

W. R. ABERCROMBIE.

SEAM TRIMMER AND EDGE BINDER FOR SEWING MACHINES.

APPLICATION FILED APR. 6, 1910.

1,015,922.

Patented Jan. 30, 1912.

2 SHEETS—SHEET 1.

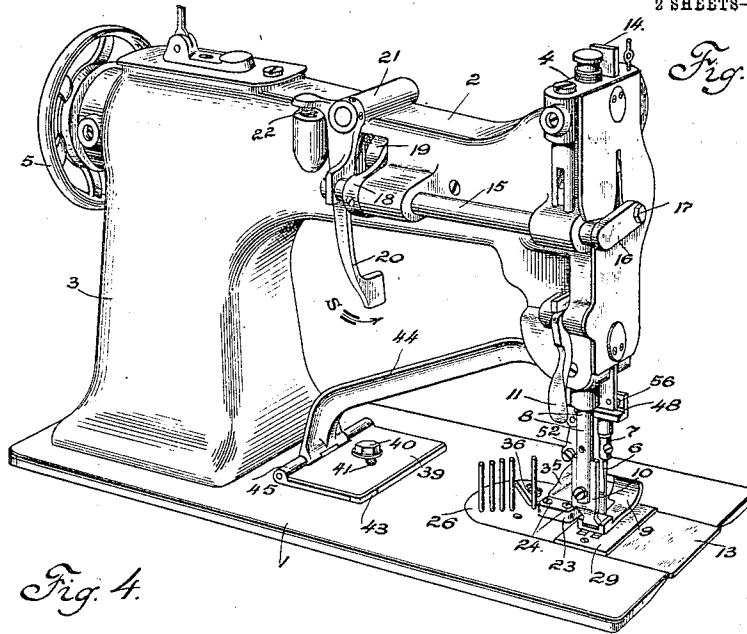


Fig. 4.

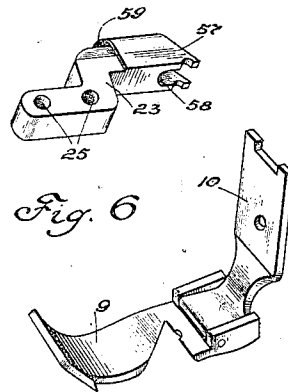
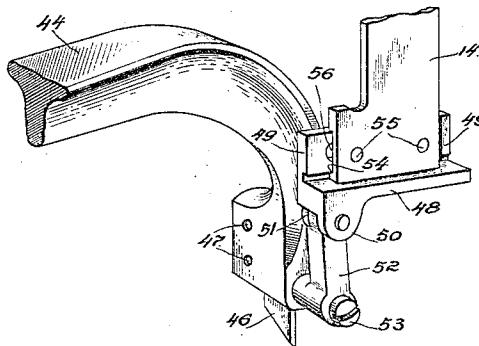
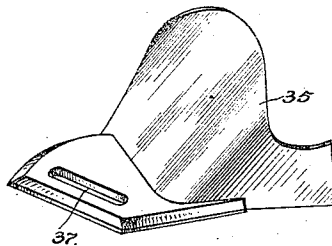


Fig. 7.



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Fig. 2.

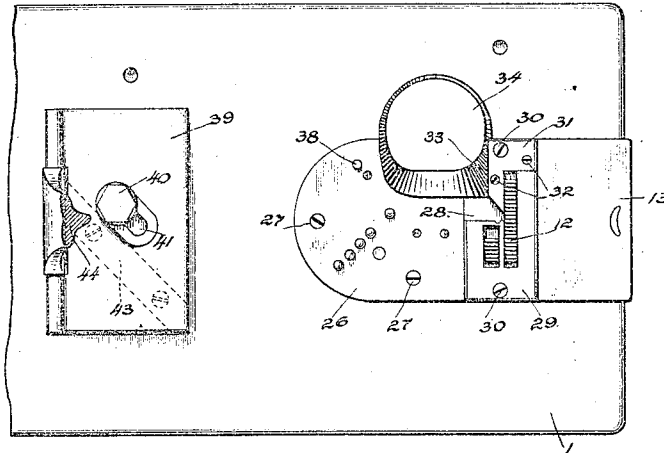
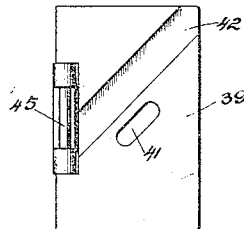


