Dec. 12, 1933. C. CIRAVOLO 1,939,620

NEEDLE GUARD FOR SEWING MACHINES

Filed Jan. 27, 1931

Fig. 1

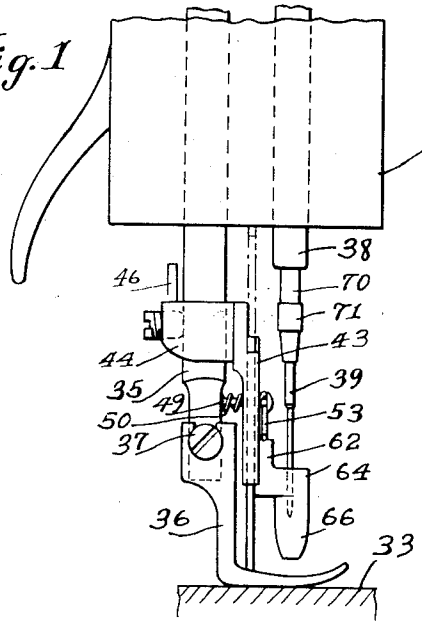


Fig. 2.

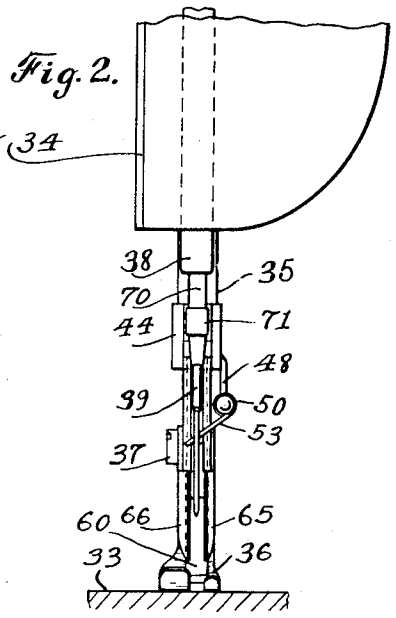


Fig. 4

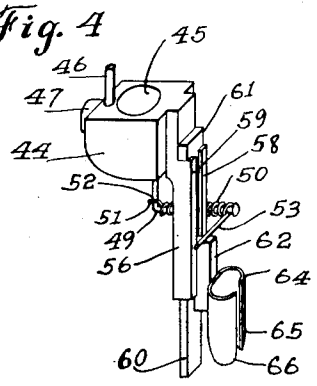


Fig. 3

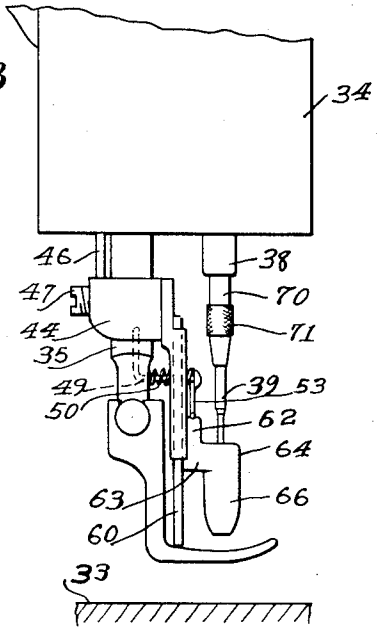


Fig. 5.

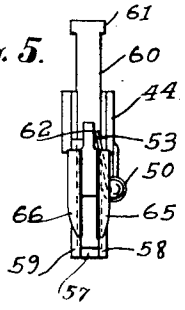
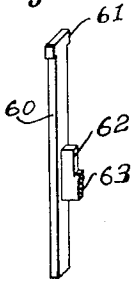


Fig. 6.



