Oct. 26, 1948. R. H. McMURRAY 2,452,312

SEAM OPENING DEVICE

Filed June 15, 1946

Fig. 1.

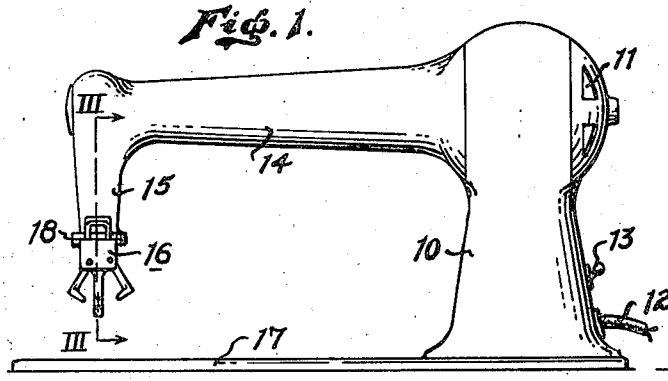



Fig. 2.

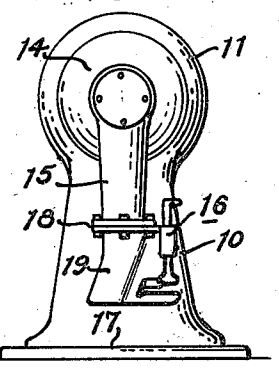



Fig. 3.

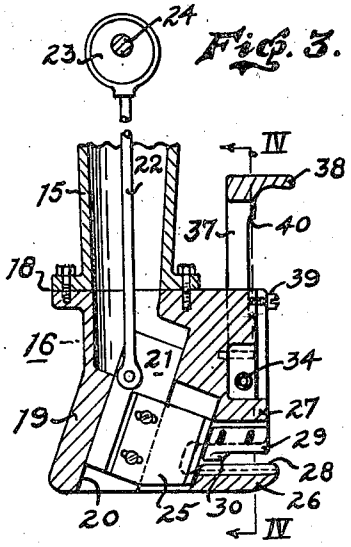



Fig. 4.

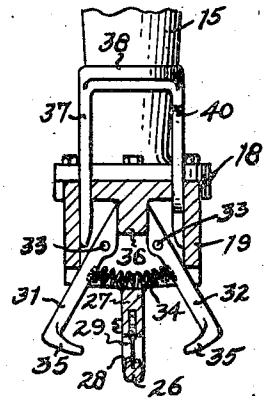



Fig. 5.

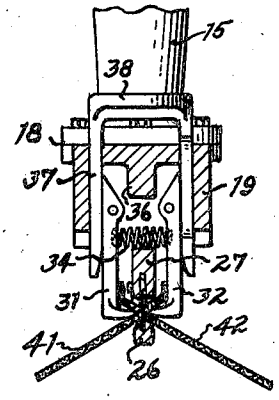



Fig. 6.

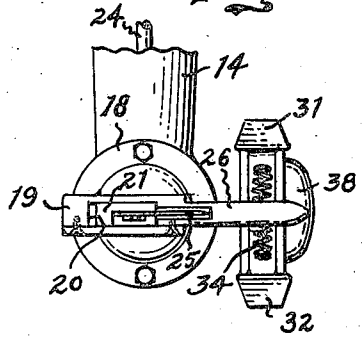
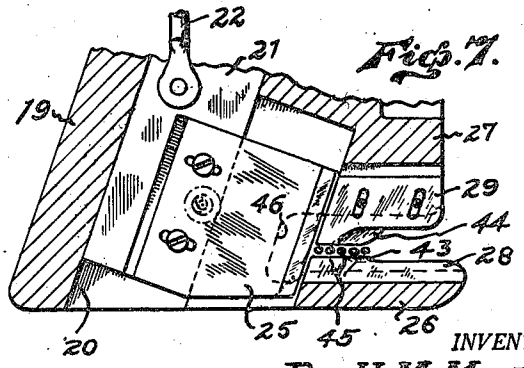



Fig. 7.




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## SEAM OPENING DEVICE

Ray H. McMurray, Oakland, Calif.

Application June 15, 1946, Serial No. 676,995

8 Claims. (Cl. 164—47)

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My present invention relates to a seam opening device by which the threads of a machine stitched seam may be cut in a continuous manner, and more particularly to improved features and details of construction for a seam ripping device of the type disclosed in my co-pending application, Serial No. 622,319, filed October 15, 1945 and entitled, Thread cutting seam opener.

