

April 4, 1961

S. N. MOORE ET AL

2,977,911

SEWING MACHINE ATTACHMENTS

Filed Aug. 11, 1959

2 Sheets-Sheet 1

FIG. 1

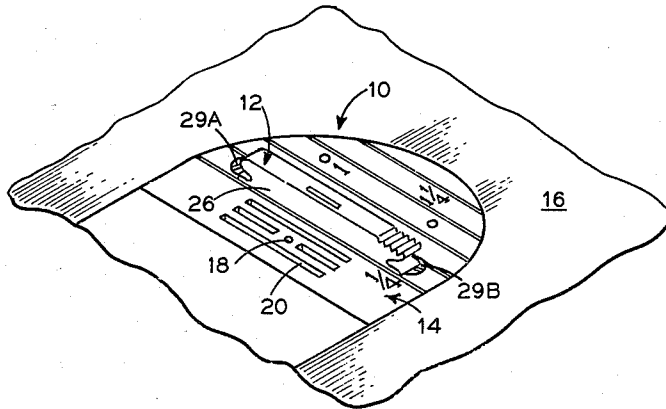


FIG. 2

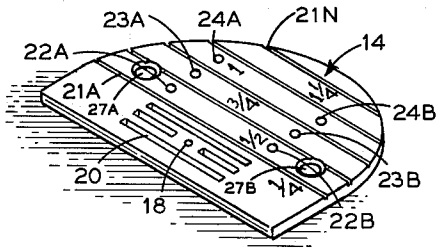


FIG. 3

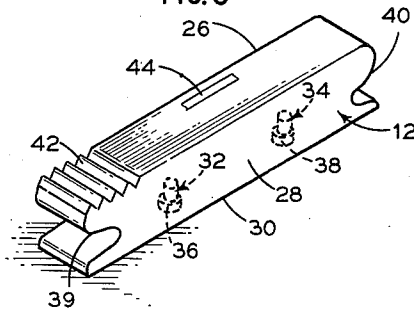


FIG. 4

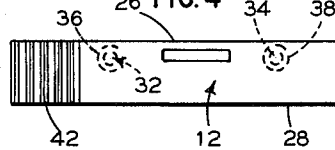
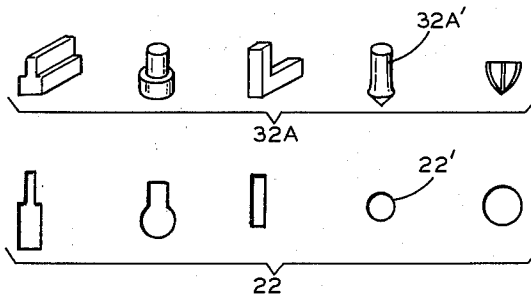


