

(No Model.)

C. P. HOLMES.  
SOLE SEWING MACHINE.

No. 584,039.

Patented June 8, 1897.

FIG. 1.

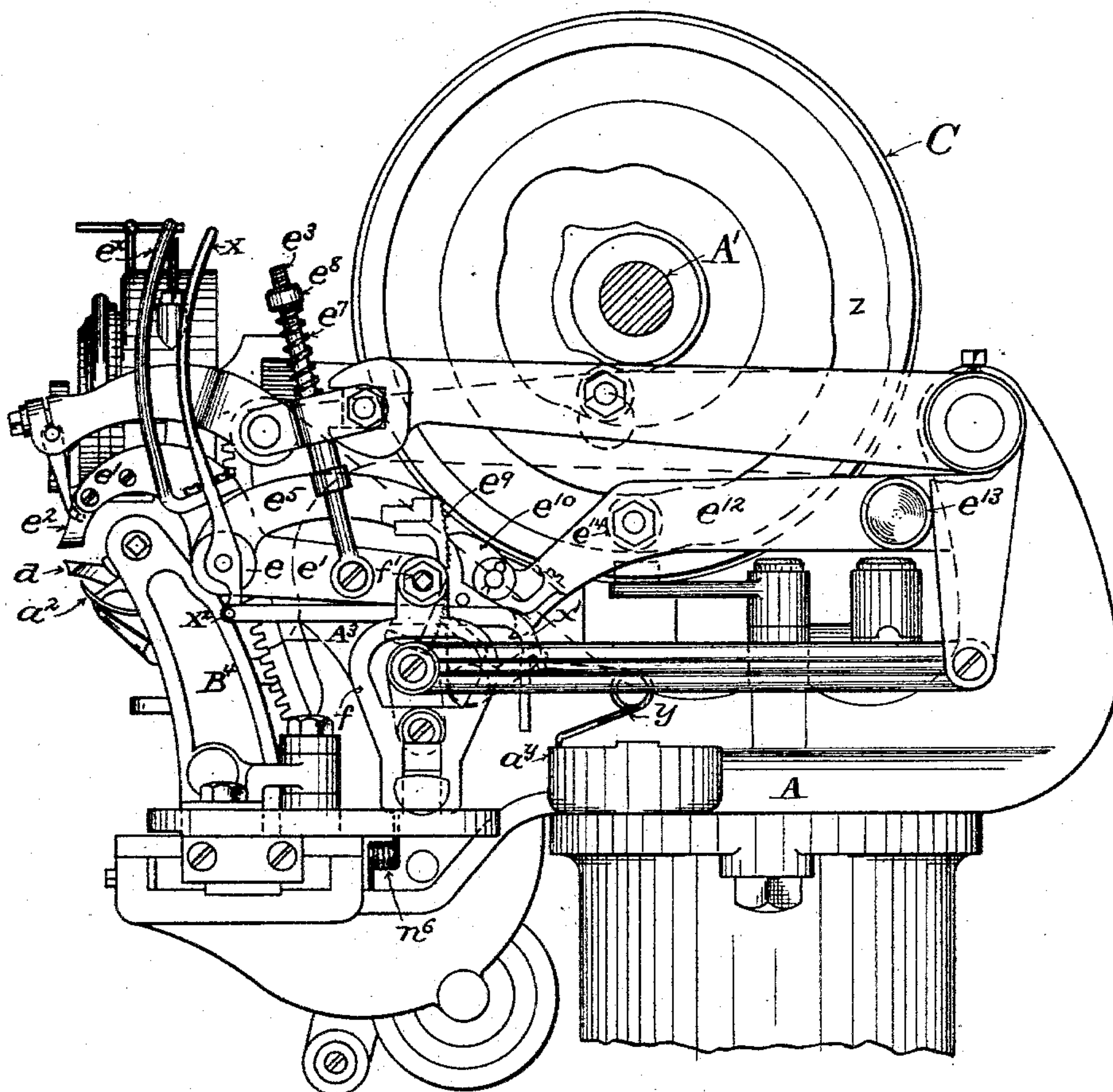
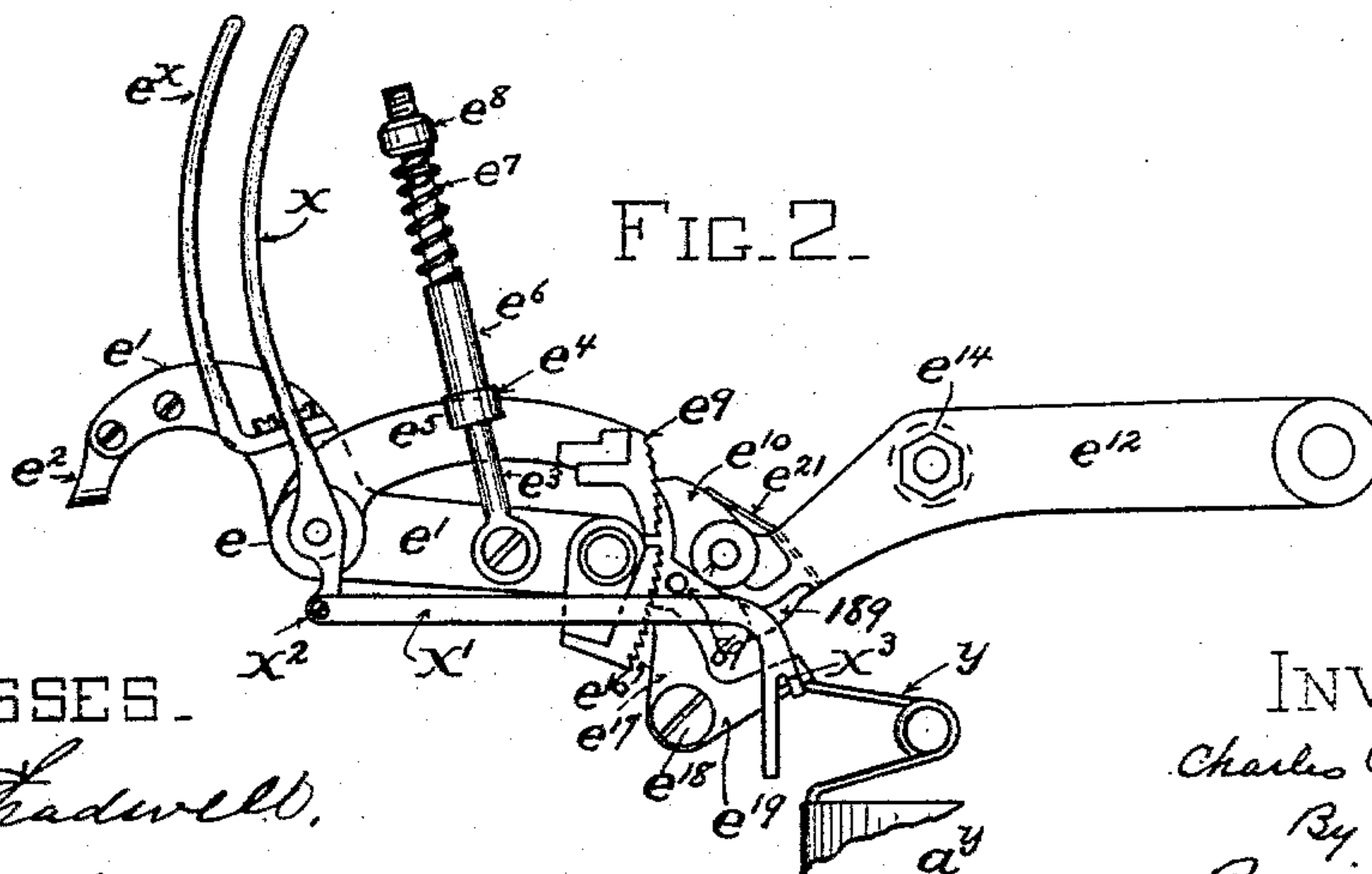


FIG. 2.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## SOLE-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 584,039, dated June 8, 1897.

