J. G. BAILEY.

SEWING MACHINE NEEDLE GUARD.

APPLICATION FILED MAR. 19, 1920.

1,407,114. Patented Feb. 21, 1922.

2 SHEETS—SHEET 1.

Fig. 1.

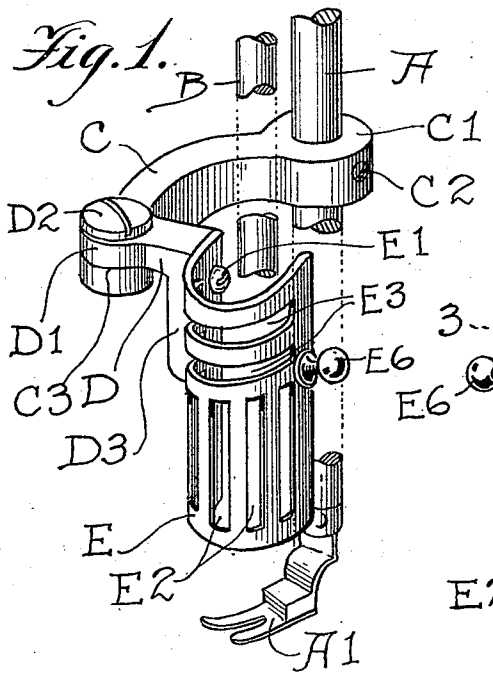



Fig. 2.

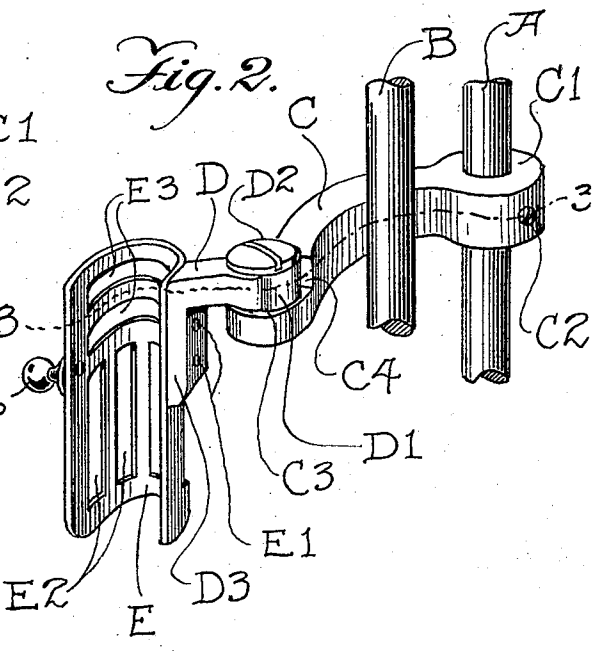



Fig. 4.

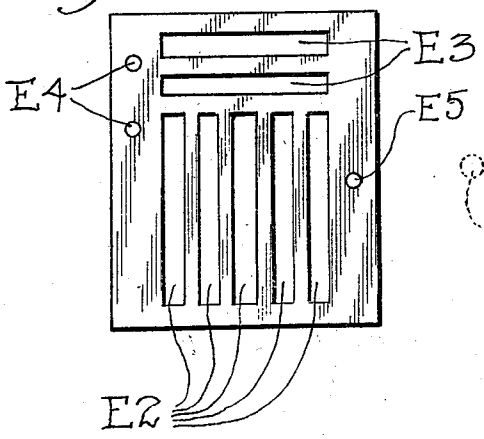
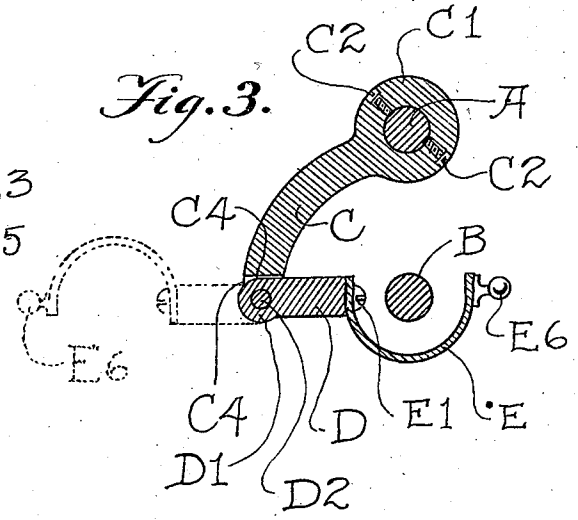



Fig. 3.




