Feb. 14, 1939. S. LEVIN 2,147,047

SEWING MACHINE

Filed Feb. 27, 1936 2 Sheets-Sheet 1

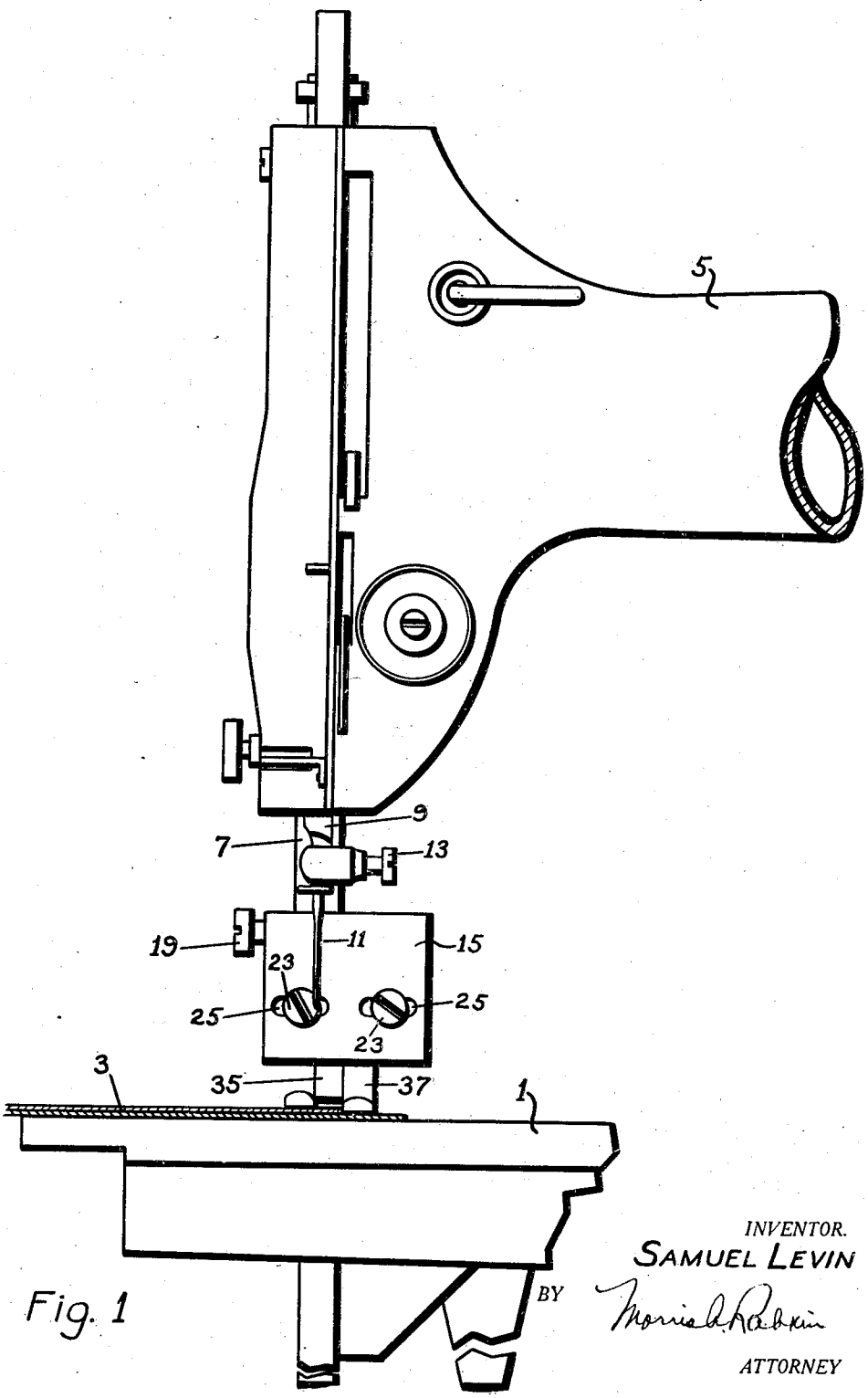


Fig. 1

INVENTOR.
SAMUEL LEVIN
BY
ATTORNEY

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SEWING MACHINE

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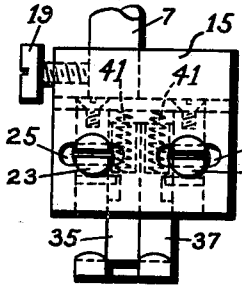


