

H. H. FEFEL.

TRIMMING MECHANISM FOR SEWING MACHINES.

No. 511,603.

Patented Dec. 26, 1893.

FIG. 1.

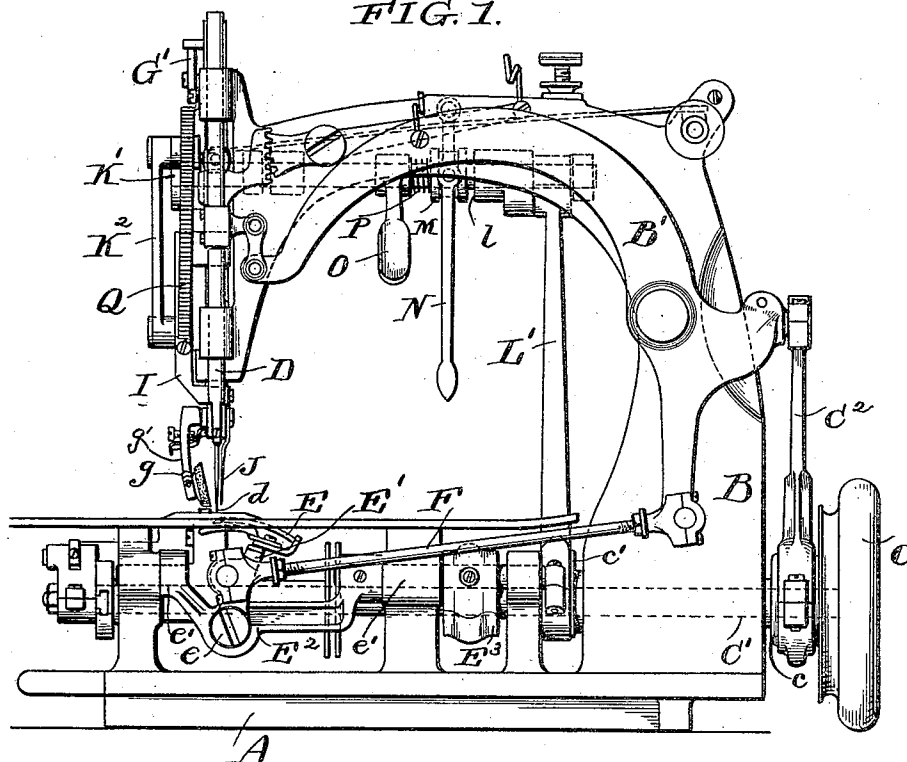
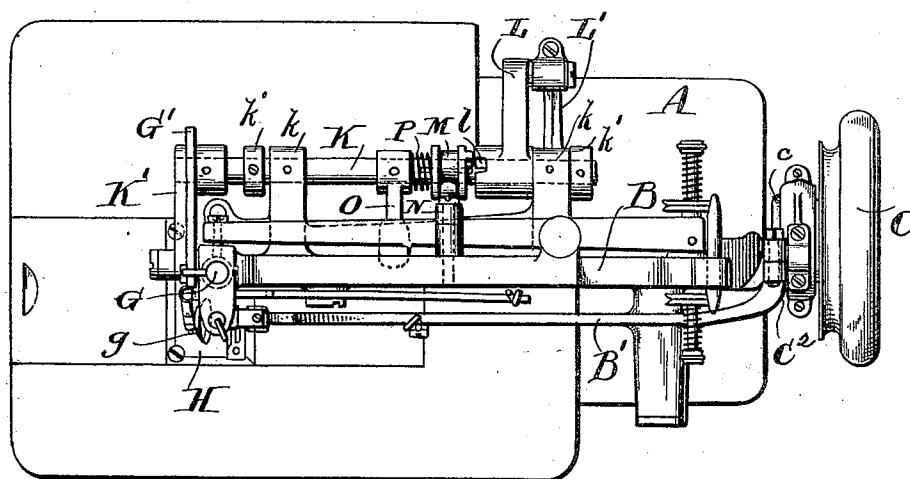


FIG. 2.



