

No. 609,100.

Patented Aug. 16, 1898.

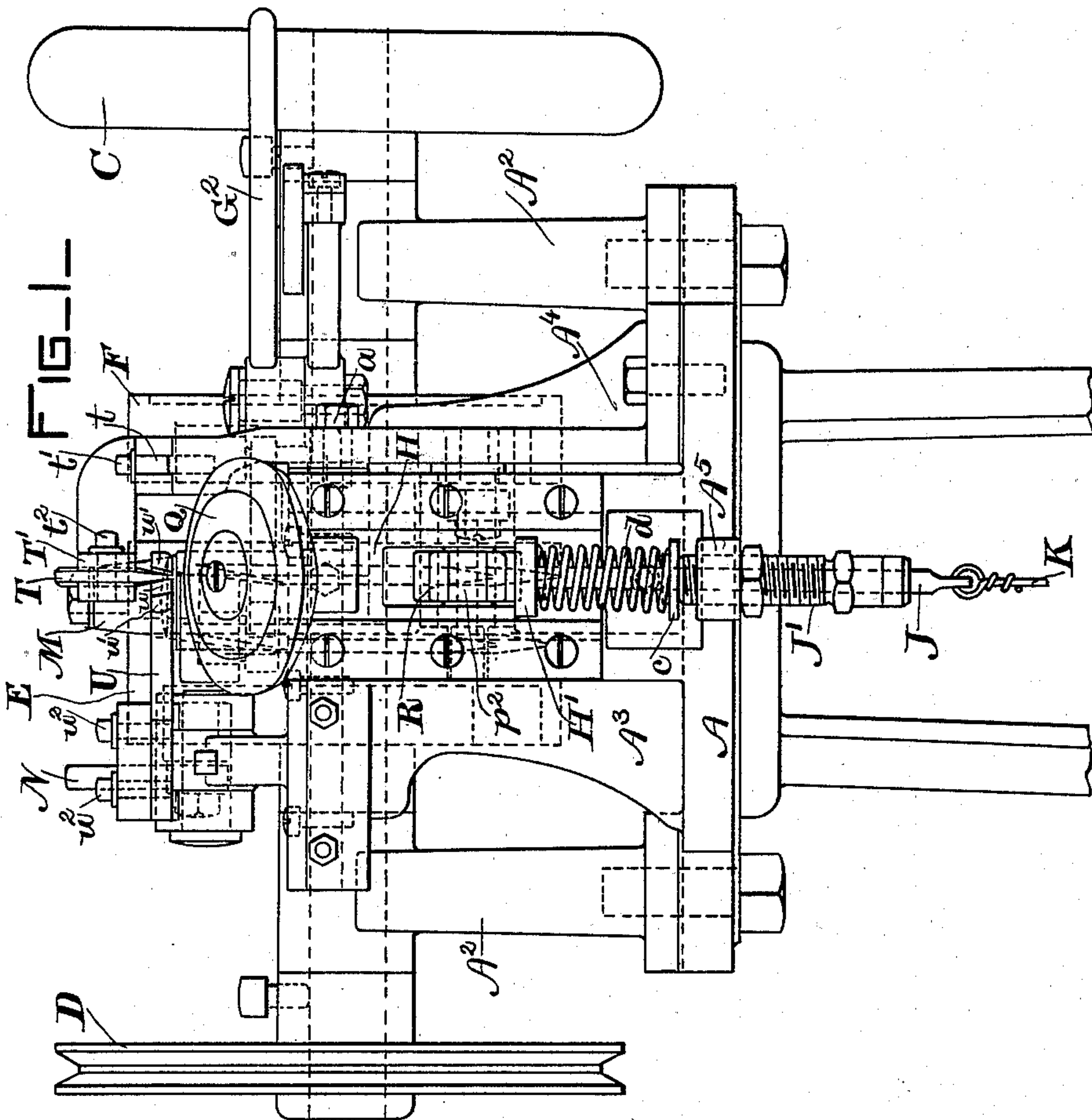
J. B. HADAWAY.

STITCH SEPARATING AND INDENTING MACHINE.

