Oct. 3, 1933. J. P. ZAIDAN 1,928,845

CUTTING ATTACHMENT FOR SEWING MACHINES

Filed July 25, 1931

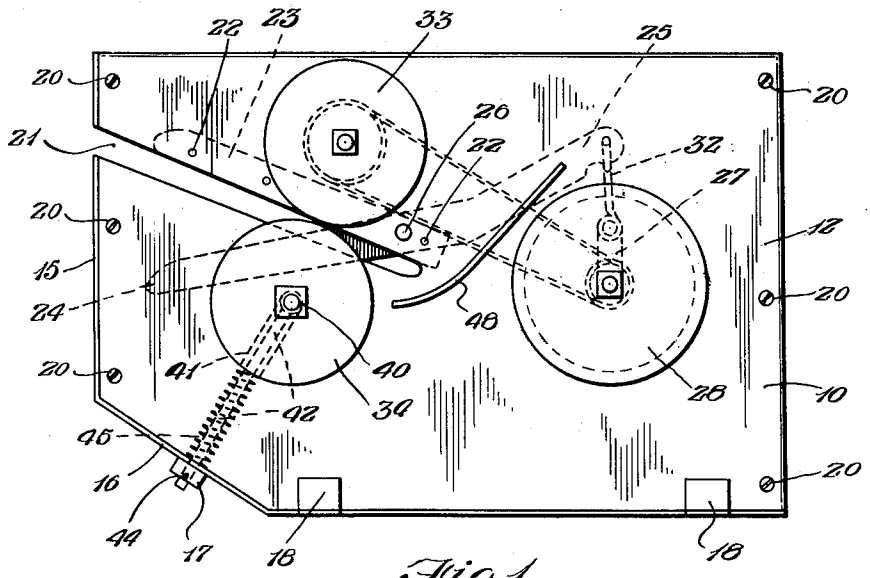


Fig. 1.

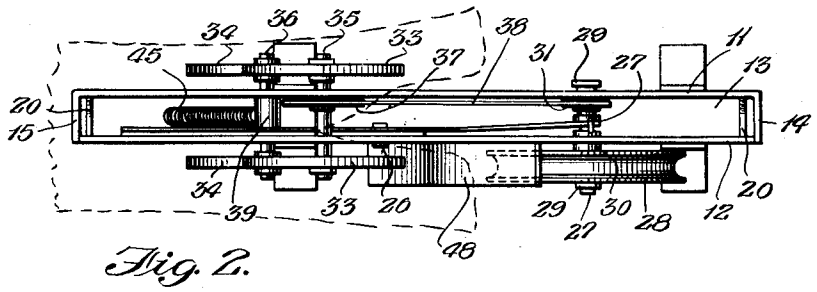


Fig. 2.

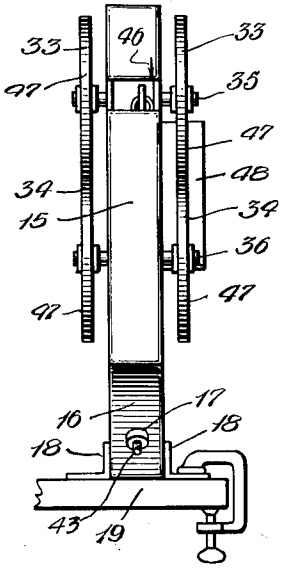


Fig. 3.

INVENTOR

Joseph P. Zaidan.

BY Bayle & Morton

ATTORNEYS

Patented Oct. 3, 1933

1,928,845

UNITED STATES PATENT OFFICE

1,928,845

CUTTING ATTACHMENT FOR SEWING MACHINES

Joseph P. Zaidan, Scranton, Pa.

Application July 25, 1931. Serial No. 553,211

3 Claims. (Cl. 164—17.5)

My invention relates to cutting machines and more particularly to a cutting attachment for sewing machines.

An object of my invention is to provide an improved scissors mechanism for cutting cloth, paper and the like in which the cutting mechanism is wholly enclosed.

Another object of my invention is to provide a positive feeding arrangement of the material to be cut during the operation of the cutting mechanism.

Yet another object of my invention is to provide a cutting device having a feeding mechanism adapted to exert a pull on the material to be cut so that the material is under tension during the cutting operation.

