April 20, 1937. H. PUDELKO 2,077,531

THREAD CUTTING DEVICE FOR BUTTONHOLE AND SIMILAR SEWING MACHINES

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Fig. 1

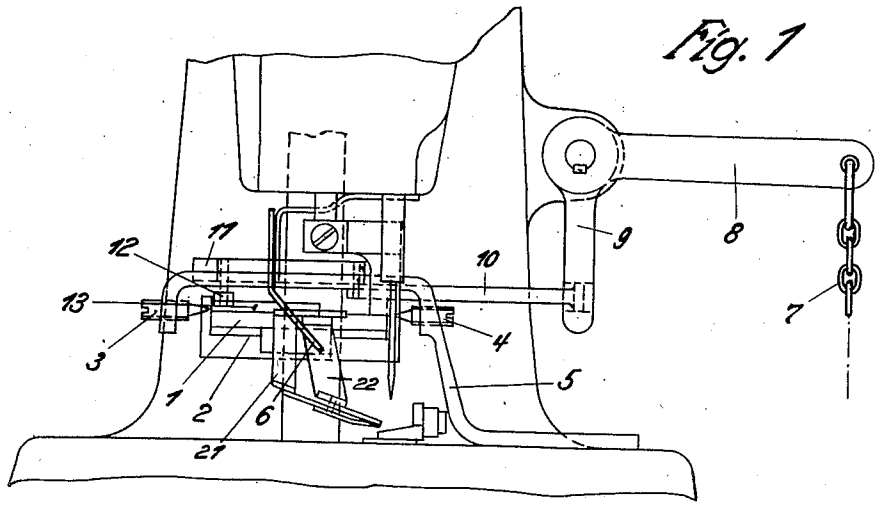
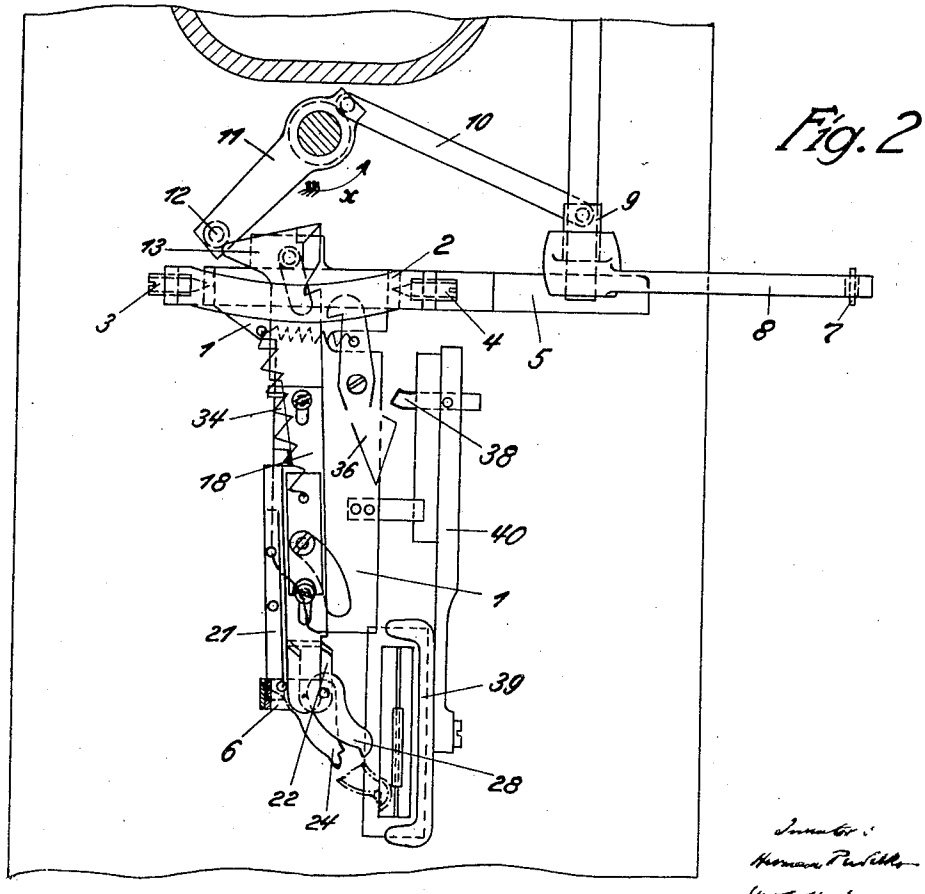


