Sept. 16, 1952 A. ZYGMUNT 2,610,596

APPARATUS FOR ATTACHING ELASTIC BANDS TO GARMENTS

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FIG. 1

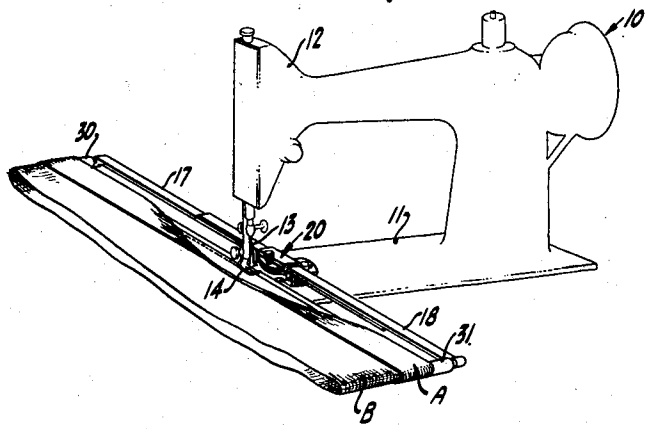
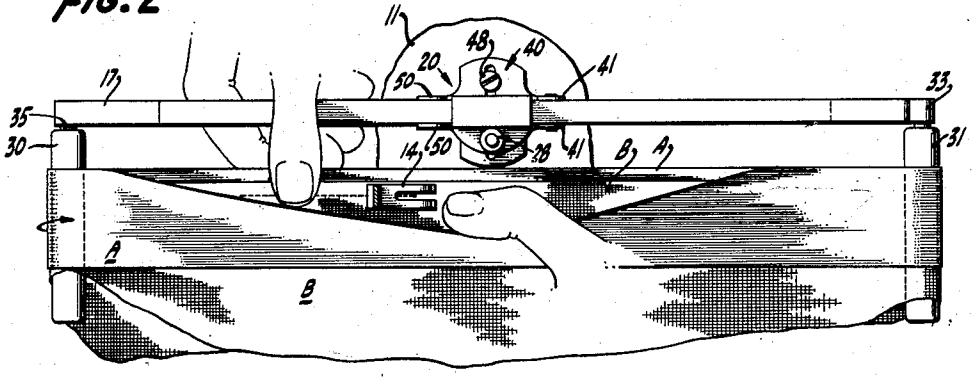


FIG. 2



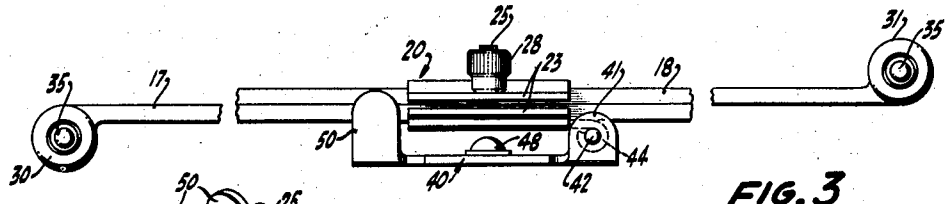


FIG. 3

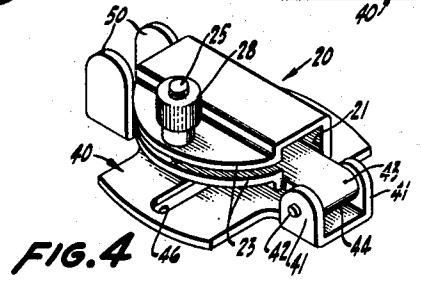


FIG. 4

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APPARATUS FOR ATTACHING ELASTIC BANDS TO GARMENTS

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3 Claims. (Cl. 112—2)

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My invention relates to new and useful improvements in sewing machines and in attachments for sewing machines, to enable the securing of endless elastic bands to marginal portions of relatively inelastic garments, which marginal portions define openings in the garments.

It is customary in various garments to provide endless elastic bands to the waist and in some cases to the ends of each leg portion thereof to enable the garment to snugly fit the wearer. The endless bands are dimensioned to be somewhat smaller than the waist or the leg of the wearer, whereas the garment proper which is relatively inelastic is dimensioned to amply fit the waist and leg of the wearer. Therefore, the endless elastic bands must be stretched and then applied to the marginal portions of the garments defining the leg or waist opening. Obviously, when the tension is released, openings in the legs and waist of the garments assume the approximate size of the endless elastic bands and when the garments are put on, the leg and waist portions snugly fit the wearer. Heretofore, various special complex and expensive machines have been provided to enable the elastic bands to be applied to garments.

