June 17, 1930. F. LUTZ 1,765,342

PRESSER FOOT AND CHAIN CUTTER FOR SEWING MACHINES

Filed Oct. 27, 1928 2 Sheets-Sheet 1

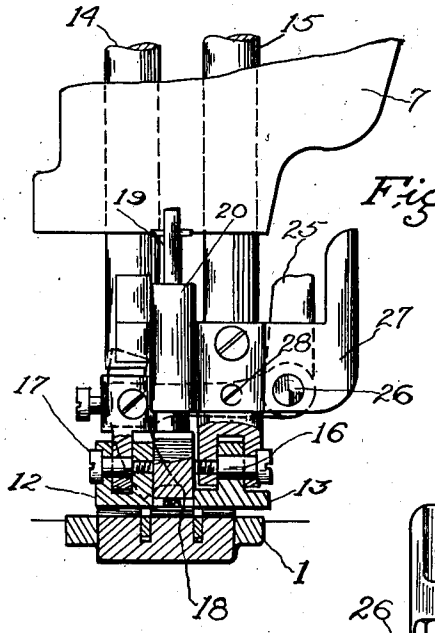


Fig. 2.

Fig. 1.

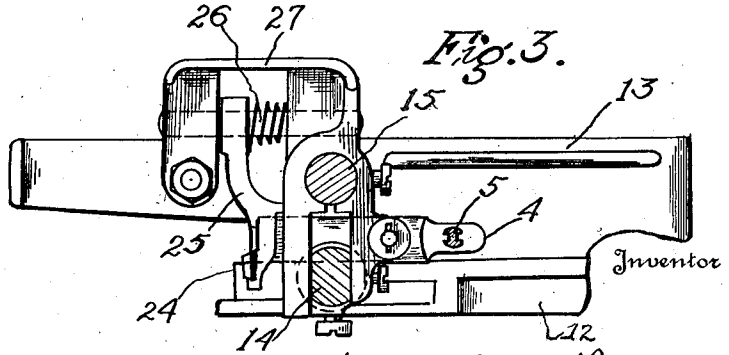


Fig. 3.

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PRESSER FOOT AND CHAIN CUTTER FOR SEWING MACHINES

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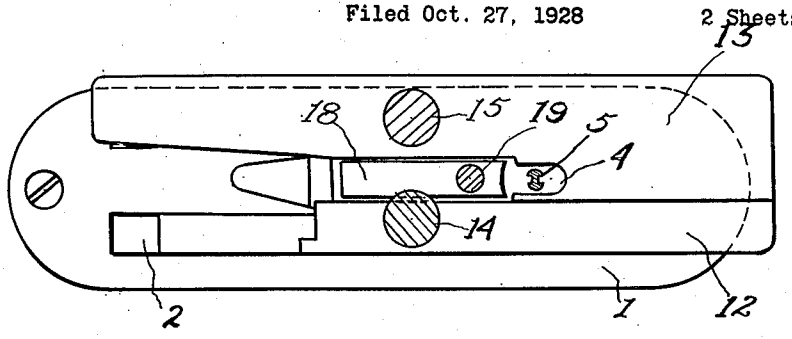


Fig. 4.

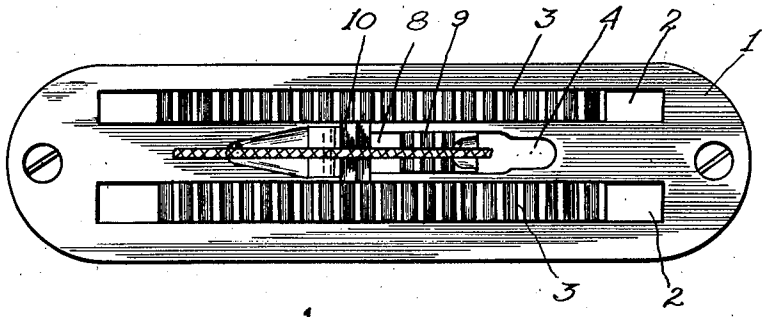


Fig. 5.

