

(No Model.)

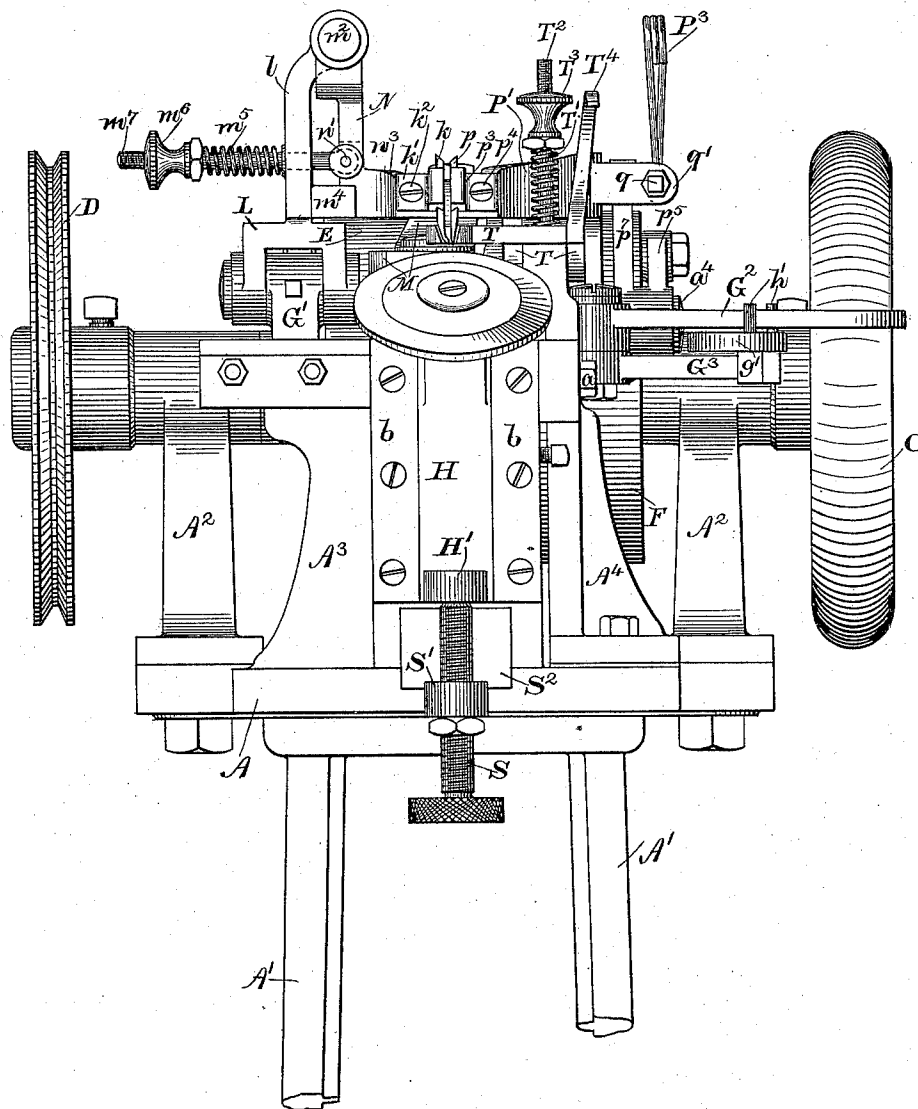
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J. B. HADAWAY.
STITCH SEPARATING AND INDENTING MACHINE.

No. 579,231.

Patented Mar. 23, 1897.

FIG. 1.



WITNESSES

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(No Model.)