WITNESSES:

Henry Dwyer
Wm. M. Mudd
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INVENTOR:

Harry H. Fefel.
By his attorney,
R. M. Mudd

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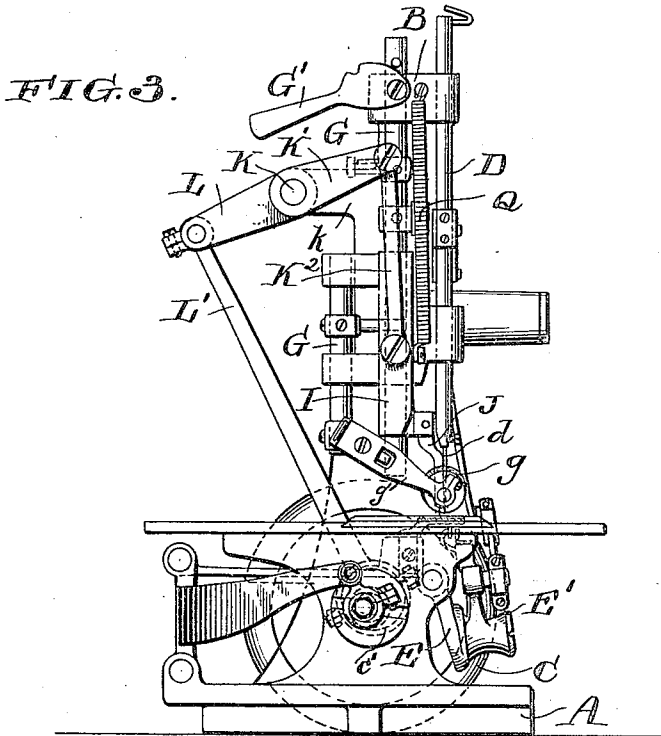


FIG. 5.

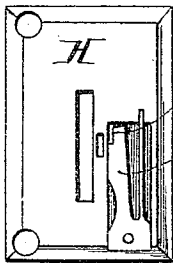
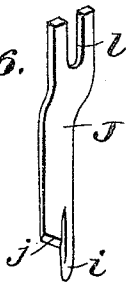
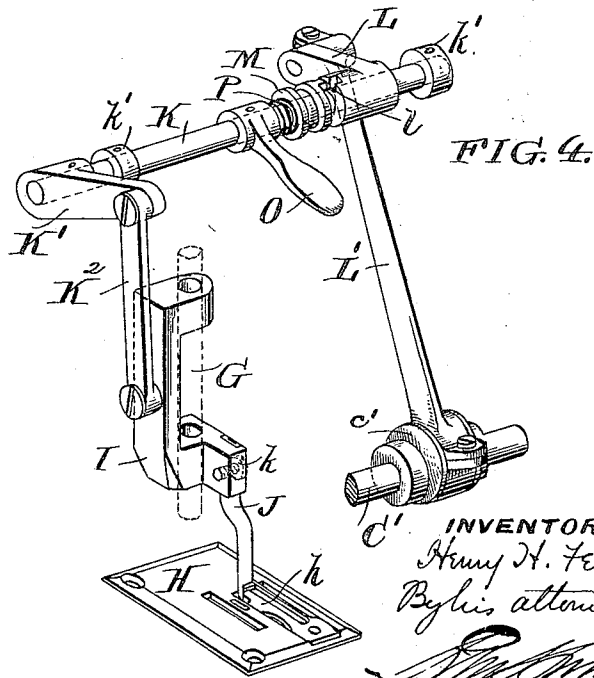


FIG. 6.



WITNESSES:

Henry D. ...
...



INVENTOR:

Henry H. Fefel,
By his attorney,

...

UNITED STATES PATENT OFFICE.

HENRY H. FEFEL, OF NEW YORK, N. Y., ASSIGNOR TO THE UNION SPECIAL SEWING MACHINE COMPANY, OF ILLINOIS.

TRIMMING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 511,603, dated December 26, 1893.

Application filed October 22, 1892. Renewed October 5, 1893. Serial No. 487,295. (No model.)

To all whom it may concern:

Be it known that I, HENRY H. FEFEL, of the city and county of New York, State of New York, have invented an Improvement in Sewing and Trimming Machines, of which the following is a specification.

My invention relates to sewing and trimming machines, and consists of certain improvements which are fully set forth in the following specification and are shown in the accompanying drawings which form a part thereof.

More particularly my invention relates to a sewing machine provided with trimming or cutting devices, operating adjacent to the needle for the purpose of trimming or cutting off the surplus edge of fabric adjacent to the line of stitches.

My invention relates more especially to certain improvements in construction and to certain novel combinations of parts, hereinafter more fully described and claimed. Among these improvements are devices for readily throwing the trimmer into or out of operation without necessarily interrupting or affecting the operation of the sewing devices.

In carrying out my invention I employ a reciprocating trimmer or cutter arranged adjacent to the needle and power transmitting connections between the cutter and driving devices for reciprocating the cutter, with clutch mechanism for connecting the power transmitting connections with the driving mechanism or disconnecting them therefrom, whereby the operation of the cutter or trimmer may be readily controlled by the operator of the machine.