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM R. ABERCROMBIE, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

SEAM-TRIMMER AND EDGE-BINDER FOR SEWING-MACHINES.

1,015,922.

Specification of Letters Patent.

Patented Jan. 30, 1912.

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To all whom it may concern:

Be it known that I, WILLIAM R. ABERCROMBIE, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Seam-Trimmers and Edge-Binders for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in sewing machines for simultaneously trimming and binding, the work being trimmed adjacent to the seam, followed by the application of a binding to the trimmed edges of the materials.

When applying trimming devices to sewing machines which do not employ binding mechanism, the only adjustment of the cutter necessary to change the relationship of the line of needle actuation with respect to the line of cutter actuation is in a direction transverse to the line of the seam; but when the stitch-forming and trimming mechanism is employed in connection with means for applying bindings of different widths to the trimmed edges of the materials, it is essential that the cutter be capable of adjustment in directions transverse to each other; and to effect such adjustment by the employment of conveniently-manipulated, self-registering means is one of the objects of this invention.

It is essential to the utility of a sewing machine trimming device intended for general commercial use, that it be capable of meeting the requirements of productions of distinctly unlike character, such as saddle and harness materials as compared with fabrics of delicate texture, and to obtain this result it is important that the cutter be mounted and actuated so that it will not spring or yield out of its normal cutting plane, the accomplishment of this result being a further object of this invention.

The invention further contemplates an improved construction of parts and their co-acting combinations, as will be hereinafter fully pointed out.

In the accompanying drawings illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a rear side elevation, in perspective, of a sewing machine equipped with the

improved mechanism. Fig. 2 is a plan view 55 of that portion of the bed-plate of the sewing machine underlying the bracket arm, together with the throat-plate, front slide-plate, tension-plate and adjustably-secured cutter-carrying lever hinge-plate, the latter 60 having hinged to it a portion of the cutter-carrying lever. Fig. 3 is an underside view of the cutter-carrying lever hinge-plate shown in Fig. 2, including the hinged portion of said cutter-carrying lever. Fig. 4 is 65 a perspective view of the front end portion of the cutter, cutter-carrying lever, and the cutter-actuating mechanism located below the bracket arm. Fig. 5 is a perspective view of the binder head. Fig. 6 is a perspective 70 view of the presser-foot and presser-foot bracket. Fig. 7 is a perspective view of the scroll-guide for directing the waste fabric below the sewing machine bed-plate.

The improved mechanism is herein shown 75 as combined with one form of sewing machine comprising well-understood cloth-feeding, stitch-forming and cutter-carrier-controlling mechanism, the same being represented by U. S. Patent to W. R. Abercrombie, No. 849,347, dated April 2, 1907, to 80 which reference may be had.

1 represents the bed-plate of the sewing machine, 2 the bracket arm, 3 the arm standard, 4 the head or free end of the bracket 85 arm, 5 the hand or belt pulley, 6 the needle, 7 the needle-carrying bar, 8 the presser-carrying bar, 9 the cloth-presser foot, 10 the cloth-presser foot bracket, 11 the presser-bar lifter, 12 the feed-dog and 13 the front slide- 90 plate.

14 represents the cutter-actuating bar, 15 the cutter-actuating rock-shaft, 16 the cutter-actuating rock-shaft lever carrying a bolt 17 for effecting operative relationship 95 with said cutter-actuating bar at the will of the operator, and 18 is a cutter-actuating lever carried by said rock-shaft and having its inner end forked and in operative relationship with a suitable eccentric carried by 100 the hub 19 for giving to said rock-shaft oscillating movements, said hub being secured upon the commonly-employed needle-bar-actuating shaft (not shown).