Fig. 2

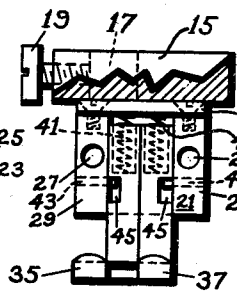


Fig. 3

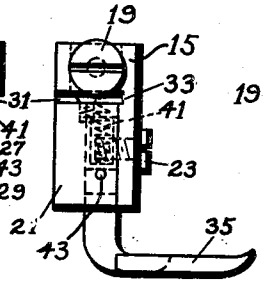


Fig. 4

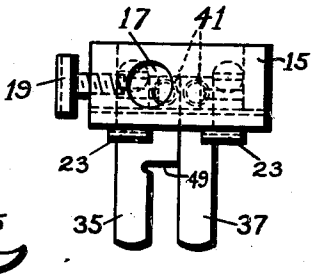


Fig. 5

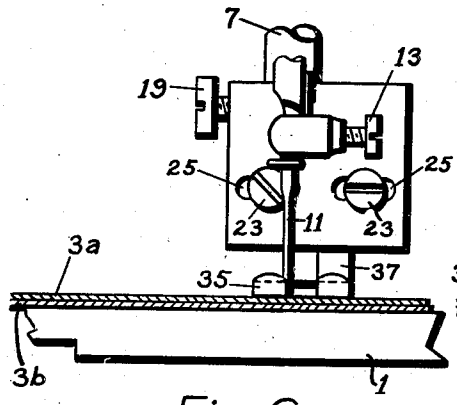


Fig. 6

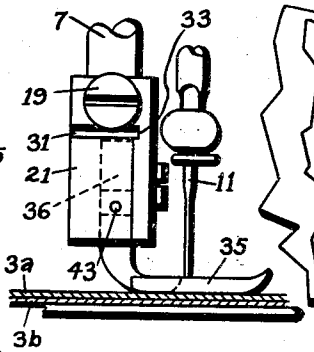


Fig. 7

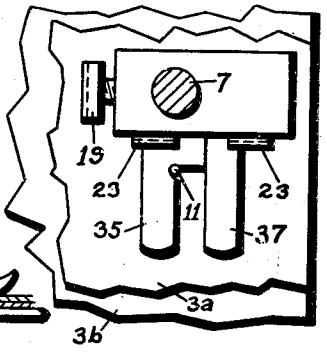


Fig. 8

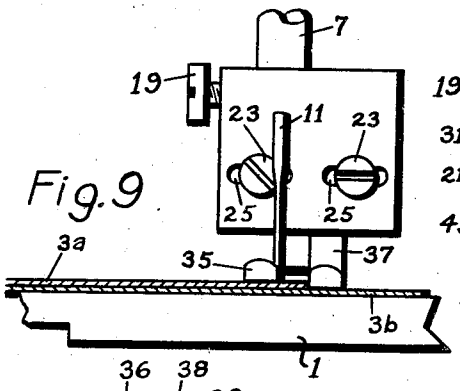


Fig. 9

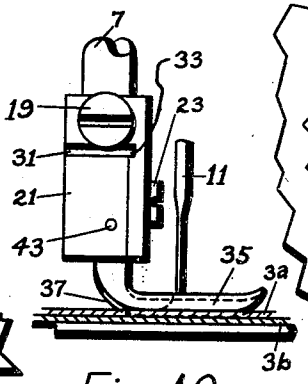


Fig. 10

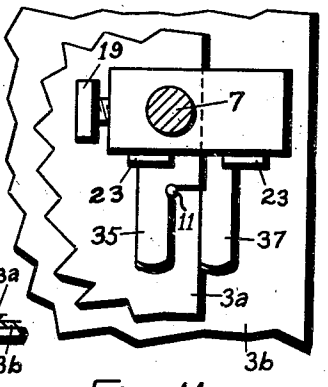


Fig. 11

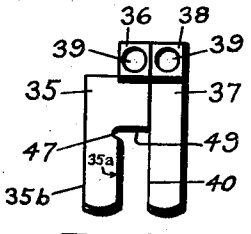


Fig. 12

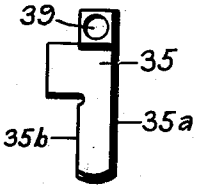


Fig. 13

INVENTOR.
SAMUEL LEVIN
BY Morris A. Rabin
ATTORNEY

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2,147,047

UNITED STATES PATENT OFFICE

2,147,047

SEWING MACHINE

Samuel Levin, Philadelphia, Pa.

Application February 27, 1936, Serial No. 65,965

10 Claims. (Cl. 112—235)

This invention relates to sewing machines, and more particularly to the presser foot structure thereof.

In certain classes of work, it is desirable to form one or more seams or rows of stitches at a predetermined distance from some edge of the work. For this purpose, there have been previously provided presser feet having fixed guide flanges against which the edge of the work may be guided as it is fed along. While such devices are suitable where the seam is to be formed at some specific distance from the guided edge of the work, they are not suitable where the seam is to be formed at some other distance from the edge, since the guide flange is fixed with respect to the needle slot in the presser foot. Moreover, such devices are entirely unsuitable where the seam is to be formed at a considerable distance from another seam, for example, or from some other reference mark on the work.

The primary object of my invention is to provide improved presser foot structure for sewing machines, which structure will not be subject to the aforementioned disadvantages.

More specifically, it is an object of my invention to provide improved presser foot structure for sewing machines by means of which a seam may be formed at any desired location on the work with respect to either an edge thereof or some other seam or reference designation thereon.

Another object of my invention is to provide improved presser foot structure for sewing machines which will be adjustable within predetermined limits to provide hems of different widths.

Still another object of my invention is to provide improved presser foot structure as aforesaid which can be readily attached to standard sewing machines and which can be advantageously substituted for conventional presser feet of such machines.

A further object of my invention is to provide an improved presser foot device for sewing machines which is simple in construction, which is inexpensive in cost, which readily lends itself to the requirements of economical commercial manufacture, and which, above all, is highly efficient in use.