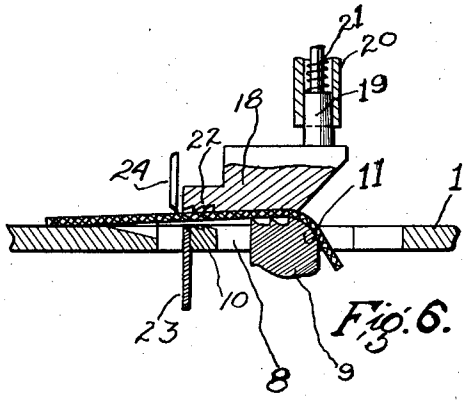


Fig. 6.

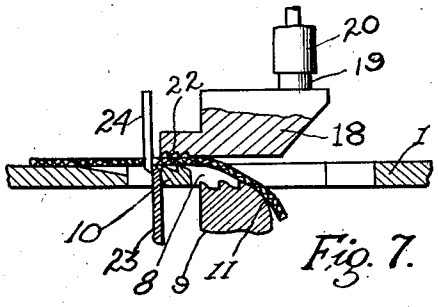


Fig. 7.

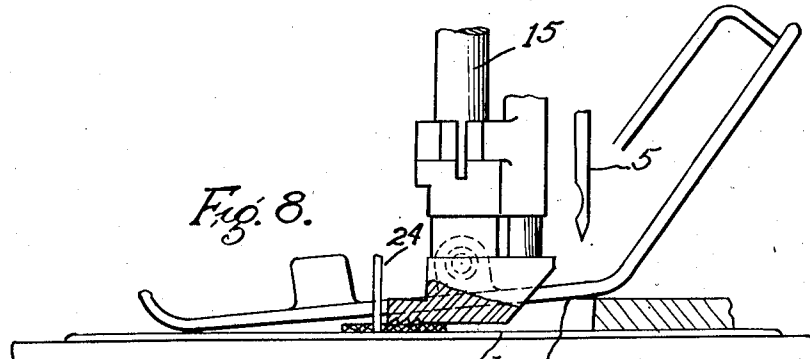


Fig. 8.

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UNITED STATES PATENT OFFICE

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PRESSER FOOT AND CHAIN CUTTER FOR SEWING MACHINES

Application filed October 27, 1928, Serial No. 315,464, and in Germany June 29, 1928.

The invention relates to new and useful improvements in a presser foot for sewing machines, and a chain cutter which is associated therewith.

An object of the invention is to provide a presser foot with means cooperating with the feed and the throat plate for feeding and holding the enchained thread loops between the stitched articles.

A further object of the invention is to provide a presser foot and chain cutter of the above type wherein the presser foot is so constructed as to control and guide the chain and insure the feeding of the chain into the chain cutter.

A still further object of the invention is to provide a presser foot and chain cutter of the above type wherein the enchained loops are gripped and held while the same are being severed.

In the drawings which show by way of illustration one embodiment of the invention:

Figure 1 is a view partly in section and partly in side elevation showing a portion of the machine embodying the improvements;

Fig. 2 is a view partly in front elevation and partly in vertical section of the parts shown in Fig. 1;

Fig. 3 is a view partly in section and partly in plan of the parts shown in Fig. 1;

Fig. 4 is a view showing more or less diagrammatically partly in plan and partly in section the arrangement of the throat plate, the presser foot members, and the cutter;

Fig. 5 is a plan view of the throat plate showing the feed sections and also showing the enchained loops as positioned for severing;

Fig. 6 is a vertical view in section through the center of the presser foot showing the auxiliary section controlling the enchained thread loops, the feed section cooperating therewith, the throat plate and the severing devices at the time when the chain is being fed;

Fig. 7 is a view similar to Fig. 6 but showing the parts positioned so that the chain is clamped and is being severed by the cutting devices;

Fig. 8 is a view partly in section and partly in side elevation showing the position of the parts as a section of fabric enters beneath the front end of the foot.

The invention is directed broadly to a presser foot and chain cutter for sewing machines. The presser foot is constructed preferably with two sections which are independently mounted. These presser foot sections cooperate with the feed dog in the feeding of the material to the stitching mechanism. Located between the two sections is an auxiliary presser foot which is mounted on one of the presser foot sections or on the machine frame so as to move independently of the foot sections. A spring normally depresses the auxiliary section and yieldingly holds the auxiliary section against the material or against the enchained thread loops passing beneath the same. Cooperating with this yielding section is a section of the feed dog which feeds the enchained thread loops when there is no material beneath the auxiliary foot section. The throat plate and the auxiliary section are provided with toothed portions, which firmly grip the enchained thread loops and hold the same when the feed dog is on its idle movement. Associated with the presser foot is a chain cutter, which includes a stationary blade and a movable cutter blade which may be operated for severing the enchained thread loops held clamped between the auxiliary presser foot and the throat plate.

