Aug. 18, 1925. 1,550,418

A. M. BATES

CUTTER FOR SEWING MACHINES

Filed April 20, 1922

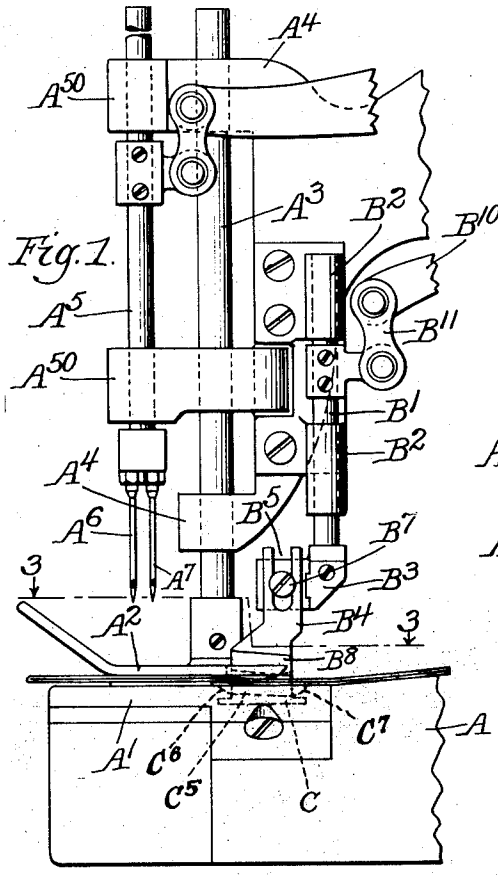


Fig. 1.

Fig. 2.

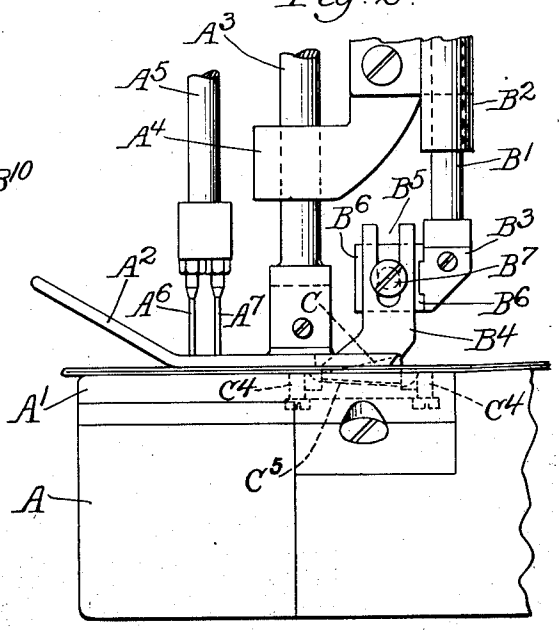
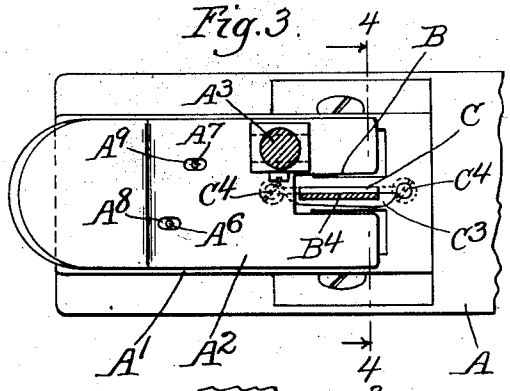


Fig. 3.



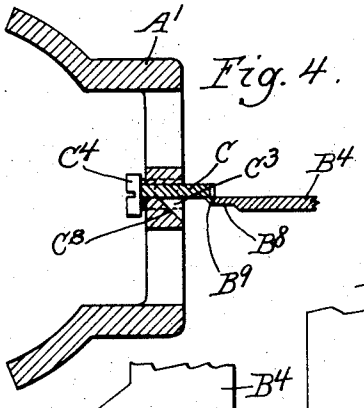


Fig. 4.

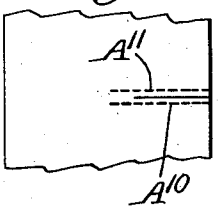


Fig. 6.