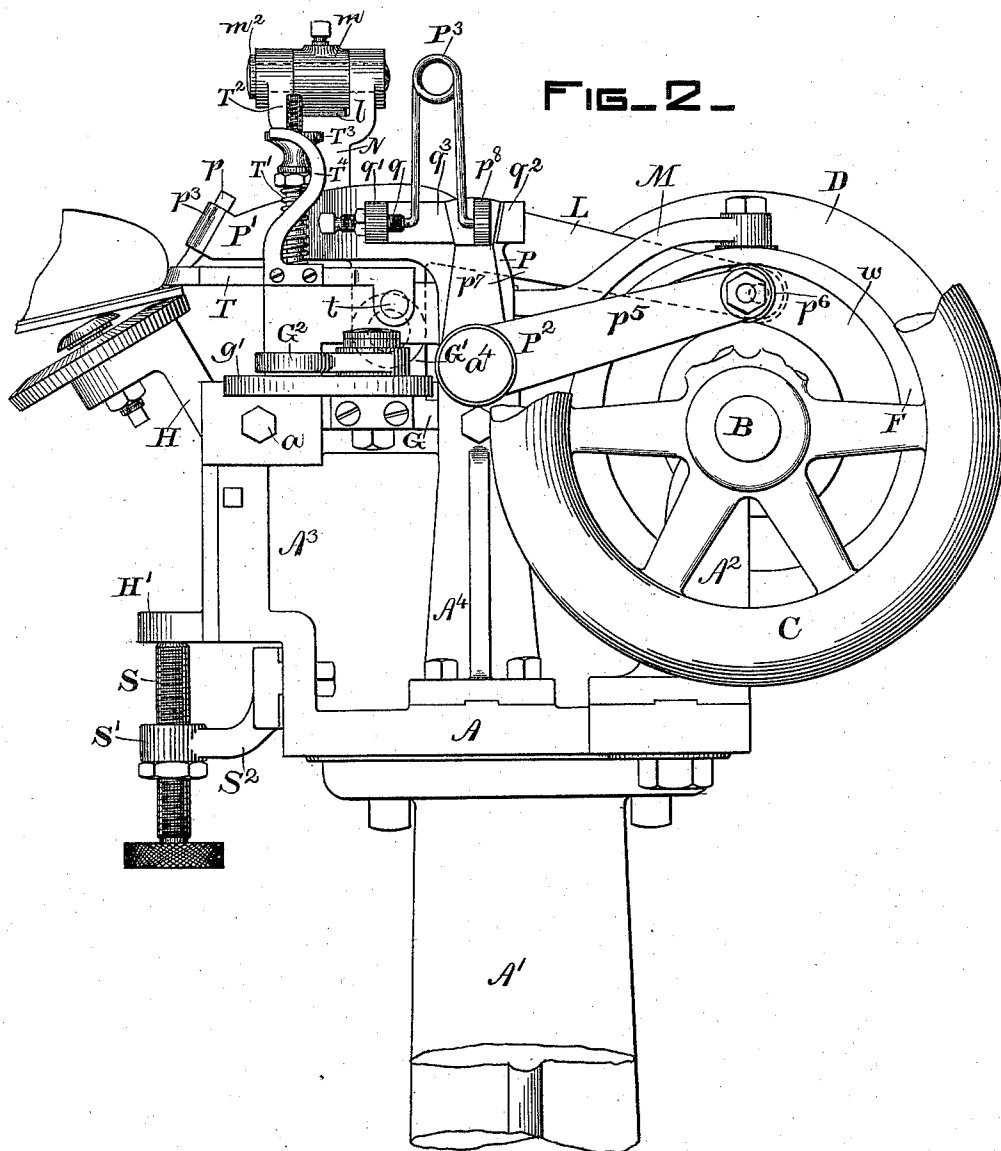
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