In the drawings: Figure 1 is a side elevation of a sewing and trimming machine embodying my invention. Fig. 2 is a plan view of the same. Fig. 3 is an end elevation of the same. Fig. 4 is a detail perspective view of the devices for operating the trimmer. Fig. 5 is a plan view of the feed plate; and Fig. 6 is a perspective view of the trimmer.

The particular sewing machine shown in the drawings is of the same general character as the machine described in Letters Patent No. 299,568, June 3, 1884, to L. Muther and Charles A. Dearborn.

A is the base frame; B the overhanging arm, C the driving pulley on the shaft C'.

D is the needle bar carrying the needle *d* and operated by the rocking needle arm B', which is rocked from an eccentric *c* on the shaft C' through the eccentric rod C².

E is the looper carried by a rocking frame E' pivoted as at *e* to a transversely rocking frame E², journaled as at *e'*, *e'*.

F is a pitman connected with the looper frame E' at one end, and at the other end with the rocking needle arm B' by which it is reciprocated to rock the looper frame E' upon its pivot *e*.

The frame E² is rocked transversely by a cam on the shaft C' working in a frame E³ carried by the frame E².

G is the presser bar carrying the presser foot *g*. G' is the presser bar lifter.

H is the feed plate provided with the spring plate *h*.

The machine described is of well known construction, and, in addition to the parts particularly enumerated, embodies such other parts as are usual in sewing machines of this character, such as the feed dog and its operating devices, the tension devices, &c. To these devices, however, reference is not necessary for the purpose of understanding my improvements, to which I shall now more particularly refer.

I is a reciprocating head guided on the presser bar G and carrying the cutter or trimmer J. The trimmer or cutter J is preferably of the construction shown in Fig. 6, having a cutting edge *j*, and a prong or finger *i* adjacent thereto. The cutter or trimmer may be connected with the reciprocating head by a screw *k* passing through a slot *l* in the cutter. The prong or finger *i* of the cutter enters the opening or slot *h'* in the plate *h* and the edge of the cutter passes between the adjacent edges of the plate *h* and the plate H, the spring action of the plate *h* keeping the adjacent edges closed when the cutter or trimmer J is lifted and thus preventing the cloth or material which is being trimmed passing through the plate H.

While I prefer to employ the form of cutter and spring plate described, these are not

specifically of my invention and I do not therefore mean to limit my invention to them in any way, and so far as my invention is concerned any form of cutter may be employed.

5 K is a rock shaft journaled in suitable bearings k carried by the arm B. The shaft K may be provided with collars k' adjacent to the bearings k to prevent any longitudinal movement of the shaft.

10 K' is a crank arm carried by the shaft K and connected by a connecting rod K^2 with the slide I.

L is a rocking arm loose upon the shaft K and connected with the eccentric rod L' which is operated by a cam c' on the shaft C'.

15 M is a sliding clutch feathered on the shaft K and adapted to engage the clutch face l of the rocking arm L.

20 N is a clutch shifting lever pivoted to the stationary arm B and engaging with the clutch M. The lever N depends below the arm B so as to be readily accessible to the operator.

O is a finger piece fast upon the shaft K and extending down below the arm B, so as to be readily accessible to the operator.

25 P is a spring bearing the clutch M and tending normally to press it into engagement with the clutch face l of the rocking arm L.

30 Q is a spring between the head I and stationary arm B which normally tends to lift the head I.

I shall now explain the operation of the mechanism just described.

35 It is apparent that while the clutch M is in engagement with the rocking arm L the shaft K will be rocked, and the head I will be reciprocated upon the presser bar G, thus reciprocating the cutter or trimmer J. As this operation is imparted from the eccentric c' on the same shaft C' which operates the needle d and the feeding devices, it will be seen that the operation of the cutter or trimmer will be properly timed with reference to the sewing and feeding devices, and the cutting edge j of the trimmer or cutter J will act upon the material immediately adjacent to the line of stitches formed by the needle d , thus trimming off the surplus material. The operation of the needle d is preferably so timed with reference to the reciprocation of the cutter or trimmer J that it descends to form the stitch immediately in advance of the cutter. I prefer to employ a circular rotary presser foot g which will permit the material to be turned in any direction while under the action of the needle and trimmer. This is especially necessary in sewing and trimming the button flaps of shoe uppers where scallops are to be formed. The presser foot g may be carried by a pivoted arm g' so that it may be turned aside when desired. These features, however, are no part of my invention. Whenever it is desired to stop the operation of the cutter or trimmer J, the lever N which depends below the arm B, and is therefore readily accessible to the operator, is shifted, withdrawing the clutch M from engagement with