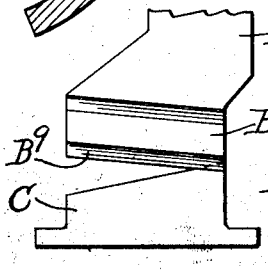


Fig. 7.

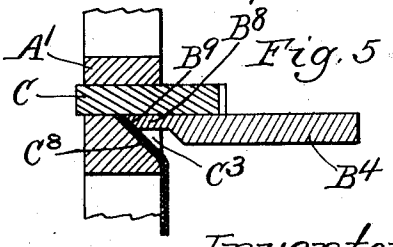


Fig. 5

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UNITED STATES PATENT OFFICE.

ADELMER M. BATES, OF CHICAGO, ILLINOIS, ASSIGNOR TO BATES VALVE BAG COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF WEST VIRGINIA.

CUTTER FOR SEWING MACHINES.

Application filed April 20, 1922. Serial No. 555,663.

To all whom it may concern:

Be it known that I, ADELMER M. BATES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Cutters for Sewing Machines, of which the following is a specification.

My invention relates to improvements in cutters for sewing machines wherein two needles operate to sew parallel seams and wherein the fabric or material being sewn is cut between the seams. The device is primarily used in connection with a bag forming and filling machine in which a tube or bag-forming fabric is fed out by successive sections and the tube is passed between the sewing machines so as to close the open end of a filled bag and cut it off from the tube, and at the same time sew the seam which forms the bottom of the next bag to be filled, but the invention is equally applicable in any case where it is desired to cut the fabric between the two seams as the sewing takes place.

My invention is illustrated more or less diagrammatically in the accompanying drawings, wherein:

Figure 1 is a plan view showing the needles and cutter retracted, and illustrating the operating means;

Figure 2 is a partial plan view showing the cutter in cutting position and the needles down to form the stitch;

Figure 3 is a section along the line 3—3 of Fig. 1;

Figure 4 is a section along the line 4—4 of Fig. 3;

Figure 5 is a detailed section on an enlarged scale showing the cutter at the end of its cutting stroke;

Figure 6 is a diagrammatic plan view showing the relation between the position of the seam and the cutter as the work is going on.

Figure 7 is a detailed view of the knives.

A is a supporting arm adapted to contain the stitch-forming mechanism and the work-feeding mechanism. It carries a throat plate A^1 which covers these various mechanisms, none of which are here shown as they form no part of my invention. A^2 is a presser foot in opposition to the throat plate, carried by a presser foot bar A^3 mounted for reciprocation in lugs A^4 A^4. A^5 is a needle bar also mounted for reciprocation in the lugs A^{50} A^{50}, and it carries the needles A^6 A^7 adapted to reciprocate through perforations A^8 A^9 of the presser foot, so as to make two parallel seams, A^{10} A^{11}. All this mechanism is merely the ordinary type of double needle or double seam sewing machine.

The rear extension of the presser foot is slotted as at B. B^1 is a knife carrying shaft mounted in suitable bearings B^2 and operated, for example, through the lever B^{10} and the pivoted link B^{11}. On the bottom of the shaft is a bracket B^3 which extends forwardly therefrom in the direction of the presser foot. It has adjustably mounted thereon a knife B^4 slotted as at B^5 to permit adjustment toward and from the work. The bracket has a flange B^6 engaging the knife to hold it against lateral or angular displacement, and the adjusting screw B^7 adapted to clamp the knife in place. The knife is reduced at its lower end as at B^8 and the end of the knife is inclined as at B^9 away from the cutting edge so as to get proper clearance.

C is a fixed knife blade having a cutting edge. It projects upwardly from the throat plate, and is rearwardly inclined, as shown in Figure 7, so that the heels of the two knives are never disengaged. While the reciprocating knife moves simultaneously with the needles, it passes through a shorter path, as will be seen by comparing Figs. 1 and 2. The separate short-stroke reciprocating means for the knife is used to avoid disengagement of the knives.

The throat plate is cut away in line with the moving knife, so as to make a pocket C^3 below the working face or surface of the throat plate into which the fabric may be pushed by the knife as the knife performs the cutting stroke. This fixed knife is held in position by set screws C^4.

