J. E. CHALMAN.

NEEDLE GUARD.

APPLICATION FILED SEPT. 27, 1918.

1,433,872.

Patented Oct. 31, 1922.

2 SHEETS—SHEET 1.

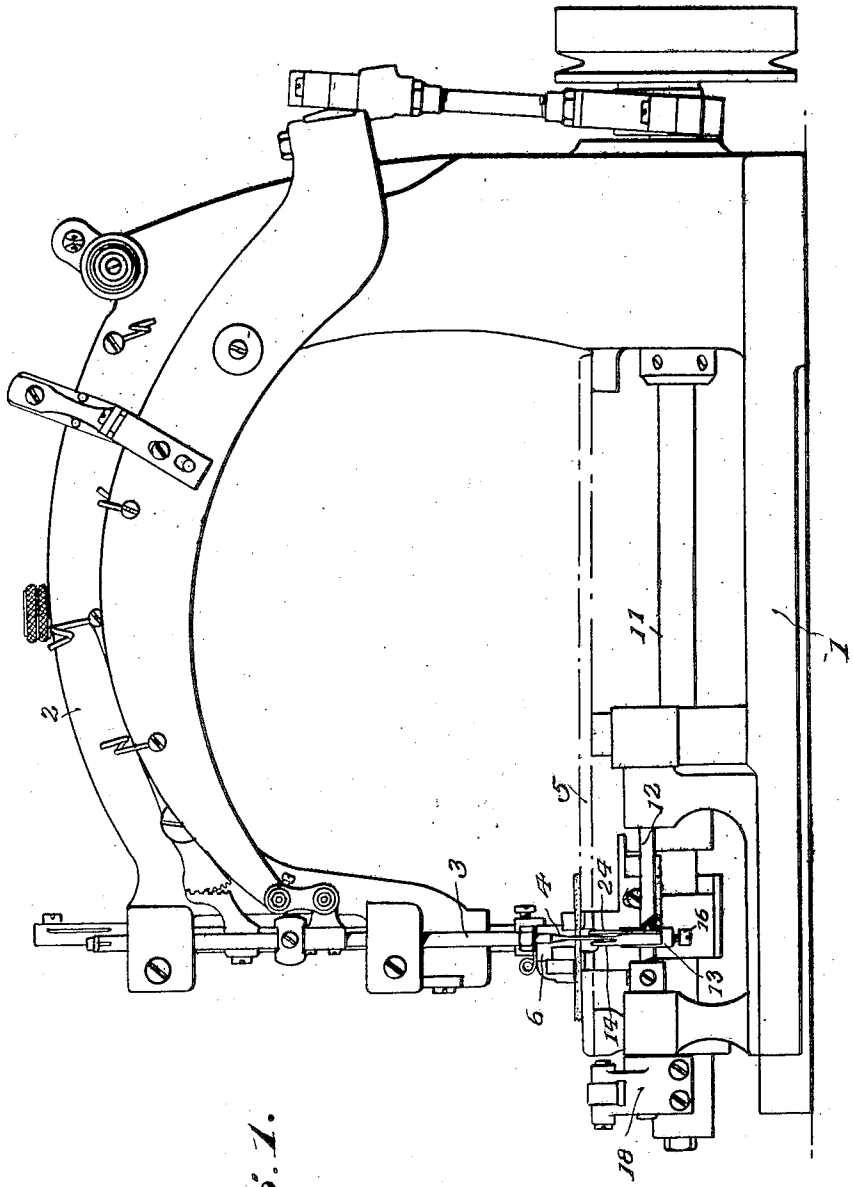


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

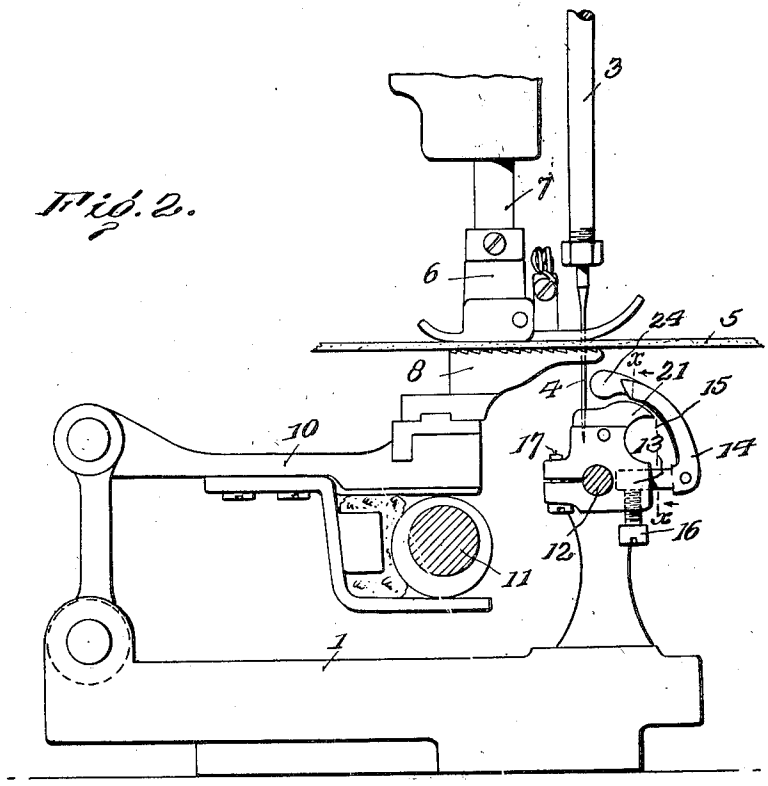


Fig. 3.

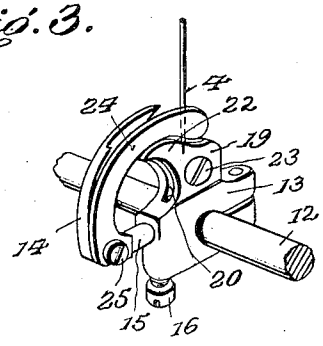


Fig. 4.

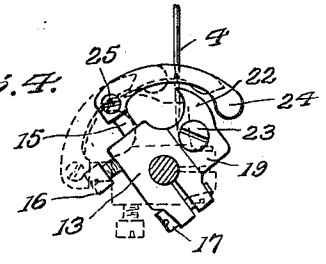


Fig. 5.

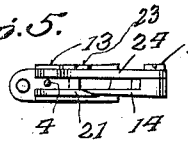
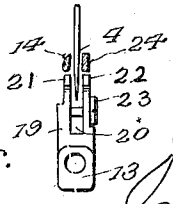


Fig. 6.



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Patented Oct. 31, 1922. 1,433,872

UNITED STATES PATENT OFFICE.

JOHN E. CHALMAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO UNION SPECIAL MACHINE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

NEEDLE GUARD.

Application filed September 27, 1918. Serial No. 255,916.

To all whom it may concern:

Be it known that I, JOHN E. CHALMAN, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Needle Guards, of which the following is a description, reference being had to the accompanying drawing and to the figures of reference marked thereon.

The invention relates to new and useful improvements in needle guards for sewing machines, and more particularly to a needle guard for a single thread chain stitch sewing machine, wherein the looper moves in a plane parallel to the line of feed.

Prior to my invention needle guards have been associated with loopers of the above character for guiding the point of the needle so as to insure the looper entering the needle thread loop. These needle guards have been located beneath the looper. The needle is often deflected by reason of a cross seam or the like, or by the pull on the thread by the feeding of the fabric, forcing the needle to one side of its normal path of travel and when the needle guards are well beneath the looper, the deflection of the needle becomes so great at the point where the needle guards cooperate with the needle that the needle is apt to strike the right-hand needle guard, as viewed from the front of the machine, or pass entirely to the right thereof.

