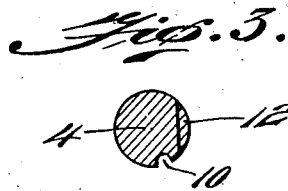
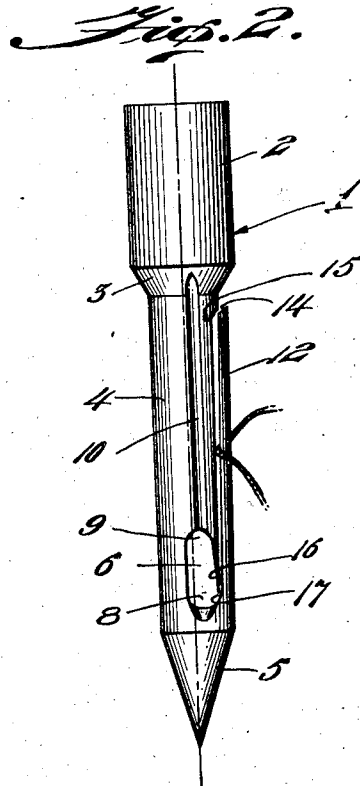
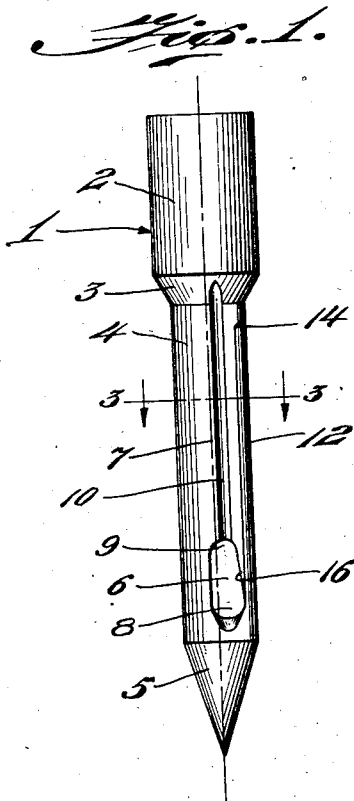


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J. M. RATTIE
SEWING MACHINE NEEDLE
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SEWING MACHINE NEEDLE

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1 Claim. (Cl. 112-224)

This invention relates to an improved sewing machine needle so constructed as to be capable of being threaded by the operator quickly and expeditiously without the difficulty of passing the thread through the eye of the needle as is usual in devices of that character.

One object of the invention is the provision of a device of the character described wherein means are provided for inserting the thread laterally into the eye of the needle and at the same time the parts are so arranged as to provide a complete closure for the lateral opening after the insertion of the thread whereby the danger of the thread catching upon portions of the needle adjacent to the opening as it is fed through the needle eye is substantially entirely eliminated.

Another object of the invention is the provision of a needle of this character having the parts so proportioned and arranged that the strength of the needle is not materially diminished by the provision of the lateral opening for inserting the thread.

A further object of the invention is the provision of a device of this character having the parts so formed to provide resilient interfitting portions adjacent to the lateral opening leading into the eye of the needle whereby these resilient parts spring together after the insertion of the thread to substantially entirely close the opening and leave no parts adapted to catch into or interfere with the free passage of the thread through the eye.

Referring to the drawing:—

Fig. 1 is a front elevational view of the improved needle structure showing the position and arrangement of the longitudinal slit found in the needle body to provide a resilient closure for the opening into the eye.

Fig. 2 is a front elevational view of the needle showing the position of the parts when the spring arm is sprung outwardly during the insertion of a thread, and,

Fig. 3 is a cross-sectional view of the needle body, taken substantially along the line 3—3 of Fig. 1.

In that form of the invention illustrated herewith 1 indicates generally a sewing machine needle approximating substantially in size and general outline the needle ordinarily employed in sewing machines and comprises an enlarged head 2 adapted to be secured in a recess in the needle arm and which may differ in construction according to the machine in connection with which the needle is to be used.

The head 2 of the needle terminates in a conical shoulder 3 from which extends the reduced body portion 4 terminating in a pointed end 5.