(Application filed Feb. 5, 1897.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES

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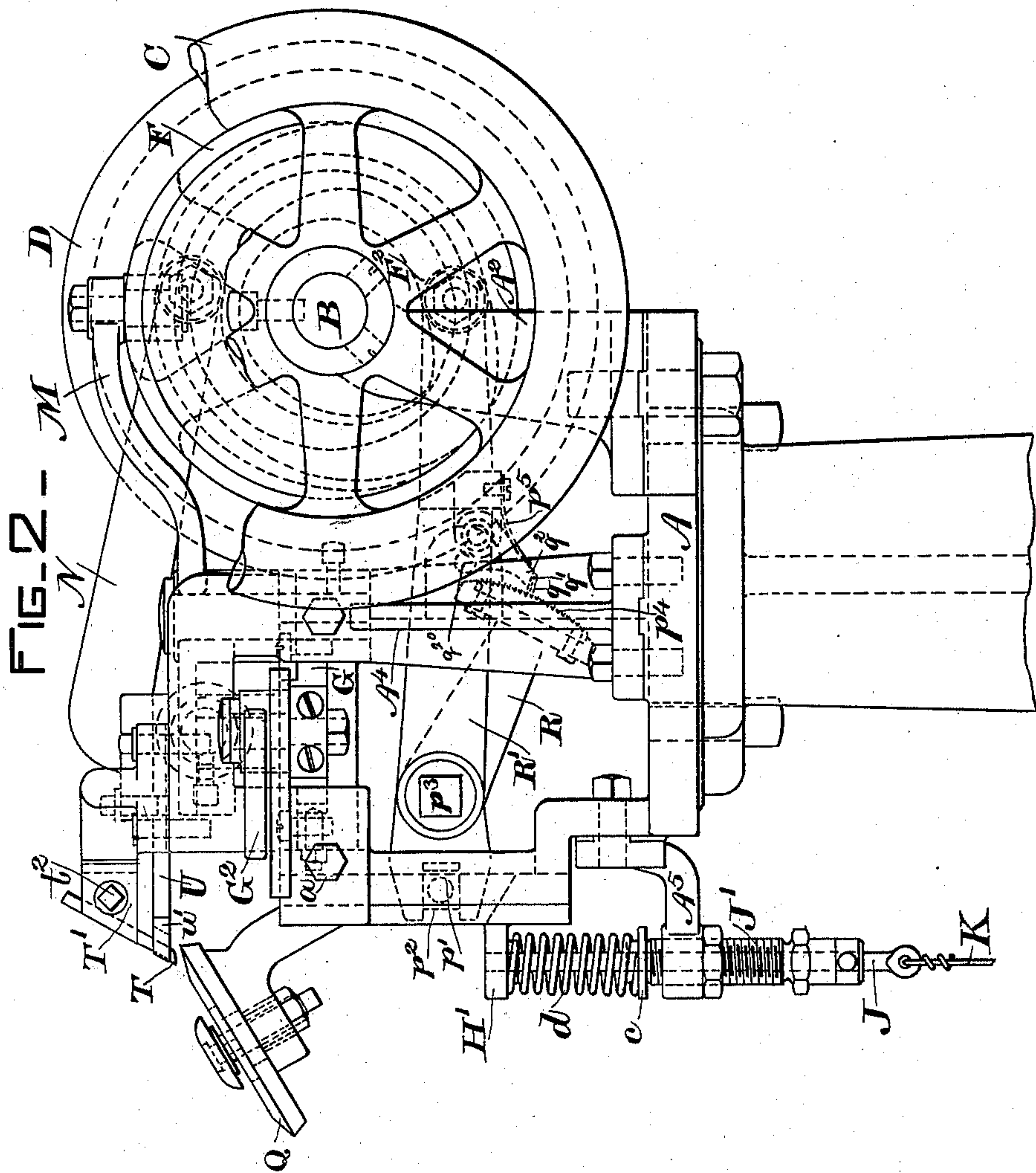
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(No Model.)