It is a main object of the present invention to provide a simple inexpensive attachment designed to be readily applied to a conventional sewing machine without alteration thereof and when applied enables the expeditious application of bands to garments in the fashion above described.

In prior special machines there have been provided spaced rollers about which the band is passed. The rollers have been mounted for adjustment toward or away from one another to fit the various sizes of openings to which the bands are to be applied. The construction allowing adjustment of the rollers has been complex and expensive and it is another object of the present invention to provide a simple and inexpensive construction to enable ready adjustment of the rollers relative to one another.

The attachment of the present invention is such that it can be secured to the bed plate of a conventional sewing machine by using the tapped hole in the bed plate, which tapped hole is provided for the securing of other attachments to the bed plate.

Another object of the present invention is to provide a simple sewing machine attachment having a mounting fixture adjustably secured to the bed plate of the sewing machine in a novel manner, which mounting fixture has other parts

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of the attachment swingably mounted thereon to enable said parts to be swung out of the way when the fixture is being applied to the bed plate and then swung back to operative position after application of the fixture.

These and other objects and advantages of the invention will be more fully set out in the following description made in connection with the accompanying drawing.

In the accompanying drawing:

Fig. 1 is a perspective view showing an attachment embodying the present invention as being applied to a conventional sewing machine;

Fig. 2 is a plan view of a portion of the device in Fig. 1, showing the manner in which the elastic band is associated with the presser foot and reciprocating needle of the sewing machine;

Fig. 3 is a side view in elevation of the attachment shown in Fig. 1;

Fig. 4 is a perspective view of the clamping means and the mounting fixture supporting the clamping means.

Referring to the accompanying drawing wherein similar reference characters designate similar parts throughout, Fig. 1 shows a conventional sewing machine generally indicated at 10, having a bed plate 11, a sewing head 12, a reciprocating needle 13 and a vertically adjustable presser foot 14, said parts being common to the ordinary sewing machine. The attachment embodying the present invention, which is best shown in Figs. 2 and 3, comprises a pair of rigid arms 17 and 18 which are slidably received by a clamp generally indicated 20 within an opening 21 provided by the clamp. Clamp 20 may be formed of sheet metal and has a hollow rectangular cross section having laterally extending ears 23 defining a crevice or opening in one side thereof. There is a suitable bolt 25, which is secured by its head to the lower ear, which extends upwardly through an aperture in the upper ear. There is a knurled thumb nut 28 threadedly received by the bolt 25.

The arms 17 and 18 are slidable through the clamp 20 when the thumb nut 28 is backed off, permitting the arms to be moved to different positions. When nut 28 is threaded downwardly, ears 23 are moved toward one another to deform the clamp so that the clamp seizes the arms 17 and 18 and locks them in their adjusted positions.

There are rollers 30 and 31 rotatably mounted on the outer ends of arms 17 and 18 respectively, there being oppositely disposed bosses or enlargements 33 on the ends of the arms to receive the axles or shafts 35 on which rollers 30 and 31

are rotatably supported. By so arranging the bosses **33**, the arms can be readily moved relative to one another without interference of one with the other. Because of the location of the bosses **33**, the upper and lower reaches of the elastic band and the endless margin of the garment travel along slightly inclined planes.

The clamp **20** is secured to the bed **11** of the sewing machine by a mounting fixture **40**. Mounting fixture **40** is provided with a pair of ears **41** and clamp **20** is pivotally mounted on ears **41** by a pivot pin **42**, the lower side of clamp **20** having a tongue **43** which is reversely bent at **44** to encircle pivot pin **42**. The clamp **20** is swingable about pin **42** to an operative position shown in Figs. 3 and 4 to overlie an elongated slot **46** in the base portion of mounting fixture **40**, and clamp **20** is swingable to an inoperative position so as to clear the space above the slot **46**. The slot **46** is arranged at right angles to the length of the arms **17** and **18** and adapted to overlie a tapped hole (not shown) provided near the bobbin compartment in the bed plate **11** of a conventional sewing machine. This tapped hole is used for attaching the various attachments applicable to the conventional sewing machine. There is an attaching screw **48** receivable by the elongated slot **46** and by the tapped hole of the bed **11** so that the mounting fixture **40** can be secured to the bed in adjusted positions. The adjustment allowed by slot **46** and screw **48** permits the elastic band to be adjusted laterally with respect to the presser foot **14** and needle **13** of the sewing machine.

