(No Model.)

A. E. WALLACE & J. H. GRIFFIN.

TRIMMING ATTACHMENT FOR SEWING MACHINES.

No. 272,805. Patented Feb. 20, 1883.

Fig. 1.

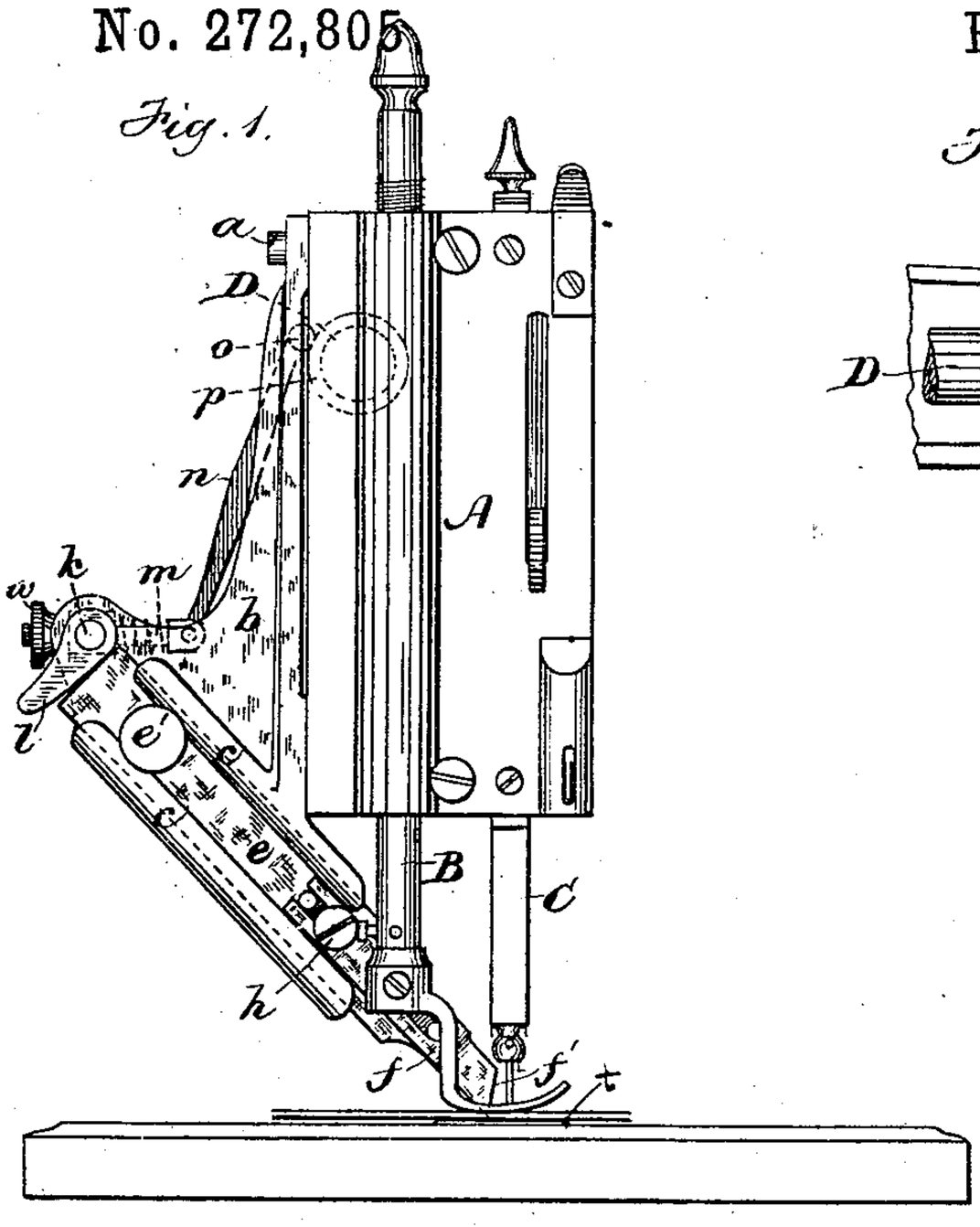


Fig. 2.

