Aug. 18, 1936. Y. A. AHNGER 2,051,237

SEWING MACHINE ATTACHMENT

Filed May 4, 1935

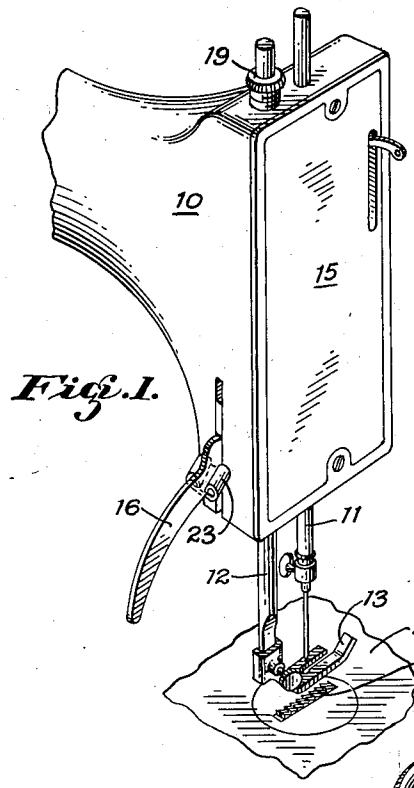

Fig. 1.

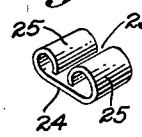

Fig. 4.

Fig. 2.

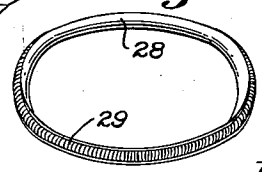

Fig. 5.

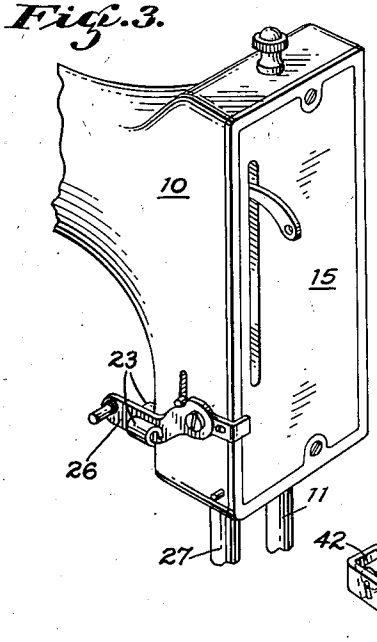

Fig. 3.

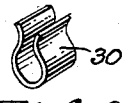

Fig. 6.

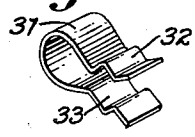

Fig. 7.

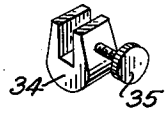

Fig. 8.

Fig. 9.

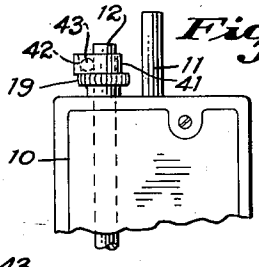

Fig. 12.

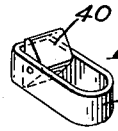

Fig. 10.

Fig. 11.

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2,051,237

SEWING MACHINE ATTACHMENT

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Application May 4, 1935, Serial No. 19,812

4 Claims. (Cl. 112—237)

The present invention relates generally to a darning and mending attachment for sewing machines and more particularly to a detachable device which can be used to render the straight line work feeding means of a standard sewing machine inoperative in a simple and convenient manner and without necessitating any change in the mechanical construction thereof.

The main object of the present invention is to provide a simple and effective means for rendering the standard work feeding mechanism of a sewing machine inoperative and thereby permit stitching in a reverse and irregular direction upon a straight line sewing machine without disconnecting the normally operating feed mechanism of the machine.

Another object of the invention is to provide a simple and effective stop for the presser foot controlling lever of a sewing machine which will retain said lever in a predetermined elevated position when applied thereto.

Another object of the invention is to provide a simple and effective means which may be applied to the presser foot supporting bar and retain said bar in a predetermined elevated position independently of the elevating lever associated therewith.