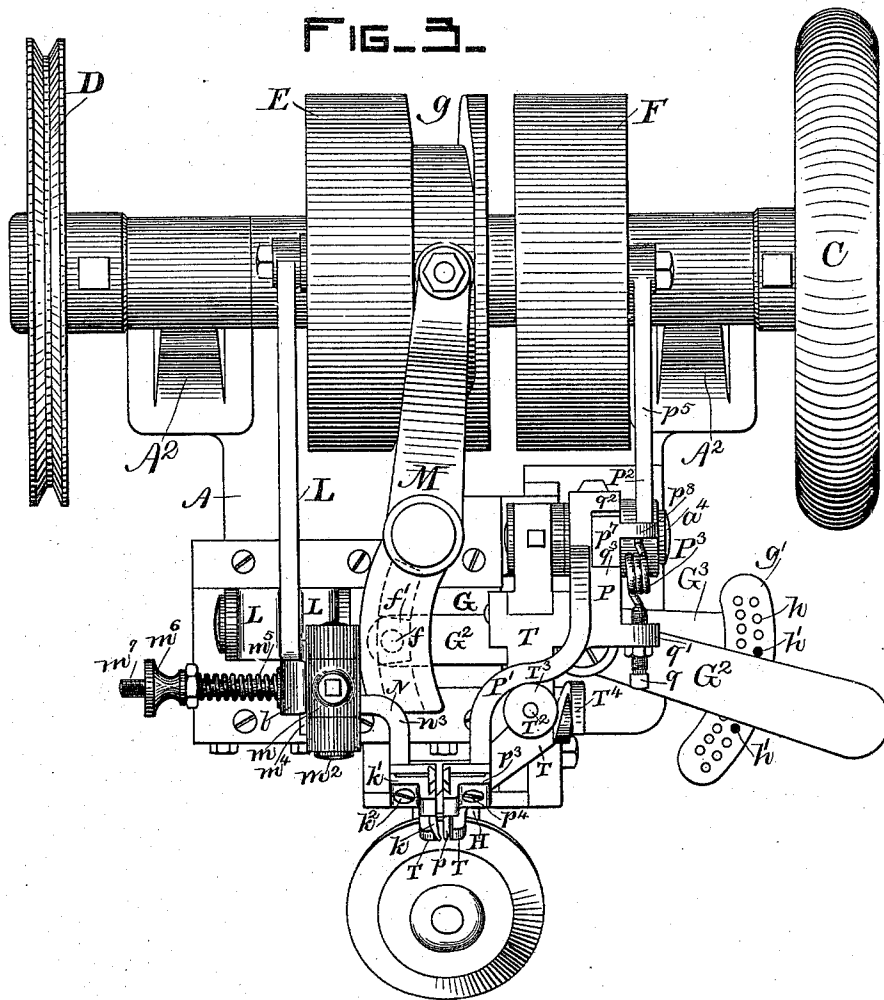
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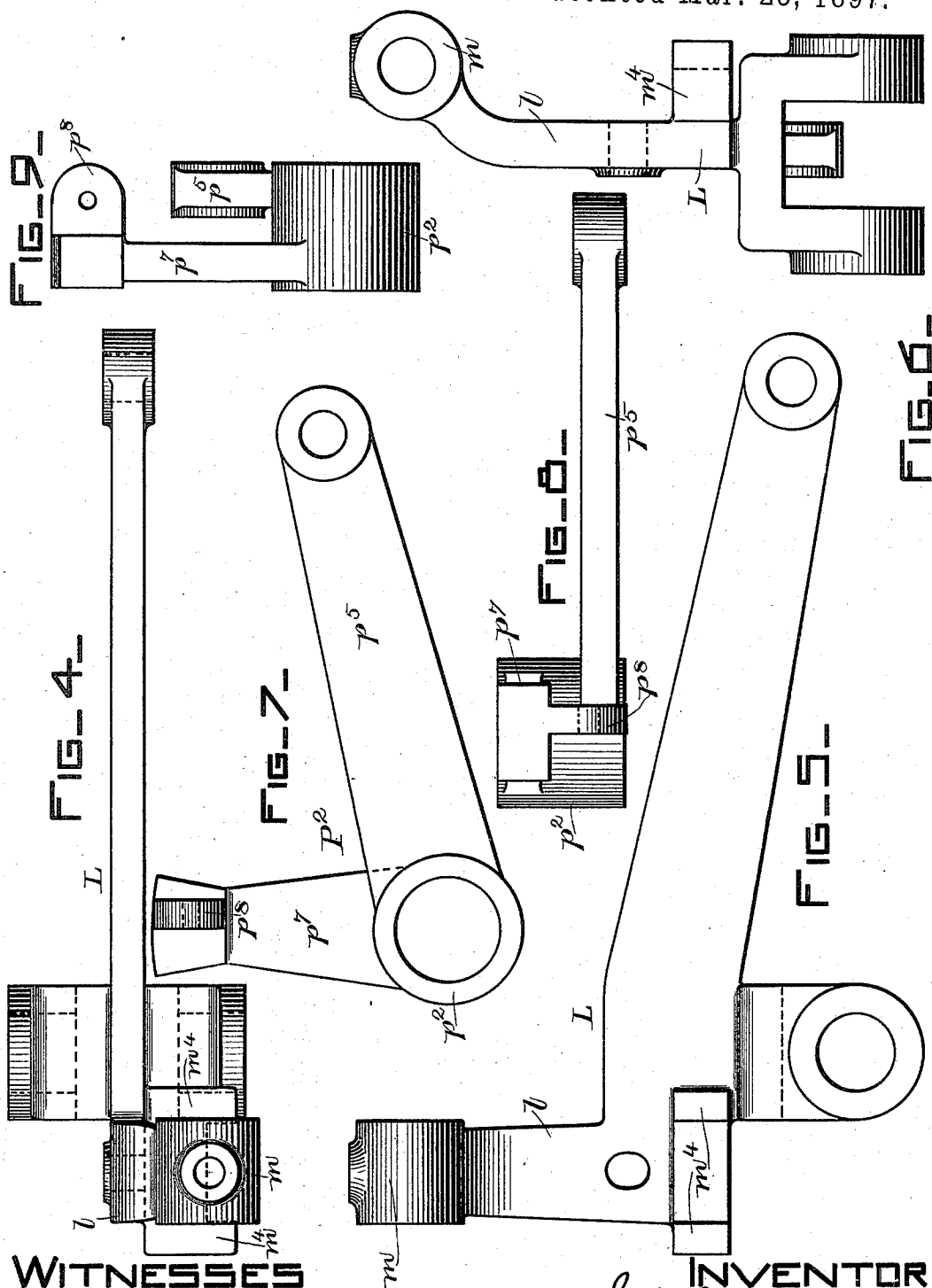