Fig. 2



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Fig. 3

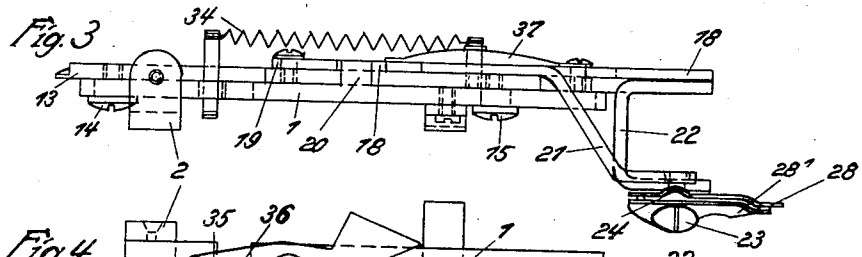


Fig. 4

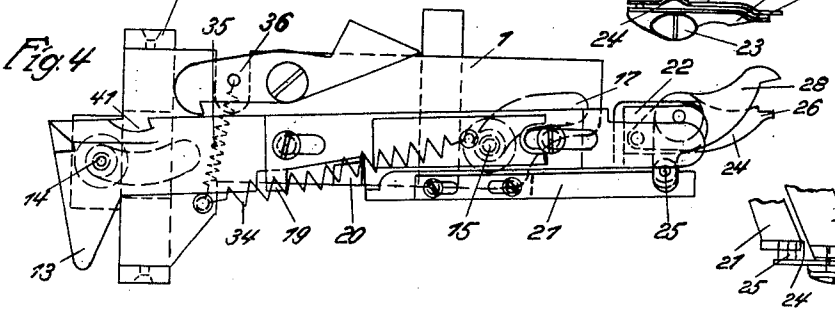


Fig. 8

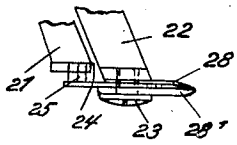


Fig. 5

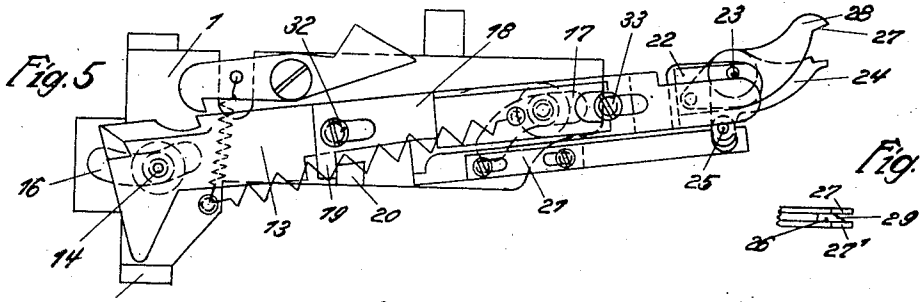


Fig. 10

Fig. 6

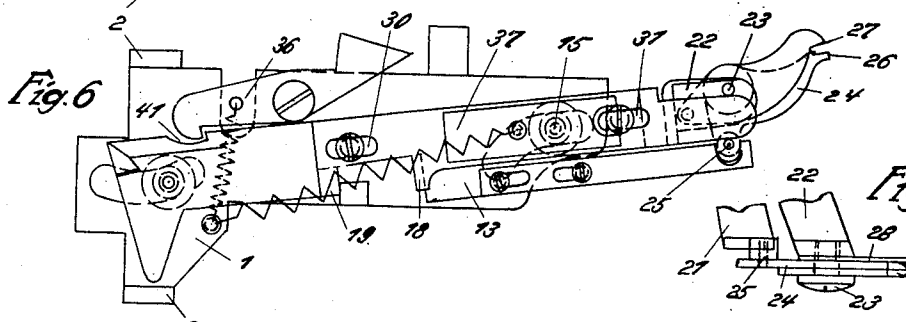
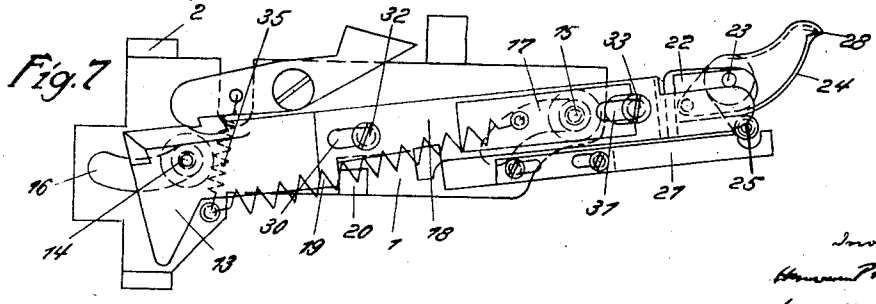


Fig. 9.