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2 SHEETS—SHEET 2.

Fig. 7.

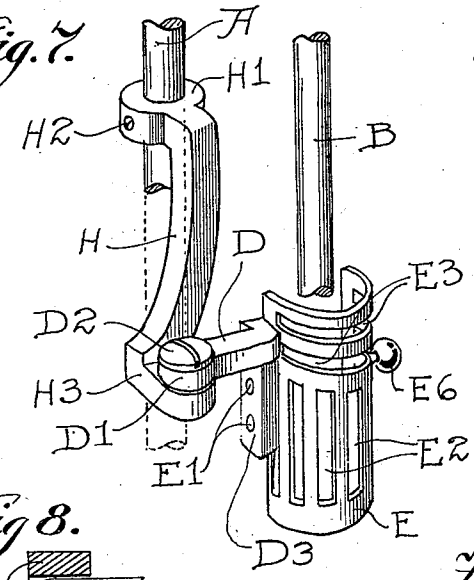



Fig. 5.

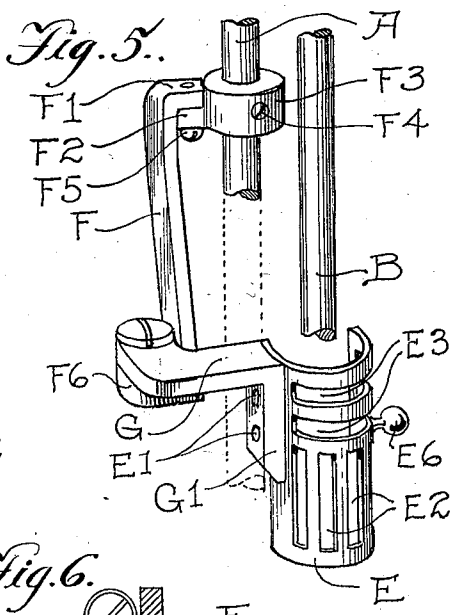



Fig 8.

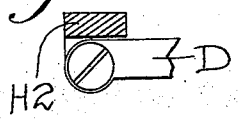



Fig. 6.




Fig. 9.

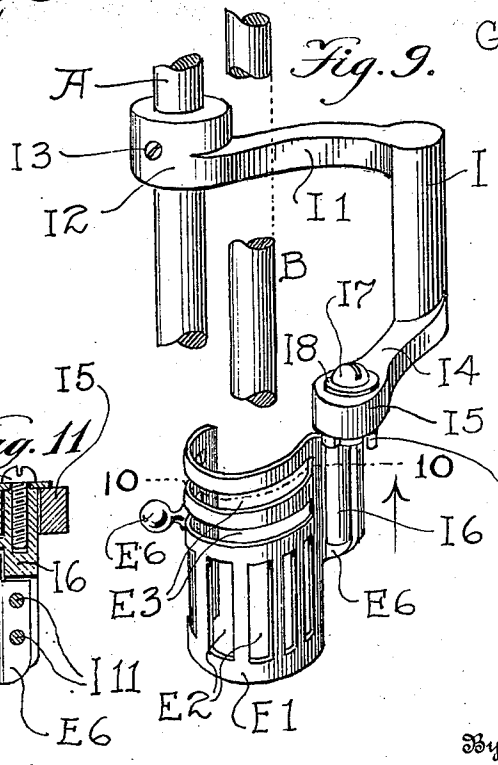



Fig. 11



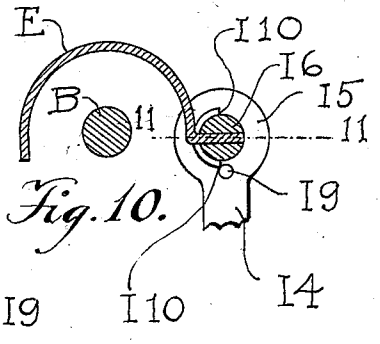




Fig. 10.