Referring more in detail to the drawings, the invention is shown as applied to a sewing machine which includes a throat plate 1 having feed slots 2, 2 therethrough through which the sections 3, 3 of the feed dog operate. Centrally of the throat plate is an opening 4 for the needle 5 of the machine. The needle 5 is carried by a needle bar 6, which reciprocates in the usual manner in an overhanging arm, a portion of which is indicated at 7 in the drawings.

The throat plate is provided with a slot 8 in rear of the needle opening in which a section 9 of the feed dog operates. At the rear end of the slot 8 there is a bridged portion 10 provided with teeth on its upper face. The feed sections are all provided with teeth on

their upper face and the middle section 9 of the feed dog is rounded off at 11 so as to avoid cutting the chain. The material is held on the work support by two presser feet, one of which is indicated at 12 and the other at 13. The presser foot 12 is carried by a presser bar 14, and the presser foot 13 is carried by a presser bar 15. The presser foot 13 is pivotally secured to the presser bar by means of a pivot bolt 16. The presser foot 12 is pivotally secured to the presser bar 14 by a pivot bolt 17. This provides means whereby the sections of the presser foot can tilt on the presser bars when a section is laid underneath the presser feet. The presser foot 13 is the main presser foot of the machine and has a portion which extends around in front of the needle. The two presser feet are spaced from each other in the region in rear of the needle and this forms a guiding channel for the enchained thread loops causing said enchained thread loops as they feed away from the stitching point to move directly toward the rear of the machine. Located in this channel between the two presser feet is an auxiliary presser foot 18. The auxiliary presser foot 18 is rigidly connected to a supporting standard 19, which moves freely in a sleeve 20 carried preferably by the presser bar 15. Located within this sleeve is a spring 21 which normally presses the auxiliary presser foot downward toward the throat plate to yieldingly hold said foot against the fabric or enchained thread loops. This auxiliary section of the presser foot is provided with a toothed portion 22.

Associated with the presser foot is a chain cutter, which includes a stationary cutting blade 23 supported in any suitable way, and a movable cutting blade 24. The movable blade is mounted on a lever 25, pivoted at 26 to the bracket 27, which is secured by suitable screws 28, 28 to the presser bar 15. The sleeve 20 is also mounted on this bracket 27. This lever 25 may be operated in any desired way, but is preferably actuated by article controlled means for the severing of the enchained thread loops.

When a fabric to be stitched is passing beneath the presser feet both the presser feet and the auxiliary presser foot will be resting on top of the fabric and cooperate with the feeding sections of the feed dog to feed the material. After an article is stitched and passes from beneath the presser feet a series of enchained thread loops may be formed. The auxiliary section of the presser foot will engage the enchained thread loops and cooperate with the central section of the feed dog to feed said enchained thread loops. The enchained thread loops will lie in the channel between the two presser feet, and this will guide the enchained thread loops so as to direct them into the severing devices. When the auxiliary presser foot is pressing the enchained thread loops against the throat plate, the toothed section on the auxiliary foot and the toothed section on the throat plate will firmly grip and hold the enchained thread loops. The cutting devices are immediately in rear of the auxiliary section and the bridging portion of the throat plate which carries this toothed portion. Therefore, the cutter when operated will sever the enchained thread loops close to the point where they are gripped and this will hold the enchained thread loops and insure the proper severing of the same. When a fabric section is started beneath the presser feet the presser feet will be tilted as shown in Fig. 8 of the drawings. At this time however the auxiliary presser foot will move down beneath the lower face of the presser feet and will engage the enchained thread loops and continue to feed the enchained thread loops until the fabric section reaches the needle so that the threads are anchored in the material, after which of course the enchained thread loops will be fed with the material.

