

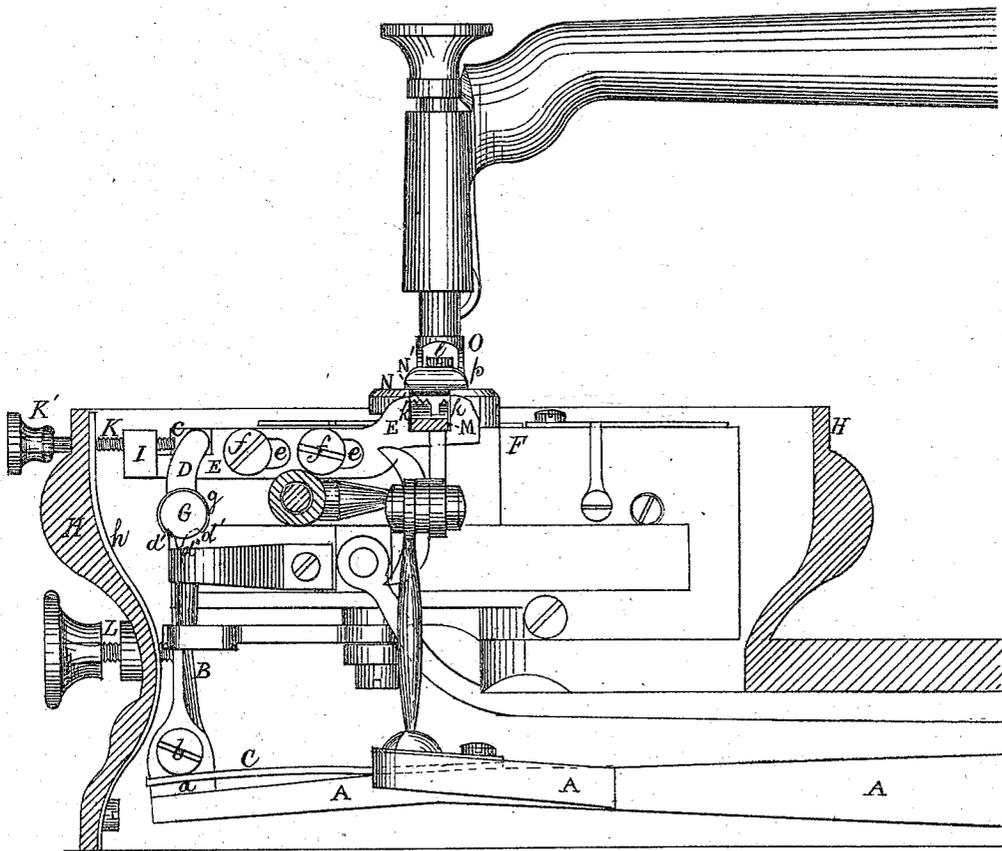
HELEN A. BLANCHARD.

Sewing-Machines.

No. 141,987.

Patented August 19, 1873.

Fig. 3
D



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UNITED STATES PATENT OFFICE.

HELEN A. BLANCHARD, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 141,987, dated August 19, 1873; application filed June 19, 1873.

To all whom it may concern:

Be it known that I, HELEN A. BLANCHARD, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Sewing-Machines, of which the following is a specification:

Figure 1 of the accompanying drawings is a top view of the front portion of a sewing-machine with the top plate removed. Fig. 2 is an end view, looking from the left of Fig. 1, and with the frame of the machine removed. Fig. 3 is a vertical longitudinal section, showing a side view of the front portion of a sewing-machine, with the top plate and half of one side of the frame removed. Fig. 4 is a perspective view of a part, in detail, of my invention.

The present invention relates to certain new and useful improvements in sewing-machines, having for their principal object the forming of an over-stitch that may be adapted to either fine or coarse work. My improvements consist, mainly, of a series of mechanical devices connected with a sewing-machine, and arranged and operated as will be hereinafter more fully explained, so as to give a progressive and lateral movement to a feed, to place the material so that the needle will descend through and then outside of the work, so as to form an over or button-hole stitch. These improvements also consist in a device, arranged and operated as will be duly described, for varying the depth of the stitch, so as to be used for fine or coarse work, and of a device for disconnecting the operation of my improvements to allow the ordinary working of the machine for its customary sewing.