3 Sheets—Sheet 2.



WITNESSES

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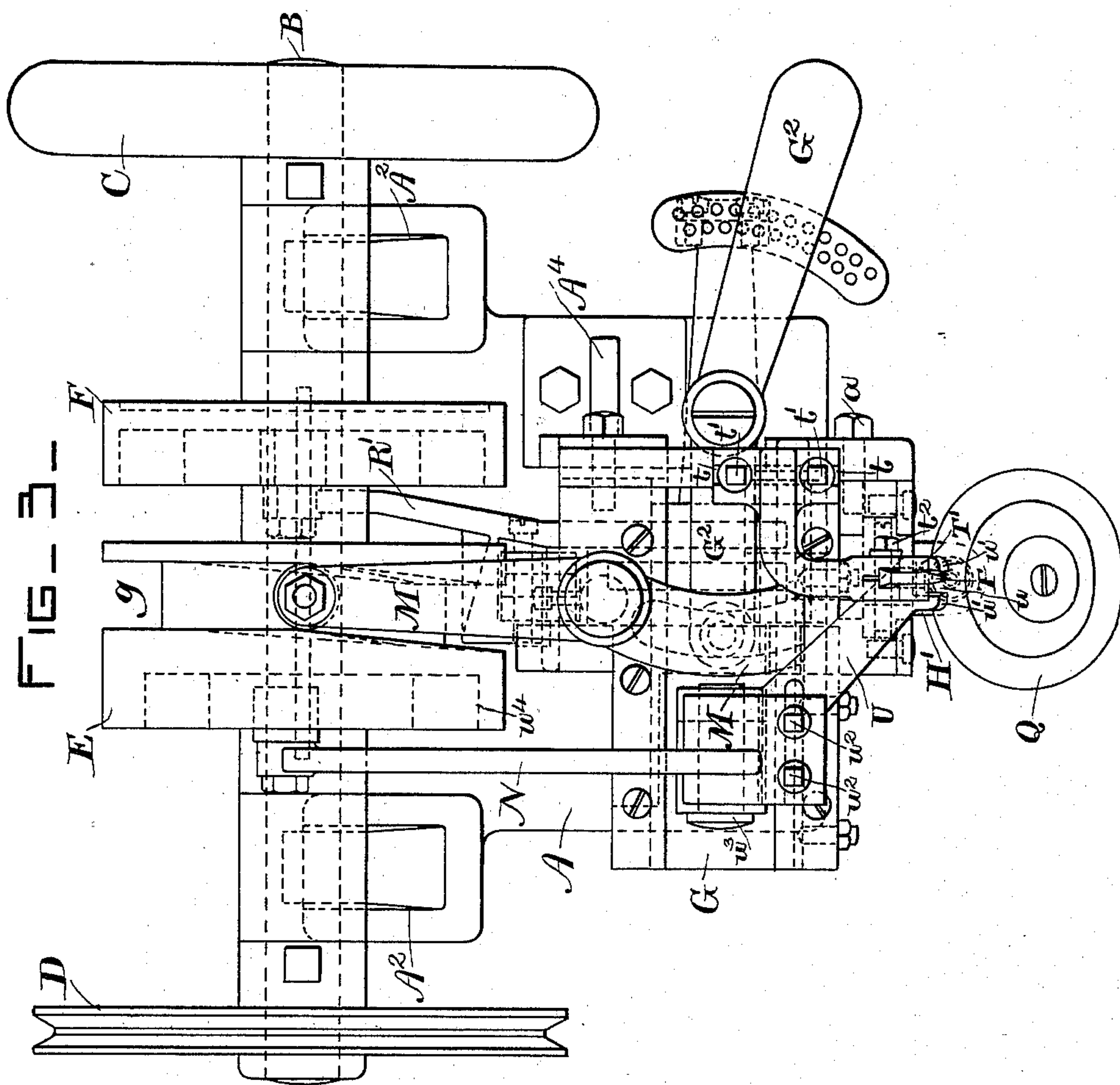