Application filed September 7, 1895. Serial No. 561,729. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES P. HOLMES, a citizen of the United States, and a resident of Lynn, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Sole-Sewing Machines, of which the following, taken in connection with the accompanying drawings, forming a part hereof, is a specification.

The present invention as embodied in the mechanism herein described is intended as an improvement upon the machine shown and described in United States Letters Patent No. 473,870, granted to Z. T. French and W. C. Myer April 26, 1892, for improvements in sole-sewing machines, and has for its object to prevent irregularity in feeding, and thereby to produce a seam of a more even and finished appearance and of greater strength and durability. In said patented machine the shoe is held between a stationary work-table and a movable presser-foot arranged to bear upon the sole with a yielding pressure, but capable of being locked in the required position to co-operate with the work-table to firmly hold the sole from motion in the direction of the feed. It is evident that when the presser-foot is locked, as above stated, work cannot conveniently be adjusted upon the machine, and the operation of the feed mechanism is impeded. For the above reasons in said patented machine mechanism has been provided whereby the presser-foot is automatically released twice during every operation of the stitch-forming devices—first, when the stitch-forming parts have just completed the stitch-forming operation and are in proper position for the removal or adjustment of the work, and, second, when the awl is in the material and the feeding operation is occurring.

The above-described arrangement has been found to be objectionable in that when the presser-foot is first released, as above stated, neither the awl nor the needle is in the material, and the machine has no control of the work, which is liable to be moved by the operator in the direction of the feed, resulting in an uneven seam or causing the machine to break thread.

In the present invention the presser-foot

when locked is automatically released only when the awl is in the material during the operation of the feed, and mechanism is provided whereby the presser-foot may be released at the will of the operator for the adjustment of a shoe upon the machine. By the arrangement above noted the machine at all times retains control of the shoe, which is not liable to be moved in the direction of the feed except by the operation of the feed, which insures an even and consequently strong and durable seam.

The present invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view, partially in section, of a sole-sewing machine constructed substantially in accordance with said Letters Patent and provided with attachments embodying the present invention; and Fig. 2 is a detached view, in side elevation, of said attachments.

Similar letters and figures of reference refer to similar parts throughout both views.

In the drawings, A represents a frame of suitable shape to support the working parts of the machine.

d represents the work-table, which, as shown, is stationary and projected from a suitable bracket or rigid projection A<sup>3</sup> of the frame A.

e<sup>2</sup> represents the presser-foot, which is carried by an elbow-shaped lever e', which is loosely mounted upon a stud e upon the rigid projection A<sup>3</sup> of the frame A. At its rear end the lever e' has jointed to it a link e<sup>3</sup>, which is extended loosely through a lug e<sup>4</sup> upon the arm e<sup>5</sup>, also mounted loosely upon the stud e or a suitable boss upon the lever e', the link e<sup>3</sup> above the said lug receiving upon it a washer e<sup>6</sup>, acted upon by a coiled spring e<sup>7</sup>, adjustable as to its force by a nut e<sup>8</sup>, screwed upon a threaded part of the link e<sup>3</sup>. The rear end of the arm e<sup>5</sup> is provided with a ratchet-toothed dog e<sup>9</sup>, which is engaged at times by one or more pawls e<sup>10</sup>, said pawls being pivoted upon a lever e<sup>12</sup>, having its fulcrum on a stud e<sup>13</sup>. The inner end of the lever e' is also provided with a ratchet-toothed dog e<sup>16</sup>, which is engaged by a pawl e<sup>17</sup>, mounted loosely upon a stud e<sup>18</sup>, connected



with the rigid projection  $A^3$  of the frame A, the said pawl having a rearward extension  $e^{19}$ , against which the end 189 of the lever  $e^{12}$  is depressed to trip the pawl  $e^{17}$ . A stud 89 is provided, supported from the projection  $A^3$  of the frame A, which trips the pawl  $e^{10}$  upon the depression of the lever  $e^{12}$ .