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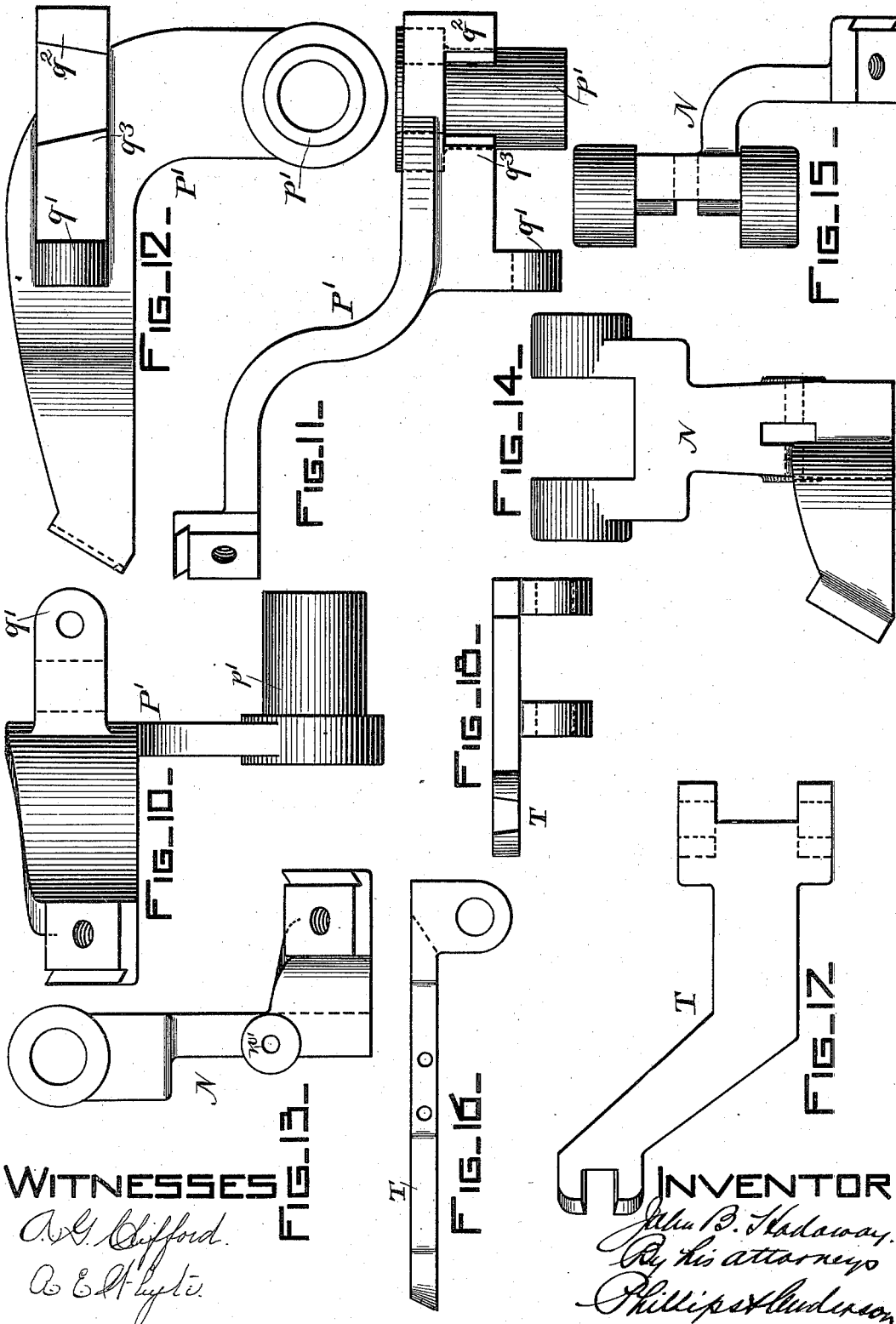
(No Model.)