FIG. 5



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2 Sheets-Sheet 2

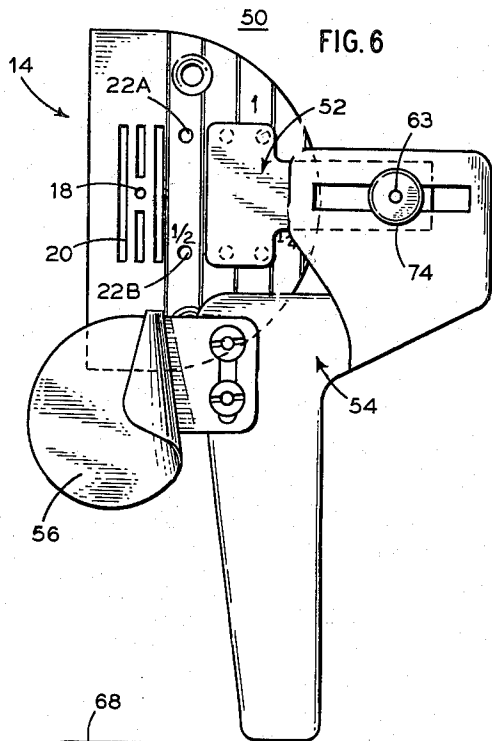


FIG. 6

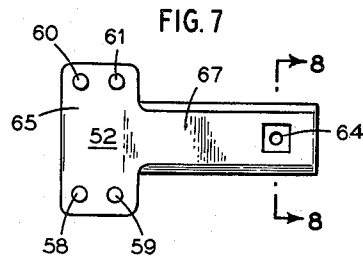


FIG. 7

FIG. 8



FIG. 12

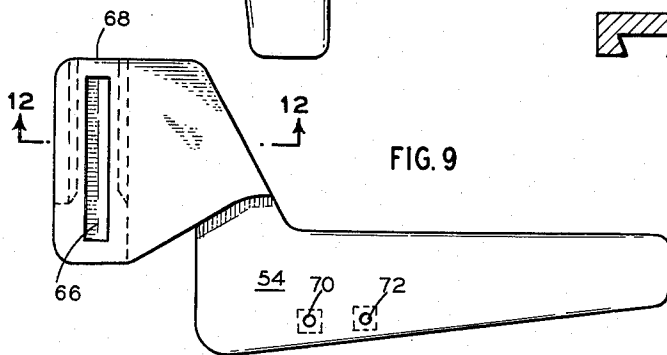


FIG. 9

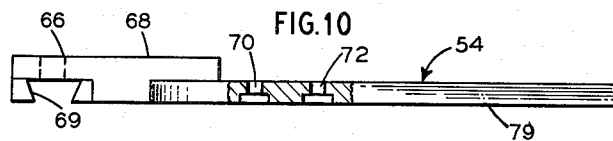


FIG. 10

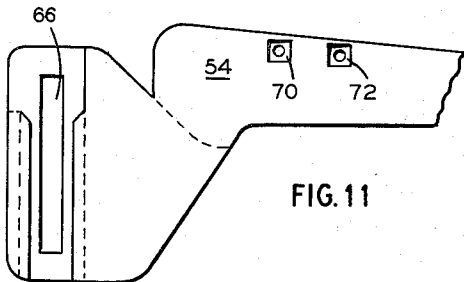


FIG. 11

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## SEWING MACHINE ATTACHMENTS

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This invention relates to sewing machine attachments and more particularly to means for securing the attachments to a sewing machine.

In order to add to the versatility of present day sewing machines, there have been provided many attachments such as hemmers, sewing gauges and seam guides. Generally, such attachments are only intermittently used. For example, during the morning an operator may be solely interested in sewing in the hems of garments while in the afternoon the same operator may devote her time to seaming the garments. Therefore, in the morning it is necessary to attach the hemmer to the sewing machine and in the afternoon it is necessary to replace the hemmer with a seam guide.

Most present day attachments are secured to the machine by means of screws or similar fastenings. Although the attachment-securing operations appear to be simple, it has been found that very often operators find them troublesome and often require the assistance of a supervisor to reset and realign the attachments each time they are used. In many cases, the lining up of the attachments requires measuring devices and the securing of the attachments requires special screws, lever and other types of tools. Therefore, such lining up and securing operations are time consuming and lower overall production efficiency.

It has been found, for example, that during seaming operations the operator is required to make seams of predetermined width. Accordingly, it is necessary for the supervisor to initially set the material guide to the desired width. Due to the fact that presently available material guides have a tendency to loosen and change position because of machine vibration causing the holding screws to loosen, the supervisor must periodically check the position of the guide to insure that the same width seam is being made. Thus, in shops of any reasonable size, a great deal of the supervisor's time is taken up in checking the width of the seams.

It is accordingly a general object of the invention to provide improved apparatus for securing or removing attachments to a sewing machine.

It is another object of the invention to provide means which may quickly, simply and easily secure or remove the attachments to the sewing machine.

It is a further general object of the invention to provide means for securing or removing the attachments to sewing machines without the use of tools or special elements.

Briefly, in accordance with the general aspect of the invention, sewing machine attachment means for attachment to the bed plate of a sewing machine is provided comprising a throat plate having a needle hole and accommodating aperture means formed therein, and guide means having engaging means extending downwardly for nonrotatable locking accommodation within the accommodating aperture means.