In the drawings, A represents the lever or rocker-bar, connected with and operated by the shaft of a sewing-machine, and in my improvement is elongated forward, so as to form an arm having at the end an upward flange, *a*, to which is pivoted the lower portion of a vertical arm, B, Fig. 4, whose bottom is situated a sufficient distance above the top of the lever A to allow of the admission and action of a friction-spring, C, whose forward portion impinges against the bottom of the arm B, and which is attached at the rear to the top of the lever A. The arm B is curved outward on the face and back, at the bottom, to admit a

fulcrum-screw, *b*, and is curved and tapered upward on the back, or is otherwise shaped, to form a thin edge at the top, so as to readily engage with the bottom of a curved pawl, D, that has projecting on the inner side, at the top, a dog or stem, *d*, arranged to travel back and forth longitudinally in a notch, *c*, formed in the top of one end of a longitudinal sliding plate, E, formed with slots *e*, which receive screws or stems *f*, that allow the travel of the plate E and hold it to the side of the shuttle cap or plate F. Projecting laterally from the outside of the forward end of the shuttle cap or plate F is an arbor, G, connected with the frame H of the machine, and provided with a spiral spring, *g*, and a washer, *g'*, which is, by the action of the spring *g*, pressed against and so as to hold in place the pawl D, which is located so as to turn on the arbor G. The bottom of the pawl D is curved and notched, as shown at *d'*, Fig. 4, so as to form a sort of double cam with a central downward-extending curved tongue, *d''*, against which the top of the arm B is made to impinge alternately on either face, and abut against the notch *d'* on either side, so as to throw the pawl D and its dog *d* forward and backward. The forward end of the sliding plate E is formed with a lateral outward-extending plate or flange, I, formed with screw-threads to receive a screw, K, that passes through the top of a curved friction-spring, *h*, attached at the bottom to the inside of the frame H, and extends through and beyond the outside of the frame H, where it is provided with a suitable thumb-nut, K'. Extending through the lower portion of the spring *h* and the frame H is a screw, L, provided on the outside with a suitable thumb-nut. The other or inner end of the plate E is curved upward, and notched out on the top, as at *h*, Fig. 3, to receive and carry, as well as to allow the usual play of, the feed-bar M of the machine, the bridge N of which has the width of its slot N' enlarged a little to allow of the lateral play given the feed-bar by the operation of the slide E. To the bottom of the presser-foot O is attached, by a screw, *l*, an adjustable curved foot-plate, *p*, for the purpose of more firmly holding the work. The function of the spring *h* is to aid in adjusting the slide E, so as to bring the feed to its original working position

for common sewing, when the screw L is adjusted against the arm B for the purpose of disconnecting the over stitch movement, and it is moved by the screw L.

The operation of my invention is as follows: By turning the screw K the play of the pawl D is regulated, according as the screw is progressed or receded, so as to vary the depth of the stitch, as required, to adapt it for fine or coarse work. The screw L, when turned inward to its farthest extent, bears against the arm B and holds it away from the pawl D, in which position the latter is not operated; but on the withdrawal of the screw the spring *c* holds the arm B in contact with the pawl, and adapts my improvement for operation. Motion being imparted to the machine, an up-and-down movement is given to the lever or rocking-bar A, which raises and lowers the arm B, connected with it by the screw *b*, so that when raised it abuts first against the notch on one side of the cam end of the pawl D, and when lowered is drawn down below the tongue *d''*, and when raised again abuts against the notch on the other side of the cam end of the pawl D, which is thus thrown back and forth at regular intervals, causing, in its forward movement, the dog *d* to impinge against one end of the notch *e*, and impel forward the slide E, which thus imparts to the feed-bar M a lateral movement. The backward throw of the pawl D, induced by the pressure of the top of the arm B on the inner notch of its cam end, causes the forward top portion of the pawl D to impinge against the end of the screw K and impart a backward movement to the slide E, which impels the feed-bar M backward, so as to carry the work back of, and allow the needle to descend over, the edge, where its loop is locked by the shuttle-thread, forming an over stitch, which may be varied in depth, according to the play allowed to the pawl D, which is regulated, as before stated, by the adjustment of the screw K.

These improvements may be applied equally as well to straight-needle or other sewing-machines, and, by increasing the size and strength of the parts, may be applied to and worked

with equal facility on large machines for carpet and other heavy sewing.

The feed-bar may be operated to carry the work under and outside of the needle, in the desired manner, by any other arrangement of mechanical devices that may be preferred for producing the required result.

A herring-bone or pointed stitch may be formed by my improvements by feeding the cloth back and forth, so that the needle does not pass outside of it.

Having thus fully described my improvements, what I claim as my invention, and desire to have secured to me by Letters Patent, is—

1. The pawl D, turning on an arbor, G, and provided with the tongue *d''* and notches *d'* at its lower end, and the dog *d* at its upper end, the latter engaging with and operating the slide E of the feed-bar M, and combined with and operated by the arm B, substantially as described.

2. The lever A, provided with the pivoted arm B and interposed spring C, said arm being so arranged as to impinge alternately against the notched sides of the pawl D and oscillate the latter, thereby operating the slide E and feed-bar M, substantially as described, for the purpose specified.

3. The lever A, provided with the pivoted arm B and interposed spring C, in combination with the screw L, substantially as described.

4. The combination of the screw K, frame H, pawl D, slide E, and feed-bar M, all arranged and operating substantially as and for the purposes specified.

5. The combination of the spring *h*, frame H, screw L, arm B, pawl D, and slide E, all arranged and operating substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HELEN A. BLANCHARD.

Witnesses:

CARROLL D. WRIGHT,
SAML. M. BARTON.