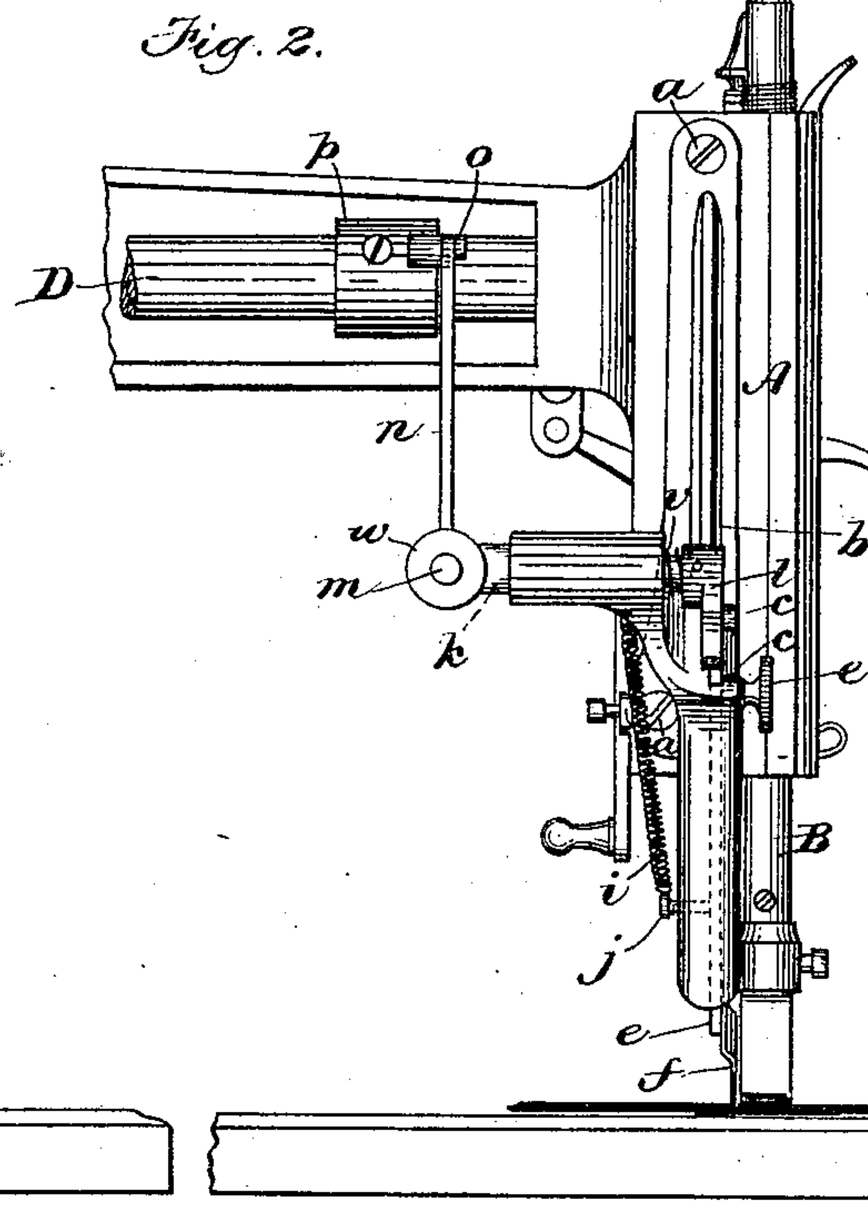


Fig. 3.