Still another object of my invention is to provide driving mechanism for the cutting and feeding device, wherein the feeding and cutting operations are synchronized.

With these and other objects in view, which may be incident to my improvements, the invention consists in the parts and combinations to be hereinafter set forth and claimed, with the understanding that the several necessary elements, comprising my invention, may be varied in construction, proportions and arrangement, without departing from the spirit and scope of the appended claims.

In the drawing like numerals refer to similar parts throughout the several views, of which

Figure 1 is a side elevational view of an improved mechanism, the enclosed operating parts being shown in phantom view;

Fig. 2 is a top plan view of the structure shown in Fig. 1; and

Fig. 3 is a front elevational view of the structure shown in Fig. 1.

The structure embodying the principles of the present invention comprises generally a casing 10 having side walls 11 and 12, spaced to form a chamber 13 adapted to receive a cutting mechanism. The spaced side walls 11 and 12 are joined by end walls 14, 15, which may be formed integral with member 11 and dished or bent at right angles and conformed to member 12. The front edge 15 of the casing may be bent or turned rearwardly as indicated at 16 in order to provide access to an adjusting screw 17, to be described more in detail hereinafter.

The base of the casing may be formed or struck up from the member 11 in the same manner as the end portions 14, 15 and 16, and the casing may be secured to any suitable support by means of screws or clamps engaging cleats or lugs 18 secured to the side walls of the casing.

Additional securing means may be had by providing apertures in member 18 and screwing the casing down on to a support such as a table 19. The two halves of the casing may be held together by any suitable manner as by means of screws 20.

A slot 21 is formed in the front of the casing and the side walls extend rearwardly and outwardly as shown. At the upper edge of this slot and attached to the side wall 12 by suitable means such as screws 22, there is provided a fixed blade 23. As noted, this blade is co-extensive with the upper edge of the slot 21 and is adapted to engage with material fed into the slot. An oscillating blade 24, provided with a rearward extension 25, is fulcrumed on the side wall 12 by means of a pivot 26 and is adapted to coact with the fixed blade 23.

A crankshaft 27 is journaled in the side walls 11 and 12 of the casing and is provided with a driving wheel 28 normally positioned exteriorly of the casing on the outer end of the shaft. The shaft and driving wheel are held in their proper position by means of nuts 29 and a spacing washer 30. A sprocket wheel 31 is provided on the crank shaft and inside the casing for a purpose to be described more in detail hereinafter. The extension 25 of the oscillating blade 24, is operatively connected to the crank shaft by any suitable means such as link 32.

It will be seen that upon rotation of the member 28, a reciprocating motion is imparted to the link, which, acting through the arm 25 of the blade 24, will cause the latter to oscillate across the cloth receiving aperture 21 and in operative engagement with the fixed blade 23 of the improved scissors or cutting mechanism.

To facilitate the feeding of the material to be cut through the slot 21 and into contact with the cutting edges of the scissors blades, feeding mechanism is provided. This mechanism comprises pairs of opposed rolls 33, 34, mounted for rotation on shafts 35, 36, which are respectively journaled in the sides 11 and 12 of the casing. The shaft 35 is provided with a fixed bearing and is also provided with a sprocket wheel 37 which is operatively connected to the crank shaft 27 by means of a chain 38. It will thus be seen that the guide wheels 33 and the feeding rolls are positively and synchronously driven with an oscillating blade by the common power supplying member 28.

The shaft 36 is freely rotatable within the bushing 39 having ends 40 adapted to slide in slots 41 formed in the side walls. These slots are

disposed downwardly and forwardly to permit the feed rolls 34 to be moved away from the cooperating wheels 33 in order to permit the introduction of materials of different thicknesses into the slot 21.

A threaded rod 42 is screwed into member 39 at right angles thereto and central thereof and is passed through a suitable aperture in member 16 adapted to maintain the said rod in alignment with the slot 41. The adjusting screw 17 acting on the threaded member 42 is adapted to move the wheels 34 into and out of engagement with the coacting wheels 33. The end of the threaded shaft 42 may be turned over as indicated at 43 to prevent the withdrawal of the adjusting nut 17, which may be provided with wings 44 to facilitate adjustment. The coiled spring 45 is disposed around the shaft 42 and bears against the wall 16 and the bushing 39, thus keeping the latter under constant tension urging the rolls 34 against the rolls 33.

