J. F. MORRIS.

SEWING MACHINE.

APPLICATION FILED MAR. 5, 1914.

1,201,490. Patented Oct. 17, 1916.

Fig. 1.

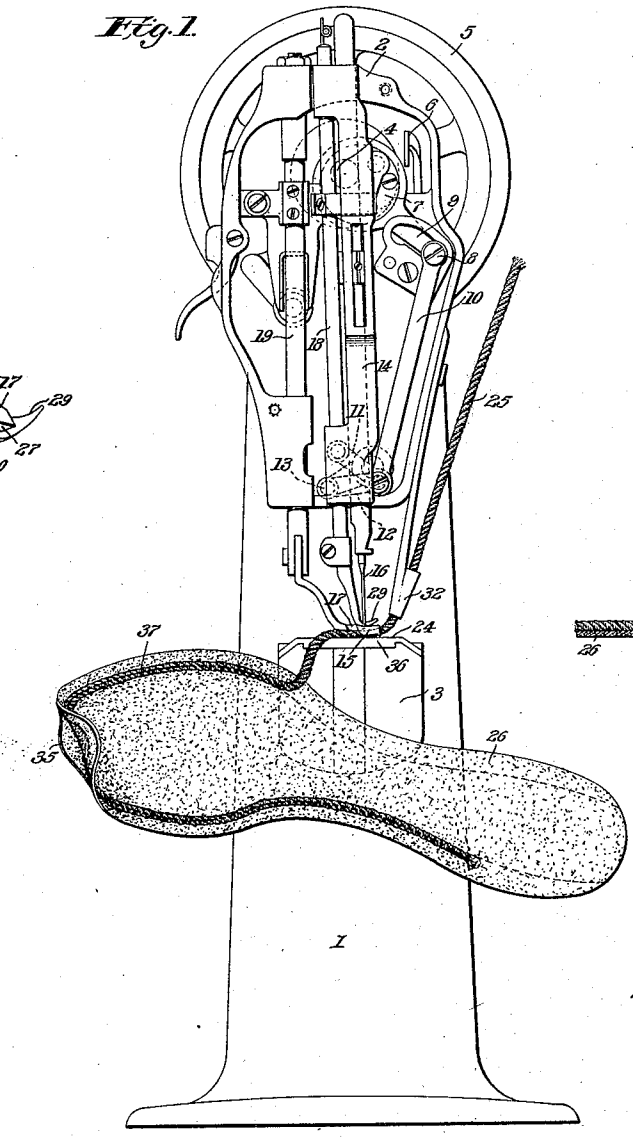


Fig. 3.

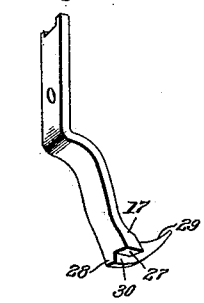


Fig. 4.

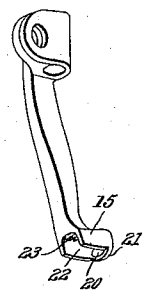


Fig. 2.

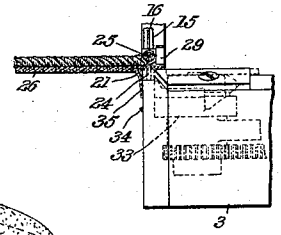


Fig. 5.

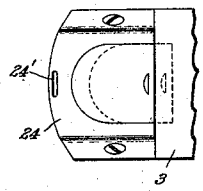
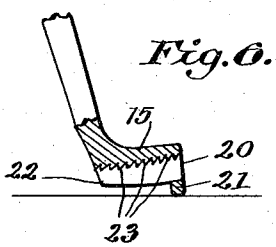


Fig. 6.



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SEWING-MACHINE.

1,201,490. Specification of Letters Patent. Patented Oct. 17, 1916.

Application filed March 5, 1914. Serial No. 822,586.

To all whom it may concern:

Be it known that I, JOHN F. MORRIS, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in sewing machines and has for its object to provide improved means for stitching a cord to a body portion, and for a better understanding of its application it is herein shown in connection with the stitching to the body portion of a shoe insole a cord through which said body portion is attached to the shoe upper.

Prior to the present construction many difficulties were common to the stitching of a comparatively heavy cord to a body portion in curvilinear directions, the most notable of these being the tendency of the cord-pressing, holding and guiding elements to resist the turning of the material about an axis coincident with the line of needle actuation, and the tendency of the needle, as it enters the cord, to glance and effect a slight turning of the cord which, after having passed beyond its guiding elements, assumes a position out of its given alinement. To better effect such cording operation there is herein employed an upper four-motion feeding mechanism in connection with a needle feed and vertically operated guiding and presser-foot, the cord-guiding, holding and feeding elements being constructed and operated to relieve the pressure on the materials at a time in the formation of the stitch convenient to the manual control of the design or figure.

The present invention is shown as applied to a Singer sewing machine, substantially such as is represented by United States Patent No. 754,934, dated March 15, 1904, to D. Noble, but as it relates more particularly to the construction and manner of control of the cord-guiding and feeding foot and cord-holding and guiding presser-foot, only such reference will be made to the other element of the machine as is deemed necessary for a proper understanding of its application.