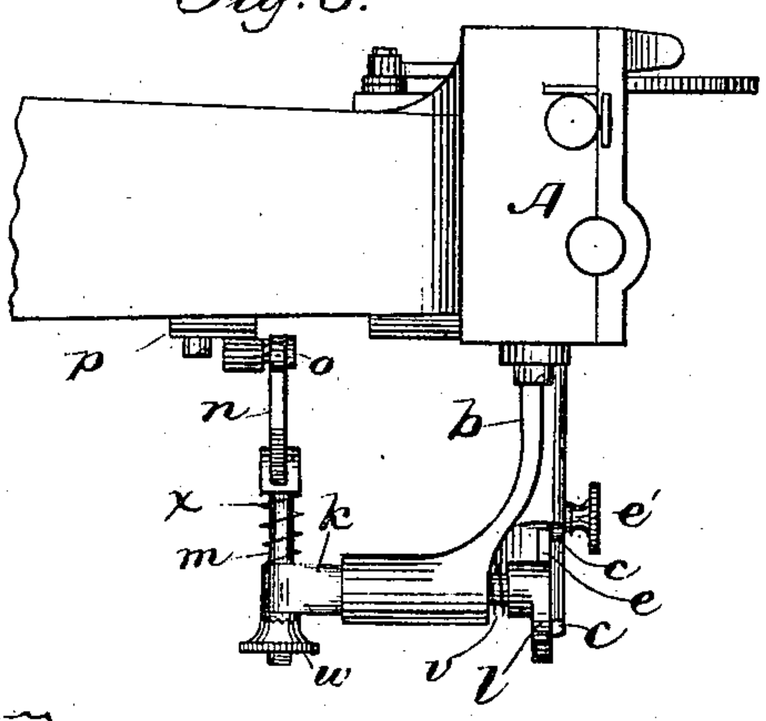


Fig. 4.

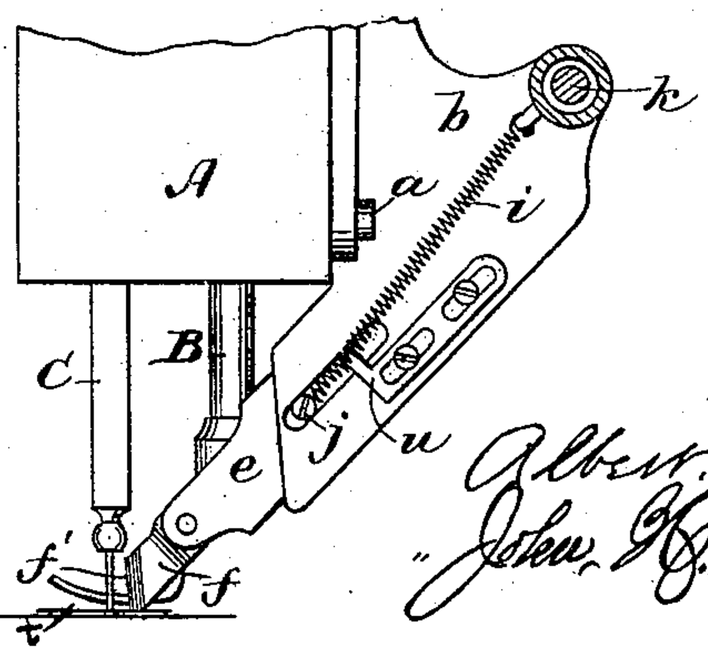
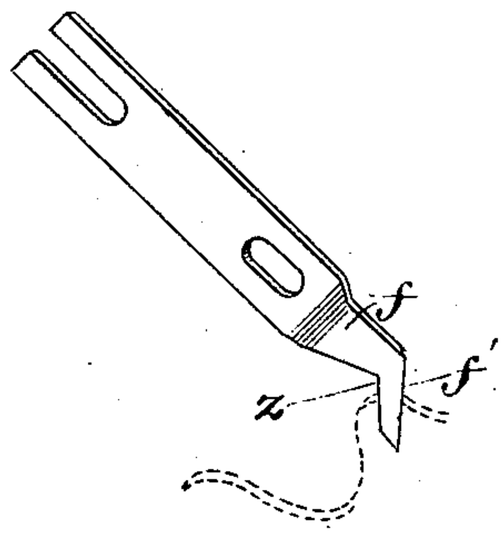


Fig. 5.



Witnesses:
Charles E. Grove
Frank E. Hyde

Inventors.
Albert E. Wallace
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UNITED STATES PATENT OFFICE.

ALBERT E. WALLACE, OF HARTFORD, CONNECTICUT, AND JOHN H. GRIFFIN, OF BROCKTON, MASSACHUSETTS; SAID WALLACE ASSIGNOR TO SAID GRIFFIN; SAID GRIFFIN ASSIGNOR OF ONE-HALF TO CHARLES CURTIS, OF BOSTON, MASSACHUSETTS.

TRIMMING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 272,805, dated February 20, 1883.

Application filed November 25, 1882. (No model.)