20 represents a hand lever which is pivoted at 21 to the bracket arm and resiliently held by the spring 22 in the direction indicated by the arrow S. 105

The previously referred to parts are the same in construction and operation as those employed in the patent above referred to, specific reference to these parts being herein made to more clearly point out the application of the present invention to one form of preferred construction.

23 represents a binder head of ordinary construction adjustably secured by screws 24 which pass through the enlarged openings 25 and are threaded into the tension-plate 26, the latter being secured to the bed-plate 1 by screws 27, 27'. The forward or delivery end of the binder head 23 fits into the depressed portion 28 of the throat-plate 29, said throat-plate being held upon the bed-plate 1 by screws 30, 30'.

31 represents the ledger trimmer blade or plate secured by screws 32 to the throat-plate, the cutting edge 33 of said ledger plate overhanging the opening 34 formed in the bed-plate.

35 represents an adjustably-mounted scroll-guide secured by a screw 36 which passes through a slot 37 formed in the base of said guide and is threaded into the tension-plate 26, a pin 38 in connection with the screw 36 acting to control the adjustment of said scroll-guide in an oblique direction with respect to the line of seam formation, for a purpose later to be explained.

The cutter-carrying lever hinge-plate 39 is adjustably secured to the bed-plate of the sewing machine by a bolt 40 which passes through a slot 41 and is threaded into said bed-plate, a depressed guide-way 42 formed in the underside of said hinge-plate coacting with a raised guide-way 43 carried by said bed-plate to control the adjustment of said hinge-plate in an oblique direction with respect to the line of the seam, for the same purpose as that for which the guide 35 is adjusted in a like direction. The cutter-carrying lever 44 is hinged at 45 to the plate 39 and carries at its forward end the trimmer blade or cutter 46 secured to said lever by screw 47, the threaded end only of which is shown (see Fig. 4).

48 represents a link bracket provided with a raised guide-way 49 and a depending ear 50 into which latter is threaded a bolt 51 carrying a link 52, the lower end of said link being engaged with a stud bolt 53 which is threaded into the forward end of the cutter-carrying lever 44. The raised guide-way 49 coacts with a depressed guide-way 54 formed in the lower end of the cutter-actuating bar 14 to permit of the adjustment of said bracket in a direction transverse to the length of said cutter-actuating bar, screws 55 (the threaded ends only of which are shown) passing through the elongated slot 56 and threaded into said bar 14 acting to hold said bracket in its adjusted position.

The delivery end 57 of the binder head 23 is provided with a concaved notch 58 for guiding the binding in a direction transverse to the convex guide-way 59 and in line with the feed of the material, said free end being given an angle of about 45 degrees to said convex guide-way and to the line of the feed, as is common to binders of this class.

When using an edge trimmer in connection with a binder head such as is herein shown, the cutter and cutter-carrier must be adjusted in a line corresponding substantially with the angle given to the delivery end of said binder head when it is desired to substitute a binder head of different capacity, and to properly control such adjustment is the function of the coacting guide-ways 42 and 43 carried by the hinge-plate 39 and bed-plate 1, respectively; and for effecting a like control the mechanism for determining the adjustment of the scroll-guide 35 is arranged in like manner, but it will be readily understood that while the use of the scroll-guide is desirable, it is not essential to the practical operation of the invention.

In the device of the application, as in the construction of trimming devices generally, interchangeable ledger blades are provided to meet the required adjustments of the cutter.

To overcome the tendency of the cutter to spring or yield out of line with its normal cutting plane, the cutter carrier is fulcrumed in substantially the same horizontal plane as the plane of the cutting edge of the ledger blade and is given oscillating movements in a vertical plane at substantially right angles to the trimming line, and its constantly-related actuating mechanism is arranged in a vertical plane corresponding substantially with the vertical plane of the cutter when the latter is actuated to sever the material.

