My present invention relates to the guarding of sewing machine needles, and more particularly to an improved needle guard for a sewing machine of the power driven type.

Although various needle guards have been devised for power driven sewing machines especially adapted for use in factories, these previous guards have not been entirely satisfactory in actual usage. One of the most important disadvantages found to be inherent in such needle guards of the prior art is the unduly complicated construction of the device. This complicated construction has resulted in interference with the working efficiency of the operator, the cumbersome construction also ultimately resulting in a complete disregard of the tool by the operator.

Accordingly, it is one of the main objects of the present invention to provide a needle guard for operators of power driven sewing machines in factories, the guard being exceedingly simple in construction and involving but a single mechanical member requiring no attention on the part of the operator, and interfering in no way with the working efficiency of the operator.

Another important object of the invention is to provide a sewing machine needle guard which will effectively protect the operator from pricking his fingers, and at the same time permits an unobstructed view of the needle at all times, the guard comprising but a single mechanical member which is constructed to be attached to the presser foot of a sewing machine in such a manner that the needle of the machine is safe at all times from accidental breakage by movement of the guard against the needle.

Another object of the invention is to provide a needle guard for a sewing machine which comprises but a single mechanical member, and which not only functions to safeguard the operator from pricking his fingers, but functions as a guide for the threading of the needle without the necessity of removing the guard or adjusting it in any manner.

Still another object of the invention is to generally improve the efficiency and simplicity of needle guards for sewing machines, and more especially to provide such a guard for power driven sewing machines adapted for use in factories, the needle guard of the present invention being exceedingly simple in construction, and being readily manufactured by a single stamping operation, and the needle guard being additionally reliable and durable in operation on the sewing machine.

The novel features which I believe to be characteristic of my invention are set forth in particularity in the appended claims, the invention itself, however, as to both its construction and method of operation will best be understood by reference to the following description taken in connection with the drawing in which I have indicated diagrammatically a construction whereby my invention may be carried into effect.

In the drawing:

Fig. 1 is a perspective view of the presser foot of a sewing machine embodying the present invention.

Fig. 2 is a front view of the guard detached from the presser foot, and showing the details of construction thereof.

Fig. 3 is a view of the presser foot and attached guard taken on the reverse side of Fig. 1.

Fig. 4 is a sectional view on line 4—4 of Fig. 3 looking in the direction of the arrows.

Referring now to the accompanying drawing wherein like reference characters in the different figures designate similar mechanical elements, the numeral 1 designates a portion of the head of a sewing machine, in which is mounted the presser bar 2 and the needle bar 3. There is secured upon the lower end of the presser bar 2, by means of the screw 4, a presser foot 5 of the usual and well known construction. A needle 6 is attached to the needle bar by means of the screw 7 in the customary fashion.

The presser foot itself is of a type well known to those skilled in the art and comprises the usual toe 5 which is provided with the spaced fingers 9 and 8. Each of these two fingers have their free ends curved upwardly in order that the work material may readily move under them.

The finger 9 is provided with a ledge 9, and it will be understood that the toe 5 is pivotally secured to the upright portion of the presser foot 5. As those skilled in the art are well aware the presser toe 5 is normally spring pressed in a downwardly direction at the rear side of the toe portion. This type of self-adjustable presser foot is so well known in the art that it needs no further description.

The needle guard is designated by the numeral 10, and as shown in Fig. 2 it is substantially L-shaped in configuration. The horizontal portion 11 thereof includes a recess 12 which conforms in outline to the contour of the ledge 9 of the presser toe. The vertical portion of the guard is provided with a recess 13 which receives the screw 4; it is also provided with an inclined recess 14 whose function it is to receive the securing screw 15.

In Fig. 1 there is shown the manner of attach-
ing the needle guard 10 to the presser foot, and it will be observed that the screw 15, and that the screws 15 and 4 retain the needle guard in position. It will also be observed that the width of the vertical portion of the guard 10 is substantially equal to that of the vertical portion of presser foot 2. By virtue of the inclined recess 14 any tendency of the guard 10 to move in a rearwardly direction is overcome because of the fact that the inner edge of recess 14 abuts the bolt of screw 15.