An object of the present invention is to provide a needle guard which is located at one side of the looper and on the opposite side of the needle therefrom, and which serves with the looper to properly position the needle so that the point of the needle may be caused to pass with certainty between the needle guards which are beneath the looper.

In the drawings which show by way of illustration one embodiment of the invention—

Figure 1 is a front view of a sewing machine having my improvements embodied therein, the cloth plate being indicated only by broken lines;

Figure 2 is a view partly in section and partly in end elevation, showing the essential parts of the machine;

Figure 3 is a perspective view of the needle, the looper and a portion of the looper supporting shaft, with the looper fully retracted and about to move forward to enter the needle thread loop;

Figure 4 is a side view of the needle guard, the looper carrier and the needle, showing in full lines the position of the parts as the needle passes beneath the upper face of the needle guard, and in dotted lines the full lower position of the needle;

Figure 5 is a plan view, showing the looper, the needle guard adjacent the looper and the needle guards beneath the looper;

Figure 6 is a front view, showing the needle, the looper carrier and the lower needle guard carried thereby also the looper and associated guard in section.

Prior to my invention it has been the practice to provide spaced needle guards located beneath the looper in a single thread chain stitch machine, wherein the looper is disposed so as to move in a plane parallel with the line of feed. These spaced needle guards have been formed by a saw cut in the material and the material forming the needle guards left untempered as the tempering of the material is liable to spring the guards away from or toward one another. These guards are positioned beneath the looper and cooperate with the point of the needle only. If the needle is deflected to any great extent it will strike the needle guard at the right of the looper, as viewed from the front of the machine, which would injure the needle guard or the needle, or possibly the needle might pass entirely outside of said needle guard.