I prefer to slant the bottom of the pocket, as at C^5, to correspond with the slant of the knife-edge B^9, and also to slant the entrance end C^6, the exit end C^7 and the side C^8 towards the seam, so that the fabric will contact the walls of the pocket at each down stroke of the knife. As will be seen from Fig. 5, the slant of the side C^8 is substantially the same as that of the beveled knife-edge B^9. The

ends of the pocket curve both horizontally and vertically and terminate at points on the surface of the plate A^1.

In the past, cutting devices have been used in which the cutting knife passed down through the throat plate, and the disadvantage of this was that the downward movement of the reciprocating knife would force lint, dust, threads and the like down into the mechanism beneath the throat plate until finally it would happen that the whole mechanism would be packed tight with this material and the machine would not work. The pocket C^3 prevents this difficulty because, as shown in Fig. 5, every reciprocating stroke of the cutting knife forces a part of the fabric down against the bottom wall of the pocket, and as the fabric moves forward it wipes out the pocket and takes with it any dust, lint, thread, oil and the like, so as to make the pocket self-cleaning.

It will be evident that while I have shown by my drawings an operative device, still many changes might be made in both size, shape and arrangement of parts without departing materially from the spirit of my invention, and I wish, therefore. that my drawings be regarded as in a sense diagrammatic.

The use and operation of my invention are as follows:

The sewing machine operates in the usual way, the cloth being fed forward. The stitch is formed in the usual manner. Every time the needle bar comes down to make a stitch the reciprocating knife comes down across the face of the inclined fixed knife and cuts a section of the fabric. Every time the needle goes up to permit the fabric to be fed forward the knife is raised and the forward movement of the fabric draws that part of the fabric which was forced down into the pocket by the knives out of the pocket, cleaning it and leaving an uncut section of the fabric in line with the pocket ready to be cut upon the next stroke. The co-operation of the reciprocating knife and the fixed knife produces a scissors action so as to make a smooth, clean cut; and because the knife is behind the needle the cut is made after the seam has been formed and the seams are made through that part of the fabric which has not been disturbed, so that the seams are properly spaced apart. It will be understood that the opposed knife surfaces are in inclined relation to each other, and overlap in such manner as never to be entirely disengaged. The result is that the knives do not separate and cannot strike or break as they would, if out of line, in the event of such separation. The lower knife projects above the bed or throat plate of the machine and the upper knife is adapted to penetrate the pocket in said throat plate.

I claim:

1. In a sewing machine, a cutter and a member co-operating with the cutter, said member having a pocket into which the cutter is adapted to press an edge of the severed fabric, the ends of the pocket tapering to points on the surface of the member.

2. In a sewing machine, a reciprocatory cutter having a beveled edge and a member co-operating with the cutter, said member having a pocket with its ends flaring in the direction of travel of the fabric and its side opposite the beveled edge of the cutter substantially parallel with said edge.

3. An attachment for a sewing machine comprising a cutter and a member opposed to the cutter, said opposed member having a closed-bottom pocket into which the cutter is adapted to press an edge of a cut fabric, said pocket flaring outward from its closed bottom both laterally and longitudinally of the direction of travel of the fabric.

4. In a sewing machine, means to sew a seam, a stationary member on one side of the path of a sewed fabric having a cutting edge adjacent the path of the seam and a closed-bottom pocket between said cutting edge and the path of the seam 1, said pocket flaring outward from its closed bottom in the direction of travel of the fabric, and a movable cutting member having an edge adapted to cooperate with the stationary cutting edge and enter said pocket.

5. In a sewing machine, means to sew a seam, a stationary member on one side of the path of a sewed fabric having a cutting edge adjacent the path of the seam and a closed-bottom pocket between said cutting edge and the path of the seam, said pocket flaring outward from its closed bottom toward the path of the seam, and a movable cutting member having an edge adapted to cooperate with the stationary cutting edge and enter said pocket.

6. In a sewing machine, means to sew a seam, a stationary member on one side of the path of a sewed fabric having a cutting edge adjacent the path of the seam and a closed-bottom pocket between said cutting edge and the path of the seam, and a movable cutting member having an edge adapted to cooperate with the stationary cutting edge and enter said pocket, the sides of the pocket being shaped at the ends and side next the seam to contact the fabric depressed by the movable cutter.

Signed at Chicago county of Cook and State of Illinois, this 17th day of April 1922.

ADELMER M. BATES.