

2 Sheets—Sheet 1.

SEWING MACHINE.

Patented Feb. 28, 1888.



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By their attys  
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# UNITED STATES PATENT OFFICE.

JOHN STEWART, OF NEW YORK, AND GEORGE W. WEISS, OF BROOKLYN,  
NEW YORK.

## SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 378,630, dated February 28, 1888.

Application filed June 14, 1887. Serial No. 241,241. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN STEWART, of the city and county of New York, and State of New York, and GEORGE W. WEISS, of Brooklyn, in the county of Kings and State aforesaid, have invented a new and useful Improvement in Sewing-Machines for Plaiting, &c., of which the following is a specification.

Our invention may be carried out by the attachment of suitable parts to an ordinary sewing-machine; and the object is to form and sew plaits in fabric, whether the plaits are attached by the same operation to a back or plain piece of fabric or not.

In carrying out our invention we employ, in connection with the needle of a sewing-machine and a feed-dog having feeding-surfaces on opposite sides of the needle, two rotary pressers which work upon opposite sides of the needle, preferably in planes which are upwardly divergent. Both these pressers are journaled on suitable arms projecting from the presser-bar, and by lifting the presser-bar in the ordinary way both pressers are raised from the work. One presser may be journaled in an arm rigidly projecting from the presser-bar, and the other presser may be journaled in an arm which is actuated by a spring to hold the presser downward upon the work. The presser upon one side of the needle may be opposite the needle or in the same plane transversely to the direction of feed, and the other is preferably behind the plane of the needle and first presser, so that the needle can be readily threaded. We employ a lower guiding-finger projecting from the front and terminating adjacent to the needle, and an upper guiding-finger which projects beyond the needle in the direction of the feed, and a slide carrying the upper finger and movable to carry the upper finger across the path of the needle in a direction transverse to the line of feed. By such arrangement of parts facility is afforded for removing work from and introducing it into the machine, and by the adjustment of the slide and the upper finger carried thereby provision is afforded for varying the width of the plaits. We employ a

lever for imparting a definite range of movement and to hold the slide in position for the operation of the finger, and a movable fulcrum for the lever, adjustable to vary the position of the slide produced by the definite movement of the lever, and in connection with the aforesaid parts we employ a front gage, which determines the width of the plait by the relation of the previously-sewed seam to such gage.

The invention consists in the novel combination of parts hereinabove briefly referred to and hereinafter particularly described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a partly-sectional elevation of the needle-bar of a sewing-machine and such parts as are necessary to illustrate our invention. Fig. 2 is a horizontal section upon about the plane of the dotted line *x x*, Fig. 1. Fig. 3 is a sectional elevation in a plane parallel with the direction of feed; and Fig. 4 is a diagram illustrating two guiding-fingers, fabric which is plaited over them, and the sewing-machine needle.

Similar letters of reference designate corresponding parts in all the figures.

A designates the bed or work plate of the machine, through which operates an ordinary four-motion feed-dog, B, which is moved by the shaft B' to give it the desired motion. As best shown in Fig. 1, the feed-dog has upwardly-projecting feed-surfaces working through holes or slots in the work-plate A and on opposite sides of the needle.

C designates the oscillating or rotary shuttle-operating shaft.

D designates the needle of the sewing-machine, which is secured in a suitable needle-bar, D', and E E' designate rollers constituting upper pressers and serving to hold the cloth in engagement with the portions of the feed-dog B which are on opposite sides of the needle.

F designates an ordinary presser-bar, which may be raised by a lever, F', and at the lower portion of which is a cross shaft or bar, F'', forming a part thereof, and carrying arms which



support the rotary pressers E E'. The rotary presser E may be journaled upon an arm,  $e$ , which is rigidly secured to the cross-piece  $F^2$ , and the presser E' may be journaled upon the arm  $e'$ , which is free to turn relatively to the cross-piece  $F^2$ , and is actuated by a spring,  $e^2$ , to move and hold the rotary presser E' against the work, inasmuch as such presser has three thicknesses of cloth or fabric to bear upon, while the presser E has but two such thicknesses.

As best shown in Fig. 2, the presser E is substantially opposite the needle, or is in the same plane with the needle transverse to the direction of feed; but the presser E' is behind that plane, and therefore the threading of the needle may be more readily accomplished than could be done with both pressers E E' in line with the needle D in a plane transverse to the direction of feed.