It is a specific object of one aspect of the invention to provide an improved material guide attachment for a sewing machine.

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It is another object of this aspect of the invention to provide a material guide which does not require a measuring device for setting different seam widths.

It is further specific object of this aspect of the invention to provide an improved material guide which requires no adjustments or realignments after being initially set.

Briefly, in accordance with this aspect of the invention, a material guide is provided for attachment to the bed plate of a sewing machine. The material guide comprises a throat plate having a conventional needle hole. A plurality of pairs of accommodating means are disposed in the throat plate. The pairs of accommodating means are parallel to each other and spaced at different distances from the needle hole. There is further provided an edge guide means having at least one guide edge and a base. A pair of engaging means extends from the base to engage one of the pairs of accommodating means in the throat plate. Thus, by engaging the engaging means in a particular pair of accommodating means, the guide edge is positioned a predetermined distance from the needle aperture.

Another feature of this aspect of the invention is the incorporation of a magnet in the edge guide means so that it is a simple matter to attach it to the outer iron casing of the sewing machine when not in use. Therefore, the guide means is readily available and the operator does not have to grope through her parts drawer to find it.

It is an object of another aspect of the invention to provide improved interchangeable attachment holder apparatus.

It is another object of this aspect of the invention to provide improved interchangeable attachment holder apparatus which may rapidly be secured to or removed from the sewing machine.

It is a further object of this aspect of the invention to provide an interchangeable attachment holder apparatus which requires no resetting and realignment of attachments each time used.

It is a still further object of this aspect of the invention to provide an improved removable attachment holder apparatus which is extremely inexpensive so that it is practical to provide a separate one for each attachment.

Briefly, in accordance with this aspect of the invention, a removable attachment holder apparatus for a sewing machine is provided which includes a throat plate having a plurality of apertures. An attachment-holding means is further provided having engaging means extending from its base for locking accommodation with the plurality of apertures in the throat plate. Means on the attachment holding means are provided to anchor an attachment to a sewing machine.

It should be noted that securing of the attachment-holding means to the throat plate requires no screws which may be lost nor any screw holes, which, under normal circumstances, are stripped from constant use. Furthermore, there are no lint filled thread holes which must be cleaned out.

It should further be noted that the speed achieved in instantly setting the attachments in the correct sewing position and the removal of same will greatly encourage operators to employ the attachments more frequently in their sewing operations. Therefore, higher quality garments may be produced with greater efficiency.

A feature of the attachment-holding means is the provision of a handle and a handle holder means. The handle supports a sewing machine attachment and the handle holder means is lockingly accommodated by the throat plate. A keyed dovetail engagement is provided between the handle and the handle holder means to prevent the movements of the handle.

Other objects, features and advantages of the invention will be apparent from the following detailed description

when read with the accompanying figures wherein:

Figure 1 is a perspective view of a material guide including an edge guide means and a throat plate disposed in the bed plate of a sewing machine in accordance with one embodiment of the invention;

Figure 2 is a perspective view of the throat plate of Figure 1;

Figure 3 is a perspective view of the edge guide means of Figure 1;

Figure 4 is a top view of the edge guide means of Figure 1;

Figure 5 shows several suitable engaging means associated with the edge guide means of Figure 1 and their mating accommodating means associated with the throat plate of Figure 1;

Figure 6 shows a top view of removable attachment holder apparatus supporting an attachment in accordance with another embodiment of the invention;

Figure 7 shows a holder plate which may be used as an attachment holder;

Figure 8 is a section view taken along the line 8—8 of Figure 7;

Figure 9 shows the top view of a handle which supports an attachment;

Figure 10 is a side view of the handle of Figure 9;

Figure 11 shows a bottom view of the handle of Figure 9; and

Figure 12 is a sectional view taken along the line 12—12 of Figure 9.