Mounting fixture **40** is provided with a pair of spaced guides **50** which may be formed by bending portions of the body of mounting fixture **40** upwardly, and these guides are spaced from the pivot pin **42** as best shown in Fig. 4 and are adapted to straddle the arms **17** and **18** when the arms are in operative position, as best shown in Fig. 3, and prevent lateral deflection of the arms.

By means of the mounting fixture the rollers are positioned so that an endless band A and the end margin of garment B are trained to pass under the presser foot and needle. The operation of the attachment is as follows: The elastic band A is passed around rollers **30** and **31** and the arms **17** and **18** extended to stretch the elastic band so that the elastic band has a peripheral marginal distance equal to the marginal distance around the opening of the garment B to which the band A is to be attached. The garment B is positioned beneath the elastic band A as shown in Fig. 1 with respect to the rollers **30** and **31**. The lower reach of the band A and the lower marginal portion of the garment are positioned beneath the presser foot **14** and the sewing operation proceeded with, during which time the band and garment rotate about rollers **30** and **31**. As can be seen from Fig. 2 the garment is superimposed on the lower reach of the band A whereas the upper reach of band A is superimposed on the upper reach of the margin of the garment. Therefore, the sewing operation on the lower reach takes place with the article being arranged in correct relationship. The operator will move the upper reach of the garment and band away from the presser foot **14** during the stitching operation, as shown in Fig. 2 to avoid rubbing and to allow the operator to watch and guide the sewing operation.

From the foregoing it is obvious that a simple and inexpensive attachment has been provided which can be readily applied to conventional sewing machines and when applied permits ready application of elastic bands to garments. The attachment, as before brought out, is so constructed that the clamp **20** can be easily swung out of the way so that the mounting fixture **40** can be secured to the bed plate **11** of the sewing machine. The ears of guides **50** serve to prevent lateral deflection of the arms **17** and **18** during operation of the attachment. The present invention also provides a simple construction for supporting the arms and their rollers and allows ready adjustment of the arms and rollers relative to one another.

Various changes may be made in the form, details, proportions and arrangements of the parts without departing from the scope of my invention which is set out and defined in the appended claims.

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

1. A sewing machine attachment, for attaching an endless elastic band to the end margin of a garment, comprising a pair of arms arranged in overlapping relationship, clamping means slidably receiving the arms permitting the outer ends of the arms to be moved toward or away from one another and operable to clampingly engage and lock the arms in adjusted positions, a roller for each arm, the rollers being rotatably mounted on the outer ends of the arms for rotation about parallel axes and adapted to receive an endless elastic band thereabouts, a mounting fixture having an elongated slot therein adapted to overlie a tapped hole in a sewing machine bed plate, said clamping means being swingably mounted on the mounting fixture for swinging movement about an axis parallel to the length of the slot and swingable to an operative position overlying the elongated slot and therefrom to an inoperative position away from the elongated slot whereby the mounting fixture can be applied to the bed plate with the clamping means in nonoperative position and thereafter the mounting means can be swung back to its operative position.

2. A sewing machine attachment, for securing an endless elastic band to the end margin of a garment, comprising a pair of arms arranged in overlapping relationship, clamping means slidably receiving the arms permitting the outer ends of the arms to be moved toward or away from one another and operable to clampingly engage and lock the arms in adjusted positions, a roller for each arm, the rollers being rotatably mounted on the outer ends of the arms for rotation about parallel axes and adapted to receive an endless band thereabouts, a mounting fixture having an elongated slot therein adapted to overlie a tapped hole in a sewing machine bed plate, said clamping means being swingably mounted on the mounting fixture for swinging movement about an axis parallel to the length of the slot and swingable to an operative position overlying the elongated slot and therefrom to a nonoperative position away from the elongated slot whereby the mounting fixture can be applied to the bed plate with the clamping means in nonoperative position and thereafter the mounting means can be swung back to its operative position, said mounting fixture providing a pair of guides spaced from the axis of swing of the clamping means and arranged to straddle the arms when in an operative position to prevent lateral deflection thereof.

3. A sewing machine having a sewing head provided with a reciprocating needle, said head being disposed over and supported by a bed plate, said bed plate having a tapped hole located adjacent the path of travel of the needle, a pair of arms arranged in overlapping relationship and disposed transversely over the bed plate, clamping means slidably receiving the arms permitting the outer ends of the arms to be moved toward or away from one another and operable to clampingly engage and lock the arms in adjusted positions, a roller for each arm, the rollers being rotatably mounted on the outer ends of the arms for rotation about parallel axes and adapted to receive an endless band thereabouts and position the band to pass beneath the needle, and means receivable by the threaded hole in the bed plate for mounting the clamping means on the said bed plate.

ANTON ZYGMUNT.

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