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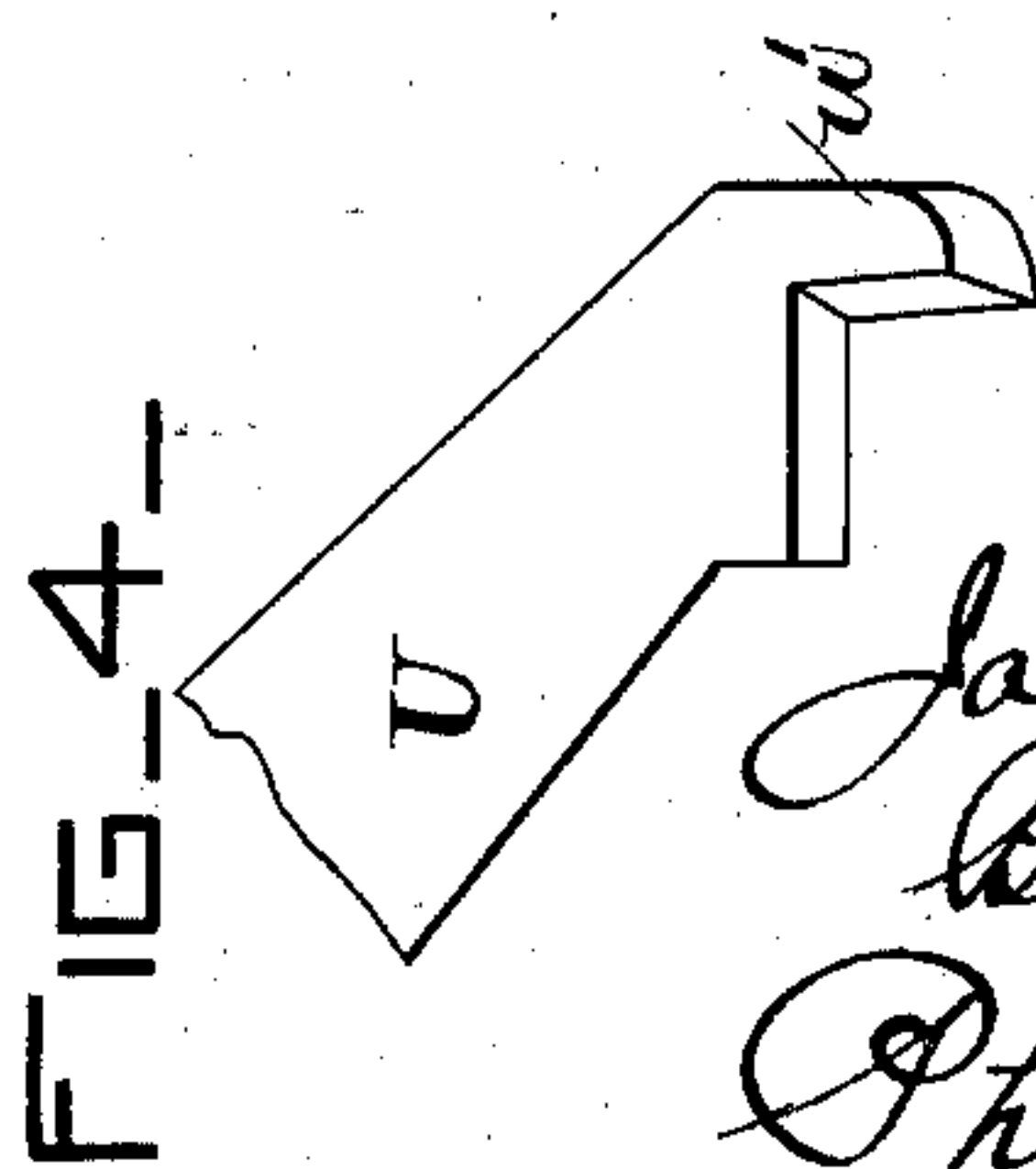
(No Model.)