Fig. 7



Inventor:

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UNITED STATES PATENT OFFICE

2,077,531

THREAD CUTTING DEVICE FOR BUTTONHOLE AND SIMILAR SEWING MACHINES

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Application September 24, 1934, Serial No. 745,182
In Germany September 30, 1933

6 Claims. (Cl. 112—252)

This invention relates to the arrangement of a thread cutting device on a buttonhole or similar sewing machine for clamping and severing the thread after the last stitch. The known cutting devices of this type are rigidly mounted on the sewing machine and consequently cannot be easily removed, and the cooperation of their members is relatively complicated.

Contrary hereto the device according to the invention is removable and automatically returns into its inoperative position after the severing of the thread or after the first stitch on a fresh button hole. The device is of a novel construction in that it is pivotally suspended at one end and freely supported on an inclined guide at its other end. It consists of two plates shiftable mutually and relatively to a stationary base plate, one of the plates carrying the stationary cutting members and the other actuating the cutting member which swings between the stationary cutting members.

An embodiment of the invention is illustrated by way of example in the accompanying drawings, in which:—

Fig. 1 shows in elevation the arrangement of the cutting device on a sewing machine.

Fig. 2 is a top plan view of Fig. 1.

Fig. 3 shows the cutting device in side elevation, removed from the machine and in inoperative position.

Fig. 4 is a top plan view of Fig. 3.

Figs. 5, 6 and 7 show in top plan view three positions of the cutting members during their operation.

Fig. 8 is a front elevation showing the cutting members in open position.

Fig. 9 is a front elevation showing the cutting members in closed position.

Fig. 10 shows the intersliding of the cutting members.

The cutting device, that is its base plate 1, is removably mounted on a bracket 5 by means of a strap 2 suspended between pointed screws 3 and 4, the front end of the device resting on an inclined guide 6. The device is actuated by pedal or the like acting upon a chain 7. By exerting a pull on the chain 7 an arm 11 will be swung in the direction of the arrow X (Fig. 2) by means of levers 8, 10, so that a roller 12 presses forward a plate 13 slidable on the base plate 1. The plate 13 slides at an incline on the base plate 1 because the plate 13 is guided along slots 16 and 17 by pins 14 and 15. A plate 18 slidable on the plate 13 is shifted at the same time until its nose 19 comes into contact with an abutment 20 on the base plate 1 (Fig. 5) whereupon the plate 13 continues its forward movement alone. The strap 21 fixed on the plate 13 moves forward with this plate.

The plate 18 which has remained stationary after its nose 19 has come into contact with the abutment 20, carries at its front end a strap 22 in which an axle 23 is mounted which now likewise remains stationary relatively to the plate 13. During the continued forward movement of the strap 21, on which the cutting member 24 is pivotally mounted at 25, this cutting member 24 will rotate about the axle 23 which is now stationary, so that its cutting edge 26 approaches the clamping edge 27 and the cutting edge 27' of the stationary two-part cutting member 28, 28'. When the cutting edge 26 has swung completely between the clamping edge 27 and the cutting edge 27', the thread is clamped on the upper edge of the inclined surface 29 of the cutting edge 26 and severed by the lower edge of this surface 29.

The plate 18 is guided by means of pins 32 and 33 engaging in slots 30 and 31, in a similar manner to that in which the plate 13 is guided along the base plate 1 by the pins 14 and 15 engaging the slots 16 and 17. The strap 21 is adjustable on the plate 13, so that the cutting members can be mutually adjusted. The spring 37 serves for gently pressing together the plates 13 and 18.

During the forward sliding of the plate 13 the upper arm of the U-shaped strap 22, which in its inoperative position bears against the inclined guide 6 (Fig. 1), slides downwards along this guide, whereas the base plate 1 swings downwards about the points 3, 4, so that the cutting members jointly perform an inclined downward movement towards the front and in this manner are brought into the cutting position illustrated in dot-dash lines in Fig. 2.

