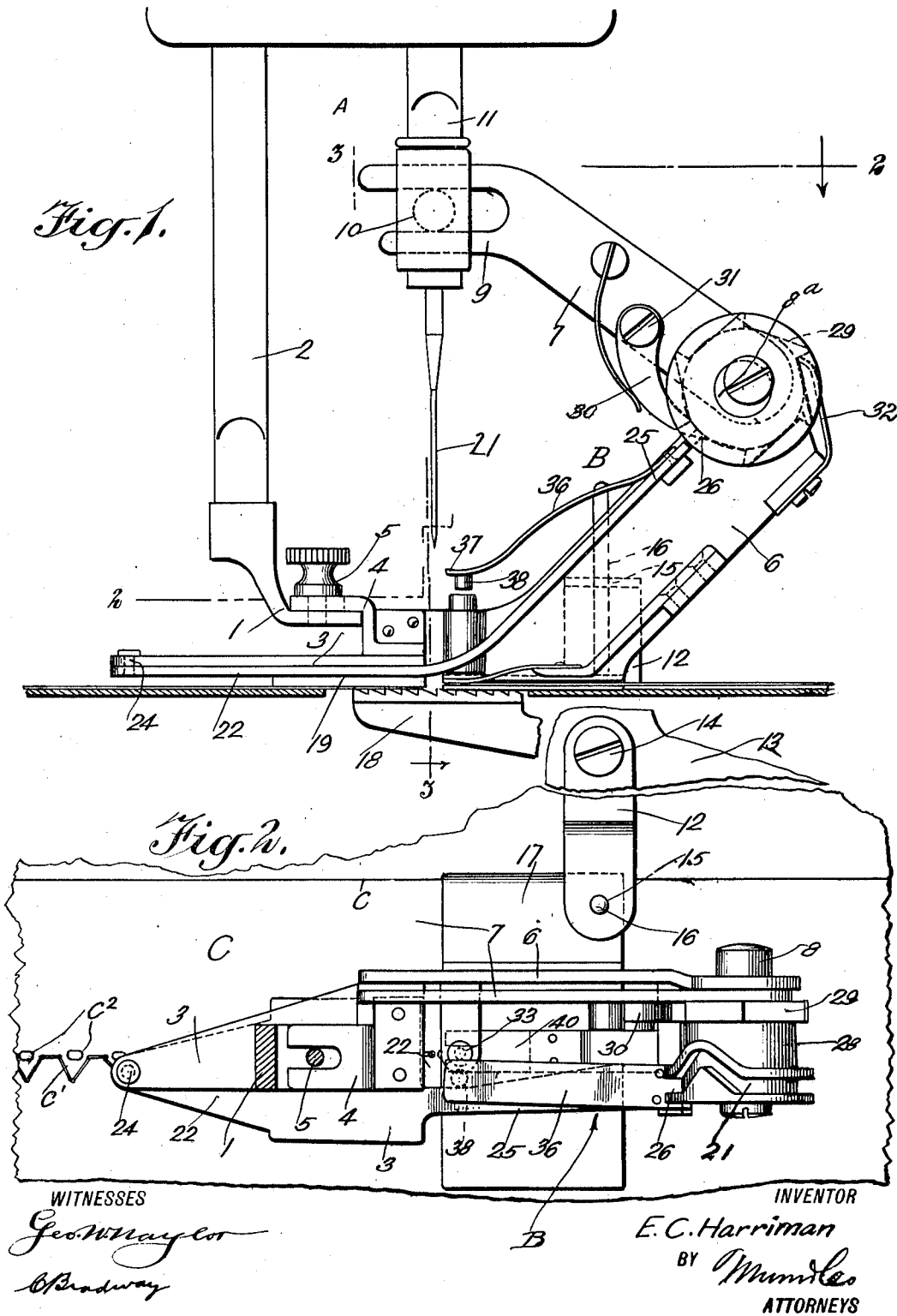


E. C. HARRIMAN.
HEMSTITCHING ATTACHMENT.
APPLICATION FILED MAR. 28, 1918.

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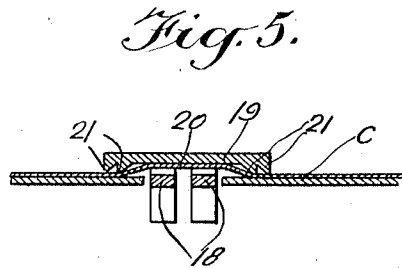
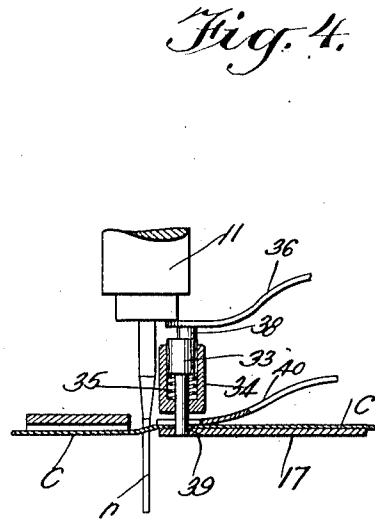
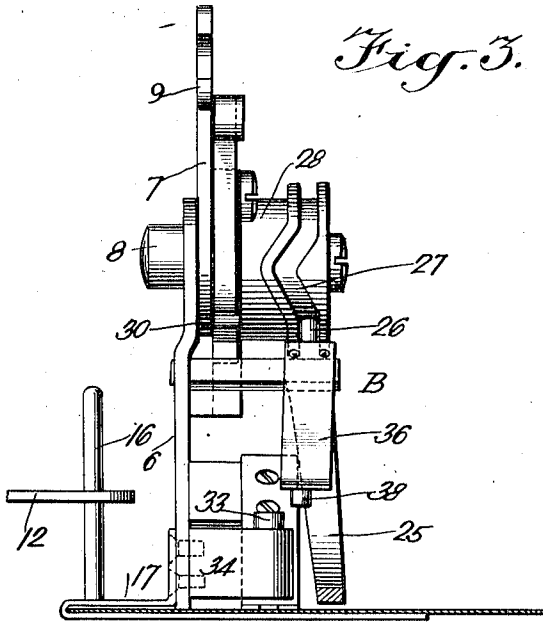
Patented June 25, 1918.
2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.



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HEMSTITCHING ATTACHMENT.

1,270,728.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ERNEST C. HARRIMAN, a citizen of the United States, and a resident of Northampton, in the county of Hampshire and State of Massachusetts, have invented a new and Improved Hemstitching Attachment, of which the following is a full, clear, and exact description.

This invention relates to an attachment for sewing machines for hemstitching or making the picot edge.

The invention has for its general objects to provide an attachment of the class referred to which is reliable and efficient in use, comparatively inexpensive to manufacture, and so designed that it can be applied to a sewing machine without any change in the construction thereof.

A more specific object of the invention is the provision of an attachment which is provided with means for laterally feeding the cloth back and forth in cooperative relation with the forward feed of the sewing machine, whereby the zigzag or hem stitches can be made and the cloth punched at regular intervals with relation to the stitches so as to make the picot edge or hemstitch finish, the punching being done by means operated by the needle bar on every third down stroke.

A more specific object of the invention is the provision of an attachment which is applied to the presser foot of a sewing machine and has a swinging arm connected with the needle bar, whereby the lateral feeder of the attachment is brought into operation to move the cloth back and forth laterally in timed relation to the forward feed produced by the regular mechanism of the sewing machine.

With such objects in view, and others which will appear as the description proceeds, the invention comprises various novel features of construction and arrangement of parts which will be set forth with particularity in the following description and claims appended hereto.