In the standard forms of straight line sewing machines there is provided on the bed of the machine a series of reciprocating tooth carrying members which function to advance the work beneath the needle. This feeding mechanism operates in conjunction with a presser foot that serves to hold the work in cooperating relation upon the reciprocating teeth of the work advancing mechanism and thus causes the work to advance beneath the needle. Because of the straight line movement of the work advancing mechanism, it is difficult to vary the line of stitching from a straight line and therefore it is practically impossible to stitch in an irregular direction and/or back and forth in a continuous manner, as is required in darning and mending, without rendering the aforesaid work feed mechanism inoperative. The disconnection of the work advancing mechanism from the machine and/or a covering thereof so as to render it inoperative has been suggested for the purpose of permitting a stitching such as is customary in darning and mending. However, the rendering of the work feeding mechanism inoperative in this manner is inconvenient and requires the services of a skilled operator. Therefore it is a further object of the present invention to provide a simple expedient for rendering a standard straight line sewing machine adaptable to mending.

In accordance with the present invention the above is accomplished by means which can be easily and readily applied to the presser foot controlling mechanism of the sewing machine to retain the presser foot out of cooperating relation with the work feeding mechanism and at the same time permit a successful operation of the sewing machine.

For a better understanding of the invention reference should be had to the accompanying drawing wherein there is shown, by way of illustration and not of limitation, preferred embodiments thereof.

In the drawing, wherein like numerals refer to like parts throughout the several views;

Figure 1 is a fragmentary perspective view showing a device constructed in accordance with this invention applied to the presser foot elevating lever of a "Singer" sewing machine,

Figure 2 is a front elevation of the machine illustrated in Figure 1, partially in section, and with the front cover removed,

Figure 3 is a view similar to Figure 1, showing an embodiment of the present invention applied to the presser foot controlling lever of a "White" sewing machine,

Figure 4 is a perspective view of a preferred embodiment of the present invention,

Figure 5 is a perspective view of an accessory which, for convenience, may be used in conjunction with the present invention,

Figures 6, 7, 8, 9, 10 and 11 are perspective views showing modified forms of the present invention, and

Figure 12 is a fragmentary view showing the device illustrated in Figure 11 as applied to the presser foot supporting bar of a machine of the type illustrated in Figure 1.

For the purpose of illustrating an application of a preferred embodiment of the present invention to standard sewing machines there is illustrated, in Figure 1 of the drawing, the operating head of a "Singer" sewing machine and in Figure 3, the operating head of a "White" sewing machine.

In connection with machines of the above types, there is at the present time provided a mending attachment which can be secured by a screw to the needle bar. This attachment is expensive and it requires the complete removal of the presser foot and is for this latter reason highly objectionable in the hands of the ordinary housewife.

It is well known that a sewing machine may be

rendered capable of darning and mending by relieving the spring upon the presser foot bar as by unscrewing the nut which regulates the tension of the spring. With this adjustment darning and mending can be done upon a machine, but when it is desired to readjust the machine for regular sewing, it is difficult to reset the spring at the proper point of adjustment for normal sewing.

Still another way of attaining the same end in sewing machines of the types illustrated is to manually support the presser foot controlling lever in an elevated position with the right hand while the mending is being done. In this manner the presser foot can be held slightly above the cloth so that it will be possible with the left hand to shift the work below the needle in an irregular manner as is desired in the mending operation. The objection to this mode of operation, however, is that the operator then will have only her left hand free to manipulate the work under the needle.

With the expedience disclosed by the present invention, it is possible to raise and adjust the presser foot at an operative elevation for darning and mending without dismantling the sewing machine and/or requiring the use of one hand of the operator to maintain the presser foot in such a position.

In Figures 1 and 2 of the drawing, the numeral **10** designates the operating head of a sewing machine having a needle bar **11** which reciprocates in a vertical direction therein. The head **10** of the machine also carries a presser foot supporting bar **12** which is vertically adjustable to support a presser foot **13** in spaced relation with a bed plate **14** over which the operating head **10** is disposed. In this arrangement the head is shown as having a cover plate **15** upon the front face thereof and projecting out of its rear side there is a presser foot controlling lever **16**.

As shown in Figure 2 of the drawing, the presser foot supporting bar **12** is adjustable in a vertical direction upon the operating head **10** in a direction parallel with the needle bar **11**. This presser foot supporting bar **12** is normally biased downwardly by means of a spring **17**, which is disposed between a cam engaging abutment **18** upon the presser foot bar **12** and a tension controlling nut **19** which projects from the top of the machine head **10**. The cam engaging stop **18** rides upon a cam surface **20** on the presser foot controlling lever **16** which, as here shown, is pivoted upon a screw **21**. With this arrangement it will be readily seen that when the presser foot controlling lever **16** is raised, the cam surface **20** will, through the medium of the cam engaging stop **18**, elevate the presser foot **13** and compress the spring **17**.

