J. FOSSA.

SEWING MACHINE.

APPLICATION FILED MAR. 23, 1918.

1,406,180. Patented Feb. 14, 1922.

Fig. 1.

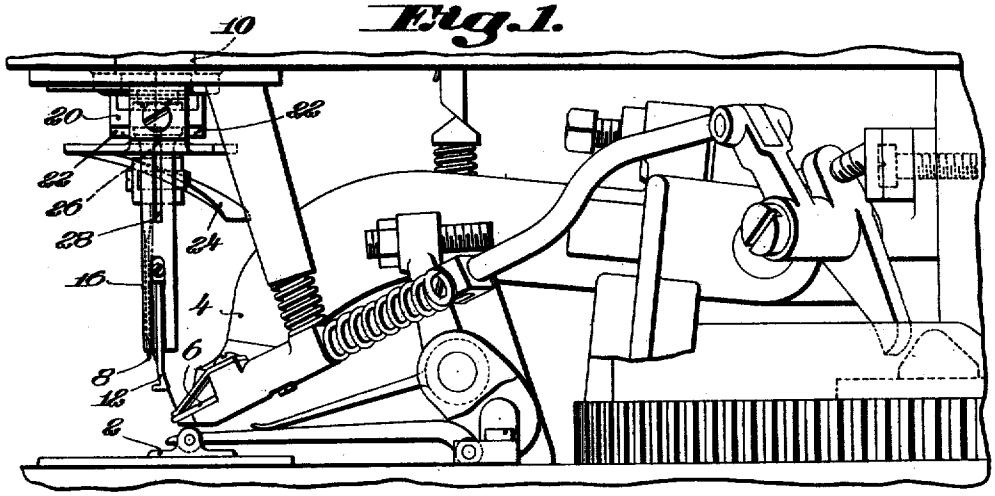


Fig. 2.

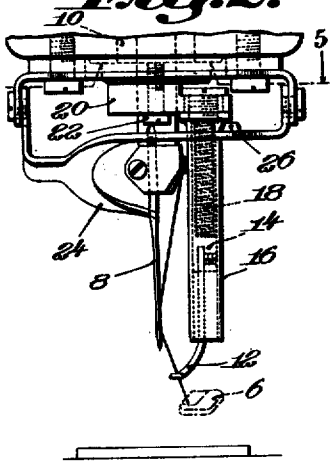


Fig. 3.

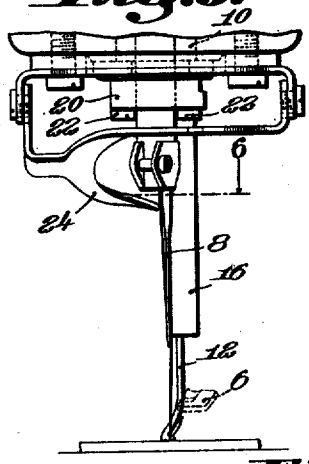


Fig. 4.

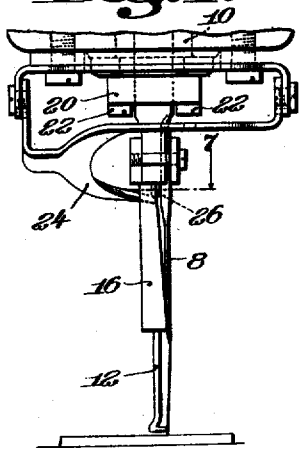


Fig. 8.

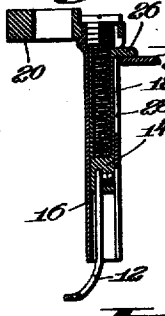


Fig. 5.

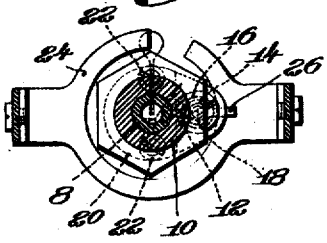


Fig. 6.

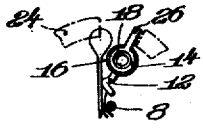
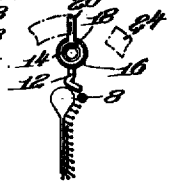


Fig. 7.



Witness

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SEWING MACHINE.

1,406,180. Specification of Letters Patent. Patented Feb. 14, 1922.

Application filed March 23, 1918. Serial No. 224,264.

To all whom it may concern:

Be it known that I, JOSEPH FOSSA, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Sewing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to overseam sewing machines in which the thread is held at the beginning of the sewing in position to be covered by the stitches of the overseam.

Machines have heretofore been provided with thread severing and holding devices for severing the thread at the completion of the sewing operation and for holding the end of the thread at the beginning of the next sewing operation in such position that the waste end extending from the initial stitch is covered by the overseam stitches, and it has also been proposed to provide a thread guiding finger for holding and guiding the waste end and maintaining it in proper position to be covered after it has been released by the thread holder. The object of the present invention is to improve the construction and mode of operation of such a thread guiding finger, whereby its action is rendered more certain and uniform. To this end, the finger is so mounted that its position with relation to the needle, or needles, remains unchanged during its guiding action on the thread. This enables the finger to maintain the waste end of the thread in the best position to be covered by the overseam stitches. In embodying the invention in a buttonhole sewing machine, provided with sewing mechanism which is rotated in sewing about the end or ends of the buttonholes, the guiding finger is preferably mounted to move with the sewing mechanism. When so mounted, the finger may be conveniently lowered to engage and guide the thread end, and raised, after the covering of the thread end has been completed, by a stationary cam over which the finger carrier travels.