In accordance with my invention, I form the presser foot of two vertically and relatively movable parts carried by a supporting block which is in turn mounted for horizontal adjustment on a mounting block by means of which the whole structure may be attached to the presser bar. The needle slot or guide is preferably formed in one of the two relatively movable presser feet and extends transversely thereof, while the second presser foot acts as a guiding member for the work, both presser feet being jointly adjustable on the mounting block in a horizontal direction whereby the distance from said guiding part to the needle in the needle slot may be adjusted to provide a hem or spacing of desired width.

The novel features that I consider characteristic of my invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and method of operation, together with additional objects and advantages thereof, will best be understood from the following description of several embodiments thereof, when read in connection with the accompanying drawings in which

Figure 1 is a fragmentary elevation of a conventional sewing machine having my improved presser foot device attached thereto,

Figure 2 is a detailed front elevation of one form of my improved presser foot device,

Figure 3 is a view similar to Figure 2 but with the mounting block broken away to more clearly show certain details,

Figure 4 is a side elevation of the structure shown in Figure 2,

Figure 5 is a top plan view thereof,

Figure 6 is a front elevation showing the cooperative relation of my improved presser foot device to the work, and showing also the manner in which it operates where a seam is to be made at some distance from the edge of the work, in which case the two relatively movable presser feet are on the same level,

Figure 7 is a side elevation of the structure shown in Figure 6,

Figure 8 is a top plan view thereof,

Figure 9 is a view similar to Figure 6, but showing the relation between the two presser foot members where a seam is to be formed adjacent to the edge of one of two pieces of fabric which are to be sewn together, the guiding member resting on the lower piece of fabric and the other member resting on the upper piece of fabric,

Figure 10 is a side elevation of the structure shown in Figure 9,

Figure 11 is a top plan view thereof,

Figure 12 is a top plan view showing two relatively movable presser foot members formed in accordance with my invention removed from their supporting structure, and

Figure 13 is a top plan view of a modified form of that one of the presser foot members with which the needle of the sewing machine is directly associated.