To facilitate the cutting of the material along a straight line, a guide mark 46 may be provided on plate 15 to indicate the line of the cut. To further improve the efficiency of the cutting as well as to insure the straight feeding of the material the rolls 33 and 34 may be provided on their peripheries with treads 47 which are so configured as to progressively stretch the cloth fed into slot 21 away from the line of the cut thus facilitating the operation of the cutting mechanism, in that the cutting is effected on a tensed material.

To prevent the material which has passed beyond the feed rolls from becoming entangled with the driving member 28, a guide 48 is secured to the member 12 and is so positioned as to extend from the internal end of the slot 21 parallel to and over the member 28. While the driving member 28 may be driven by a belt connecting to a motor or other suitable source of power it will of course be appreciated that a motor may be directly connected to the shaft 27 or suitable reducing gear interposed between the motor and the shaft and the whole contained in a separate housing or included within the space 13 of the casing, the latter being appropriately designed to take care of the space required.

It will be seen that during the operation of this device the oscillating blade 24 is cutting the material on its upward stroke and due to the length of the arm 25 the movement of the blade portion is very rapid and as the return of the blade takes place immediately following the finish of the cutting stroke there is no interference of the oscillating blade with the constant feed of the material caused by the positively driven feed rolls 33 and the coacting rolls 34. This uniformity of feed permits desirable economies in operation and due to the simplicity of the operating parts the device may be readily dismantled in order to permit sharpening of the blades or replacement thereof.

It will now be appreciated that there has been provided an improved cutting mechanism adapted for the automatic feeding and cutting of cloth, paper and like materials of varying thicknesses which mechanism is susceptible of manufacture in a variety of sizes and is adapted for domestic use as well as for use in manufacturing establishments.

While I have shown and described the preferred embodiment of my invention, I wish it to be understood that I do not confine myself to the precise details of construction herein set forth, by way of illustrations, as it is apparent that many changes and variations may be made therein, by those skilled in the art, without departing from the spirit of the invention, or exceeding the scope of the appended claims.

What I claim is:

1. An improved cutting mechanism for cloth, paper and the like, comprising a frame having spaced walls slotted transversely of one end to form cloth receiving means, cloth feeding and spreading rolls disposed in pairs on either side of the slot, a fixed cutting blade secured to one edge of the slot, an oscillating cutting blade journaled in one wall of said frame and adapted to coact with said fixed blade, driving means for said oscillating blade comprising a crank shaft journaled in the walls and a link mechanism connecting the shaft and blade and means operatively connecting the crank shaft and feed rolls for driving the latter upon oscillation of the blade.

2. A cutting machine for cutting cloth, paper, and like materials, comprising, in combination, a fixed cutting blade, an oscillating cutting blade adapted to cooperate therewith, actuating means for said oscillating blade including rotary driven means and a link mechanism between said oscillating blade and said rotary means, a frame for said cutting members comprising parallel side members, one of said members being dished, and the other of said members forming a cover for said dished member, a material receiving slot formed in the side members adjacent the fixed cutting blade, a plurality of opposed cooperating material-engaging rollers disposed on either side of said slot and adapted to feed material therethrough and driving means for said rollers connected to the rotary driven means.

3. In a cutting machine for cutting cloth, paper, and the like, a standard comprising spaced walls, means formed at the base of the walls for holding the machine in fixed position, cutting mechanism disposed within the walls comprising a fixed cutting blade secured to one of the walls, a slot in said walls giving access to said blade, an oscillating blade pivotally mounted on one of said walls in operative engagement with said fixed blade and slot, a link mechanism adapted to impart motion to said oscillatory blade, rotary driving means journaled between said walls and connected to said link mechanism, feeding means for cloth and the like, comprising opposed rolls having gripping surfaces adapted to spread the cloth and present it to the cutting blades, said feeding and spreading rolls being journaled between the said walls on either side of said slot, tension adjusting means for at least one pair of said feeding rolls and means connecting said rotary driving means and at least one pair of feeding rolls, and means for driving said rotary means.

JOSEPH P. ZAIDAN.