

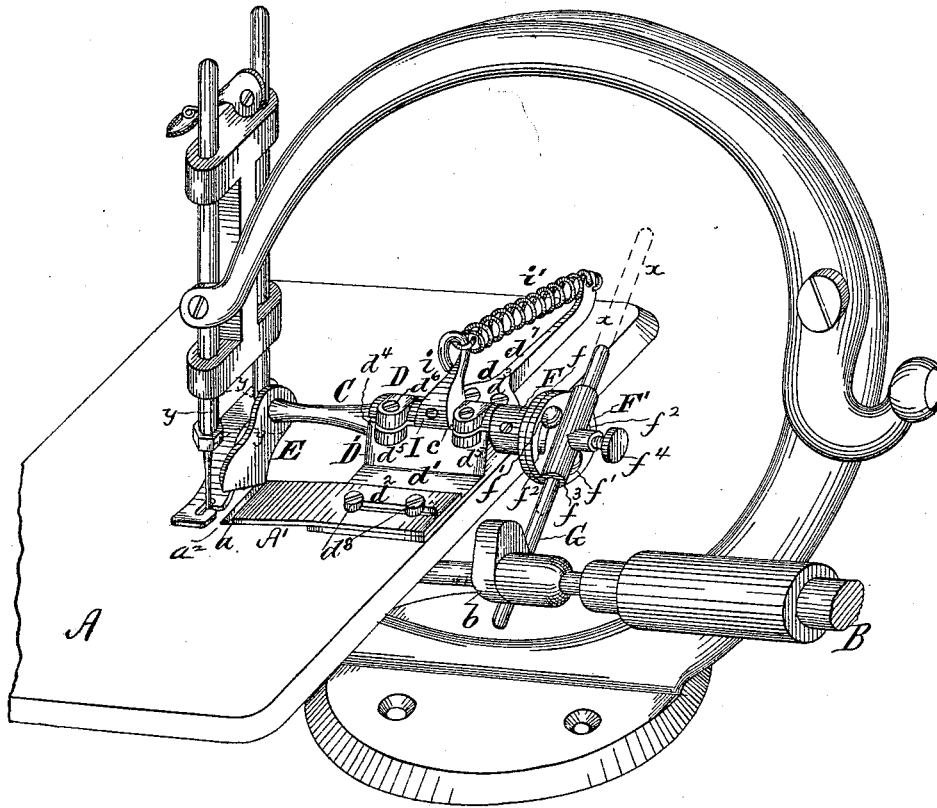
(No Model.)

J. SMITH.

CUTTING ATTACHMENT FOR SEWING MACHINES.

No. 262,842.

Patented Aug. 15, 1882.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN SMITH, OF CONSHOHOCKEN, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE WILLCOX & GIBBS SEWING MACHINE COMPANY, OF NEW YORK, N. Y.

CUTTING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 262,842, dated August 15, 1882.

Application filed December 27, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOHN SMITH, a citizen of the United States, residing at Conshohocken, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Cutting Attachments for Sewing-Machines, of which the following is a specification.

My invention has for its object to provide a cutting attachment for sewing-machines which shall be efficient in operation, competent to be run effectively at the highest rate of speed attainable with sewing-machines, adjustable to take up wear of the movable blade, and capable of being moved out of the way without being detached from the machine, when it is desired to sew with the latter without cutting.

My invention consists in the peculiar construction and combination of parts hereinafter fully described, said parts comprising generally a rock-shaft mounted above the cloth-plate of the machine and carrying a cutting-blade at one end and an adjustable tappet-rod at the other; a cam on the feed-shaft of the machine working against the tappet-rod; a retracting-spring for producing a return of the rock-shaft after it has been moved in one direction by the cam, and a cutter-bar or fixed blade against which the movable blade cuts, and which also acts as a guide for the cloth.

Referring to the accompanying drawing, which illustrates a sewing-machine with my improvements applied, A is the cloth-plate, and B is the main shaft, of the machine, which usually carries the rotary hook or operates upon the shuttle-carrier. This shaft I provide with a cam, (shown at *b*.)