$f$  represents a vertically-reciprocating frame pivoted at  $f'$  to the lever  $e'$  and controlled by a suitably-placed spring  $n^6$ .

In connection with the description of the form and arrangement of parts heretofore given it is to be noted that, with the exception of the transfer of the stud  $e$  from the standard  $B^4$ , which supports the awl and is movable, to a fixed portion  $A^3$  of the frame A, the form and arrangement of parts may be and conveniently is similar to that of similar parts as shown and fully described in said Letters Patent. I would further say that the change in the manner of supporting the stud  $e$  and lever  $e'$ , as above noted, forms no part of the present invention, a substantially similar arrangement being found in the machine known to the trade as the "Goodyear Rapid Stitcher," which embodies the devices hereinbefore described, arranged substantially as shown in the drawings. In said patented machine the pawls  $e^{10}$  and  $e^{17}$  are normally held in engagement with their respective dogs  $e^9$  and  $e^{16}$  by suitably-placed springs secured to the lever  $e^{12}$ , and a cam-groove is provided upon a suitably-placed cam-disk, which engages a cam-roll upon the lever  $e^{12}$  and acts to raise and depress the lever  $e^{12}$ . The depression of the lever  $e^{12}$  acts to disengage both pawls  $e^{10}$  and  $e^{17}$ , which allows the arm  $e^5$  to fall toward the arms  $e'$ , and during such disengagement the presser-foot  $e^2$  is held with a yielding pressure upon the work by the action of spring  $n^6$ , a hand-lever  $e^x$  being provided by means of which the presser-foot may be raised for the adjustment or removal of a shoe against the action of the spring  $n^6$ . When the lever  $e^{12}$  is raised by the action of the cam-groove, the pawl  $e^{10}$ , engaging its dog  $e^9$ , raises the arm  $a^5$ , which by means of the spring-supported link  $e^3$  raises the lever  $e'$  and causes the presser-foot  $e^2$  to bear more firmly (with a yielding pressure) upon the work, and the pawl  $e^{17}$ , engaging with the dog  $e^{16}$  in its raised position, locks the presser-foot  $e^2$  in its position of increased pressure, as above stated. The cam-groove hereinbefore referred to as provided in said patented machine is so formed and timed that the lever  $e^{12}$  is depressed to release the presser-foot twice during every operation of the stitch-forming mechanism—first, when the parts are in position for the removal or adjustment of a shoe, and, second, when the awl is in the material and the work is being acted upon by the feed.

In form of the present invention shown in the drawings the pawl  $e^{10}$  is held in engagement with its dog  $e^9$  by means of a spring  $e^{21}$ , secured to the lever  $e^{12}$ , substantially as shown

in said Letters Patent, but to engage the pawl  $e^{17}$  with the dog  $e^{16}$  I have provided a spring  $y$ , which bears upon the rearwardly-extending projection  $e^{19}$  of the pawl  $e^{17}$  and against a fixed portion  $a^y$  of the frame A.

To release the presser-foot while the shoe is being moved by the feed mechanism and to lock the presser-foot in its position of increased pressure after the lateral movement of the awl and while the awl is in the material, I have provided upon the lever  $e^{12}$  a cam-roll  $e^{14}$ , which engages with a cam-groove Z upon the cam-disk C, mounted upon the shaft  $A'$ , which is the main shaft of the machine. The cam-groove Z is so formed and timed with reference to the operation of the feed-awl and other parts of the machine that it depresses the lever  $e^{12}$  to disengage the pawls  $e^{10}$  and  $e^{17}$  and release the presser-foot  $e^2$  when the awl has entered the material for the feed and after the work has been fed along for the stitch and before the awl has left the material raises the lever  $e^{12}$  into position to bring the presser-foot  $e^2$  into its position of increased pressure, as before described, and holds the lever  $e^{12}$  in substantially the last-described position until the awl has again entered the material to feed the work for the next stitch.