To all whom it may concern:

Be it known that we, ALBERT E. WALLACE, of Hartford, county of Hartford, and State of Connecticut, and JOHN H. GRIFFIN, of Brockton, in the county of Plymouth and State of Massachusetts, have invented certain Improvements in Trimming Attachments for Sewing-Machines, of which the following is a specification.

This invention has for its object to provide a simple and efficient trimmer attachment for a sewing-machine, adapted to be attached entirely to the head of the machine without interference with any of the working parts, and having a trimming-knife which is moved diagonally downward in making its cut, and is adapted to have the length of its cut regulated, to be moved independently by the operator when a cut of extra length is to be made, and to be raised independently from the bed of the machine to any desired height, and at the same time be made inoperative.

To these ends our invention consists in the improvements which we will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents an end elevation of the head of a sewing-machine provided with our improved attachment. Figs. 2 and 3 represent respectively side and top views of the same. Fig. 4 represents an elevation of the rear side of the lower portion of head, and Fig. 5 represents an improved form of trimming-knife.

The same letters of reference indicate the same parts in all the figures.

In the drawings, A represents the head of a sewing-machine; B, the presser-bar; C, the needle-bar, and D the oscillating shaft, which operates the needle-bar in the usual manner.

In carrying out our invention we apply to one side of the head A, by means of screws *a a*, a bracket, *b*, having in its lower portion diagonal guides *c c*, extending downwardly and inwardly toward the needle-plate *t*. Between said guides is fitted to slide freely a plate, *e*, to the lower end of which is detachably secured by means of a screw, *h*, a trimming-knife, *f*, having a substantially vertical cutting-edge, *f'*, projecting at its lower end, when the knife is in its normal position, into a slot in the needle-plate *t*, beside the needle-hole. The plate *e* is normally raised by a retracting-spring, *i*, which is attached at one end to a stud, *j*, projecting from the rear side of the plate *e* through a slot in the bracket *b*, and at the other end to said bracket.

k represents a rock-shaft journaled in a sleeve formed on the bracket *b*, and provided with a cam, *l*, bearing on the upper end of the plate *e*, and supporting the latter against the upward pressure of its spring *i*. The opposite end of the rock-shaft *k* is provided with an arm or lever, *m*.

n represents a connecting rod or link pivoted to the lever *m* and to a pin or stud, *o*, on a collar, *p*, which is rigidly attached to the oscillating shaft D. The oscillations of the shaft D are communicated to the rock-shaft *k* by the link *n* and lever *m*, and the plate *e*, with its knife, is alternately depressed by the downward movements of the cam *l* and raised by the spring *i*. The knife is thus reciprocated and caused to trim the work while it is being stitched, and in a line parallel with the stitches. The diagonal position of the guides *c c* and their arrangement with relation to the needle and needle plate cause the knife to move diagonally downward while cutting the material; hence the knife, while avoiding a direct downward chop or cut, has a downward movement sufficient to enable its cutting-edge to press downwardly on the upper surface of the material while cutting, and thereby insure a smooth and compact trimmed edge without the necessity of holding or clamping the material between the needle-plate and a fixed or non-rotating presser-foot located close to the point where the knife cuts; hence the cut can be made at any desired distance from the edge of the presser-foot, and a roll-presser can be employed equally as well as a non-rotating one.

It will be observed that the attachment is adapted to be very readily applied, no adaptation of the machine being required excepting the formation of holes in the head for the