In the accompanying drawings, which illustrate one embodiment of the invention and wherein similar characters of reference indicate corresponding parts in all the views,

Figure 1 is a side view of the attachment applied to a sewing machine;

Fig. 2 is a horizontal section on the line 2—2, Fig. 1;

Fig. 3 is a vertical section on the line 3—3, Fig. 1;

Fig. 4 is a detail view of the punching means; and

Fig. 5 is a transverse section of the lateral feeding device of the attachment in relation to the feeder of the sewing machine.

Referring to the drawing, A designates a sewing machine of usual construction which has applied to the foot piece 1 of the presser bar 2 the picot edging or hemstitching attachment B.

The attachment comprises a bottom plate 3 which has a bracket 4 which is clamped on the top of the foot-piece 1 by a clamping screw 5 in the usual manner, and this plate has an upwardly inclined extension 6 that carried an arm 7 adapted to swing on a pivot 8 and which has a forked upper end 9 straddling a horizontal projection 10 on the needle bar 11 of the sewing machine. The attachment is braced laterally by a bracket 12 fastened to the bed 13 of the sewing machine by a clamping screw 14, said bracket having an opening 15 which slidably engages a post 16 on the doubled-back horizontal guide plate 17 attached to the frame or base of the attachment, as shown in Fig. 3. The post 16 permits the attachment to move up and down as the presser bar 2 is raised or lowered and also under the action of the regular cloth feeder 18 of the sewing machine.

The attachment includes a feeding means for moving the cloth back and forth laterally as it proceeds through the sewing machine, so that the zigzag or hemstitches can be made. This means comprises a feeding plate 19 which has a flat under side 20, except at the edges where depending teeth 21 are provided, and cooperating with the flat under side of the feed plate 19 are the regular cloth feeders 18 of the sewing machine, so that the feed plate 19 takes the place of the ordinary presser foot, with the cloth or fabric C lying between the feeder 18 and the lateral feed plate 19. This feed plate 19 is carried by an arm 22 which lies under the base plate 3 and is pivoted thereto at the extremity 24, and the arm 22 inclines upwardly parallel with the base frame extension 6, where the upper end 25 is pro-

vided with a tooth 26 which rides in a groove 27 of a rotatable cam 28. The cam 28 has ratchet teeth 29 with which engages a pawl 30 pivoted at 31 on the swinging arm 7, so that every time the needle bar moves downwardly the cam wheel will move one tooth, reverse movement of the cam being stopped by a spring pawl 32 carried by the frame member 6. In this manner the step-by-step movement of the cam is synchronous with the downward strokes of the needle bar, so that the lateral feeder will be operated in a manner to cause the cloth to move in an approximately zigzag line with respect to the needle *n* of the sewing machine, which moves up and down in a fixed line. The cam groove is so proportioned that the lateral feeder is operated just before the needle penetrates the cloth and while the forward feeder 18 is released from the cloth. The cam 28 rotates on a journal 8^a which is eccentric to the pivot 8, the reason being that the strokes of different sewing machines vary, and the adjustment of the eccentric compensates for this, so that the cam will move one-sixth of a rotation with each sweep of the arm 7.

The attachment includes a punch 33 arranged in close proximity to the path of the needle bar, as shown in Figs. 1 and 4, and movable in a stationary guide 34 mounted on the frame of the attachment, the punch being normally held raised by a spring 35 disposed in the guide 34 so as to normally hold the lower end of the punch above the travel of the cloth *C*. A leaf spring 36 is fastened on the feeder arm 22 and has a free extremity 37 disposed in the path of the lower end of the needle bar, so that the projection 38 on the spring will be forced downwardly into engagement with the upper end of the punch to move the latter downwardly through the cloth, there being a die opening 39 in the bottom portion of the guide plate 17. A stripper 40 is located under the punch guide 34 so as to engage the upper surface of the cloth and strip the same from the punch as the latter moves upwardly. As soon as the needle bar moves upwardly the spring 35 raises the punch out of the cloth, so that the same can move forwardly.