The above-described arrangement is such that the presser-foot is locked in its position of increased pressure continuously except when the awl is in the material, and to provide for the adjustment of new work upon the machine I have provided a device whereby the presser-foot may be released at the will of the operator for the adjustment or removal of work, which device, in the form of my invention shown in the drawings, consists of the following: On the stud  $e$  is loosely mounted a hand-lever X, which is projected below the stud  $e$  and connected by a link  $X'$  with the rearwardly-extending projection  $e^{19}$  of the pawl  $e^{17}$ . As shown, the link  $X'$  is pivotally connected at  $X^2$  with the lever X and is bent downwardly toward its inner end, which is bifurcated and embraces a pin  $X^3$ , which is laterally projected from the rearwardly-extending projection  $e^{19}$  of the pawl  $e^{17}$ . The lever X is conveniently adjacent to and extended along the lever  $e^x$ , so that said levers may be conveniently grasped together.

The above-described arrangement is such that by a forward motion of the lever X a rearward motion is imparted to the link  $X'$ , which rotates the pawl  $e^{17}$  about the stud  $e^{18}$ , disengaging the pawl  $e^{17}$  from the dog  $e^{16}$ , leaving the rear end of lever  $e'$  free to be depressed by a rearward motion of the lever  $e^x$  against the tension of the springs  $e^7$  and  $n^6$  to thus raise the presser-foot from the table  $d$  to permit the adjustment of a shoe thereon.

It is to be noted in connection with the above-described arrangement that when the pawl  $e^{17}$  is disengaged from the dog  $e^{16}$  the pawl  $e^{10}$  is not interfered with, but remains in engagement with the dog  $e^9$ , holding the arm  $e^5$  in its raised position, so that when the



levers  $e^x$  and X are released the springs  $e^7$  and  $n^6$  act to return the presser-foot  $e^2$  to its position of increased pressure. When the presser-foot  $e^2$  has been brought into its position of increased pressure, the pawl  $e^{17}$ , which has been held in contact with the dog  $e^{16}$  by the action of the spring  $y$ , engages with said dog to lock the presser-foot, and the work is firmly held between the table and the presser-foot.

The awl is shown at  $a^2$ , but the form and arrangement thereof or of its actuating mechanism are not essential to the present invention or to its attachment to said patented machine. I have also omitted from this specification a description of other devices shown in the drawings, for the reason that the same are well known in the art and will be readily understood by a person of average skill therein.

The operation of the present invention has been fully described in connection with the description heretofore given of the form and arrangement of the several parts. I, however, wish to add that I do not consider the same limited to the specific mechanism herein described or to its application to said patented machine, for it is evident that with slight modifications involving no departure therefrom the present invention may be applied to other machines of the same or an analogous class.

I therefore claim as my invention and de-

sire to secure by Letters Patent of the United States—

1. In a sole-sewing machine, the combination with a work - support, of a movable presser-foot, means to force said presser-foot against the work on the work-support with a normally light pressure, means to increase said pressure at intervals, and to lock said presser-foot when the pressure has been increased, and means under the control of the operator to unlock said presser-foot, while the increased pressure is maintained, substantially as described.

2. In a sole-sewing machine, the combination with a work - support, of a movable presser-foot, a spring acting with a normally light tension to force the presser-foot against the work on the work-support, means to increase the tension of the spring at intervals, and to lock the presser-foot when the tension of the spring has been increased, and means under the control of the operator to unlock said presser-foot while the increased tension of said spring is maintained, substantially as described.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, this 4th day of September, 1895.

CHARLES P. HOLMES.

Witnesses:

BENJAMIN PHILLIPS,  
NELLIE F. FAIRCHILD.