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J. B. HADAWAY.
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UNITED STATES PATENT OFFICE.

JOHN B. HADAWAY, OF BROCKTON, MASSACHUSETTS.

STITCH SEPARATING AND INDENTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 579,231, dated March 23, 1897.

Application filed September 9, 1896. Serial No. 605,276. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. HADAWAY, a citizen of the United States, residing at Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Stitch Separating and Indenting Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to stitch separating and indenting machines, and has for its object to simplify the construction and operation of such machines and to insure a more positive and accurate feeding of the work. In these machines as heretofore constructed the point of the feed-tool operates to engage the intervals between the stitches to feed the work prior to the action of the indenting-tool therein to indent said intervals, and there is a liability that the point of said feed-tool will not properly engage such unintended intervals, and therefore will improperly present the work to the indenting-tool.

The present invention therefore consists of a stitch separating and indenting machine in which the feed-tool is arranged to engage the indented intervals between the stitches to feed the work.

The present invention also consists of a stitch separating and indenting machine comprising a fixed and unyielding work-support; and it further consists of the devices and combination of devices which will be hereinafter described, and particularly set forth in the claims.

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

Figure 1 is a front view of the machine, the lower portions of the base being broken off. Fig. 2 is a side elevation, looking at the right-hand side of the machine, showing the shoe in position. Fig. 3 is a plan view. Figs. 4, 5, and 6 are respectively a plan, a side view, and a front view of the feed-actuating lever. Figs. 7, 8, and 9 are respectively a side view, a plan, and a front view of one member of the compound lever for actuating the indenting-tool. Figs. 10, 11, and 12 are respectively a front view, a plan, and a side view of the other member of said compound lever. Figs.

13, 14, and 15 are respectively a front view, a side view, and a plan view of the feed-tool carrier; and Figs. 16, 17, and 18 are respectively a side view, a plan view, and a front view of the presser-foot or upper work-support.

Referring to the drawings, A is the bed or table of the head of the machine, mounted upon standards A', only portions of which are shown.

Upon the bed A are the upright standards A², in bearings in which is mounted the shaft B, upon one end of which is a hand-wheel C and upon the other end a driving wheel or pulley D. Upon the shaft B are fixedly mounted the cam-wheels E and F, they being preferably located between the bearings on standards A², as shown. The bed A also has mounted thereon an upwardly-projected stand A³, which may be formed in one piece, as shown, and is provided at its upper end with a groove or guide to receive the reciprocating feed-slide G, and in its front face it is provided with a vertical groove or guide for the movable bar H. A stand A⁴, also on bed A, is provided with a forward and downward arm which is secured by the bolt *a* to the stand A³. The bar H is held in its bearing in the stand A³ by the removable cap-plates *b b* and has at its upper end a suitable work-support, the one shown being the one set forth in Letters Patent of the United States issued to me July 23, 1895, No. 543,012.