Again, such a tendency towards movement is overcome by the fact that the configuration of recess 12 of the guard 11 conforms to the configuration of ledge 8, thus serving as an additional abutment to prevent such undesired motion. Due to the positive gripping action of screws 4 and 15, as well as the outline of recess 12 against ledge 8, breakage of needle 6 by the guard 10 is prevented.

The length of the horizontal portion 11 of the guard 10 is such that it substantially covers the entire length of the finger 8. As shown in Figs. 1 and 3 the horizontal portion 11 of the needle guard has a height such that the finger of the operator which is customarily placed adjacent finger 8 is completely guarded against any accidental piercing by needle 6. Furthermore, the height of this horizontal portion 11 is made such that when the needle 6 is at its uppermost position, the point thereof will be sufficiently below the upper horizontal edge 11' of the horizontal portion 11 to render the guard entirely fool proof.

In this latter position of the needle 6, it will be noted that the thread aperture 14 is positioned but a slight distance above the edge 11' of the guard. Thus the edge 11' serves as a guide, or support, for the thread when the operator desires to thread the needle without necessitating in any manner the removal of the finger guarding barrier. It will, therefore, be seen that the guard not only functions as a finger protective device, but that its upper edge also functions as a supporting guide for the needle when the needle is to be rethreaded. Merely by way of example it is pointed out that in the uppermost position of the needle 6, as shown in Fig. 1, the threading eye is about 1/4 of an inch above the edge 11'.

In other words the height of the guard portion 11 should be such that the needle eye 14 will be about 1/4 of an inch above edge 11' at the uppermost position of needle 6.

It will now be appreciated that the needle guard of the present invention comprises but a single mechanical member, and that it is constructed to be positively gripped in position against the presser foot, and functions to protect at all times the operator's finger, and even accomplishes this protecting function during threading of the needle.

One of the advantages of the present guard construction is that the vertical portion thereof may be readily eliminated, and the horizontal portion 11 may be cast integral with the upright portion of the presser foot. This eliminates the need for screw 15 and recess 14. Again, the guard 10 is just effective and efficient in use in conjunction with different types of presser feet. For example, the presser foot may be of the type wherein the toe 5' is integral with the upright portion of the presser foot. Even where the presser foot does not include a ledge 9, the recess 12 is not sufficiently wide to be detrimental to the protective function of the guard. Hence, the needle guard is universal in its application. Of course, the guard may be carried by the operator and attached to the machine at the beginning of each day's work; or the guard may be permanently secured to the machine. The material of the guard 10 may be brass or steel; it is pointed out that its particular composition is immaterial to its functioning in the present invention, except that it be rigid in nature. It is obvious that the present invention, due to its simplicity and positive protecting function, is of great value to owners of factories where power driven sewing machines are utilized in that it reduces the number of accidents caused by piercing of operators' fingers, and hence effects a material saving in such states where workmen's compensation laws are in effect.

While I have indicated and described a construction for carrying my invention into effect, it will be apparent to one skilled in the art that my invention is by no means limited to the particular construction shown and described, but that many modifications may be made without departing from the scope of my invention, as set forth in the appended claim.

What I claim is:

1. In combination with a presser foot of a sewing machine, a needle guard comprising a single plate of rigid material, said plate having a substantially L-shaped configuration, the vertical section of the plate being provided with at least one recess adapted to receive a device for rigidly securing the plate to the presser foot shank, the horizontal section of the plate being substantially equal in length to the toe of the presser foot, the lower edge of the horizontal section having a contour complementary to that of the upper surface of the toe and being substantially in contact with said upper surface for the entire length thereof at the side of the foot to which the vertical section is secured whereby the needle is relatively widely spaced from said horizontal section, the vertical edge of the toe at said side being in the same plane as the outer face of the said horizontal section, the said horizontal section having substantially the same height along the entire length thereof and said height being sufficient to prevent an operator's finger from coming in contact with the point of the needle, said height additionally being sufficient to guard the needle point when the needle is at its highest position, but the threading hole of the needle being slightly above the top edge of the horizontal section at said highest needle position whereby said top edge may be used as a guiding edge for the thread.

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