A seam ripper apparatus is disclosed for attachment to conventional automatic sewing machines. The seam ripper apparatus comprises a stationary horizontal leg having a yoke formed at its rearward end for connection to the presser foot screw mounted on the sewing machine presser bar. The forward end of the leg forms a double edge v-shape cutter having the two cutting edges formed on the interior sides of the "v." The opening of the "v" faces the forward direction. The leg also includes a transverse pivot pin extending through for pivotally supporting a movable arm adjacent the leg cutter. A yoke is formed at the rear end of the movable arm for loosely fitting over the needle clamp screw mounted on the sewing machine needle bar. The forward end of the arm forms a double-edged knife which is adapted to oscillate adjacent the v-shaped cutter. The oscillatory movement is caused by the driving motion of the needle clamp screw acting at the arm yoke. The v-shaped cutter and the two edges of the oscillating knife enable the knife to perform a cutting stroke in both directions of movement.

2 Claims, 2 Drawing Figures
SEAM RIPPER ATTACHMENT FOR AUTOMATIC SEWING MACHINES

BACKGROUND OF THE INVENTION

1. Field of the Invention
    The present invention relates generally to an attachment for automatic sewing machines and more particularly to a sewing machine attachment for ripping seams.

2. Description of the Prior Art
    Various attachments have been developed which are especially adapted for the automatic sewing machine. One of these attachments is called a buttonhole attachment, which, as the name implies, is used to make buttonholes. A zipper attachment has also been developed as an aid for sewing zippers onto garments.

    Even though these and other attachments have been developed to assist the sewer in performing various operations, no type of attachment has been developed for assisting the sewer in ripping seams.

    The only apparatus for ripping seams that is currently on the market is a hand-held seam ripper comprising a hooked knife-edge mounted on an elongated shaft. The seam ripper is used like a regular knife, that is, the two pieces of seamed material are separated at the seam and the knife edge of the roller is moved back and forth across each stitch until the thread is cut. This operation is repeated for each successive stitch.

    There are many problems involved in utilizing such a seam ripper. One problem is that since the seam ripper must be held with one hand, only one hand is available for holding the material. This makes it extremely difficult to keep the two pieces separated along the seam to enable the seam ripper to function properly. Because of this shortcoming, the entire seam ripping procedure is difficult and time consuming.

    Other implements have been developed for cutting purposes, but such implements cannot be used for seam ripping. One implement developed for cutting is the electric knife which is used basically for cutting meats, etc. As is well known, such implements have two blades which are reciprocally driven by a motor. However, such knives still must be held by hand and any attempt to rip open seamed material would be extremely difficult. In all probability, the fast acting knife would cut into the material, which, of course, is undesirable.

    Another implement used for cutting is an electrically driven pair of scissors. These scissors are also hand held and are used mainly to cut material from pattern. Because it must be held by hand and because of its extremely fast cutting action, such an implement could not be utilized efficaciously for ripping seams.

SUMMARY OF THE INVENTION

The present invention obviates the above-mentioned shortcomings by providing a sewing machine attachment for ripping seams that can function automatically and efficiently.

The seam ripper attachment comprises a stationary horizontal leg adapted to be connected to a sewing machine presser bar. The forward end of the leg comprises a double edged cutter. A movable arm is pivotally connected to the leg with the rearward end thereof adapted to loosely engage the sewing machine needle clamp screw to be oscillatorily driven thereby. The forward end of the arm forms a double edge knife positioned to oscillate adjacent the double edge cutter to perform cutting strokes in either direction of movement.

A primary advantage of the present invention is that the seam ripper attachment is completely mounted on the sewing machine to function automatically, the only control needed being the speed control which is operated by foot. This enables the operator to have both hands free to properly hold and manipulate the pieces of material to keep the seam bared as it approaches the seam ripper.

Another primary advantage of the present invention is that the double acting cutting stroke of the seam ripper prevents the seam from becoming snagged within the attachment.

Another very important advantage of the present invention is that the automatic seam ripper attachment enables the operator to perform any seam ripping operation quickly and felicitously without damaging the material.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objects and advantages thereof, may best be understood by reference to the following description, taken in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a seam ripper attachment of the present invention; and

FIG. 2 is a perspective view of the seam ripper attachment with the arm shown in its outermost positions.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, FIGS. 1 and 2 illustrate a seam ripper attachment, generally indicated by arrow 10, which is especially adapted to be mounted on any conventional sewing machine. The attachment 10 comprises a horizontal leg 11 having a flanged yoke 13 mounted on its rearward end. The forward end of the leg 11 comprises a cutting head having a pair of cutter faces 15 and 17. The cutter face 15 is formed directly from the forward end of the leg 11 while the cutter face 17 is integrally connected thereto by means of a transverse bar 19.