INVENTOR

Charles Ciravolo

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UNITED STATES PATENT OFFICE

1,939,620

NEEDLE GUARD FOR SEWING MACHINES

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Application January 27, 1931. Serial No. 511,492

9 Claims. (Cl. 112—261)

This invention relates to needle guard attachments for sewing machines to prevent the fingers of the operator from either accidentally or intentionally getting into the path of reciprocation of the needle when the machine is running.

One of the objects of the present invention is to provide a needle guard of very simple and inexpensive construction and which can be readily attached to any sewing machine of standard type.

Another object is to provide a needle guard of such compactness of construction and arrangement of parts that, while preventing the operator from getting his fingers into the path of the reciprocating needle, it cannot interfere with the operation of the machine or obstruct the view of the operator.

Another object is to provide a needle guard which can be raised and maintained out of operative position only when the machine is not in operation and which is automatically returned to protective position when the machine is started.

With these and other objects in view, the invention resides in the combination and arrangements of parts described in the following specification and later claimed.

It is to be understood that the invention is not limited to the exact details herein disclosed, still for the purpose of showing a preferred embodiment thereof, reference is had to the accompanying drawing in which like numerals designate like parts in the separate views, and in which

Figure 1 is a fragmentary, side elevational view of the head of a sewing machine with presser foot down and the needle guard in position.

Figure 2 is a front elevational view of Figure 1.

Figure 3 is a view the same as Figure 1, but with the presser foot raised.

Figure 4 is a perspective view of the device with the guard member in its lowermost position.

Figure 5 is a front elevational view of the device with the guard member in raised position.

Figure 6 is a perspective view, with parts broken away, of one of the elements.

Referring more specifically to the drawing, in detail, I show portions of a conventional sewing machine including a throat plate 33, head 34, presser foot bar 35, a detachable presser foot 36 held by a screw 37, a needle bar 38 and a needle 39.

My improved needle guard, is relatively small as compared to the immediate parts of the machine to which it is attached and comprises a body portion 43 having a bracket 44. The bracket 44 is provided with a bore 45, a stop pin 46, a set screw 47 and a depending angular arm 48. Wound around the horizontal angle 49 of the arm 48 is a coil spring 50. The end 51 of the spring engages the depending portion of arm 48 as shown at 52. The opposite end 53 of the coil spring terminates in a relatively long portion at right angle to the body portion of said spring 50.

The body portion of my device consists of a rectangular member 56 having a channel 57 and guide members 58 and 59. Slidably positioned within the channel 57 of the member 56 is a slide bar 60 having a cross head 61 at its upper end. Integrally formed with the slide bar 60 is a lug 62. The lug 62 has a neck portion 63 which is integral with, and supports the needle guard member 64. The needle guard member 64 consists of two depending wings 65 and 66 each describing, in cross section beneath the neck portion 63, an arc of a circle. The front of the guard member 64 is open for its entire length. The back portion of said guard member is open up to its connection with the neck 63. The upper end of the lug 62 forms a seat for the end 53 of the spring 50.

I prefer to use a needle bar 38 having a reduced diameter as shown at 70 and provided with a chuck 71 for securely holding the needle instead of the conventional thumb screw. Thus, I have found it possible to reduce the outside diameter of the guard to the corresponding dimensions of the presser bar 35 and foot 36 and thereby avoid an additional obstruction of the operator's view.

The needle guard is attached in the following manner:—The presser bar 35 is raised as shown in Figure 3 and the presser foot 36 removed. The bracket is then positioned on the presser bar 35 by means of the stop pin 46 and the set screw 47. When the presser is raised the stop pin just strikes the underside of the machine head and when the presser bar is down it assumes the position shown in Figure 1.

The normal or operative position of the needle guard is shown in Figures 1 and 2. It is to be noted that the action of the spring 50 on the lug 62 urges the slide 60 together with the guard member 64 to their lowermost positions. In this position, the guard member surrounds and protects the point of the needle 39. The guard member may be raised in one of two ways. One, as indicated in Figure 3, is to raise the presser foot bar 35 to which the needle guard is detachably secured. When raised in this way, the guard

member still protects the needle point. The other way, which is shown in Figure 5, is to raise the guard member against the force of the spring 50. The end 53 of the spring pressing against the side of the lug 62 maintains the guard member in its raised position, thus exposing the point of the needle.