Under normal operating conditions, the cam engaging stop **18** is adjusted upon the presser foot supporting bar **12** so that when the lever **16** is in its normal and lowermost position it will permit the presser foot **13** to assume a cooperating relation with a straight line work feeding means **22** carried by the bed plate of the machine beneath the needle bar **11**. When the machine is adjusted in this manner the work feeding means **22**, in cooperation with the presser foot **13** will cause the work to advance only in a straight line beneath the needle upon the needle bar **11**, and as a result it is impossible to reverse the direction of stitching and/or stitch in an irregular manner as is required in mending and/or darning. However, if the presser foot **13** is elevated slightly to a point where it will permit a free movement of the work over the work feeding mechanism **22** and at the same time hold the work clear of the needle where it can be easily shifted, the work can be moved about backward and forward and sidewise. This is accomplished with one embodiment of the present invention by providing an attachment which will serve to hold the presser foot controlling lever **16** at an intermediate position above its lower or normal operating position, and in another embodiment by providing an adjustable stop upon the presser foot supporting bar **12** which will hold the presser foot supporting bar **12** at any desired elevated position independently of the controlling lever **16**.

In Figure 4 of the drawing, there is shown in detail a preferred form of device which is adapted to determine the position of the presser foot controlling lever **16** when applied thereto. This device, designated generally by the numeral **23**, is illustrated in Figures 1, 2 and 3 of the drawing as applied in an operative position upon the presser foot controlling lever of a sewing machine. In its simplest form, this device has a substantially flat body portion **24** at the ends of which there are inwardly rolled resilient portions **25** that are adapted to engage opposite sides of the presser foot controlling lever **16**. When this device **23** is applied to the presser foot controlling lever **16**, as illustrated in Figures 1 and 2 of the drawing, it may be positioned thereupon so that, by virtue of its engagement with the surface of the machine head **10**, it serves to prevent a full return of the presser foot controlling lever **16** to its normal sewing position. This will cause the presser foot **13** to be elevated sufficiently above the work feeding mechanism **22** to permit an irregular shifting of the work such as is required in darning and mending.

When the device **23** is thus applied to a sewing machine of the "Singer" type, a very neat mending and darning stitch may be made upon the machine by operating the needle very fast and moving the work thereunder in a relatively slow manner. This will produce short and neat stitches which may be made to follow any desired direction by merely moving the work as desired under the needle.

Now, if it should be desired to use the machine for a conventional stitching operation, it will only be necessary to slide the device **23** outwardly along the presser foot controlling lever **16** to assume a normal stitching position. At this point it will be observed that the device **23** need not be removed from the machine and consequently there will be no danger of it becoming misplaced or lost, as is the case with so many auxiliary attachments such as are provided with sewing machines.

In Figure 3 of the drawing, the sewing machine head **10** is shown as having a presser foot controlling lever **26** which projects rearwardly along the backside of the machine head. This lever **26** operates in substantially the same manner as the lever **16** of the machine illustrated in Figures 1 and 2 of the drawing. Therefore, the device **23** is adapted to operate in a manner similar to that described above and retain an associated presser foot supporting bar **27** in an elevated position, as described above. In the sewing machine here illustrated, the presser foot supporting bar **27** does not project through the top of the machine head **10** and consequently the attachments to be hereinafter described as applicable directly to the presser foot support-

ing bar 12 cannot be used with this machine without removing the cover plate 15.

When the means provided in accordance with this invention are used upon a sewing machine the operator will have two hands free to manipulate the work beneath the needle, and therefore ordinary mending may be carried out without other expedients. However, if particularly fine darning or mending is required, an operator may use a conventional embroidery hoop, one type of which is illustrated in Figure 5 of the drawing. The hoop here illustrated comprises a metallic ring 28 of suitable diameter and having a semicircular cross section about which a metallic spring 29 or rubber band may be disposed. With such an accessory it will be possible to flatten out the area to be mended and produce a uniform and neat appearing mend.

