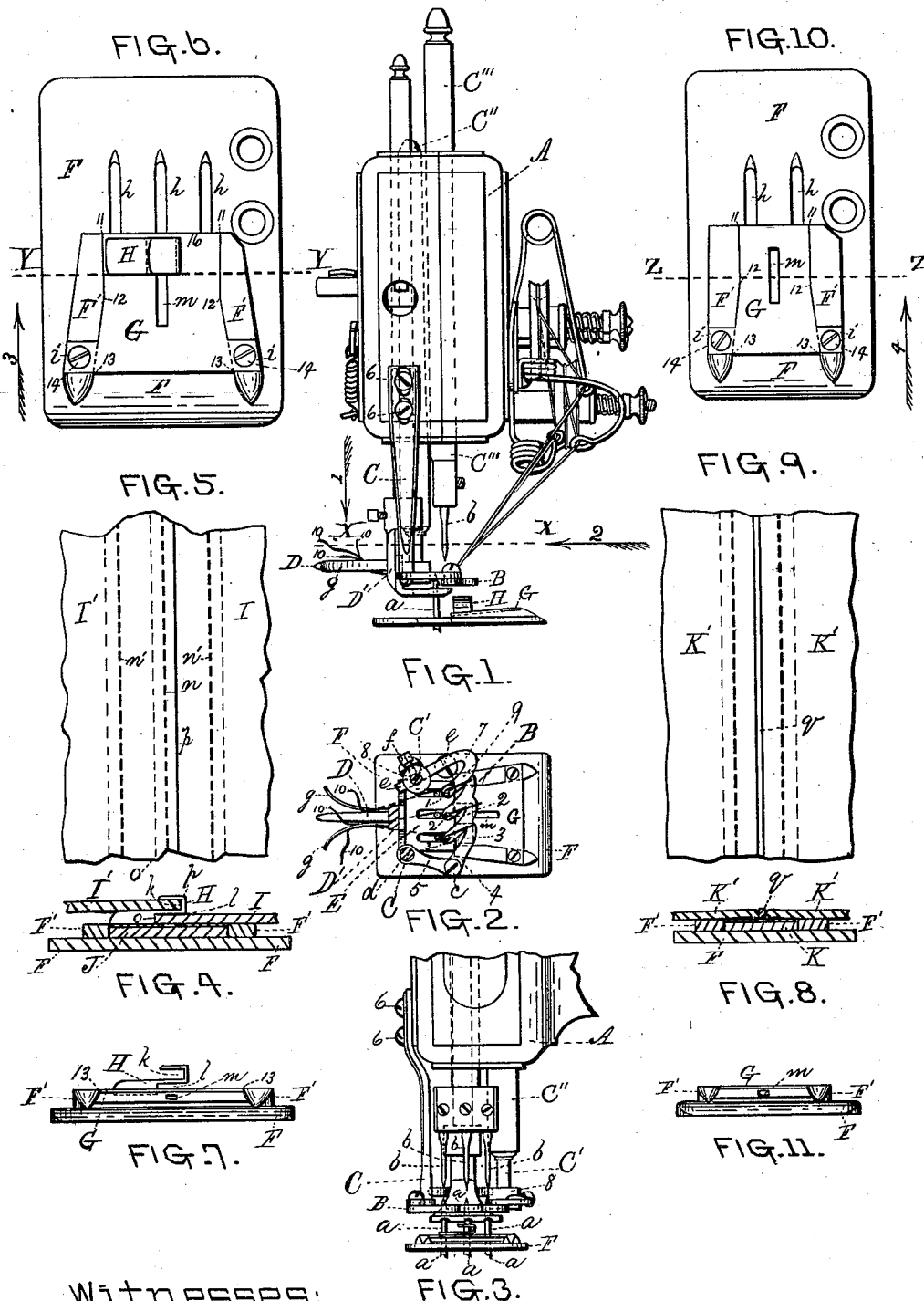


J. H. WALKER.
Wax-Thread Sewing-Machine.

No. 200,111.

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Witnesses:
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IMPROVEMENT IN WAX-THREAD SEWING-MACHINES.

Specification forming part of Letters Patent No. **200,111**, dated February 5, 1878; application filed April 25, 1877.