The purpose of the improved presser foot is to guide and feed the enchained thread loops between stitched articles, and to hold said enchained thread loops relative to the severing devices so that the enchained thread loops may be severed at will. The severing devices are located very near to the needle so that after the enchained thread loops are severed there is a very short length of enchained thread loops. While the fabric section is passing beneath the foot this auxiliary section of the presser feet will control and feed the enchained thread loops and prevent any skipping of stitches until the fabric reaches the needle so that the enchained thread loops are anchored therein.

It is obvious that minor changes in the details of construction may be made without departing from the spirit of the invention as set forth in the appended claims.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. The combination of a presser foot having fabric engaging portions and a needle opening, said fabric engaging portions being spaced from each other in rear of the needle opening, an independently yielding auxiliary fabric and chain engaging portion located in said space, and a chain severing device located directly at the rear of said yielding section for severing the enchained thread loops.

2. The combination of a presser foot having fabric engaging portions and a needle opening, said fabric engaging portions being spaced from each other in rear of the needle opening, an independently yielding auxiliary fabric and chain engaging portion located in said space, a feed dog having feeding sections cooperating with the fabric en-

gaging portions of the presser foot and having an independent feeding section cooperating with said auxiliary fabric engaging portion, and a chain severing device located directly at the rear of said yielding section for severing the enchained thread loops.

3. The combination of a presser foot having independently mounted fabric engaging portions one of which is provided with a needle opening, said fabric engaging portions being spaced from each other in the region in rear of the needle for forming a channel to guide the enchained thread loops during chaining between stitched articles, an independently yielding auxiliary section located in said space for engaging said enchained thread loops during chaining, a feed dog having feeding sections coperating with the fabric engaging portions of the presser foot and having a feeding section cooperating with said auxiliary fabric engaging portion for feeding the enchained thread loops, and a chain severing device disposed at the rear end of said auxiliary fabric engaging portion.

4. The combination of a presser foot having independently mounted fabric engaging portions one of which is provided with a needle opening, said fabric engaging portions being spaced from each other in the region in rear of the needle for forming a channel to guide the enchained thread loops during chaining between stitched articles, an independently yielding auxiliary section located in said space for engaging said enchained thread loops during chaining, a feed dog having feeding sections cooperating with the fabric engaging portions of the presser foot and having a feeding section cooperating with said auxiliary fabric engaging portion for feeding the enchained thread loops, a throat plate having a bridging portion in rear of said feeding section which cooperates with the auxiliary fabric engaging portion, said bridging portion and said auxiliary fabric engaging portion having toothed cooperating surfaces for gripping the enchained thread loops, and a severing device located directly in rear of said bridging portion for severing the enchained thread loop while gripped between said throat plate and said auxiliary fabric engaging section.

5. The combination of a presser foot having fabric engaging portions pivotally supported so as to tilt in passing onto fabric sections, one of said sections having a needle opening therethrough, said sections being spaced in rear of the needle opening, an auxiliary fabric engaging portion located in said space, means for supporting the same whereby it may yieldingly move vertically independently of the presser foot fabric engaging portions, a throat plate having feed slots and a bridging portion directly beneath the rear end of said auxiliary fabric engaging portion, a feed dog having feeding sections cooperating with the presser foot and the auxiliary section, a chain severing device including a lower stationary plate and an upper movable blade operating in a plane at right angles to the line of feed for severing the enchained thread loops, said severing device being located directly in rear of said auxiliary section.

6. The combination of a presser foot having fabric engaging portions pivotally supported so as to tilt in passing onto fabric sections, one of said sections having a needle opening therethrough, said sections being spaced in rear of the needle opening, an auxiliary fabric engaging portion located in said space, means for supporting the same whereby it may yieldingly move vertically independently of the presser foot fabric engaging portions, a throat plate having feed slots and a bridging portion directly beneath the rear end of said auxiliary fabric engaging portion, a feed dog having feeding sections cooperating with the presser foot and the auxiliary section, said auxiliary section and said bridging portion having teeth for engaging and firmly clamping the enchained thread loops for holding the same while they are being severed, a chain severing device including a lower stationary blade and an upper movable blade operating in a plane at right angles to the line of feed for severing the enchained thread loops, said severing devices being located directly in rear of said auxiliary section.

In testimony whereof, I affix my signature.

FRIEDRICH LUTZ.