Referring to Figure 1, a material guide 10 having edge guide means 12 and throat plate 14 is shown disposed in the conventional bedplate 16 of a sewing machine. The throat plate 14, as shown in Figure 2, has a conventional needle aperture or hole 18 and a conventional feed dog opening 20. Conventional guide lines 21A to 21N with fractional markings are disposed in the throat plate 14 for indicating spacing from the guide lines 21A to 21N to the center of the needle aperture 18. Disposed in the throat plate 14 are a plurality of equispaced pairs of accommodating means or apertures 22A and 23A and B, and 24A and B. The pairs of apertures 22A and B to 24A and B are parallel to each other and are at predetermined distances from the needle aperture 18. In other words, a line joining the centers of apertures 22A and 22B is parallel to a line joining the centers of apertures 23A and 23B which is parallel to a line joining the centers of apertures 24A and 24B. Each of the pairs of apertures is at a predetermined distance from the needle aperture 18. The spacing from the needle aperture 18 is determined by considering the width of the edge guide means 12 (Fig. 1). For example, when the edge guide means 12 is accommodated by the apertures 22A and 22B as is hereinafter fully described, the distance between the side 26 of the edge guide means 12 and the needle aperture 18 is, for example, one-quarter inch. Thus, with the edge guide means 12 in this position, the material guide means 10 will permit the sewing of one-quarter inch seams. The spacing between the aperture 22A and 23A may also be one-quarter inch and similarly the spacing between the aperture 23A and the aperture 24A may also be one-quarter inch. Therefore, by engaging the edge guide means 12 in one of the plurality of apertures it is possible to provide a guide for seams differing in one-quarter inch increments. Throat plate 14 is also provided with holes 27A and 27B which accept screws 29A and 29B for securing the throat plate 14 to the bedplate 16.

Figures 3 and 4 show the edge guide means 12 in greater detail. In particular, the guide means 12 has a pair of parallel sides 26 and 28. Extending from the base 30 of the edge guide means 12 are a pair of engaging means or studs 32 and 34. Stud 32 and 34 are spaced from each other and so shaped to register with the apertures 22A and 22B to 24A and 24B of the throat plate of Figure 2.

Figure 5 shows various embodiments of a typical stud 32A which may be employed with a corresponding aperture 22. Although any of the studs and their corresponding apertures may be used, it is preferable to use the stud 32A' and the corresponding aperture 22'. Accordingly, studs 32 and 34 are of resilient material and are provided with respective lateral projections 36 and 38. The outside diameter of the lateral projections 36 and 38 is slightly greater than the inside diameter of the apertures 22A and 22B to 24A and 24B, to provide a locking accommodation of the studs 32 and 34 by the apertures 22A and 22B, for example. To set the edge guide means 12 in the throat plate 14, it is only necessary to align the studs 32 and 34 over the appropriate apertures and then to apply a light downward pressure. Recesses 39 and 40 are disposed in the ends of the edge guide means 12 to facilitate grasping it when the edge guide means 12 is to be removed.

It should be noted that the studs 32 and 34 are positioned closer to the side 26 than the side 28 (see Figure 4). Thus, when the edge guide means 12 is to be accommodated by any one of a pair of apertures in the throat plate 14, the spacing from one of the sides of the edge guide means 12 to the needle aperture 18 is different than the spacing from the other side of the edge guide means 12 to the needle aperture 18 when the edge guide means 12 is reversed 180 degrees in the same pair of apertures. In particular, when the side 26 is nearer the needle aperture 18, a wider seam may be sewn than when the side 28 is nearer the needle aperture 18 when using the same pair of apertures (see Figure 1). Hence, the number of possible seam widths is doubled. In a practical embodiment of this feature of the invention, the orientation of the studs 32 and 34 in the base 30 is such to permit seam width increments on one-eighth of an inch by reversing the side of the edge guide means in relation to the needle aperture 18 in the various pairs of apertures in the throat plate 14.

A knurled feeler 42 disposed near one end of the edge guide means 12 provides a simple indication as to which of the sides, 26 or 28, is closer to the needle aperture 18. For example, if the knurled feeler 42 is close to the operator, then the operator knows that the usable width increments are one-quarter, one-half, or three-quarters of an inch, and if the knurled feeler is positioned remote from the operator, the usable width increments are one-eighth, three-eighths, or five-eighths of an inch.