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# UNITED STATES PATENT OFFICE.

JAMES G. BAILEY, OF KNOXVILLE, TENNESSEE.

## SEWING-MACHINE-NEEDLE GUARD.

1,407,114. Specification of Letters Patent. Patented Feb. 21, 1922.

Application filed March 19, 1920. Serial No. 367,132.

*To all whom it may concern:*

Be it known that I, JAMES G. BAILEY, a citizen of the United States, residing at Knoxville, in the county of Knox and State of Tennessee, have invented a new and useful Improvement in Sewing-Machine-Needle Guards, of which the following is a specification, reference being had to the accompanying drawing.

My improvement relates to a device to be attached to sewing machines adjacent the needle to protect the fingers of operators from injury by the needle.

The object of the invention is to provide such a guard in the form which may be easily and cheaply manufactured and may be conveniently applied to and adjusted on the sewing machine.

In the accompanying drawings,

Fig. 1 is a perspective view showing my improved guard attached in the work position on the presser bar of a sewing machine;

Fig. 2 is a perspective view of the same guard turned away from the needle bar to afford access to the bar for adjustment or replacing of the needle or the thread;

Fig. 3 is a horizontal section on the line, 3—3, of Fig. 2;

Fig. 4 is a side view of a sheet metal blank from which the body of my improved guard is formed;

Figs. 5 to 11, inclusive, illustrate other forms of my guard.

Referring first to Figs. 1, 2, 3 and 4, A is the usual presser bar carrying the presser foot, $A^1$. B is the usual needle bar.

A horizontal arm, C, has a hub, $C^1$, which surrounds the presser bar, A, and is fitted to said bar so as to permit sliding upward or downward on the bar. Set screws, $C^2$, extend through said hub and bear against the presser bar to secure the arm, C, rigidly on said bar. An arm, D, overlaps and is hinged to the outer or free end of the arm, C. The outer end of the arm, C, is cut away to form a horizontal face, $C^3$, which extends to an upright shoulder or abutment, $C^4$. The arm, D, has a hub, $D^1$, which is seated on the face, $C^3$. A screw, $D^2$, extends downward through the hub, $D^1$, into the arm, D, and forms an axle for the hub, $D^1$. Thus the arm, D, is free to rotate in a horizontal plane on the axial line of said screw and the hub, $D^1$. The upright shoulder, $C^4$, is so positioned as to adapt it to form a stop for the arm, D, when said arm has been turned back to bring the body of the guard into the working position. The arm, D, has a downward extension, $D^3$, which has an upright outer face.

E is the body of the guard. This is secured to the outer face of the downward extension, $D^3$, by means of screws, $E^1$, extending through said body into said extension. Said body is formed from a piece or blank of flat sheet metal shown by Fig. 4. In the lower part of said blank are formed parallel upright slots, $E^2$, and in the upper part of said blank are formed horizontal slots, $E^3$. Near one edge and in the upper part of the blank are formed two apertures, $E^4$, which receive the screws, $E^1$. Near the opposite edge of the blank and at any convenient height is an aperture, $E^5$, which receives the small handle, $E^6$. After the blank sheet has been thus formed, it is curved by bending the upright edges rearward until the blank has assumed the shape of approximately one-half of a cylindrical tube. Then the handle is applied at the aperture, $E^5$, and the screws, $E^1$, are extended through the apertures, $E^1$, into the downward extension, $D^3$. The slots, $E^2$ and $E^3$, reduce the weight of the body and also expose the needle and needle bar to view. For the purpose of viewing the needle, the upright slots serve best; but by forming the horizontal slots, $E^3$, greater transverse strength is given to the upper part of the body; for thus the aggregate strength of three horizontal ribs is given to the upper part of the body; whereas if the upright slots were extended upward the same as below, the upper part of the body would have the strength of only one horizontal rib. Greater strength is needed for the upper part of the body because the attachment of the upper end of the body to the arm, D, places the chief strains on said part.