In the accompanying drawings, which form a part of the specification, Figure 1 is a front end elevation of the machine of the patent above referred to equipped with the present invention and illustrating its application to the stitching of a cord or abutment to the body portion of a shoe insole, Fig. 2 a front side elevation of a portion of the front end of the cylinder-bed plate, together with a view in cross section of the insole shown in Fig. 1, Figs. 3 and 4 perspectives of the cord-holding and guiding presser-foot and cord-guiding and feeding foot, respectively, Fig. 5 a plan view of the front end portion of the cylinder bed-plate, and Fig. 6, an enlarged central longitudinal section of the lower end of the cord guiding and feeding foot.

Referring to the figures, 1 represents the sewing machine standard, 2 the bracket-arm, 3 the cylinder-bed-plate, 4 the main or needle-bar driving shaft provided at its rear end with the usual hand or band-wheel 5 and 6 one form of commonly employed take-up lever.

As in Patent No. 754,934, previously referred to, the movement of the eccentric 7, carried by the main-shaft 4, causes the stud 8 to be shifted back and forth through the stationary cam-slot 9, and the shape of the latter is such that when said stud moves toward the main-shaft the link 10 will be drawn upward, thereby causing the links 11 and 12 to be rocked on the fulcrum-stud 13 and oscillate the frame 14. The upward movements of the link 10 effect the feeding movements of both the cord-guiding and feeding foot 15 and needle 16, the timing of said feed movements with respect to the mechanism for alternately lifting the cord-holding and guiding presser-foot 17 being such as to oscillate the frame 14 toward the rear side of the machine, or in a direction to feed the materials, at the time the presser-foot is off the materials, it being understood that at such time the feeding foot 15 is down upon the materials and the needle at or near its downward limit of stroke.

As the train of elements for operatively connecting the feeding foot carrying bar 18 with the presser-foot carrying bar 19 are of the same construction and control as is the patent previously referred to, it is not deemed necessary to further refer to such elements.

The cord-guiding and feeding foot 15 is provided with a cord-guide opening 20 com-

prising a continuous wall or support 21 which terminates in an open slot 22 whose upper wall or feeding surface is provided with serrations 23 arranged at a slight angle to the upper surface of the cloth or needle-plate 24, provided with the needle opening 24′, the feeding foot being constructed and arranged so that the cord 25 will hold it slightly elevated above the upper surface of the body material 26, as shown by Fig. 1, for a purpose later to be explained.

The presser-foot 17 comprises a step 27, heel 28 and turned-up toe portion 29, the wall 30 of said heel acting as a guiding element for the cord 25, the step acting to hold the materials down upon the needle-plate at such time as the needle and feeding foot are elevated and being returned to their forward or feeding positions and the wall 31 of the turned-up toe portion 29 acting as a steadier for the feeding foot and convenient means for directing the cord in alinement with the guide-wall 30.

In effecting the cording operation, the cord is passed from the supply through the stationary cord-guide 32, through the opening 20 to the action of the serrated surface 23 and beneath the step 27, and owing to the inclined relationship of the feeding surface 23 with respect to the upper surface of the needle-plate 24, there is no direct downward pressure of the feeding foot on the materials at the time the presser-foot is elevated except at a point directly about the needle, thus leaving the materials free to be turned about the latter and advanced in curvilinear directions corresponding to the desired design or figure.

To meet the requirements of the present product the loop-taker 33, shown in dotted lines only, Fig. 2, is located at the right of the line of seam formation and this together with the dispensing of an under feeding mechanism, makes it practical to locate the free end 34 of the cylinder bed-plate close to the line of needle actuation, thus permitting the lip or integral ply 35 of the insole to track the free edge 36 of the needle-plate and across the free end of the cylinder bed-plate, it being understood that after the cord has been secured by the seam 37 to the under side of the insole the ply 35 is cemented to the body portion and acts to effect a hidden seam at the upper or exposed side of the latter.

What I claim as my invention, and desire to secure by Letters Patent is:—

1. A sewing machine for stitching a cord to a body portion comprising a vertically movable cord-holding and guiding presser-foot, an upper four-motion feeding mechanism including a needle feed and means for actuating said presser-foot and feeding mechanism, the latter including a cord-guiding and feeding foot provided with a cord-guide opening comprising a continuous wall terminating in a cord-guiding slot.

2. A sewing machine for stitching a cord to a body portion comprising a vertically movable cord-holding and guiding presser-foot, means for feeding the fabric being acted on, the latter including a cord-guiding and feeding foot provided with a support for holding the cord out of engagement with the body material.

3. A sewing machine for stitching a cord to a body portion comprising a vertically movable cord-holding and guiding presser-foot, an upper four-motion feeding mechanism including a needle feed and means for actuating said presser-foot and feeding mechanism, the latter including a cord-guiding and feeding foot provided with a cord-guiding slot whose upper wall is inclined downward from substantially its receiving end toward the line of needle actuation.

4. A sewing machine for stitching a cord to a body portion comprising a vertically movable cord-holding and guiding presser-foot, an upper four-motion feeding mechanism including a needle feed and means for actuating said presser-foot and feeding mechanism, the latter including a cord-guiding and feeding foot provided with a guiding slot, said feeding foot being held out of feeding engagement with the under or body portion by the cord being stitched to the latter.

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

JOHN F. MORRIS.

Witnesses:
FREDERICK W. MOWATT,
JOHN P. MYRON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."