The slide G has pivoted thereto the lever G², which carries at its inner end a block *f'*, mounted loosely upon pin *f*, which is adapted to move in a slot in the under side of the short arm of the feed-lever M, (see dotted lines, Fig. 3,) the opposite arm of which lever carries a cam-roll which fits into and is acted upon by the path *g*, formed in the periphery of cam-wheel E, to vibrate said lever G² and reciprocate the feed-slide a greater or less distance, according to the position of the block *f'*, relative to the fulcrum of said lever M.

The slide G is provided at one end with the extension G³, to the outer end of which is secured the segmental plate *g'*, in which is formed two series of holes *h* to receive stop-pins *h'* to adjust the position of the hand-lever G² and thereby adjust the lateral movements of the feed-tool. At its opposite end

the feed-slide G has an upwardly-projecting ear G', to which is pivoted a lever L, which actuates the feed-tool k.

The lever L may be forked at its lower end, as shown in Figs. 1 and 6, and said forked end embraces and is pivoted to the ear G', from which point the lever extends backwardly and is acted upon by a cam-path in the face of cam-wheel E. In front of its pivotal point said lever is provided with an upwardly-extending arm l, in the upper end of which is a bearing m, in which is fitted a stud m², upon which is pivotally mounted the tool-carrier N, which is shown in detail, Figs. 13, 14, and 15.

As shown, the tool-carrier N is provided at its upper end with bearings which fit upon the stud m², the construction being such that the tool-carrier may have a swinging movement toward and from the lever L. At its lower end the tool-carrier has an outwardly-curved arm n³, to which is clamped the feed-tool k, it being held thereon by any suitable means, such as the clamping-plate k' and screw k².

The lower end of the tool-carrier is normally held in contact with the lever L and between lugs or ears m⁴ thereon by a spring m⁵, one end of which bears against the arm l and the other against an adjusting stop or nut m⁶, screwed onto a threaded rod m⁷, which is pivoted to the tool-carrier N at n'. This arrangement of the feed-tool is such that the extent of movement of the feed-slide may be adjusted to a slightly greater distance than the average length of stitch in a given piece of work, and in operation when the indenting-tool shall have been engaged with the shoulder of a stitch and located in an interval between two stitches, thus preventing a further movement of the work, the remainder of the feeding movement of the feed-slide will cause the feed-tool carrier to swing on its pivot, spring m⁵ yielding and thus permitting the feed-tool to accommodate itself to the intervals between the stitches, whether of varying or uniform lengths, and insuring an accurate locating of the indenting-tool in said intervals.

I will now proceed to describe the separating and indenting mechanism.

On a stud a⁴ in the upper end of the standard A⁴ is pivotally mounted a lever P, which carries the separating and indenting tool p. To enable the tool p to yieldingly bear upon the crown of a stitch to insure its proper location in the intervals between the stitches, the lever P is preferably a compound lever, comprising the members P' and P², having a spring P³ interposed between them, the arrangement being such that upon a downward movement of the lever P the tool p is first brought down upon the seam with a yielding pressure and thereafter, upon a further downward movement of the lever, positively actuated to indent the interval between the stitches, as will be hereinafter described. The

member P' of the lever P is provided with a sleeve p', which is loosely mounted upon the stud a⁴, and the member P² with a bearing p³, fitted upon the sleeve p'. The member P' is extended upwardly and is curved laterally toward the feed-tool carrier N and has secured thereto the separating and indenting tool p by a plate p³ and screw p⁴ or other suitable means. The member P² has an arm p⁵, upon the end of which is a roll p⁶, acted upon by a cam-groove w in the face of the cam-wheel F, as shown in Fig. 2, and another arm p⁷, which extends upwardly and at its upper end has an ear p⁸, against which one end of the spring P³ bears, the other end of the spring P³ bearing against the end of an adjusting-screw q, set in an ear q' of the member P'. Upon member P' are shoulders or stops q² and q³, between which the arm p⁷ of member P² is adapted to have a limited movement and with which it coöperates to impart to the indenting-tool its final indenting movement and to raise the same after the completion of said movement. The arrangement is such that a downward movement of the arm p⁵ of the member P² will cause the arm p⁷ to come in contact with the stop q² and cause the member P' to move on its fulcrum to raise the indenting-tool, the spring P³ assisting to keep the arm p⁷ in close contact with the stop q² while the tool is raised, and a movement of the member P² in the opposite direction will cause the arm p⁷ to first move the member P' and the indenting-tool toward the work by a yielding movement imparted through the spring P³, thus causing the tool to bear upon the crown of a stitch with a yielding pressure, and when the point of the indenting-tool has been located in the interval between two stitches the continued movement of the member P² causes the arm p⁷ to come into contact with the stop q³, thus imparting a final positive indenting movement to the indenting-tool.