This manner of making the body of the guard is convenient and economical. The blank shown by Fig. 4 may be cut with dies at a single stroke; and a similar simple movement can afterward bend the blank into its curved form. The manner of mounting this body on the arm, D, by placing it against the upright face of the downward extension, $D^3$, is simple and effective. The arm, D, may be easily manufactured in large quantities and ready for receiving the body, E, without fitting. The arm, C, may be ap-

plied to the presser bar without machining or otherwise changing said bar. This makes it possible to readily apply my improved guard to machines already in use. For this it is only necessary to remove the presser foot from the presser bar and to remove the screw, $D^2$, so as to separate the arm, D, and the body, E, from the arm C.

The arm, C, is to be so set as to reach forward at the left of the needle bar and bring the arm, D, into position to support the body, E, in front of and approximately concentric with the needle bar, said body extending to each side and across the front of the needle bar, whereby said body prevents the approach of the fingers of the operator from either side and from the front to the needle. When access to the needle is desired, or if especially close observation of the work is temporarily needed, the handle, $E^6$, is grasped by the hand of the operator and the body of the arm, E, turned toward the left on the hinge formed by the screw, $D^2$. When said body is again to be put into the working position, that is accomplished by a return movement of said body until the arm, D, bears against the shoulder, $C^4$, of the arm, C. If it is desired to effect adjustment by turning the arm, C, or changing its elevation on the presser bar, that may be accomplished after loosening the screw, $C^2$.

It is to be noted, that to secure safety, it is necessary to have the guard extend across the front of the needle and also rearward opposite each side of the needle. It is also important to have means for readily moving the body of the guard so far away from the needle as to give free access and full view to the needle. Both of these conditions are met by my improved structure.

By combining the body, E, with the arm, D, as described, the same arm may be used with bodies of different lengths, according to the needs or preferences of customers, or as permitted by various forms of sewing machines.

In the form illustrated by Figs. 5 and 6, the structure is so formed as to adapt it to make attachment with the presser bar at a point higher than is the case with the form illustrated by the preceding figures. In this form, the arm, F, is in an upright plane, but leans rearward. At its upper end it has a rightward horizontal extension, $F^1$, which overlaps a short arm, $F^2$, on the hub, $F^3$, which surrounds the presser bar, A, and is secured to said bar by the set screw, $F^4$. The arm, $F^2$, is secured to the extension, $F^1$, by a screw, $F^5$. The lower end of the arm, F, has a horizontal leftward extension, $F^6$, which makes a seat for the rearward extended left-hand end of the arm, G, which has a downward extension, $G^1$, to which is secured the body, E, which is of the same form as in Figs. 1, 2 and 3. The rearward movement of the arm, G, is limited by contact with the part of the arm, F, which is adjacent the seat $F^6$, and acts as an abutment. The arm, F, and the hub, $F^3$, may be made integral, if so desired; but when the hub is made separate as shown, it is adapted to be attached to arms, F, of different lengths, as may be required for different sewing machines.

In the form shown in Figs. 7 and 8, the body, E, is of the same form as in the preceding figures; but the arm, D, is supported by an arm, H, which is formed to attach to a presser bar which is located rearward and also leftward of the needle bar, and the attachment to the presser bar is made at a point higher than in Figs. 1 and 2. The main part of said arm, H, is upright. The upper end of said arm is bent rearward and supports a hub, $H^1$, which surrounds the presser bar and is secured rigidly thereto by means of a set screw, $H^2$. The lower end of said arm has a forward extension, $H^3$, which forms a seat for the hub, $D^1$, of the arm, D. When in the working position, the arm, D, bears against the arm, H, whereby the rearward movement of the arm, D, is arrested.