Claims:—

1. In a trimming and binding mechanism for sewing machines, a binder head having its delivery end formed at an oblique angle to the direction of its length, a trimmer blade, a ledger blade, and means for actuating said trimmer blade including an adjustably-mounted trimmer blade carrier having a fixed line of adjustment in a direction corresponding substantially with the angle given to the delivery end of said binder head.

2. In a trimming and binding mechanism for sewing machines, a binder head provided with a concaved and a convex guiding surface and having its delivery end formed at an oblique angle of approximately 45 degrees to said guiding surfaces, a trimmer blade, a ledger blade and means for actuating said trimmer blade including an adjustably-mounted trimmer blade carrier having a fixed line of adjustment in a

direction corresponding substantially with the angle given to the delivery end of said binder head.

3. In a trimming and binding mechanism for sewing machines, a binder head having its delivery end formed at an oblique angle to the direction of its length, a trimmer blade, a ledger blade and an adjustably-mounted trimmer blade carrier having a fixed line of adjustment in a direction corresponding substantially with the angle given to the delivery end of said binder head, in combination with means for actuating said carrier including constantly-related coacting connections having movements in substantially the same vertical plane as the trimmer blade when the latter is actuated to sever the material.

4. In a trimming and binding mechanism for sewing machines, a binder head having its delivery end formed at an angle to the direction of its length, a trimmer blade, a ledger blade, and means for actuating said trimmer blade including an adjustably-mounted trimmer blade carrier hinged to the bed-plate of the sewing machine and having a fixed line of adjustment in a direction corresponding substantially with the angle given to the delivery end of said binder head.

5. In a trimming and binding mechanism for sewing machines, a binder head having its delivery end formed at an angle to the direction of its length, a trimmer blade, a ledger blade and means for actuating said trimmer blade including an adjustably-mounted trimmer blade carrier hinged to the bed-plate of the sewing machine and having oscillating movements in a vertical plane at substantially right angles to the trimming line and having a fixed line of adjustment in a direction corresponding substantially with the angle given to the delivery end of said binder head.

6. In a trimming and binding mechanism for sewing machines, a binder head having its delivery end formed at an angle to the direction of its length, a trimmer blade, a ledger blade and means for actuating said trimmer blade, including an adjustably-mounted trimmer blade carrier hinged to

the bed-plate of the sewing machine and having oscillating movements in a vertical plane at substantially right angles to the trimming line and having a fixed line of adjustment in a direction corresponding substantially with the angle given to the delivery end of said binder head, in combination with means for actuating said carrier including constantly-related coacting connections mounted to move in substantially the same vertical plane as the trimmer blade when the latter is actuated to sever the material.

7. In a trimming and binding mechanism for sewing machines, a binder head having its delivery end formed at an angle to the direction of its length, a trimmer blade, a ledger blade and an adjustably-mounted trimmer blade carrier having a fixed line of adjustment in a direction corresponding substantially with the angle given to the delivery end of said binder head, in combination with means for actuating said carrier including a constantly-related connection having vertical movements in the head of the bracket arm and carrying at its lower end a link bracket, and a link for connecting said bracket with said trimmer blade carrier.

8. In a trimming and binding mechanism for sewing machines, a binder head, a trimmer blade, a ledger blade, and an adjustably-mounted trimmer blade carrier having its fulcrum in substantially the same horizontal plane as the cutting edge of the ledger blade, and having oscillating movements in a vertical plane transverse to the line of the seam, in combination with means for actuating said carrier including constantly-related coacting connections having movements in substantially the same vertical plane as the trimmer blade when the latter is actuated to sever the material.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLIAM R. ABERCROMBIE.

Witnesses:

ABBIE M. DONIHU,
THOMAS CAMPBELL.