In connection with the needle D and the pressers E E' we employ lower and upper guiding-fingers, H H', by which the width of the plait is controlled, as shown in Fig. 4. The guiding-finger H is upon an arm,  $H^2$ , which projects forward from the sewing-machine frame, and has a portion,  $h$ , which enters a hole bored in the head of the machine and adjustably secured by a screw,  $o$ , to hold the arm or finger H in proper relation to the work. The forward end of this arm or finger H terminates adjacent to the needle, as best shown in Fig. 2. The upper finger, H', is carried by a slide,  $H^3$ , which works in a suitable guideway in a bracket,  $H^4$ , extending from the side of the bed-plate or work-plate A, and is adjustable by means of a lever,  $H^5$ , fulcrumed at  $e^3$ . The free arm of said lever  $H^5$  bears against a pin or roller,  $h^2$ , upon the slide  $H^3$ , and serves to move it toward the right hand of Fig. 2, while its return movement is accomplished by a spring,  $h^3$ . When the lever  $H^5$  is adjusted to the position shown in Fig. 2, the upper finger, H', is adjusted to the right hand of the needle D, and when said lever  $H^5$  is moved to release the finger H' it moves toward the left from the position shown in Fig. 2 and passes beyond the needle D in said direction, which is transverse to the direction of feed in the machine. The lever  $H^5$  is always moved to a definite position, so as to bring its notched or concaved end  $h^4$  against the stud or roller  $h^2$ , and if it is desired to adjust the position of the slide  $H^3$  and the finger H' the fulcrum of the lever must be moved inward and outward along the bracket  $H^4$ . As here represented, a slide or plate,  $h^5$ , is carried upon the bracket  $H^4$ , and through this slide passes a screw,  $e^3$ , which forms the fulcrum of the lever  $H^5$ .

The pin or screw  $e^3$  has an enlarged head,  $h^6$ , and a portion,  $h^7$ , fitting a slot or guide,  $h^8$ , in the slide  $H^3$ . By tightening the nut  $e^4$ , applied to the screw  $e'$ , the lever  $H^5$  may be securely clamped in position, so that its swing-

ing will produce a definite movement of the slide  $H^3$  and the upper guiding-finger, H', projecting from and carried by the slide. By shifting the fulcrum of the lever, which is constituted by the screw  $e^3$ , the upper finger, H', may be adjusted in a plane transverse to the feed and relatively to the lower fixed finger, H, so as to form plaits  $s'$  from the fabric  $s$ , and of any desired width, as represented in Fig. 4. If it is desired to make wider plaits, the fulcrum  $e^3$  of the lever  $H^5$  is shifted toward the right hand of Fig. 2.

The needle-bar D' is operated by the usual arm,  $D^2$ , and is guided in the head of the sewing-machine frame A'. In connection with the upper and lower fingers, H' H, we employ a front gage,  $d$ , which, by being set at a position to gage with the last line of stitching formed, will enable the straight feed of the material to be produced or effected. As here represented, the gage  $d$  is upon an arm,  $d'$ , having a transverse portion which is fitted in head A' of the sewing-machine, and is secured therein by a screw,  $d^2$ .

An important object in making the arm  $e'$ , which supports the presser-roller E', of less length than the arm  $e$  is to enable it to work upon three thicknesses of cloth while the other roller, E, works upon two thicknesses, and also to enable the needle D to be readily threaded. If it were desired to arrange and sew the plaits reversely to the arrangement shown in Fig. 4, the guiding-fingers H H', or at least the finger H', should be reversed in position. The fixed end of the spring  $h^3$  may be attached to a bracket,  $h^9$ , depending from the bracket  $H^4$ , which is constructed with a slideway to receive the slide  $H^3$ , and the screw  $e^3$  works through a slot,  $e^5$ , in said bracket  $H^4$ .

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination, with the needle of a sewing-machine and a feed-dog having feed-surfaces on opposite sides of the needle, of two rotary pressers working on opposite sides of the needle, one being directly opposite the needle and the other being behind the plane of the needle and behind the first presser, substantially as herein described.

2. The combination, with the needle of a sewing-machine and a feed-dog having feed-surfaces on both sides of the needle, of two rotary pressers on opposite sides of the needle, and a presser-bar, one of said pressers being supported by an arm fixed to the presser-bar and the other by a pivoted arm, and a spring applied to the pivoted arm to hold its presser against the work, substantially as herein described.

3. The combination, with a sewing-machine needle and lower and upper guide-fingers for plaiting, of a slide carrying the upper finger, a lever for imparting a definite length of movement to said slide and holding it in position,



and a movable fulcrum for the lever, adjustable to vary the position of the slide produced by its definite movement, substantially as herein described.

- 5 4. The combination of the finger  $H'$  and its slide  $H^3$ , the extension slotted bracket  $H^4$ , the shouldered screw  $e^3$ , the slide on the bracket and through which the screw is inserted, the

spring  $h^3$ , and the lever  $H^5$ , substantially as herein described.

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