An object of the present invention is to provide a seam opening device having improved guide means for directing the seam of a stitched fabric into seam opening relation with a thread cutting tool in a novel, convenient and efficient manner.

Another object of the invention is to provide a novel seam guiding means for a power driven thread cutting tool which will insure against a cutting of the fabric at either side of a seam.

Another object of the invention is to provide an improved means for guiding the seam of a stitched fabric toward the cutting edge of a power driven thread cutting tool which may be adjusted for operation upon seamed fabrics of different weights and/or thread sizes.

A further object of the invention is to provide a combined set of guides for a thread cutting tool of the character described in which one set of guides operates in a novel manner to spread the seam and prevent an engagement of the stitched fabric with the thread cutting tool, while the other set of guides operates in a novel manner to align the fabric carrying the seam with the seam spreading guides.

Other objects and advantages of the invention will be in part evident to those skilled in the art, and in part pointed out hereinafter in the following description taken in connection with the accompanying drawing, wherein there is shown by way of illustration and not of limitation a preferred embodiment thereof.

In the drawing:

Figure 1 is a side elevation showing a complete machine embodying the invention,

Figure 2 is an end view of the machine as shown in Figure 1,

Figure 3 is a vertical sectional view taken along line III—III of Figure 1 looking in direction of arrows,

Figures 4 and 5 are corresponding sectional views taken along line IV—IV of Figure 3 looking in direction of arrows and with the parts in different positions,

Figure 6 is a bottom view looking upwardly at the device as shown in Figure 3 of drawing, and

Figure 7 is an enlarged sectional view showing

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the details of the thread cutting blade and seam guiding means as illustrated in Figure 3 of the drawing.

Unlike the showing in my above identified co-pending application, my present device is here shown as mounted upon an independent supporting pedestal 10, rather than as associaated with a sewing machine of conventional design. The pedestal 10 is here shown as adapted to accommodate a suitable electric motor that may be connected to a service outlet by a lead 12 and controlled by means of a switch 13. Extending from one side of the pedestal 10 there is an overhanging arm 14 having an operating head 15 upon which my improved seam opening device, here designated generally by the numeral 16, is mounted. In this arrangement the seam opening device 16 is supported in an elevated position above a work table or surface 17 upon which the fabric or article of clothing carrying a seam to be opened may be disposed.

As is more clearly shown in Figure 2 the seam opening device 16 is secured upon the operating head 15 by annular coupling flanges 18 in such a manner that the cutting tool and the seam guiding means, to be hereinafter described in detail, are positioned outwardly slightly in front of the operating head so as to be in full view of an operator.

By now referring to Figure 3 of the drawing it will be noted that the seam opening device 16, comprises a frame or supporting member 19 that has an angularly disposed guideway 20 in which a reciprocating blade supporting member 21 is adapted to be moved by a pitman 22 which is connected at its upper end to an eccentric or crank portion 23, carried by driving shaft 24 which is driven by the motor 11. The reciprocating blade supporting member 21 is here shown as having a thin blade 25 adjustably secured thereupon so as to position its cutting edge vertically adjacent a slot or space that is formed between a fabric supporting anvil 26 and an overhanging extension 27 which are carried by the frame or supporting member 19. The fabric supporting anvil 26 is here shown with a relatively thinner blade like member 28 which provides a narrow edge over which the threads of a seam may move, as they are being brought into engagement with the cutting blade 25. The overhanging portion 27, is also shown as provided with a relatively thin seam spreading blade 29 which has a trailing plow-like portion 30 that operates, as will hereinafter appear, to spread the seam of a stitched fabric immediately in advance of its en-

gagement with the edge of the thread cutting blade **25**. For adjustment the seam spreading blade **29** is provided with slots through which securing screws are extended so that it may be adjusted in its spacing with respect to the fabric supporting anvil **26**.