The needle-eye or thread-eye 6 is located substantially entirely upon one side of the center line 7 of the needle in order to give greater strength to the needle as will be hereinafter more fully set forth, and the eye 6 is formed with the lower portion 8 thereof which is located adjacent to the pointed end 5 of greater width than the upper portion 9 which is more remote from the pointed end 5. The usual thread groove 10 extends longitudinally of the body portion 4 of the needle and terminates in the upper or narrowed portion 9 of the needle eye.

The needle body 4 is provided with an integral spring arm 12 separated from but adapted to fit closely against the main body portion 4 of the needle throughout the major portion of its length and extending from a point adjacent to the lower enlarged portion 8 of the eye to a point in proximity to the conical shoulder 3. That end of the spring arm 12 which is most remote from the eye 6 of the needle may terminate in an inclined end 14 oppositely positioned relative to an inclined shoulder 15 formed in the body portion of the needle. The parts may be so constructed that the inclined end 14 is spaced from the inclined shoulder 15 a sufficient distance to receive freely therebetween a thread of the size adapted for use with the needle in question.

By reason of the particular shape of the needle-eye 6 which has the portion 8 nearest to the point of the needle of materially greater width than the portion 9 most remote from the point 5, a depending spring lip 16 extends downwardly from the needle body and presses closely against the lower inner surface of the spring arm 12 when the parts are in their normal positions. The engaging surfaces of the spring arm 12 and needle body 4 may be plane surfaces, and the spring arm 12 fits closely against the needle body and the depending lip 16 throughout its entire length save for the portion 17 which communicates with the lower portion 8 of the needle eye. With this arrangement of the parts the spring arm is capable of springing out slightly from the body portion of the needle after the thread 18 is inserted between the inclined end 14 of the spring arm and the shoulder 15 of the body portion and as the thread is drawn downwardly between the

spring arm 12 and the body portion of the needle, as shown in Fig. 2 of the drawing. When the thread 18 has been drawn downwardly a sufficient distance to be opposite to the depending lip 16, the lip 16 will spring inwardly slightly towards the interior of the needle eye to permit the thread 18 to pass over the end thereof and into the eye.

In threading the needle the thread may be positioned within the narrow space separating the inclined end 14 of the spring arm from the shoulder 15, and when a downward pull is exerted upon the thread it will be readily drawn downwardly between the needle body and spring arm into the eye 6.

It will be seen that in my improved needle structure the parts are so arranged that the needle will be enabled to pass into and out of the fabric in forming the stitches without any liability of the edges or ends of the spring arm or depending lip catching in the fabric or in any way interfering with the proper operation of the needle. By off-setting the eye 6 so that the major portion thereof is located substantially upon one side of the median line of the needle and forming the opening for admission of the thread upon that side of the eye which has the thinner side wall, substantially increased strength is given the needle and danger of breakage at the eye is substantially eliminated. The formation of the eye with a relatively narrow top portion 9 and relatively wide bottom portion 8, permits the formation of the spring arm 12 of substantially uniform thickness throughout its length and provides the depending spring lip 16 which is capable of spring-

ing inwardly slightly as the thread is drawn downwardly to permit the thread to enter the eye and then springs back into close engagement with the spring arm to entirely close the opening adjacent the eye and thus prevent the thread from either reentering the recess or catching upon the end of the depending lip 16.

What I claim is:—

A needle of the character described provided with a thread-eye offset laterally relative to the median line of the needle and having one side inclined relative to the median line of the needle and a lateral cut formed in one side of the needle above the thread-eye and upon that side of the median line of the needle upon which the major portion of the thread-eye is located and having a straight longitudinally extending slit formed in the same side of the needle body as the lateral cut and extending substantially parallel with the median line of the needle to intersect the thread-eye opening and connect the lateral cut directly with the thread-eye above the widest portion of the thread-eye, and form a spring arm having a portion which serves to provide a part of one side of the thread-eye wall and a portion which normally lies closely against that part of the needle body upon one side of the slit to close the thread-eye, the latter portion being capable of being sprung away from the needle body to admit the passage of a thread from the lateral cut directly to the thread-eye whereby the thread-eye is normally completely closed to provide an interior face free from obstructions to the passage of the thread.

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