows: Motion is imparted by the cam N on the main shaft B of the machine to the rock-lever P, and by the latter a limited backward or forward lateral movement is given to the feed-wheel F through the ratchet-wheel Q, pattern-wheel R, and fork-lever W, at or after each stitch, in conjunction with its forward rotary motion.

The length of these pulsations or stitch-movements is regulated by adjusting the stop V, which limits the retraction of the lever P by the spring T. The pattern-wheel R, in the illustration, has four points on its periphery, and at each rotation thereof, by the successive pulsations imparted by the driving-cam N, the feed-wheel is moved back and forth, laterally, four times, and four waves of stitching are produced. The extent of the complete lateral movements and the depth of the waves may be regulated by adjusting the fork X, and their length is determined by the relative forward motion of the feed-wheel. Thus, waves of different proportions may be produced from a single pattern-wheel. To produce waves of different shapes the pattern-wheel may be removed and another substituted by detaching the lever W and brake S. Pattern-wheels of different size may be accommodated by adjusting the sliding arm Y, which serves, primarily, to take up wear.

Claims.

The following is claimed as new:

1. The rock-lever P, pawl U, ratchet-wheel Q, pattern-wheel R, and fork-lever W, combined and operating substantially as herein described, for the purpose specified.

2. The detachable pattern-wheel R and laterally-yielding feed-wheel F, in combination with the supplemental shaft 3 and brake S, arranged and constructed substantially as shown and described; for supporting the former so that it may be changed without disturbing the feed-wheel or feed-wheel shaft.

3. In the described combination, the adjustable stop V, for regulating the stitch-movements.

4. The adjustable fork X, for regulating the depth of the pattern, as described.

5. The adjustable arm Y, in combination with the fork-lever W, for accommodating different-sized pattern-wheels and taking up wear, as described.

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