To all whom it may concern:

Be it known that I, JOSEPH H. WALKER, of the city and county of Worcester, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Sewing-Machines for Manufacturing Boots, Shoes, and other Goods; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents an end view of so much of a sewing-machine as is necessary to illustrate my present invention or improvements. Fig. 2 represents a section on line *x x*, Fig. 1, looking in the direction of arrow 1 of the same figure. Fig. 3 represents a front or side view of a portion of the parts shown in Fig. 1, looking in the direction of arrow 2 of the same figure. Figs. 4, 6, 7, 8, 10, and 11 represent, upon an enlarged scale, certain portions or parts of the machine; and Figs. 5 and 9 also represent, upon an enlarged scale, samples of the work produced by said machine, as will be hereinafter more fully described.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

The nature of my present improvements consists in certain improvements in sewing-machines for manufacturing boots and shoes, as will be hereinafter described.

In the drawings, the part marked A represents the head of a sewing-machine used in the manufacture of boots and shoes and other leather goods; and it will be understood that in this class of sewing or stitching machines two or more needles, *a*, are usually employed, having barbs instead of eyes at their points, and a corresponding number of awls, *b*, are used, the awls being forced down through the leather (when the needles and awls are arranged relatively as shown in the drawings) to form the holes therein, and when withdrawn the needles are forced up through such holes until their barbs have passed up through and above the pieces or parts of leather, after which thread-carriers are operated to carry the threads under their respective needle-barbs, so that when the needles are drawn down

through the leather the threads will be drawn down also, and looped upon the lower or under side of the leather, in the usual manner; and it will not therefore be necessary to describe further, in detail, the stitch-forming mechanism or the thread-tension mechanism.

My improved thread-carrier B (represented in the drawings) is provided with three eyes, 1, 2, and 3, formed in the ends of projecting fingers, as shown in Fig. 2 of the drawings. One end, 4, of the thread-carrier B is jointed at *c* to a link-piece, 5, which, in turn, is fitted to turn at *d* upon the lower end of an adjustable rod or bar, C, secured to the head of the machine A, so that it can be adjusted up or down by means of screws 6. The other end of the thread-carrier is jointed to the arm 7, the stem *e* of which passes through a hole in the head 8 on the lower end of the rod or bar C', which is supported in a larger bar or rod, C'', fitted to turn in the head A of the machine, stem *e* being held in place by set-screws *f*, and bar C' is also held in place in a hole in the lower end of bar or rod C'' by means of a set-screw, whereby rod C' can be adjusted up or down, or turned round independently of the bar C'', and then fixed in position again.

The awls *b* are secured to the lower end of the rod C'', which works up and down in the head A. When the needles *a* are thrown up to the proper height, rod or bar C'' is rotated so as to throw the bent arm 7 toward link 5. Consequently the thread-carrier B is moved in the same direction, but, being hinged to both the arm 7 and link-piece 5, is retained in a horizontal position, and its eyes 1, 2, and 3 all remain in the same relative vertical plane, however much the carrier may be swung or moved toward the points of the needles *a*. This arrangement insures the threads being carried well around and under the barbs of the needles, and that, too, without danger of breaking the points of the needles by the eye ends of the fingers of the thread-carrier B coming in contact with the needles during operation.

It will be observed that a thread-carrier thus supported at each end may have any number of thread-eyes or thread-carrying fingers, and still they will all remain in a vertical plane, parallel with a vertical plane pass-

ing through the vertical centers of the bars C and C'.

In lieu of hinging one end of thread-carrier B to the bent end 9 of arm 7, it may be hinged to the shank end of arm 7 on the same line as the end 4 is hinged to link-piece 5.

When the work is to be changed and the threads cut off, there is liability of the ends of the threads being pulled out of place while new work is being adjusted in position and the stitching first commenced; and to obviate such objections and inconveniences I combine with the pressure-foot of the sewing-machine a thread-holder projecting from the back edge of said foot, as indicated in the drawings. With this projection I combine two flaring springs, *g g*, one on each side, whereby the ends 10 of the threads can be pulled up between the springs and the projection D, and there securely held by the thread-holder.

The part marked F is the needle-plate, a plan view of which is shown in Fig. 6. The needle-plate F (shown in Fig. 6) is provided with three slots, *h h h*, for the passage of the awls and needles during the operation of feeding and sewing the material. Said plate is also provided upon its upper side with side bars F' F', the inner edges of which are parallel with each other from the points 11 to 12, and diverging from each other from the points 12 to 13, and between which side bars a spring-flap, G, is arranged, and so fitted that it will spring down between the said parallel and angular edges of the side bars, as fully indicated in Figs. 2, 6, and 10 of the drawings.