screws *a a* and the application of the collar *p* to the shaft D. The plate *e* has a knob or handle, *e'*, which enables the operator to depress the plate and knife independently, and thus cause the knife to make a cut of greater length than usual and trim in advance of the line of stitching. This operation is performed when the stitching makes an abrupt angle and it is desired to trim the edge parallel therewith, the knife being depressed before the work is turned to change the direction of the line of stitches. The rock-shaft *k* is longitudinally movable in its supporting-sleeve, so that it can be displaced to remove the cam *l* from the plate *e*, thus making the latter inoperative and permitting it to be raised above the needle-plate by its retracting-spring far enough to prevent the knife from interfering with the work. The degree of this upward movement may be regulated by an adjustable stop, *u*, on the rear side of the bracket *b*, said stop being adapted to arrest the stud *j* of the plate *e*. A spring, *v*, interposed between the cam *l* and the end of a socket formed in the supporting-sleeve, normally holds the cam in position over the end of the plate *e*. The arm *m* is adjustable in length, so as to enable the rocking movement of the rock-shaft and the consequent depression of the plate *e* and its knife to be varied. This adjustability is effected by making the arm *m* free to move endwise in the rock shaft, providing it with a nut, *w*, on its threaded outer end, and interposing a spring, *x*, between its other end and the rock-shaft, said spring holding the nut *w* with a yielding pressure against the rock-shaft. By rotating the nut the distance between the rock-shaft and the end of the lever *m*, to which the rod *n* is pivoted, is shortened or lengthened, as the case may be. The length of stroke or cut of the knife is thus enabled to be readily shortened when trimming re-entrant curves. For trimming abrupt curves and scalloped edges, we prefer to employ a knife having a notch or recess, *z*, in its back, as shown in Fig. 5, said notch receiving the material, as represented by the dotted lines in said figure. One side of said notch is substantially parallel with the cutting-edge *f'*, and forms the back of the cutting-blade. This form of blade enables the work to be turned with equal facility on the cutting-edge, whether the knife is at the upper or lower end of its movement, whereas, if the cutting-edge and back were not parallel, the blade would present a different width at the lever of the work-support when at the lower end of its movement from that presented when at the upper end of its movement, and more difficuly would be experienced in turning the work around the wider portion of the blade than around the narrower portion.

We claim—

1. In a sewing-machine, a bracket having diagonal guides attached to the head of the machine, a knife-holding slide or plate adapted to reciprocate in said guides, and mechanism supported by the head of the machine for reciprocating the slide in said guides, whereby the knife is given a diagonally-downward movement when cutting the work, as set forth.

2. The combination, with a sewing-machine, of a bracket having diagonal guides, attached to the head of the machine, a plate adapted to slide in said guides and provided with a knife projecting into a slot in the needle-plate, a spring to normally raise and retract said plate and knife, and a rock-shaft oscillated by a connection with the needle-bar-operating shaft and provided with a cam bearing on the knife-holding plate, as set forth.

3. The combination, with a sewing-machine, of a bracket having diagonal guides, attached to the head of the machine, a knife-holding plate adapted to slide in said guides and provided with a knob or handle, and a retracting-spring normally pressing the plate upwardly against a depressing device and permitting said plate to be depressed by the operator independently of said depressing device to make a cut of extra length in the material, as set forth.

4. The combination, with the spring-retracted diagonally-movable knife-carrying plate, of a device for depressing said plate against the force of its spring, said device being capable of displacement to make the knife inoperative and permit the spring to raise the knife above the bed of the machine, as set forth.

5. The combination, with the spring-retracted diagonally-movable knife-plate, of the longitudinally-movable rock-shaft, operated as described, and having a cam which bears on said plate when the rock-shaft is in its normal position, and a spring to hold the rock-shaft and its cam in their normal position, as set forth.

6. The combination, with the spring-retracted knife-holding plate, of an adjustable stop to limit the upward movement imparted to the knife and plate by the retracting-spring, as set forth.

7. The combination, with the spring-retracted knife-holding plate, of the rocking cam, adapted to intermittently depress said plate, and adjustable mechanism for varying the length of the rocking movement of the cam, whereby the length of cut made by the knife may be regulated, as set forth.

8. The combination, with the spring-retracted knife-holding plate, of the rock-shaft having the plate-depressing cam, and the adjustable arm, connected by a link to the needle-bar-operating shaft, the adjustability of said arm enabling the length of movement imparted to the knife to be regulated, as set forth.

9. The improved trimming-knife, adapted to move diagonally, and formed with a notched or recessed back having a substantially vertical side, forming the back of the blade, and a cutting-edge, *f'*, substantially parallel with the back, said notch or recess forming an unobstructed space at the rear of the cutting-edge,

while the parallelism of the cutting-edge and the back of the blade enable the work to be turned on the edge and in said space with equal facility whether the knife is at the upper or lower end of its movement, as set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 22d day of November, 1882.

ALBERT E. WALLACE.
JOHN H. GRIFFIN.

Witnesses:
A. P. HYDE,
FRANK E. HYDE.