The devices illustrated in Figures 6, 7 and 8 of the drawing are intended to be applied to the presser foot controlling lever and operate in substantially the same manner as does the device 23 previously described. The device of Figure 6, designated by the numeral 30, differs from the device 23 in that the ends thereof are merely folded up so as to frictionally engage the sides of the presser foot controlling lever 16 or 26. The device of Figure 7 comprises a resilient looped portion 31 having upper and lower lever engaging members 32 and 33 respectively. With this device the lower portion 33 will engage the side of the machine head 10 and thus form a stop which will hold the presser foot controlling lever in an elevated position. The device of Figure 8 comprises a U-shaped clamp member 34 having a thumbscrew 35 in one side thereof, by means of which it may be secured in position upon a presser foot controlling lever to function as a stop in the manner above described, as will be readily understood.

The devices illustrated in Figures 9, 10, 11 and 12, are particularly adapted to machines of the "Singer" type, wherein the presser foot supporting bar 12 extends upwardly through the top of the machine head 10. When these devices are used in accordance with the invention, they will be placed over the projecting end of the presser foot supporting bar 12, where they will operate as an adjustable stop to prevent downward movement thereof.

The device of Figure 9 comprises a flat portion 36, having a hole 37 through which the projecting end of the presser foot supporting bar 12 is adapted to pass and at one side of the hole 37 there is an offset foot portion 38 that will engage a surface upon the machine head and cant the flat portion 36 and cause it to grip the end of the presser foot bar 12 and prevent downward movement thereof. The device of Figure 10 has a yoke-like member 39, which is adapted to be passed over the projecting end of the presser foot supporting bar 12, and at one side of the yoke 39 there is a pivoted and gravity actuated dog 40 that is adapted to rotate inwardly and grip the projecting end of the presser foot supporting bar 12 and thus secure the yoke 39 thereupon as a stop which will prevent downward movement thereof. The device of Figure 11 comprises a yoke-like member 41 having an inclined or wedge-forming surface 42 at one side thereof and cooperating with the wedge surface 42, there is a movable roller element 43 which is adapted to grip the projecting end of the presser foot supporting bar 12 and hold the yoke member 41 as a stop thereupon. The device of this latter design is illustrated in Figure 12 as applied to the projecting end of the presser foot controlling bar 12, and with the yoke portion 41 engaging the spring tension adjusting nut 19.

When devices of the types illustrated in Figures 9 to 12 of the drawing, are used in accordance with this invention their application to the presser foot supporting bar is accomplished by raising the presser foot supporting bar 12 to the desired elevation by means of the lever 16 and then placing one or the other of the devices over the projecting end of the presser foot supporting bar 12.

As an additional means for accomplishing the purpose of the present invention, there is shown in Figure 2 of the drawing, a second device which comprises a lever engaging member 44 having a socket 45 at its lower end for the reception of the end of the presser foot controlling lever 16 and at its upper end it has a thong 46 that may be tied or otherwise looped around the projecting end of the presser foot supporting bar 12 or any other convenient projecting part upon the machine head. In this arrangement the thong 46 may have a permanently formed loop at its upper end and at its lower end it may be laced through suitable holes in the member 44, so that an adjustment in its length may be made by merely pulling the thong 46 therethrough.

While I have, for the sake of clearness and in order to disclose my invention so that the same can be readily understood, described and illustrated specific devices and arrangements, I desire to have it understood that this invention is not limited to the specific means disclosed, but may be embodied in other ways that will suggest themselves to persons skilled in the art. It is believed that this invention is new and it is desired to claim it so that all such changes as come within the scope of the appended claims are to be considered as part of this invention.

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

1. A stop for the presser foot control lever of a sewing machine, comprising a member having a portion adapted to engage the head of a sewing machine, said member having two oppositely disposed rolled in ends which frictionally engage the sides of the presser foot control lever and adjustably hold said portion upon said lever at any predetermined point.

2. An attachment for the presser foot control lever of a sewing machine, comprising a stop member having a portion adapted to engage the head of the sewing machine where said lever projects therefrom and other portions frictionally engaging said lever and holding said first portion against displacement upon said lever.

3. An attachment for the presser foot control lever of a sewing machine, comprising a member having a stop forming portion adapted to engage the head of the sewing machine where said lever projects therefrom, and a pair of opposed resilient arms upon said member adapted to frictionally engage said lever and hold said stop forming portion against displacement upon said lever.

4. A stop for the presser foot control lever of a sewing machine, comprising a member having a machine head engaging portion and two oppositely disposed rolled in ends which frictionally engage the sides of said lever.

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