C represents a rock-shaft parallel with the shaft B, and which is mounted in a bearing, D, supported on the cloth-plate A. This bearing D consists of a stock, D', bored longitudinally for the reception of the shaft C, and provided with two projecting lugs, *d d'*. The lug *d* receives screws *d³ d³*, whereby it is fastened to the cloth-plate A, while to the lug *d'* is secured the rigid cutter-bar A'.

The cutter-bar A' consists of a flat plate,

having a straight edge, *a*, parallel with the line of the feed of the machine, against which edgè the movable blade, hereinafter described, cuts.

The plate A' is formed with a slot or slots, *d²*, for the passage of the fastening-screws *d³*, whereby it is held on the lug *d'* and its adjustment secured, as hereinafter specified. The plate A is formed with a slot, *a²*, parallel with the edge of the plate A' and adapted to prevent the blade E from coming in contact with the surface of plate A.

The bearing-stock D' has a longitudinal kerf, *d⁴*, and lateral bosses *d⁵*, which receive clamping-screws *d⁶*. Any lost motion of the shaft C in the bearing may be taken up by tightening the screws *d⁶*, care being taken not to bind the shaft too tightly or so as to interfere with its freedom of motion.

E shows a blade sustained on the forward end of the shaft C, just in advance of the cutting-edge of the cutter-bar A', and operating with said cutter-bar to trim or cut off the edge of the fabric which rests on the latter.

F is a collar made fast on the rear end of the shaft C, and formed with a disk or annular flange, *f*.

F' is another disk or annular flange on the shaft C, adjustably secured to the disk *f* by screws *f'*, which pass through segmental slots *f²* in the former and enter threaded openings in the latter. The disk F' has a radial sleeve, *f³*, in which is fitted a tappet-rod, G, in line transversely of the cloth-plate with the cam *b* on the shaft B. This rod is adjustable longitudinally in the sleeve *f³*, and is held fast in any desired position by means of a set-screw, *f⁴*.

I is a collar made fast on the shaft C, and provided with an arm or goose-neck, *i*, which projects through a transverse slot, *c*, in the bearing D, so as to have freedom of vibration when the shaft C is rocked.

i' is a retracting-spring, one end of which is made fast to a rigid standard or arm, *d⁷*, projecting from one side of the bearing D, the other end being hooked on the goose-neck *i*, as shown.

The operation is as follows: When it is desired to sew and trim at the same time the parts are arranged as shown in the drawing. As the stitching proceeds so much of the edge of the cloth or other material being operated on as rests on the cutter-bar A' is cut off by the movable blade E, which effects a clean cut against said bar for every stitch produced. At every revolution of the shaft B, the cam b, presses against the tappet-rod G, causing the shaft C to be rocked and the movable blade E to descend and cut against the bar A', the return movement of the rock-shaft and the elevation of the movable blade E being effected by the retracting-spring *v'* after the enlarged part of said cam has passed out of contact with the tappet-rod G.

Whenever it is desired to operate the machine without the cutter the set-screw *f*⁴ is relaxed and the tappet-rod G moved up the sleeve *f*³, so as to be out of contact with the cam b, as shown by dotted lines *x x*. The spring *v'* now draws back the arm or goose-neck I so far that the blade E is elevated into the position shown in dotted lines *y y*, where it is held out of the way of the operator, and no longer vibrates. To bring the cutting devices into operation the rod G is merely moved down into the normal position indicated in full lines in Fig. 1, and made fast, as before, by the set-screw *f*⁴.

When the movable blade E is not in use and lifted, as above suggested, the cutter-bar A', which for the purpose is located, as shown, in front of the needle, operates as a guide, and takes the place of the special devices usually provided for this purpose on sewing-machines.

The plate A' serves as a guide by reason of its having a straight abrupt edge, the plane of which is perpendicular to the surface of the plate A. The fabric or cloth in sewing impinges against this edge, and is thereby guided in a line parallel therewith.

When the blade E becomes worn in use it may be reground. It then should be reset with reference to the cutter-bar A', and this may be accomplished by turning the shaft C slightly on its axis, the screws *f*¹ *f*¹ being first loosened and then tightened to effect this. By this means the angle of inclination of the tappet-rod G is changed, producing a corresponding change in the angle of the edge of the blade E with respect to the edge of the bar A'. This may be done whenever the heel of the blade becomes worn away, whether the blade be then sharpened or not.