When the guard member 64 is in the raised position shown in Figure 5, there are at least three ways in which it may be brought back into normal or needle protecting position. One way, obviously, is to force the guard member down manually against the spring 50 which is pressing against the side of the lug 62. Another way is to give the machine at least one turn. Since the diameter of the needle bar 38 is greater than the open space between the wings 65 and 66 of the guard member 64, the lower end of the needle bar 38 on contacting the top of the guard member forces it down to its lowermost position. The third way is to raise the presser foot bar 35 which action brings the cross-head 61 against the underside of the machine head. The force of this contact is sufficient to cause the spring 50 to release the lug 62, thus allowing the guard member to drop to its lowermost position.

If the guard member is lowered by giving the machine one turn as by starting the machine, the needle point will obviously descend below the needle guard before the needle bar strikes and lowers the guard member. Hence, the needle guard on the first reciprocation of the needle would not protect the operator's fingers. However, since in actual practice, the operator must raise the presser foot to receive the material, the guard member will be brought into operative or needle protecting position by contact of the stop pin 46 against the underside of the machine head as described above.

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

1. In a sewing machine needle guard comprising a frame, a bracket, an angular arm, a slide bar within said frame, said slide bar having a lug integral therewith, said lug having means for shielding said sewing machine needle, and means communicating with said angular arm and said lug for retaining said slide bar in its different positions.

2. The combination with a sewing machine presser bar having a presser foot, of a needle guard comprising a bracket releasably secured to said presser bar and a slide supporting frame member carried by said bracket, a slide member slidably positioned within said slide supporting frame, said slide member being provided with a lug having wing portions projecting into the path of the reciprocation of the needle bar.

3. The combination with a sewing machine presser bar and presser foot, of a needle guard comprising a frame having a slide member positioned therein, said slide member having a lug, integral therewith, terminating in depending guard wings within the path of the reciprocation of the needle bar, and a bracket having a regulating stop pin and means for securing said bracket to said presser bar.

4. The combination with a sewing machine presser bar and presser foot, of a needle guard comprising a frame, a slide carried by said frame, said slide having a lug, intermediate its ends, terminating in depending wing portions, and a bracket having an angular depending arm supporting a spring member, said spring being in communication with said lug as described.

5. The combination with a sewing machine having a presser bar and foot, and needle bar and needle, of a needle guard comprising a frame, having a slide member slidably disposed within said frame, said slide member being provided with a lug having depending wing portions within the path of reciprocation of the needle bar, said needle bar having an enlarged portion and a reduced portion provided with a chuck for securing said needle therein, as described.

6. As an article of manufacture, a needle guard comprising a member having a vertical channel, a rod or bar mounted in said channel for vertical movement, a spring member for normally urging said rod or bar to its lowermost position in said channel and a pair of lateral guard wings integral with the lower portion of said rod or bar.

7. In combination with the presser bar and needle bar of a sewing machine, a needle guard detachably secured to the presser bar and provided with a pair of lateral guard wings which are mounted for vertical movement, said guard wings being in the path of reciprocation of the needle bar so as to be urged to their lowermost position when the needle bar is being reciprocated.

8. In combination with the presser bar and needle of a sewing machine, a needle guard detachably secured to the presser bar and provided with a pair of lateral guard wings for the needle, said lateral guard wings being mounted for vertical movement, and means actuated by the raising of the presser bar for urging the guard wings to their lowermost position.

9. In combination with the presser bar and needle of a sewing machine, a needle guard detachably secured to the presser bar and provided with a pair of lateral guard wings for the needle, said lateral guard wings being mounted for vertical movement and means actuated by the reciprocation of the needle for urging the guard wings to their lowermost position.

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