Upon now referring to Figures 4 and 5 of the drawing it will be seen that the frame or supporting member **19** also serves to support two oppositely disposed and pivotally mounted fabric guiding members **31** and **32**. These fabric guiding members **31** and **32** are mounted upon spaced pins **33** about which they are biased into an open position, as shown in Figure 4, by means of a compression spring **34**. At their outer ends the fabric guiding members **31** and **32** have flaring fabric engaging webs **35** and at their upper ends they are adapted to engage an abutment **36** that serves to limit their outward swing about the pins **33**. As a means for operating these fabric guiding members **31** and **32** between their limits of movement, as when spread to permit the placing of a fabric thereunder and into their closed or operative position, as in guiding a fabric with its seam for an opening thereof, the frame or supporting member **19** also carries a vertically movable U-shaped operating member **37**. This U-shaped operating member **37** has an extending finger pad **38** by which it may be moved vertically between two limits as will be determined by a stop screw **39** which extends into a cutaway portion **40** in one of the depending legs of the U-shaped operating member **37**. With this arrangement it will be seen that when the U-shaped operating member **37** is in its uppermost position the fabric guiding members **31** and **32** will be free to swing outwardly in response to the spring **34** as illustrated in Figure 5 of the drawing. And conversely when the U-shaped operating member **37** is moved into its lowermost position the depending legs thereof will engage with the fabric guiding members **31** and **32** and cause them to swing inwardly against the action of the spring **34** and bring their lower ends into engagement with the fabric adjacent the seam, as is more clearly illustrated in Figure 5, where I have shown two pieces of fabric, designated by the numerals **41** and **42**, positioned upon the fabric supporting anvil **26** with the threads of a stitched seam held in alignment with the cutting edge of the thread cutting blade **25**. At this point it will be noted that under these conditions the free edges of the pieces of fabric **41** and **42** extend upwardly where they are free to move along each side of the overhanging extension **27** as the seam is spread by the seam spreading member **29** and the threads thereof are cut by the blade **25**.

By referring to Figure 6 of the drawing it will be noted that the bottom of the frame or supporting member **19** is left open at the lower end of its guideway **20** in which the blade supporting member **21** operates and that this opening extends forwardly to include the space in which the blade **25** operates. This is to insure against the accumulation of any lint which may result from the cutting of the threads of a seam and, as is more clearly illustrated in Figure 7 of the drawing, the blade carrying member **21** and the blade **25** are also arranged to move along an inclined path which further insures a downward movement and discharge of any lint that may result from the thread cutting operation. As is more clearly shown in this latter figure of the drawing the cutting edge of the blade **25** is disposed to move along a line that is approximately



twenty degrees (20°) off vertical. This particular angular disposition of the cutting edge of the blade **25** has been found to operate most satisfactorily. It should also be here noted that the trailing ends of the blade-like member **28**, carried by the fabric supporting anvil **26** and the seam spreading blade **29**, carried by the frame or supporting member **19** are similarly inclined so as to provide for a uniform spacing from the cutting edge of the blade **25**. In this particular showing the blade-like member **28** and the seam spreading blade **29** are each illustrated as provided with extending portions at their trailing ends which are sharpened as at **43** and **44** to provide two plow-like edges which will operate to separate the fabric at the seam so that only the connected threads of the seam, here designated by the numeral **45**, may be brought into engagement with the cutting edge of the blade **25**. At this point it will also be noted that the frame or supporting member **19** is cut back as at **46** to provide for a free passage of the fabric at each side of the cutting blade **25** as the threads of the seam are cut.

It is believed that the operation of my improved seam opening device will be readily understood from the above and it therefore seems only necessary to add that when beginning the operation of opening a stitched seam the operator will first spread the seam at the starting point so as to permit the insertion of the leading threads of the seam into the space between the blade-like member **28** and the seam spreading blade **29**, then by a slight tension on the fabric it will be possible for the operator to continue the seam opening operation to any point required.

While I have illustrated and described a particular form of my invention, I desire to have it understood that the invention is not limited to the specific form disclosed, but may be embodied in other forms and arrangements 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. In a seam opening device of the character described, the combination of a blade supporting means, a thread cutting blade mounted upon said blade supporting means against which the threads of a stitched seam may be moved, an anvil-like member carried by said supporting means over which a seam to be opened may be moved toward said blade, said anvil-like member having a relatively thin seam thread supporting edge extending in co-planer relation with the cutting edge of said blade, an overhanging projection likewise extending outwardly from said blade supporting means and in spaced relation to said anvil-like member under which a seam to be opened may pass, and a blade-like seam spreading guide mounted upon said overhanging projection in spaced relation to said anvil-like member, the spacing between said seam spreading guide and said anvil-like member approximating the dimension of the threads of the seam stitching, whereby the goods at said seam will be prevented from engaging said thread cutting blade.