Another feature of this embodiment of the invention is a magnet 44 positioned in the top of the edge guide means 12. Thus, when the edge guide means 12 is not in use it may be conveniently stored on the metallic bed of the sewing machine.

Figure 6 shows a removable attachment-holder 50 in accordance with another embodiment of the invention. The removable attachment-holder 50 comprises the throat plate 14 which lockingly engages the holder plate 52 to which is secured a handle 54 which carries a conventional sewing machine attachment such as the hemmer 56. The throat plate 14 is identical to the throat plate 14 of Figures 1 and 2. The holder plate 52, as shown in Figure 7, is a substantially T-shaped member. Studs 58, 59, 60 and 61, which are similar to the studs 32 and 34 of the edge guide 12 of Figure 3, extend from the bottom face of the crossbar portion 65 of the holder plate 52. Studs 58 to 61 are oriented to register with two pairs of the apertures 22A and 22B to 24A and 24B, of the throat plate 14 as shown in Figure 2. Thus, holder plate 52 may be rapidly and easily secured to, or removed from engagement with the throat plate 14. The stem portion 67 of holder plate 52 is shaped to be the tenon of a dovetail joint (see Fig. 8). The hole 64 which is countersunk square shaped accommodates a square-head screw 63 which cooperates with nut 74 to secure a sewing machine attachment as is hereinafter more fully described.

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The combination of the holder plate 52 and the throat plate 14 as shown in Figure 6, may be used to hold conventional sewing machine attachments. However, as shown in Figure 6, this combination is used to support the handle 54 which carries a conventional sewing machine attachment such as the hemmer 56.

Handle 54, as shown in Figures 9, 10, 11 and 12, is substantially an L-shaped member with a slot 66 in the base portion 68 of the L. Slot 66 is provided to accommodate the screw 63 which is accepted by hole 64 of the holder plate 52 (Figures 6, 7 and 8). A pair of holes 70 and 72 countersunk square-shaped to accept square-head screws in the handle 54 permit the securing of the conventional sewing machine attachment such as hemmer 56 to the handle 54. The bottom face of base portion 68 of the handle 54 in the region of the slot 66 has a dovetail groove 69 acting as the mortise for the dovetailed tenon of the stem portion 67 of the holder plate 52. The dovetail joint is so constructed to provide a continuous surface along the bottom face of handle 54 and the top face of holder plate 52. Thus, handle surface 79 will be flush with the bed plate 16 of the sewing machine.

Initially, the conventional throat plate of the sewing machine is replaced by the throat plate 14. Holder plate 52 is lockingly engaged by positioning the studs 58 to 61 over the appropriate apertures 22A and 22B to 24A and 24B and by applying a slight downward pressure. Handle 54 carrying the appropriate attachment such as hemmer 56 is secured to holder plate 52 by sliding dovetail groove 69 over the stem portion 67. After the proper alignment of the hemmer 56 in relation to the needle aperture 18 (Fig. 6) has been made, nut 74 is tightened on screw 63 to firmly anchor handle 54 to holder plate 52. Thus, the hemmer 56 is properly positioned and ready for use. When the operator is finished with a hemming operation, it is only necessary to lift the handle up from the bed of the sewing machine. Both handle 54 and holder plate 52 are removed in one step and this combination of holder plate 52, handle 54 and hemmer 56 becomes one unitary attachment. Similarly, other conventional attachments may be secured to additional handles which are then anchored to other holder plates to form new combinations of attachments. Therefore, each time an operator needs a different attachment, it is only necessary for her to use a combination which includes the desired attachment.

It should be carefully noted that after the initial adjustments of the handle 54 to its associated holder plate 52, a sewing operator need merely snap an attachment combination into the throat plate 14, and the unit will line up automatically in relation to the needle aperture 18, ready for the sewing operation. There will be no further need for subsequent adjustments, thus permitting the speeding up of future change-over operations.