Referring more specifically to the drawings, wherein similar reference characters designate corresponding parts throughout, there is shown, in Figure 1, a portion of a sewing machine head comprising a bed 1 on which the fabric or other work 3 is supported as it is fed along and an arm 5 in which are carried a vertically reciprocable needle bar 9 and a vertically reciprocable presser bar 7, a sewing needle 11 being secured, as by means of a screw 13, to the needle bar 9. The structure thus far described is more or less conventional and a more detailed description thereof is not, therefore, believed to be necessary.

Attached to the lower end of the presser bar 7 is a presser foot mechanism constructed according to my present invention and including a mounting block 15 by means of which the whole structure may be attached to the presser bar 7. For this purpose, the mounting block 15 is provided with an opening 17 into which the lower end of the presser bar 7 is received and wherein it is locked by a screw or the like 19.

Slidably mounted on the mounting block 15 for horizontal adjustment is a supporting block 21 of substantially U-shaped cross section, the block 21 being limited in its horizontal adjustment by a pair of screws or the like 23 extending through a pair of slots 25 in the front face of the mounting block 15 and threaded in a pair of openings 27 in the arms 29 of the supporting block 21. The arms 29 are bridged by a top plate 31 the forward edge of which (i. e., the right hand edge as viewed in Figures 4, 7 and 10) is received in a transverse slot 33 in the mounting block 15.

Fitted within the space defined by the rear of the supporting block 21, its arms 29 and the top plate 31 are a pair of independently movable presser feet 35 and 37 which are confined within said space by the mounting block 15. The presser feet are preferably formed with square shanks 36, 38 (as clearly shown in Figures 12 and 13) and are mounted adjacent to each other, being movable as a unit with the supporting block 21 when the latter is adjusted horizontally. Each of the shanks 36, 38 is provided with a bore 39 at its upper end within which is received a compression spring 41, the springs 41 pressing against the top plate 31 to constantly urge the presser feet 35 and 37 downwardly, or toward work engaging position. The relative movement of the presser feet 35 and 37 is limited by a pair of stop pins 43 extending through the arms 29 into slots 45 in the shanks 36 and 38, and the pins 43 are preferably so located with respect to their associated slots 45 that the presser feet 35 and 37 are normally maintained in horizontally aligned relation.

From the foregoing description, it will be evident that the presser feet 35 and 37 are not only independently movable vertically relative to each other, but also relative to their supporting block 21 and to the presser bar 7, while at the same time being horizontally adjustable as a unit with the supporting block 21 on the mounting block 15. One of the presser feet (for example, the presser foot 35) may be slotted or reduced to provide a needle guiding slot 47 or a needle guiding edge 49 for cooperation with the needle 11. When a seam is to be made at some distance from the edge of the work, as in sewing together two pieces of fabric 3a and 3b (Figs. 6 to 8), the supporting block 21 is adjusted horizontally on the mounting block 15 until the guide edge 40 of the presser foot 37 is at the desired distance from the needle 11, the screws 23 are tightened, and the presser bar 7 is lowered onto the work until the presser feet 35 and 37 firmly engage the upper fabric 3a. The presser feet 35 and 37 will then be at the same level and the work may be fed along with some designated mark thereon under the guide edge 40 whereupon a seam will be formed at the desired distance therefrom. Where a seam is to be formed at a predetermined distance from an edge of the fabric, the adjustment of the supporting block is the same, but the presser foot 37 rests on the lower fabric 3b and the edge of the fabric 3a is guided along the guide edge 40, the presser foot 35 being vertically displaced from and resting on the upper fabric 3a to firmly hold the fabric 3a against the lower fabric 3b.