The cloth to be hemstitched is fed into the attachment by being passed through the guide 17, which serves to cause the hemstitching to be the same distance from the edge *c* throughout the length of the cloth. As the cloth is passed through the attachment the hemstitching *c'* and the holes *c*² are made, there being a hole for every third stitch, which relation is brought out by the special shape of the cam groove 27 which controls the lateral feeder and the punch.

From the foregoing description taken in connection with the accompanying drawings,

the advantages of the construction and method of operation will be readily understood by those skilled in the art to which the invention appertains, and while I have described the principle of operation, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative and that such changes may be made when desired as fall within the scope of the appended claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. The combination of a needle bar and cloth feeder of a sewing machine, with an attachment comprising a lateral feeder for the cloth, a punch, means operated by the needle bar for actuating the lateral feeder, and a yielding element movable intermittently to a position between the punch and needle bar, whereby the latter on certain strokes operate the former, said means including a swinging arm, and a cam device actuated by the arm for controlling the movement of the lateral feeder and punch.

2. A sewing machine including a needle bar, a cloth feeder and a presser bar, in combination with an attachment mounted on the presser bar, said attachment including a lateral feeder for the cloth, a movable member on which the lateral feeder is mounted, a punch, and an element movable with the said member to position between the punch and needle bar, whereby the latter operates the former intermittently, a cam for actuating the member, an arm actuated by the needle bar, and a pawl and ratchet means between the arm and cam for operating the latter.

3. A sewing machine including a needle bar, a cloth feeder and a presser bar, in combination with an attachment mounted on the presser bar, said attachment including a lateral feeder for the cloth, a movable member on which the lateral feeder is mounted, a cam for actuating the member, an arm actuated by the needle bar, a pawl and ratchet means between the arm and cam for operating the latter, a cloth punching device, and means movable with the member for operatively relating the needle bar to the punch device, whereby the former actuates the latter.

4. A sewing machine including a needle bar, a presser bar and a cloth feeder, in combination with an attachment including a frame fastened to the presser bar, a guide plate on the frame for the cloth, there being a die hole in the guide plate, a punch guided by the frame, and means movable laterally into and out of alinement with the punch and operated by the needle bar for actuating the punch.

5. A sewing machine including a needle bar, a presser bar and a cloth feeder, in com-

5 bination with an attachment including a
frame fastened to the presser bar, a guide
plate on the frame for the cloth, there being
a die hole in the guide plate, a punch guided
by the frame, means movable to a position
between the needle bar and punch, whereby
the former operates the latter, and means
operated by the needle bar for moving the
said means into and out of operative relation
10 with the needle bar, whereby the needle bar
moves on certain strokes without operating
the punch.

6. A sewing machine including a needle bar
and a cloth feeder, in combination with an
15 attachment including a die arranged to lie
under the cloth, a punch coöperating with
the die for punching the cloth, and yield-
ing means normally spaced above the punch
and movable laterally with respect thereto
20 and adapted to be operated by the needle
bar.

7. A sewing machine including a needle
bar and a cloth feeder, in combination with
an attachment including a die arranged to
25 lie under the cloth, a punch coöperating
with the die for punching the cloth, a later-
ally movable member actuated by the needle
bar, and a spring element carried by

the member and movable into the path of the
needle bar, whereby the latter operates the
punch through the interposition of the ele- 30
ment.

8. A sewing machine including a needle
bar and a cloth feeder, in combination with
an attachment including a die arranged to 35
lie under the cloth, a punch coöperating
with the die for punching the cloth, a later-
ally movable member actuated by the needle
bar, a spring element carried by the mem-
ber and movable into the path of the needle 40
bar, whereby the latter operates the punch
through the interposition of the element,
and a lateral cloth feeder carried by the said
member.

9. A sewing machine including a presser 45
bar, a needle bar, and a cloth feeder, in com-
bination with an attachment including a
frame carried by the presser bar, a vertical
post on the frame, a fixed bracket engaging
the post for steadying the frame, a lateral 50
feeder mounted on the frame, a punch on
the frame, and means operated by the needle
bar for actuating the lateral feeder and the
punch.

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