Spring-flap G is provided with two ears or projections, *i i*, which fit into notches in the outer ends of the bars F' F', where they are held by means of screws 14.

The side bars F' are wedge-shaped upon their upper sides—viz., inclined down from the points 13 to the points 11—and spring-flap G is made to stand in the same inclined position, its inner end 16 being, however, free to spring up and down during the operation of sewing or stitching the pieces of leather together, as will be hereinafter more fully described.

Upon the upper side of the spring-flap G (shown in Fig. 6) is an S-guide, H, having a recess, *k*, on one side, and a recess, *l*, upon the other side, said recesses being arranged relatively as fully shown in Figs. 4 and 7 of the drawings. In the center of the spring-flap G a work-adjusting slot, *m*, is cut or formed, as indicated in Figs. 2, 6, 7, 10, and 11.

The arrangement of parts as shown in Fig. 6 enables the operator to stitch or sew together by a lap-seam, *n*, two pieces of leather, I I', at the same time that a brace-piece, J, is stitched to their under sides. (See Figs. 4 and 5 of the drawings.)

Fig. 4 is a cross-section on line *y y*, Fig. 6, showing the relative position of the parts as they appear during the operation of sewing or stitching the several pieces of leather together.

It will be noticed that the pieces of leather

I I' both pass over the upper side of the spring-flap G, while the inner edge *o* of the piece I runs in the slot *l*, while the inner edge *p* of the pieces of leather I' runs in the recess *k* of the S-guide H, fastened to the top of spring-flap G, and the brace-piece J runs between the side bars F' and under the spring-flap G. Consequently the central row of stitches *n* passes through all three pieces of the leather, while the outer rows of stitches *n' n'* only pass through two pieces of leather—viz., the brace-piece J and the piece of leather I on the right-hand side, or the brace-piece J and the piece of leather I' on the left-hand side.

If the parallel inner edges of the side bars F' extended from end to end of the bars, the brace-piece J would be entered with difficulty unless it was cut much narrower than the space between the bars, and I have heretofore found by practical experience that if the edges of the bars are parallel the whole distance there is great liability of making uneven work, owing to the cause above named, and also to the fact that the operator of the machine is apt to stretch or pull the brace for the purpose of making it enter readily, thereby rendering the width of the brace uneven, which permits it to slip from one side to the other, so that it does not run even and true, and it was to obviate such difficulties and objections that I devised and invented the combination of the angular edges with the parallel edges of said bars F' above described.

Those skilled in the art will readily understand that by the arrangement shown in Fig. 6 the brace J can be cut of the right width to just fill the space between the parallel edges of the side bars F' and still be entered with ease and facility, since it first passes between the converging-edges of the side bars F'.

For the purpose of enabling the attendant to feed the brace-piece J forward, so as to be caught by the needles, (which feed the work in this class of machines in a manner well known and understood,) a slot, *m*, is formed in the spring-flap G, whereby the attendant with a pointed instrument can reach the end of the brace and push it forward until it is moved over the needles, or within range of their action, and this slot is very convenient to enable the attendant to start the brace if it happens to get caught during the operation of stitching or sewing the parts together.

The same combination of the parts G F' F' can be used with advantage in sewing a brace-piece, K, to two pieces of leather, K' K', already stitched together, and having a welt, *q*, stitched into the seam, as illustrated in Figs. 8 and 9.

Having described my improvements in sewing-machines for manufacturing boots, shoes, and other goods, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination, with the vertical presser-arm, of presser-foot D', provided with projec-

tion D and flaring springs *g g*, arranged as shown and described, and for the purposes set forth.

2. The combination, with the thread-carrier B, provided with a series of thread eyes or fingers, of hinged arm 7 and link-piece 5, arranged as shown and described, and for the purposes set forth.

3. The combination, with the needle-plate of a sewing-machine, of a spring-flap arranged between side bars, and provided upon its upper side with an S-guide, substantially as and for the purposes set forth.

4. The combination, with the needle-plate of a sewing-machine provided with two or more needle and awl slots, of two side bars having parallel and angular inner guiding-surfaces, as described, and a spring-flap of corresponding shape, and provided with a work-adjusting slot, substantially as described.

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