The invention will be readily understood from an inspection of the accompanying drawings, in which the preferred form of the invention is illustrated, applied to the buttonhole sewing machine disclosed in the patents to Hill, No. 1,063,880, June 3, 1913, and No. 1,094,896, April 28, 1914.

In the drawings, Figure 1 is a side elevation of so much of the buttonhole sewing machine of the above patents as is necessary to illustrate the application of the present improvements thereto; Figs. 2, 3 and 4 are front elevations looking toward the right in Fig. 1, showing the parts in different positions; Fig. 5 is a horizontal sectional view on the line 5, Fig. 2; Fig. 6 is a similar view on line 6, Fig. 3; Fig. 7 is a similar view on line 7, Fig. 4; and Fig. 8 is a vertical sectional view through the finger carrier slide and its support.

The machine shown in the drawings is provided with the traveling work clamp 2, the buttonhole cutter 4, the thread holder and cutter 6, the vertically reciprocating upper needle 8 mounted in the rotary head 10, and the under needle and looper, which are not shown. At the end of the sewing, the thread holder and cutter is operated to sever the upper needle thread and hold its end until the sewing of the next buttonhole begins, as indicated in Figs. 1 and 2. At the beginning of the sewing, the first stitch is taken at the end of the buttonhole, and the thread holder is so located at the rear of the sewing point that the waste end of thread leading from the holder to the first needle hole is covered by the overseam, as fully explained in Patent No. 1,094,896. After the first few stitches have been taken, the thread end is released or withdrawn from the thread holder and thereafter it is guided and maintained in proper relation to the needle paths by the thread guiding finger of the present invention which moves with the stitch forming mechanism as it rotates during the sewing.

In the embodiment shown, the thread guiding finger 12 is secured in the lower end of a carrier slide 14 mounted within a vertical guide tube 16 and forced downward toward the work by a spring 18. The guide tube is secured in a supporting plate 20, which is in turn secured to the lower end of the rotary head 10 by the screws 22. The carrier slide is raised and lowered at proper times by a stationary cam plate 24 arranged to be engaged by a finger 26 at the upper end of the slide which projects through a slot 28 in the guide tube.

The position which the parts will occupy

at the beginning of the sewing is the same as that indicated in Figs. 1, 2 and 5. At this time, the finger 26 rests on the high part of the cam plate 24, and the thread guiding finger 12 is held in its raised position. During the sewing of the first few stitches, the stitch forming mechanism is rotated through approximately a quarter turn, and during this movement the thread guiding finger is carried from the position indicated in Figs. 2 and 5 into position above the thread which leads from the thread holder to the seam. As the thread finger comes into this position, the finger 26 rides off the end of the cam plate and the spring 18 immediately moves the thread guiding finger down into engagement with the work, the finger engaging the thread and pressing it against the upper surface of the work, as indicated in Figs. 3 and 6. At about this time, the thread holder is operated to release the waste end of thread, so that during the continued sewing of the seam the thread is guided and held against the surface of the work between the needle paths by the thread guiding finger, the lower surface of which is notched for the passage of the thread. During the continued sewing of the first half of the buttonhole, the sewing mechanism may continue to rotate, and during such movement the thread guiding finger moves with the sewing mechanism, so that its position with relation to the needle paths is not disturbed. After the waste end of the thread has passed from under the thread guiding finger and has been completely covered by the overseam, the finger 26 is carried by the rotation of the sewing mechanism over the lower inclined end of the cam plate 24, as indicated in Figs. 4 and 7. As the rotation of the sewing machanism continues, the finger 26 rides up on to the high part of the cam plate, thus lifting the thread guiding finger into its initial or inactive position, where it remains until the sewing of the next buttonhole.

While it is preferred to employ the arrangement of parts shown and described in embodying the invention in the buttonhole sewing machine of the patents above referred to, this construction and arrangement is not essential to the broader features of the invention, but may be varied or modified as found desirable or best suited to the construction or mode of operation of the machine in which it is to be embodied.

Having explained the nature and object of the invention, and having specifically described one form of mechanism in which it is embodied, what is claimed is:—

1. A sewing machine, having, in combination, overseam stitch forming devices comprising a needle, a thread guiding finger for guiding the waste end of the needle thread into position to be covered by the overseam stitches, and means for maintaining said finger in fixed relation to the needle path during its guiding action on the thread.

2. A sewing machine, having, in combination, overseam stitch forming mechanism comprising a rotary needle carrier and a needle, a thread guiding finger mounted to rotate with the needle carrier and arranged to engage and guide the waste end of needle thread into position to be covered by the overseam, and means for lowering and raising the finger during the rotation of the stitch forming mechanism.

3. A sewing machine, having, in combination, shiftable overseam stitch forming devices, including a needle, means for holding the end of the needle thread in position to be covered by the overseam, and a thread guiding finger arranged to engage the thread between the holding means and the sewing point and mounted for movement with the stitch forming mechanism to maintain it in fixed relation to the needle path.

4. A sewing machine, having, in combination, overseam stitch forming mechanism comprising a rotary needle carrier and a needle, a thread guiding finger mounted on the needle carrier, and a stationary cam for raising and lowering the thread guiding finger.

5. A sewing machine, having, in combination, rotary overseam stitch forming devices comprising a needle, and a thread guiding finger for guiding the waste end of the needle thread into position to be covered by the overseam stitches mounted to rotate with the stitch forming mechanism.

6. A sewing machine having, in combination, laterally movable overseam stitch-forming devices including a needle, a thread engaging device for presenting the waste end of the needle thread in position to be covered by the overseam stitches, and means for so mounting the thread engaging device that its position with relation to the needle path remains unchanged during its entire guiding action on the thread.

JOSEPH FOSSA.