Whenever lost motion in the shaft C is taken up the cutter-bar A' may be adjusted, if necessary.

By means of the construction above described a cutting attachment which is complete in itself and apart from the sewing-machine is provided. To attach it to a machine no alteration of the latter, save the provision of the holes in the cloth-plate for the reception of the screws *d*³, is required, the cam b being

secured on the shaft B by a screw. When in place on the machine it operates effectively, and will trim as fast as the machine will sew.

When it is not desired to use the cutting attachment the latter can be readily unshipped or elevated out of the way without removing it from the cloth-plate, remaining in position to be instantly restored to position for operation, when required.

The distance of the cut effected by the cutters from the seam or from the needle may be regulated or adjusted as follows: Loosen the screw which holds the collar I on the shaft C, and move said shaft longitudinally toward or from the needle. Then fasten the collar I by means of said screw, thus securing the shaft in its adjusted position. The cutter-bar A' may be then correspondingly adjusted by loosening the screws *d*⁸, and after adjustment has been effected tightening the same. By this means the width of the cloth or fabric left between the line of stitching and the edge of the cloth may be regulated at will. By these means both the vibrating or movable blade and the stationary blade are rendered adjustable with respect to the needle, the adjustment of the former being in the direction of the axis of the shaft C, and the adjustment of the latter being in a line transverse to its cutting-edge. The adjustment of both is a necessity, as the distance of the cut from the stitching requires to be frequently varied, and when one blade is adjusted for this purpose the other must be correspondingly moved, so that both may act in unison.

When the movable blade E is not in operation, but thrown up by the action of the spring *v'*, its edge is vertical, or nearly so. In this position it may be serviceably employed for severing the sewing-machine threads.

What I claim as my invention is as follows:

1. The combination, with the rock-shaft and the blade carried thereby, of the tappet-rod, adjustable in the direction of its length, the spring, and the cam for operating on said tappet-rod, substantially as described.

2. In combination with rock-shaft C, carrying blade E, and collar F with flange *f*, the disk F', with sleeve *f*³ and slots *f*², whereby the adjustment or throw of said blade may be regulated, substantially as shown and described.

3. In combination with the rock-shaft C, having collar I, with arm or goose-neck *i*, and bearing-stock D', having projecting arm *d*⁷, the retracting-spring *v'*, whereby the return motion of said shaft is effected and the blade E thereon held elevated when not in use, substantially as specified.

4. The combination, with the main shaft B and its cam b, of the rock-shaft C, adjustable tappet-rod G, and retracting-spring *v'*, substantially as shown and described.

5. In combination with the cloth-plate A and shaft C, carrying the vibrating blade E, the adjustable plate A', constructed and arranged substantially as described, and located in front

of the needle, whereby it acts as a cutter-bar in connection with said vibrating blade when the latter is in operation, and serves as a guide for the fabric being sewed when said blade is unshipped or out of position for trimming, as set forth.

6. In combination with the bearing-stock D', having lug *d'*, the rock-shaft C, carrying movable blade E, and the cutter-bar A', secured to said lug *d'*, whereby said stock supports both the movable and rigid blades of the cutting attachment, substantially as shown and described.

7. The shaft C and blade E, in combination with the bearing-stock D', having kerf *d⁴* and clamping-screws *d⁶*, whereby the shaft C may be adjusted to compensate for wear of the blade E, and the cutter-bar A', adjustable on said stock, substantially as shown and described.

8. The combination, with the sewing-machine

shaft B, having cam *b*, of bearing-stock D', rock-shaft C, carrying blade E and tappet-rod G, cutter-bar A', arm or projection *d'*, and retracting-spring *v'*, substantially as shown and described.

9. In a cutting attachment for sewing-machines, the combination, with an adjustable cutter-bar, A', located in front of the needle, of a rock-shaft, C, carrying a vibratory blade, E, and mechanism, substantially as described, whereby when the upper blade, E, is in operation its backward motion is limited, but when not in operation may be thrown back sufficiently to permit the use of the bar A' as a guide.

In testimony that I claim the foregoing I have hereunto set my hand this 17th day of December, 1880.

JOHN SMITH.

Witnesses:

SAML. J. VAN STAVOREN,
CHAS. F. VAN HORN.