In Figures 1 to 12, inclusive, I have shown the presser foot 35 reduced in width along its edge 35a which is next adjacent the guide edge 40 of the presser foot 37. This limits the extent of horizontal adjustment of the supporting block 21 on the mounting block 15. To remove this limitation, the presser foot 35 may be reduced along its opposite edge 35b, whereupon the presser foot 35 may be moved away from the needle toward the right (as viewed in Figures 6 and 9) within the limits permitted by the screws 23 and their associated slots 25.

Although I have shown and described my invention in great detail, I am fully aware that many modifications thereof are possible. For example, the presser feet 35 and 37 may be arranged to be horizontally relatively adjustable as well as vertically, in which case the blocks 15 and 21 may be made of a unitary structure. Many other modifications and changes will, no doubt, readily suggest themselves to those skilled in the art. I desire, therefore that my invention shall not be limited except insofar as is necessitated by the prior art and by the spirit of the appended claims.

I claim as my invention:

1. Presser foot structure for sewing machines comprising a supporting member, a pair of presser feet movably carried by said supporting member in contacting relation for independent movement relative to each other and to said supporting member, each of said presser feet having a slot therein, a spring member associated with each of said presser feet and arranged to urge said presser feet in a predetermined direction relative to said supporting member, and a pair of stop devices on said supporting member each associated with one of said slots for limiting the relative movement between said presser feet and said supporting member.

2. The invention set forth in claim 1 characterized in that said supporting member is substantially U-shaped in cross section, and characterized further in that said presser feet are carried by said supporting member between the arms of the U.

3. Presser foot structure for sewing machines comprising a supporting member, a pair of relatively movable presser feet carried by said supporting member, and a mounting member whereby said structure is adapted to be attached to a presser bar, said supporting member being adjustably mounted on said mounting member.

4. Presser foot structure for sewing machines comprising a supporting member, a pair of relatively movable presser feet carried by said supporting member, and a mounting member whereby said structure is adapted to be attached to a presser bar, said supporting member being

adjustably mounted on said mounting member for adjustment in a direction normal to the direction of movement of said presser feet.

5. Presser foot structure for sewing machines comprising a supporting member, a pair of presser feet movably carried by said supporting member for independent movement relative to each other and to said supporting member, means associated with each of said presser feet for normally maintaining them in aligned relation, and a mounting member whereby said structure is adapted to be attached to a presser bar, said supporting member being adjustably mounted on said mounting member for adjustment in a direction normal to the direction of movement of said presser feet relative to said supporting member.

6. The invention set forth in claim 5 characterized in that said supporting member is substantially U-shaped in cross section, characterized further in that said presser feet are located on said supporting member between the arms of the U, and characterized still further in that said mounting member extends across the ends of the arms of the U whereby to confine said presser feet between said arms.

7. In a sewing machine, the combination of a presser bar, a supporting member associated with said presser bar, and a plurality of presser feet carried by said supporting member for independent vertical movement relative to said presser bar, said supporting member being horizontally adjustable relative to said presser bar.

8. In a sewing machine, the combination of a presser bar, a plurality of presser feet, means for mounting said presser feet on said presser bar for independent vertical movement relative to each other, and means for mounting said presser feet for unitary horizontal adjustment relative to said presser bar.

9. In a sewing machine, the combination of a work supporting bed, a sewing needle, a vertically movable presser bar associated with said bed, means including a horizontally adjustable member carried by said presser bar, a pair of presser feet mounted on said member for independent vertical movement, one of said presser feet having a notch therein for the reception of said needle, and the other of said presser feet being adapted to act as a work guiding member when vertically displaced from said first named presser foot, and means constantly urging said presser feet into work cooperating position, the horizontal adjustment of said member serving to vary the distance between said needle and said guiding presser foot.

10. In a sewing machine, the combination of a vertically movable sewing needle, a vertically movable presser bar, means including a horizontally adjustable member carried by said presser bar, and a presser foot carried by said member, said presser foot having a horizontally extending needle guide therein for cooperation with said needle, the horizontal adjustment of said horizontally adjustable member serving to adjust said presser foot relative to said needle.

SAMUEL LEVIN.