3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

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STITCH-SEPARATING AND INDENTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 609,100, dated August 16, 1898.

Application filed February 5, 1897. Serial No. 622,088. (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 arranged to separate the stitches or separate the stitches and indent the welt, and more particularly to such machines which are adapted to automatically locate and act upon the intervals between the stitches of a finished seam.

The object of the invention is to produce a simple machine of this character in which the separating or separating and indenting tool shall remain in a stationary position, the work being moved past said tool to locate the intervals between the stitches and toward and away from the point of said tool to cause the stitches to be separated or separated and indented.

To the above end the invention consists of the devices and combination of devices which will be hereinafter described and claimed.

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

Figure 1 shows the machine in front elevation, the lower portion of the standard being broken away. Fig. 2 shows a right-hand side elevation of the machine. Fig. 3 shows a plan view of the machine. Fig. 4 shows a modified form of the presser-foot.

The present invention is an improvement upon the machine disclosed in Letters Patent of the United States No. 543,012, issued to me July 23, 1895, and except as hereinafter specified the parts may be and conveniently are the same as similar parts in said machine.

In the machine as constructed in the above-mentioned patent the intervals between the stitches were located and separated by a tool which was moved over the surface of the seam to locate the intervals between the stitches to indent the same, and while still engaged with the seam it was moved laterally to feed the work the length of a standard

stitch, the work being alternately clamped and released by the upward movement of the lower work-support, between said lower work-support and a fixed upper work-support, to accommodate for the indenting and feeding movements of the tool.

In the present machine it is designed to produce a simplified construction by employing a stationary indenting-tool and by imparting an additional upward movement to the lower work-support to force the work against the point of the indenting-tool to indent the intervals between the stitches.

In the drawings, A represents the bed or table, upon which are the upwardly-projecting standards A², having suitable bearings in which is mounted the shaft B. Upon one end of shaft B is a hand-wheel C and upon its opposite end is a driving-wheel D, and shaft B also carries cam-wheels E and F, which actuate the moving parts of the machine.

G represents a feed-slide which is reciprocated in bearings in the upper surface of a standard A³, and H represents a bar or slide for the work-support, which is movable in a bearing in the front of the machine.

A⁴ represents a standard the forward extension of which is secured by a bolt *a* to the standard A³. The slide H has secured thereto a rod J, which passes through an adjusting-screw J', fitted to a threaded bearing in a bracket A⁵, secured to the front of standard A³.

A spring *d* surrounds the rod J and bears at one end upon a washer or collar *c* and at its other end against an ear H' upon the slide H, the spring tending to move the slide H and work-support upward, the slide and work-support being adapted to be depressed by a treadle (not shown) and a rod K, connected to the rod J for the purpose of removing and replacing the work upon the work-support.

Mounted upon the slide H is a work-support Q, which may be of any usual or convenient form and arrangement, the one shown in the drawings being the same as that in the patent hereinbefore referred to and comprising a revoluble disk mounted upon an inclined axis. The upward movement of the work-support Q may be produced by any suitable means, that shown in the drawings being substantially the same as in the patent

hereinbefore referred to and comprising a forked lever R, which is pivoted at p^3 and engages a block p^2 , mounted upon a pin p^1 , spanning a slot cut in the slide H, the rear end of said lever carrying a segmental ratchet-plate p^4 , which is adapted to be engaged by the pawls q q' q^2 , carried by a lever R', fulcrumed upon a stud p^3 and acted upon at its rear end by a cam-groove F^2 , formed upon the inner face of the cam-wheel F.

The pawls q q' q^2 are pressed toward the ratchet-plate p^4 by springs p^5 , and upon a downward movement of the rear end of the lever R' they engage the ratchet-plate and actuate the lever R to force the slide and work-support upward to bring the work into contact with the separating-tool, and upon the upward movement of the rear end of the lever R' the pawls q , q' , and q^2 engage with a pin q^{20} , fixed in a fixed portion of the machine, whereby said pawls are removed from contact with the ratchet-plate p^4 , as will be hereinafter fully described. The feed-slide G is actuated within its bearings by a lever M, which is actuated by the cam-path g , cut in the cam-wheel E, the short arm of said lever being connected to the lever G^2 , which is pivoted to the slide G, the connection between the lever M and the lever G^2 being adjustable in order to adjust the movement of the feed-slide, as in the patent referred to.

The machine as so far described, with the exception of the movement of the work-support to force the work against the separating-tool to cause the separating or indenting of the intervals between the stitches, is the same as the machine of the patent hereinbefore referred to; but such machine has merely been selected for convenience of illustrating the present invention, which is not in any sense restricted thereto, and any suitable or convenient form of work-support may be substituted for that shown, and any suitable or convenient mechanism may be employed to actuate said work-support or the feed-slide G to impart the feeding movements to the presser-foot.