The form illustrated by Figs. 9, 10 and 11 is also adapted to be attached to a presser bar which stands rearward and leftward of the needle bar; but the attachment of the body, E, is at the right hand side of the body, instead of at the left hand side as is the case in the preceding figures. An upright bar, I, has at its upper end a horizontal arm, $I^1$, which extends leftward at the rear of the needle bar and at its left hand end supports a hub, $I^2$, which surrounds the preser bar, A. A set screw, $I^3$, extends through said hub, and engages the presser bar to fasten the hub to said bar. On the lower end of the upright bar, I, is an arm, $I^4$, which is horizontal and directed forward and has at its forward end an upright hub, $I^5$, in which rests the upper end of a shaft, $I^6$. A screw $I^7$, extends into the upper end of the shaft and rests on a washer, $I^8$, which surrounds said screw and rests on the upper face of said hub. On the lower face of the hub, $I^5$, is a stud, $I^9$, and on the shaft, $I^6$, are two shoulders, $I^{10}$, one of which engages the stud, $I^9$, when the body, E, of the guard is in the working position and the other of which engages said stud when the body, E, has been turned toward the right as far as desired. The shaft, $I^6$, is slotted from its lower end upward almost to the hub, $1^5$, and the upper part of the right hand edge of the body, E, has a rightward extension, $E^7$, which is inserted into and suitably secured, as by cross pins, $I^{11}$, or by soldering in the slot of said shaft.

This improvement has been made and applied by applicant to factory sewing ma-

chines used for the rapid sewing of heavy articles. The improvement is being used on such machines for sewing the seams of heavy knit underwear consisting of two pieces and also union suits. In the manipulation of these heavy garments, considerable masses of the material are necessarily brought close to the needle, and said masses are forcibly drawn toward the needle by the strong feed mechanism. Hence the needle guard must have such structure as will adapt it to resist the impact of the garment as well as to oppose the movement of the fingers of the operator holding the garment. The guard must resist the forward movement of the fingers plus the garment held by the fingers. Hence a structure is required which is both strong and positive in its action.

In some machines the attachment of the fixed arm to the presser bar is necessarily relatively high, and in such cases it is desirable to extend the fixed arm downward as shown on the second sheet of the drawings.

I claim as my invention,

1. In a sewing machine needle guard, the combination of a first arm adapted to be secured adjustably on the presser bar of a sewing machine and having at its free end a horizontal seat and an upright abutment adjacent said seat, a second arm hinged to the first arm on said seat for horizontal movement and adapted to approach the needle bar and to bear against said abutment, and a guard body having horizontal slots and upright slots and being secured to said second arm and adapted to stand at the front of and extend approximately half way around the needle, whereby the needle is guarded from the front and sides, substantially as described.

2. In a sewing machine needle guard, the combination of a curved upright body adapted to stand at the front of and extend approximately half way around the needle and said body having upper horizontal slots and lower upright slots, a stationary arm adapted to be secured rigidly to the presser bar, and a second arm hinged to said stationary arm and secured rigidly to one edge of said body, substantially as described.

3. In a sewing machine needle guard, the combination of a first arm adapted to be secured adjustably on the presser bar of a sewing machine and extending downward from its place of attachment to said bar and having at its lower end a horizontal seat and an upright abutment adjacent said seat, a second arm hinged to the first arm on said seat for horizontal movement and adapted to approach the needle bar and to bear against said abutment, and a guard body secured to said second arm and adapted to stand at the front of and extend approximately half way around the needle, whereby the needle is guarded from the front and sides, substantially as described.

4. In the sewing machine art, a sheet metal needle guard blank having a plurality of horizontal and upright slots and apertured and being adapted to have its upright edge portions bent rearward to form approximately one-half of a cylindrical tube, substantially as described.

5. In the sewing machine art, a sheet metal needle guard blank having upper horizontal slots and lower upright slots and being adapted to have its edge portions bent rearward to form approximately one-half of a cylindrical tube, substantially as described.

In testimony whereof I have signed my name, this 15th day of March, in the year one thousand nine hundred and twenty.

JAMES G. BAILEY.