After the cutting operation the cutting members are pushed back by a spring 34 on the base plate 1 until they arrive in the position illustrated in Fig. 6. In this position a pawl 36 acted upon by a spring 35 locks the plate 13. During this return movement the cutting edges of the cutting device remain closed and clamp and hold the severed thread until it has been sewn by a few stitches on a fresh button hole, that is until the nose 38 of a lever 40 engaging a presser foot 39 swings the pawl 36 out of its notch 41, whereupon the cutting device swings completely back into its inoperative position (Fig. 4) under the action of the spring 34. The pawl 36 is dis-

engaged rapidly because the presser foot 39 begins to move forward directly at the commencement of a fresh button hole.

I claim:—

1. A thread cutting device on button hole and similar sewing machines, comprising in combination a cutting aggregate including besides a fixed and a pivoted cutting member and a clamping member two relatively shiftable plates oscillatably and removably suspended at one end, and a guide slidably supporting the other end of said plates.

2. A thread cutting device on buttonhole and similar sewing machines, comprising in combination a bracket on the machine, a strap in said bracket, a pair of adjustable pointed screws as holding means removably and pivotally holding said strap in said bracket, a base plate suspended at one end on said strap, an inclined guide supporting the other end of said base plate, cutting members carried by said base plate, and means for oscillating said plate in said bracket to impart an inclined downward movement to said cutting members.

3. A thread cutting device on button hole and similar sewing machines, comprising in combination a bracket on the machine, a strap on said bracket, a base plate pivotally suspended at one end of said bracket, two relatively shiftable plates slidable on said base plate, two plate straps one carried by each of said plates, a pin carried by one of said plate straps, a cutting member pivotally mounted on said pin, a fixed cutting member under said pivoted cutting member, a clamping member above said pivoted cutting member, an arm on said pivoted cutting member pivotally connected to the other plate strap, and means for relatively shifting said plates to swing said pivoted cutting member between said fixed cutting member and said clamping member to sever the thread.

4. A thread cutting device on button hole and similar sewing machines, comprising in combination a bracket on the machine, a strap on said bracket, a base plate pivotally suspended at one end of said bracket, two relatively shiftable plates slidable on said base plate, two plate straps one carried by each of said plates, a pin carried by one of said plate straps, a cutting member pivotally mounted on said pin, a fixed cutting member under said pivoted cutting member, a clamping member above said pivoted cutting member, an arm on said pivoted cutting member pivotally connected to the other plate strap, and means for jointly shifting said plates on said base plate, a nose on one of said plates, and an abutment on said base plate adapted to contact with said nose and arrest the movement of the plate provided with the nose to relatively displace said plates and swing said pivoted cutting member between said fixed cutting member and said clamping member to sever the thread.

5. A thread cutting device on button hole and similar sewing machines, comprising in combination a bracket on the machine, a strap on said bracket, a base plate pivotally suspended at one end of said bracket, two relatively shiftable plates slidable on said base plate, two plate straps one carried by each of said plates, a pin carried by one of said plate straps, a cutting member pivotally mounted on said pin, a fixed cutting member under said pivoted cutting member, a clamping member above said pivoted cutting member, an arm on said pivoted cutting member pivotally connected to the other plate strap, and means for jointly shifting said plates on said base plate, a nose on one of said plates, and an abutment on said base plate adapted to contact with said nose and arrest the movement of the plate provided with the nose to relatively displace said plates and swing said pivoted cutting member between said fixed cutting member and said clamping member to sever the thread, said clamping member having a clamping edge adapted to cooperate with said pivoted cutting member to clamp the severed thread.

6. A thread cutting device on button hole and similar sewing machines, comprising in combination a bracket on the machine, a strap on said bracket, a base plate pivotally suspended at one end of said bracket, two relatively shiftable plates slidable on said base plate, one of said plates having a notch, two plate straps one carried by each of said plates, a pin carried by one of said plate straps, a cutting member pivotally mounted on said pin, a fixed cutting member under said pivoted cutting member, a clamping member above said pivoted cutting member, an arm on said pivoted cutting member pivotally connected to the other plate strap, and means for jointly shifting said plates on said base plate, a nose on one of said plates, and an abutment on said base plate adapted to contact with said nose and arrest the movement of the plate provided with the nose to relatively displace said plates and swing said pivoted cutting member between said fixed cutting member and said clamping member to sever the thread, a pawl on said base plate adapted to engage said notch in one of the shiftable plates to lock said pivoted cutting member in closed position between said fixed cutting member and said clamping member, a spring adapted to jointly return said plates into their initial position, and means for disengaging said pawl from said notch to allow the relative shifting of said plates to swing said pivoted cutting member into its open position from between said fixed cutting member and said clamping member.

HERMANN PUDELKO.