2. In a seam opening device of the character described, the combination of a blade supporting means, a thread cutting blade mounted upon said blade supporting means against which the threads of a machine stitched seam may be moved, an

anvil-like member projecting outwardly from the cutting edge of said thread cutting blade over which a seam to be opened may be moved, an overhanging projection likewise extending outwardly from the cutting edge of said thread cutting blade and in spaced relation above said anvil-like member under which a seam to be opened may pass, a blade-like seam spreading guide carried by said overhanging projection, and means for adjusting the spacing of said seam spreading guide with respect to the thread supporting anvil-like member to the approximate dimensions of the threads of the seam stitching, whereby the seam carrying material will be prevented from engaging said thread cutting blade.

3. In a seam opening device of the character described, the combination of a blade supporting means adapted to be mounted upon a work table, a thread cutting blade mounted upon said support against which the threads of a machine stitched seam may be moved, means for imparting a thread cutting movement to said blade, an anvil-like member projecting outwardly from said blade supporting means over which a seam to be opened may be moved toward the cutting edge of said blade, an overhanging member disposed above and in spaced parallel relation to said anvil-like member under which the seam to be opened may pass, a blade-like seam spreading and guiding means carried by said overhanging member, and means whereby said seam spreading and guiding means may be adjusted with respect to said anvil-like member to accommodate only the threads of the stitching at the seam, whereby the seamed material will be prevented from engaging the cutting edge of said thread cutting blade.

4. In a seam opening device of the character described, the combination of a thread cutting blade, means for imparting a thread cutting movement to said cutting blade, a pair of spaced seam guiding projections disposed in vertically spaced relation to each other adjacent the cutting edge of said blade and between which a stitched seam to be opened may move, a seam spreading member carried by one of said spaced seam guiding projections spaced from the other of said projections at a distance sufficient only to permit the free passage of the threads of a seam therebetween with the fabric at the seam passing along opposite sides thereof, and a fabric engaging member at each side of said seam spreading member for retaining the fabric with its seam in alignment with said seam spreading member.

5. In a seam opening device of the character described, the combination of a pair of vertically disposed seam guiding members between which the threads of a seam may move, a thread cutting blade disposed in the path of the threads of a seam passing between said seam guiding members, and a pair of opposed guiding members operating in a horizontal plane to maintain a fabric carrying the seam in alignment with said vertically disposed seam guiding members.

6. In a seam opening device of the character described, the combination of an overhanging pedestal support adapted to be mounted upon a work table, a power driven thread cutting tool mounted upon said pedestal support, power means



carried by said pedestal for imparting an operating movement to said thread cutting tool, a pair of spaced seam guiding members disposed in spaced relation with each other and extending outwardly from the edge of said cutting tool between which a stitched seam to be opened may move, a seam spreading blade carried by the upper one of said seam guiding members and spaced from the other of said guiding members at a distance sufficient to permit the free passage thereunder of the threads of a seam while the fabric at each side of the seam passes along opposite sides thereof, and a fabric guiding member at each side of said seam spreading blade for retaining the seam of the fabric in alignment with said seam spreading blade.

7. In a seam opening device of the character described, the combination of a pedestal-like support adapted to be mounted upon a work table and having an overhanging operating head, a power driven thread cutting tool mounted in the operating head of said pedestal-like support, said operating head having a slot formed in one side thereof into which a stitched seam of a fabric may be moved toward said thread cutting tool, a pair of spaced oppositely disposed seam thread engaging members within said slot and spaced apart a distance sufficient only to permit the passage of the threads of the stitched seam therebetween, a pair of fabric engaging members pivotally mounted to be moved into engagement with the seam carrying fabric at each side of the seam therein, and means for holding said pivotally mounted fingers in fabric guiding relation with respect to the slot in said operating head, whereby a drawing of the seamed fabric into said slot will cause the threads of the seam to engage said thread cutting tool in a continuous manner.

8. In a seam opening device of the character described, the combination of a pedestal-like support adapted to be mounted upon a work table and having an overhanging operating head, a power driven thread cutting tool carried by said operating head, a pair of vertically spaced seam thread engaging members carried by said operating head and spaced from each other a distance sufficient only to permit the passage of the threads of a stitched seam therebetween, and a pair of horizontally spaced fabric engaging members for holding the seam of a stitched fabric in cooperating relation with said seam thread engaging members, whereby the threads in the seam of the fabric will be guided into engagement with said thread cutting tool in a continuous manner by a feeding of the fabric toward said operating head.

RAY H. McMURRAY.

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