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2,941,489

MOVABLE THREAD CUTTER FOR ELECTRIC SEWING MACHINES

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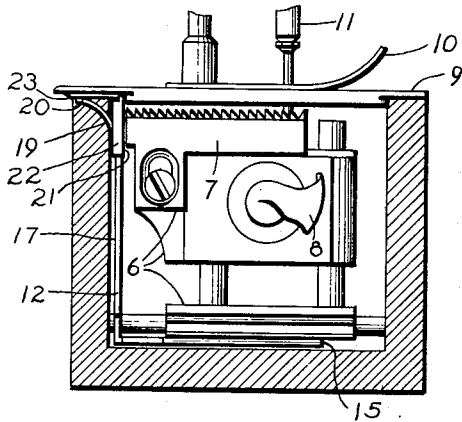


Fig. 1

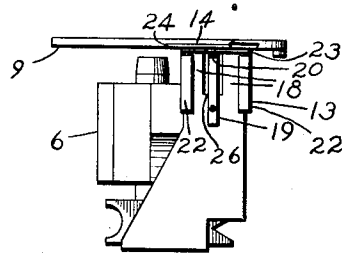


Fig. 2

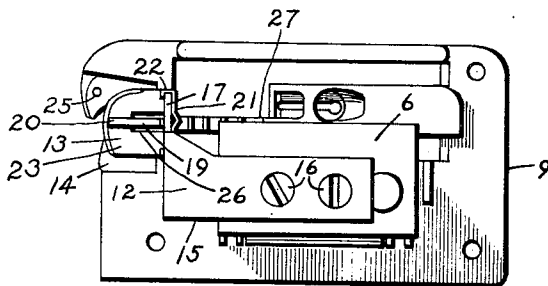


Fig. 3

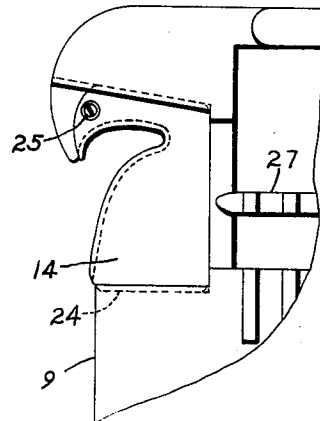


Fig. 5

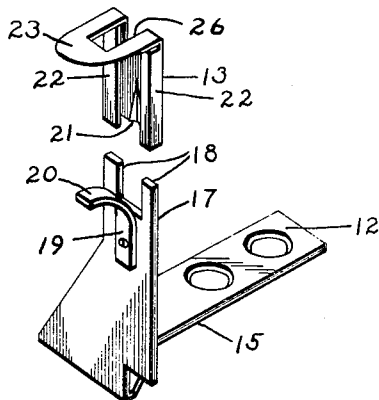


Fig. 4

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MOVABLE THREAD CUTTER FOR ELECTRIC SEWING MACHINES

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3 Claims. (Cl. 112-252)

My present invention relates to improvements in electric sewing machines and, more particularly, to a movable thread cutter therefor acting in conjunction with and mounted on the feed dog carrier block and throat plate of the sewing mechanism to facilitate the cutting of the sewing thread as required.

It may be well to state here that this present invention is in the nature of an improvement of the stationary thread cutter as is disclosed in United States Letters Patent No. 2,484,495 issued to me as patentee and assigned to the Dave Fischbein Co. of Minneapolis, Minnesota.

The principal object of this invention is to provide a movable thread or chain stitch cutter that will automatically sever the thread or chain at the end of a given sewing operation.

Another object of this invention is to provide a movable thread or chain stitch cutter wherein the cooperating cutter blades of the cutter assembly are detachably mounted in their respective stations to facilitate the replacement or resharpening thereof.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views:

Referring to the drawings:

Fig. 1 is a side elevational view partly in plan and partly in section of a portion of the sewing machine diagrammatically showing the feed dog carrier block and slide and its mounted components, the presser foot and the needle, with the invention shown mounted, by heavy solid lines;

Fig. 2 is a rear elevation of the feed dog carrier block and the throat plate showing the invention mounted thereon;

Fig. 3 is a bottom plan view thereof;

Fig. 4 is a perspective view of the invention showing the means for detachably securing the movable blade and mount the one to the other; and

Fig. 5 is a fragmentary bottom plan view of the throat plate showing the mounting of the stationary cutter blade.

For the purpose of this application and in the interest of brevity and clarity, the following components are conventional but pertinent parts of the electric sewing machine disclosed in the above identified United States patent and are named herein to show the relationship of said parts as they affect the instant application, to wit: the reciprocating feed dog carrier block and slide 6, feed dog 7, looper 8, throat plate 9, presser foot 10, and the needle and needle bar assembly 11.

The numeral 12 is directed to a spring steel mounting bracket for a movable cutter blade 13 that is detachably secured thereto to afford means for easy removal thereof for replacement or sharpening of said cutter member, as presently will be described.

The mounting bracket 12 is formed of spring steel to impart a resiliency to the entire movable cutter assembly to thus afford the proper frictional engagement between

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the movable cutter blade 13 mounted thereon and a stationary cutter blade 14 that is detachably secured for replacement or sharpening purposes, to the under surface of the throat plate at the rear end marginal edge portion thereof, see Figs. 3 and 4.