In the machine of the drawings, instead of employing a yielding work-support and a ratchet-and-pawl mechanism to lock and unlock the same, as has been heretofore the practice, I mount the work-support slide H for a vertical adjustment, as shown, in its guideway, the adjustment being conveniently secured by a screw S, fitted in a bearing S' of a bracket S², secured to the main frame and bearing at its end on a lug or ear H', projected from the face of slide H.

T represents a presser-foot which projects forward and laterally and has a recess in its end and which in this instance is adapted to have a vertical movement, it being pivoted at t to the top of standard A⁴ and adapted to move up and down to accommodate itself to varying thickness of shoe-soles.

The presser-foot T is normally held down by a spring T', which surrounds a rod T², fitted in the frame of the machine, the said spring resting at one end upon said presser-foot and at its other end against an adjust-

ing-nut T³, threaded upon said rod. A suitable handle T⁴ is secured to said presser-foot, by which the presser-foot can be raised by the operator whenever desired.

5 The operation of the machine of the drawings is as follows: The parts being in the position shown in Fig. 1, and a shoe being in position with the edge of the sole beneath the presser-foot, the movement of shaft B and
10 cams thereon will first cause a movement of the feed-tool lever L to raise the feed-tool from the work and then a movement thereof toward the right by the action of the feed-lever M on the feed-slide G, and simultaneously raise the
15 indenting-tool to allow the point of the feed-tool, after it has been moved to the right, to occupy a position directly over and in line with an indented interval in the work which has been indented by the indenting-tool.
20 The feed-tool is then depressed and the end thereof forced into the indented interval between two stitches, and the feed-lever is then moved toward the left through about one-half of its stroke to partially feed the work, during which time the indenting-tool is lowered
25 for a portion of its downward movement and by means of the spring P³ caused to yieldingly engage and bear upon the crown of a stitch. The feed-lever now completes its
30 movement toward the left to bring an unindented interval between two stitches beneath the indenting-tool, which snaps into the same, and by engaging the shoulder of a stitch prevents any further feed of the work, and if
35 the feed-lever has not reached the limit of its stroke toward the left the further movement thereof will cause the feed-tool carrier to swing upon its pivot against the tension of spring m⁵, as heretofore explained. The in-
40 denting-tool is now given its final and complete downward movement to indent the in-

terval between the stitches, thus completing a full revolution of the cam-shaft, the operations being continued until the work is completed.

45 Having described the construction and operation of my invention, I desire to say that I do not consider the same limited to the details of construction herein shown and described, but claim as novel and desire to se-
50 cure by Letters Patent of the United States—

1. In a stitch separating and indenting machine, the combination of an indenting-tool, a work-feeding tool arranged to engage the indented intervals between the stitches, and
55 mechanism for actuating said tools, substantially as described.

2. In a stitch separating and indenting machine, the combination with an indenting-tool, of a work-feeding tool and connected
60 mechanism operating automatically to impart to the indenting-tool stitch-indenting movements and to cause the feed-tool to engage the indented intervals between the stitches and to feed the work, substantially as de-
65 scribed.

3. In a stitch separating and indenting machine the combination with an unyielding work-support of an indenting-tool, and means for locating said tool in the intervals between
70 the stitches whether of uniform or varying lengths, substantially as described.

4. In a stitch separating and indenting machine, the combination with an indenting-tool, of a laterally-yielding feed, substantially
75 as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN B. HADAWAY.

Witnesses:

T. HART ANDERSON,
A. G. CLIFFORD.