Each cutter face 15 and 17 comprises a pair of tines 21 and 23 extending outwardly in the forward direction. The interior edges of the two tines are honed to form a pair of cutting edges 25 and 27. Each pair of cutting edges 25 and 27 are slanted toward each other to form a v-shaped configuration with the opening of the "v" facing the forward direction.

A pin 29 also extends between the two cutter faces 15 and 17 for pivotally supporting an arm 31. The rear end of the arm 31 forms a yoke 33, while the forward end thereof forms a knife 35 having a pair of cutting edges 37 and 39. The knife 35 is adapted to oscillate between the cutter faces 15 and 17 and to come into very close contact with the cutting edges 25 and 27.

OPERATION

In utilizing the seam ripper apparatus 10 to rip apart a seam between two pieces of material, the apparatus must first be attached to a conventional automatic sewing machine. To do this, the flanged yoke 13 of the leg
3

11 is mounted on the presser bar by extending over the presser foot screw. The presser foot screw is then tightened to secure the leg 11 in a horizontal position, extending in the forward direction. During this operation, the yoke 33 of the arm 31 is positioned to loosely extend over the shaft portion of the needle clamp screw. The presser bar functions to hold the horizontal leg 11 stationary, while the reciprocating needle bar imparts, via the needle clamp screw, an oscillatory motion to the arm 31. The lowermost and uppermost movement of the arm 31 is shown in solid and broken lines respectively in FIG. 2.

As stated previously, the oscillatory movement of the arm 31 causes the knife 35 to oscillate between the cutter faces 15 and 17. As more clearly shown in FIG. 2, the upward movement of the knife 35 causes the knife edge 37 to shear across the cutting edges 25 of the cutter faces 15 and 17. Conversely the downward movement of the knife 35 causes the knife edge 39 to shear across the cutting edges 27 of the cutter faces 15 and 17.

The oscillating speed of the arm 31 is controlled by the reciprocating speed of the needle bar of the sewing machine. The speed of the needle bar, of course, is conventionally controlled by a foot pedal. This feature, coupled with the fact that the operation of the seam ripper 10 is completely automatic, enables the operator to have both hands available to hold the two pieces of seam material.

Therefore, after the seam ripper 10 is mounted on the sewing machine as described above, the operator takes hold of the two pieces of seam material and separates them along the line of the seam. The separated material is then positioned in front of the seam ripper 10 with the seam facing the opening of the v-shaped cutting edges 25 and 27 of the cutter faces 15 and 17. With the knife 35 oscillating, the first stitch from the seam of the two pieces of material is positioned within the v-shaped area of the cutter faces 15 and 17. At that instant, the shearing movement of the knife 35 with either of the cutting edges 25 or 27 functions to cut the thread forming the stitch. As stated previously, the double cutting action of the knife 35 onto the two cutting edges 25 and 27 enables a cutting stroke to occur in both directions of knife movement. The material is then separated further to enable the next stitch to enter the cutting head to be cut. This process is repeated speedily and efficiently until the entire amount of desired seam is cut open.

One advantage of the double cutting action of the knife 35 is that the stitches cannot become snagged within the cutting head. Moreover, the v-shaped opening of the cutter faces 15 and 17 are small enough and are configured to prevent any material from entering therein to accidentally be cut.

It should be noted that various modifications can be made to the apparatus while still remaining within the purview of the following claims.

What is claimed is:

1. A seam ripper apparatus adapted to be attached to an automatic sewing machine having a presser bar and a needle bar comprising:
   a first bifurcated fixed member adapted to be connected to the presser bar of the sewing machine and including a pair of cutting heads spaced apart and parallel with each other, each cutting head comprising a pair of tines having respective cutting edges positioned on the interior tine surface adjacent the other tine, the tine cutting edges are honed from the exterior surfaces inward to provide angled surfaces relative to the planes of the tine interior surfaces whereby a v-shaped cutting area is formed for selectively guiding and cutting a seam; and
   a second movable member pivotally supported on the first bifurcated fixed member between the cutting heads and adapted to be connected to the needle bar of the sewing machine, the second member having a pair of cutting edges which are positioned to shear against the tines cutting edges to provide a cutting stroke in each direction of the movable members oscillations.

2. A seam ripper apparatus as in claim 1 further including a connecting pin pivotally supporting the second movable member and extending between a tine member of each cutting head to provide an off-center pivotal movement relative to the apex of the v-shaped cutting area.

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