The mounting bracket 12 is formed of a single piece of spring steel and comprises a base portion 15 having a pair of longitudinally disposed countersunk screw holes for a pair of attaching screws 16 which have screw-threaded engagement with the base of the feed dog carrier block and slide 6, by which the mount 12 is rigidly but detachably secured to said feed dog carrier block and slide 6, and an upstanding end portion 17 bent at right angles to the base portion. In end elevation, this section 17 of the mounting bracket 12 is laterally offset and notched to provide for necessary clearance and its upper end portion is terminated in a pair of upstanding prongs 18 that afford a mounting station for the movable cutter blade assembly 13, as will presently be described. A secondary spring 19 in the form of an upwardly and outwardly extended arm is rigidly attached to the section 17 of the mounting bracket 12 and is transversely centered between the upstanding prongs 18. This secondary spring is terminated at its outer end portion to form a shoe 20 that rides against the lower surface of the detachable cutter blade 13 to further insure proper frictional engagement between the movable cutter blade 13 and its cooperating stationary blade 14. The detachable cutter blade 13 is also formed of a single piece of material which, after fabrication, is hardened to hold a sharp cutting edge. This detachable member 13 comprises a backing plate 21, a pair of parallel vertically disposed guide rails or channels 22 and the cutting blade section 23 that is formed by bending the material rearwardly at right angles to the rails 22. The outer end portion thereof is finish ground to a substantially semicircular radius and ground and honed to a keen cutting edge. The guide rails or channels 22 have endwise sliding engagement with the prongs 18 and have a relatively tight working fit, the one upon the other.

It will thus be seen that when the guide rails or channels 22 engage the prongs 18 to their full working depth, the shoe 20 forming the cutter end portion of the secondary spring 19, impinges the under surface of the blade section 23 to further maintain proper working tension between the movable blade 13 and the stationary blade 14, the latter of which is rigidly but detachably secured to the under side of the rear end portion of the throat plate 9. This stationary blade 14 is dimensioned to engage with endwise sliding movements a V bed machined in said throat plate 9 in its underside, and a set screw 25 has screw-threaded engagement with the throat plate to rigidly position and hold the blade 14 in proper operational position. Obviously, by removing the set screw and endwise sliding the blade 14 rearwardly in its V bed 24, the blade 14 can be removed and replaced at will. A central longitudinally disposed slot 26 is formed in the sections 21 and 23 of the cutting member 13 to afford a guide having longitudinal engagement with a guide rail 27 on the throat plate 9.

As has been stated in the objects of this invention, this movable cutter blade assembly takes the place of the heretofore used stationary blade alone, which required the manual cutting of the chaining or thread by drawing said chaining or thread against the sole cutting blade mounted in the throat plate. In using the present invention in conjunction with the sewing operation, when it is desired to cut the chaining or thread, it is only necessary while the machine is in operation, to guide the chaining or thread into engagement with the stationary blade 14 mounted in the throat plate 9 where the same

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will be easily cut by the cooperating movements of the blades 13 and 14, respectively.

While there are herein disclosed but a limited number of embodiments of the structure, process and product of the invention herein presented, it is possible to produce still other embodiments without departing from the inventive concept herein disclosed, and it is desired, therefore, that only such limitations be imposed on the appended claims as are stated herein or required by the prior art.

What I claim is:

1. An automatic movable thread cutter mechanism for electric sewing machines having a throat plate and a reciprocating feed dog carrier block comprising in combination, a mounting bracket adapted to be detachably secured to the feed dog carrier block of an electric sewing machine, a cutter blade reciprocally mounted on said mounting bracket, a stationary cutter blade adapted to be detachably mounted on the throat plate of an electric sewing machine positioned for close working engagement with the reciprocable cutter blade, spring means rigidly mounted on the said mounting bracket to impart tension to the reciprocable cutter blade against the cooperating stationary cutter blade, and powered means imparting reciprocating motion to the reciprocable cutter blade.

2. An automatic movable thread cutter mechanism for electric sewing machines having a throat plate and a reciprocating feed dog carrier block comprising in combination, a mounting bracket adapted to be detachably secured to the reciprocating feed dog carrier block of an electric sewing machine, said mounting bracket having

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a horizontally disposed base section and a vertically disposed offset blade mounting section, said blade mounting section having a pair of parallel upstanding prongs, a removable cutter blade having a horizontally disposed cutting edge portion, and a pair of parallel spaced integral guide rails or channels having endwise slidable engagement with the said prongs of said mounting bracket, an upwardly and outwardly projected flat spring terminating in a shoe having frictional engagement with the lower horizontal surface of the cutter blade, a stationary cutting blade mounted in the under surface of the throat plate of an electric sewing machine and having cooperating action with the movable cutter blade, the opposing surfaces of said movable blade and stationary blade being held to close frictional engagement by tension imparted by said spring means on the mounting bracket, and powered means imparting reciprocating motion to the mounting bracket and slidable blade.

3. The structure defined in claim 2, further including detachable means adapted to secure the stationary cutting blade to the throat plate of an electric sewing machine, and thread-engaging means in said throat plate whereby the thread or chaining is severed automatically while the sewing machine is in operation by cooperating cutting action of the slidable and stationary blades.

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