the clutch face l of the rocking arm L, and thus disconnecting the latter from the rock shaft K and allowing it to rock thereon without rocking the shaft or operating the slide I and the cutter or trimmer J. The moment the clutch M is moved from engagement with the rocking arm L, the spring Q between the slide I and arm B acts to lift the slide and cutter J, at the same time rocking the shaft K, through the connections K^2 , K'. This rocking of the shaft K by the action of the spring Q turns the clutch M with the shaft so that it is moved permanently out of engagement with the clutch face l and permits the arm L to rock back and forth without the re-engagement of the clutch therewith. The cutter J is now lifted and its reciprocation is stopped, and the sewing operation may be continued to any extent desired, or it may be stopped also. To start the cutter J into operation again the finger piece is touched and the shaft K is thus rocked so as to lower the slide I and the cutter J into operative position; at the same time the clutch M is moved back with the shaft K, until it comes into position to engage the clutch face l of the arm L, when, by the action of the spring P, it is immediately moved into engagement with the arm L, and the rock shaft K being thus connected with the arm is rocked by it. It will be seen that the cutter J is carried by a slide guided on the presser bar, and that the devices for throwing the cutter into or out of operation are easily accessible to the operator and may be controlled without any interruption of the sewing devices. Repairs and adjustments may be easily made, and the parts are all operated from a common shaft.

While I prefer such minor details of construction as have been shown I do not mean to limit myself to them as it is apparent that they may be varied without departing from the invention.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for sewing and trimming, the combination with the reciprocating needle bar and needle, of a presser bar and presser foot, a reciprocating head carried by the presser bar and guided thereon, and a cutter or trimmer carried by the reciprocating head and arranged adjacent to the needle.
2. In a machine for sewing and trimming, the combination with the reciprocating needle bar and needle, of a presser bar and presser foot, a reciprocating head carried by the presser bar and guided thereon, a cutter or trimmer carried by the reciprocating head and arranged adjacent to the needle, a main driving shaft, and connections between the main driving shaft and the reciprocating needle bar and cutter head respectively.
3. In a machine for sewing and trimming, the combination with the reciprocating needle bar and needle, of a presser bar and presser foot, a reciprocating head carried by the

presser bar and guided thereon, a cutter or trimmer carried by the reciprocating head and arranged adjacent to the needle, a main driving shaft and connections between the

5 main driving shaft and the reciprocating needle bar and cutter head respectively, and clutch mechanism for connecting and disconnecting the connections between the main driving shaft and reciprocating cutter head.

10 4. In a machine for sewing and trimming the combination with the reciprocating needle bar and needle, of a presser bar and presser foot a reciprocating head carried by the presser bar and guided thereon, a trimmer or cutter carried thereby and arranged adjacent to the needle, a rock shaft, connections between the rock shaft and reciprocating cutter or trimmer head, a driving shaft, and connections between the driving shaft and rock shaft.

5. In a machine for sewing and trimming, the combination with the reciprocating needle bar and needle, of a reciprocating head, a trimmer or cutter carried thereby and arranged adjacent to the needle, a rock shaft, connections between the rock shaft and reciprocating cutter or trimmer head, a driving shaft, a rocking arm loose upon the rock shaft, connections between the rocking arm and driving shaft, and clutch mechanism between the rock shaft and rocking arm thereon.

6. In a machine for sewing and trimming, the combination with a reciprocating needle bar and needle, of a reciprocating cutter or trimmer head, a cutter or trimmer carried thereby, a spring to normally raise the cutter or trimmer head, a rock shaft, connections between the trimmer or cutter head and the

rock shaft, a rocking arm loose upon the rock shaft, power devices to operate the rocking arm, and a clutch between the rock shaft and rocking arm.

7. In a machine for sewing and trimming, the combination with a reciprocating needle bar and needle, a reciprocating cutter or trimmer head, a cutter or trimmer carried thereby, a spring to normally raise the cutter or trimmer head, a rock shaft, connections between the trimmer or cutter head and the rock shaft, a rocking arm on the rock shaft, power devices to operate the rocking arm, a spring pressed clutch between the rocking arm and rock shaft, and an arm or finger piece carried by the rocking arm for the purpose of turning the same to permit the spring pressed clutch to engage the rocking arm.

8. In a machine for sewing and trimming the combination of the stationary arm B, and the reciprocating needle bar and needle, of a reciprocating head I, a cutter J carried thereby, a rock shaft K, journaled to the arm B, connections between the shaft K and head I, a spring between the head I and arm B, a rocking arm L loose on the shaft K, devices to rock the arm L, a spring clutch M carried by the shaft K and adapted to engage the arm L, a depending shifting lever N engaging the clutch M, and a depending finger piece O carried by the shaft K.

In testimony of which invention I have hereunto set my hand.

HENRY H. FEFEL.

Witnesses:

FRED W. REBHause, Jr.,
WM. C. HAUFF.