The present invention is particularly directed to a needle guard which is so associated with the looper as to cooperate with the looper in positioning the needle if the same is deflected to any great extent out of its normal position and insure the point of the needle passing between the needle guards located beneath the looper. The invention will be better understood by reference to the accompanying drawings, which show one embodiment of the invention. In these drawings, I have shown a sewing machine having a supporting bed 1, carrying an overhanging arm 2, in which a needle bar 3 reciprocates carrying a needle 4. The work support is indicated in broken lines at 5. The material is held on the work support by a presser foot 6, carried by a presser

bar 7. The material is fed across the work support by a feed dog 8, carried by a feed bar 10, which is operated from suitable connections with the main shaft 11. Mounted on a short shaft 12, parallel with the main shaft 11, is a looper carrier 13. Mounted on this looper carrier 13 is a looper 14. The looper 14 is carried by a looper shank 15 fitting in a socket on the looper carrier 13 and this shank is held in the looper carrier by a set screw 16. The looper carrier is clamped on the shaft 12 by a screw 17. The shaft 12 is oscillated by suitable connections, indicated at 18, from the main shaft 11. These parts are all of the usual construction and a further detail description thereof is not thought necessary.

The looper carrier is formed with a projecting portion 19, which has a saw cut 20 formed therein, and this saw cut forms from the projection 19 two spaced needle guards 21 and 22. A screw 23, passing through the needle guards, may serve as a means for drawing the two guards 21 and 22 closer together and thus narrowing the space between the needle guards. The left-hand guard 22, as viewed in Figure 6, is directly underneath the body of the looper 14. After this looper carrier has been cut to form the needle guards, if these parts be tempered, it is liable to draw them toward each other or out of proper position, so that they are not suitable for guarding the needle. It is preferable, therefore, to leave the metal from which the needle guards are formed untempered. In order to insure that the needle point may pass into the space between the needle guards 21 and 22 and not strike either guard, I have provided a hardened needle guard 24, which is located directly opposite the looper 14 and on the opposite side of the needle 4 from the looper. This needle guard 24 is secured by a suitable screw 25 to the shank of the looper. The needle guard is spaced from the looper. The needle on its descent passes between the looper and the needle guard at a point well back from the point of the looper and the free end of the needle guard. In Figure 4 of the drawings, I have shown in full lines the needle point just as it passes into the space between the looper and the needle guard. The looper on the one side will prevent the needle from being deflected to the left, while the needle guard on the other side will prevent the needle from being deflected to the right and will insure that the point of the needle will pass into the space between the needle guards 21 and 22. In Figure 4 of the drawings, in dotted lines, I have shown the extreme lower position of the needle with the point between these guards 21 and 22. As the looper moves forward, the guards 21 and 22 will retain their governing control on the needle and hold the needle so that the looper will with certainty pass into the loop in the needle thread thrown out by the needle. The extreme forward end of the upper needle guard 24 is slightly in advance of the point of the looper and this operates to force the needle thread loop outwardly for the looper to enter. In initially setting the looper it is raised or lowered so as to properly position the same. Inasmuch as the needle guard 24 is mounted on the looper, it will be raised or lowered with the looper and consequently maintain its position at one side of the looper.

It is obvious that minor changes in the details of construction and arrangement of parts may be made without departing from the spirit of the invention, as set forth in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. The combination of a needle, a looper cooperating therewith, spaced needle guards beneath the looper for positioning the needle relative to the looper, and an independent needle guard at the side of the looper and on the opposite side of the needle from the looper for insuring that the needle point will pass between the needle guards beneath the looper.

2. The combination with a feeding mechanism, of a stitching mechanism including a needle, a looper movable in a plane parallel with the line of feed and in the direction of feed while entering the needle thread loop, spaced needle guards beneath the looper for positioning the needle relative to the looper to insure the looper entering the needle thread loop, and a needle guard at the side of the looper and on the opposite side of the needle from the looper for insuring that the needle point will pass between the needle guards beneath the looper.

3. The combination with a feeding mechanism, of a stitching mechanism including a needle, a looper movable in a plane parallel with the line of feed and in the direction of feed while entering the needle thread loop, spaced needle guards beneath the looper for positioning the needle relative to the looper to insure the looper entering the needle thread loop, and a needle guard at the side of the looper and on the opposite side of the needle from the looper for insuring that the needle point will pass between the needle guards beneath the looper, said last named needle guard being mounted on the looper.

4. The combination with a feeding mechanism, of a stitching mechanism including a looper carrier, a looper mounted thereon, means for supporting the looper carrier whereby the looper moves in a plane parallel with the line of feed and in the direction of feed as it enters the needle thread

loop, said looper carrier having spaced needle guards which are located beneath the looper and which are adapted to position the needle relative to the looper to insure the looper entering the needle thread loop, and a needle guard carried by the looper and located at one side thereof and on the side of the needle opposite the looper for insuring that the needle point will pass between the needle guards on the looper carrier and beneath the looper.

In testimony whereof, I affix my signature, in the presence of two witnesses.

JOHN E. CHALMAN.

Witnesses:
C. McNeil,
A. B. Clothier.