There has thus been shown improved accessories or attachments for conventional sewing machines. In particular, there has been described a material guide which, because of its improved means for engaging an edge guide to a throat plate, does not require any screwing or bolting down and therefore dispenses with the usual problems associated with screws and screw holes. Similarly, because of this novel engagement, there is no necessity for using any tools or special devices to secure the edge guide to the throat plate. There is also no need to employ additional measuring devices in the setting and no need for further measurements, adjustment or realignment after being initially set.

In addition, in accordance with another embodiment of the invention, there has been shown an improved removable attachment holder which greatly facilitates the setting up or removal of attachments which are required for different sewing machine operations.

It will now be obvious to those skilled in the art many modifications and variations which accomplish the ob-

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jects, and to which accrue many or all of the advantages, but which do not essentially depart from the spirit of the invention as defined in the claims which follow.

What is claimed is:

1. A material guide for attachment to the bed plate of a sewing machine comprising a throat plate, said throat plate having a needle hole, a plurality of equispaced pairs of apertures formed in said throat plate, said equispaced pairs of apertures being parallel to each other and spaced at predetermined distances from said needle hole, a straight edge guide means having at least one straight edge and a base, and a pair of engaging means extending from said base for locking accommodation by a pair of said apertures.
2. A material guide for attachment to the bed plate of a sewing machine comprising a throat plate, said throat plate having a needle hole, a plurality of pairs of equispaced accommodating means formed in said throat plate, said pairs of equispaced accommodating means being parallel to each other and spaced at predetermined distances from said needle hole, a straight-edge guide means having first and second parallel sides and a base, a pair of engaging means extending from said base for locking accommodation by a pair of said accommodating means, said pair of engaging means being disposed on a line on said base that is parallel to and nearer one of said parallel sides.
3. Sewing machine attachment means for attachment to the bed plate of a sewing machine comprising a throat plate having a needle hole, a nonround aperture formed in said throat plate at a predetermined distance from said needle hole, guide means, and an engaging means having a portion extending downwardly from said guide means for nonrotatable locking accommodation within said aperture.
4. The sewing machine attachment means of claim 3 wherein the downwardly extending portion of said engaging means is laterally offset from the longitudinal center line of said guide means.
5. Sewing machine attachment means for attachment to the bed plate of a sewing machine comprising a throat plate having a needle hole, a plurality of nonround apertures formed in said throat plate at predetermined different distances from said needle hole, guide means, and an engaging means having a portion extending downwardly from said guide means for nonrotatable locking accommodation within a selected one of said apertures.
6. Sewing machine attachment means for attachment to the bed plate of a sewing machine comprising a throat plate having a needle hole, a plurality of pairs of apertures formed in said throat plate at predetermined different distances from said needle hole, guide means, and a pair of engaging means each having a portion extending downwardly from said guide means for nonrotatable locking accommodation within a selected pair of said plurality of pairs of apertures.
7. The sewing machine attachment means of claim 3 wherein said guide means is an attachment-holding means.
8. The sewing machine attachment means of claim 5 wherein said guide means is an attachment-holding means.
9. The sewing machine attachment means of claim 6 wherein said guide means is an attachment-holding means.
10. Sewing machine attachment means for a sewing machine comprising a throat plate having a needle hole, a plurality of pairs of apertures formed in said throat plate at predetermined different distances from said needle hole, a substantially T-shaped holder plate, a pair of engaging means extending downwardly from the bottom face of said substantially T-shaped holder plate for nonrotatable locking accommodation within said apertures, a substantially L-shaped handle for supporting a sewing machine attachment, and connecting means on

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said L-shaped handle for connecting said L-shaped handle to said substantially T-shaped holder plate.

11. Sewing machine attachment means for attachment to the bed plate of a sewing machine comprising a throat plate having a needle hole, accommodating aperture means formed in said throat plate at a predetermined distance from said needle hole, guide means, and an engaging means having a portion extending downwardly from said guide means for nonrotatable locking accommodation within said accommodating aperture means, 10

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said downwardly extending portion of said engaging means being laterally offset from the longitudinal center line of said guide means.

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