In the present invention instead of actuating the separating-tool to act upon the intervals between the stitches and to feed the work, as in the machine of the patent, the separating-tool T is mounted in a fixed position in a tool-carrier T', which is adjustably mounted, by means of the slots t and the bolts t' , to the top of the standard A^4 or some other fixed portion of the machine, the tool-carrier T' being extended laterally and forwardly to bring the point of the tool T in proper position relatively to the work-support Q.

As shown in the drawings, the tool T is mounted in an inclined position in order that its point may engage the stitches and the welt without coming into contact with the upper to mark or mar the same, and it is preferably adjustably mounted in the split end of the carrier T', which is clamped against the shank of said tool by the clamping-bolt t^2 , the ar-

range being such that the tool T may be adjusted in the tool-carrier to bring its working point into different horizontal planes to vary the depth of the indentations in the work. By adjusting the tool-carrier T' upon the standard A^4 the position of the point of tool T may be adjusted toward or from the outer end of the presser-foot to position the indentations relatively to the crease between the upper and welt. In order to provide for a feed of the work past the indenting-tool and for a clearance of the work from the point of said tool preparatory to the feeding thereof, the presser-foot U is mounted upon the feed-slide G to have a lateral reciprocating movement with said slide, and also to cause the end thereof to have a vertical oscillating or reciprocating movement, whereby its lower surface or the surface which bears upon the welt will alternately rise above and fall below the point of the separating-tool T.

The presser-foot U is shown clearly in Fig. 3 and comprises an angularly-bent arm, the forward end of which is cut out at u , forming projections u' , which engage the welt at each side of the separating-tool T. The presser-foot is attached, by means of the bolts u^2 , to the end of a lever N, which is fulcrumed at u^3 upon the feed-slide G, and the opposite end of which is actuated by a cam-path u^4 in the cam-wheel E, the arrangement being such that a lateral reciprocating movement is imparted to the presser-foot U by the feed-slide G and a vertical reciprocating movement to the end of said presser-foot by the lever N to alternately depress the work below the point of the separating-tool T and clamp the same against the lower work-support Q and then laterally to feed the work the distance of a stitch, thence upward to permit the work-support to force the work against the separating-tool, and thence back to its original position.

In Fig. 4 is shown a modified form of presser-foot in which one arm u' of the fork has been removed, leaving a single arm u' to engage the welt.

The operation of the machine is as follows: The actuating mechanism for the feed-slide having been adjusted to impart to said slide and to the presser-foot U lateral reciprocations of a length corresponding to the length of a standard stitch of the particular piece of work in hand and the work being in position upon the work-support Q, a rotation of the driving-shaft B now acts to impart to the feed-slide G and the presser-foot U, mounted thereon, a movement to the right a distance equal to the length of a stitch preparatory to forcing the work below the point of the separating-tool T and feeding the work. The presser-foot U is now forced downward in contact with the work, which rests upon the work-support Q, forcing it below the point of the separating-tool T against the tension of the spring beneath the work-support Q, clamping the work against the work-support preparatory to

feeding the same. While the work is held clamped between the presser-foot and work-support the feed-slide G is moved laterally toward the left a distance corresponding to the length of a stitch of the work in hand to bring the next interval between the stitches in line with the point of the separating-tool, at which time the lever R is actuated to cause the pawls q q' q^2 to engage the ratchet-plate on the lever R' to actuate the work-support Q. The presser-foot U is now raised and the levers R and R' actuated to raise the work-support Q and the work thereon to force the work against the point of the separating-tool T to cause the point of said tool to separate or separate and indent the interval between two stitches. During the upward movement of the presser-foot and work-support they move upwardly together with the edge of the shoe-sole held between them until the upper surface of the edge of the sole comes in contact with the point of the separating-tool, at which point the presser-foot lever is acted upon by a bunch or projection in the cam-path to cause said presser-foot to quickly spring away from the surface of the work, leaving the work loosely held between the point of the separating-tool and the work-support and permitting it to shift laterally in the direction of the feed if the rounded shoulder of a stitch should happen to come in contact with the separating-tool instead of a space between two adjacent stitches, and thus a secondary feed movement will be imparted to the work in order to correct the initial feed of the work, which is uniform, to cause the indenting-tool to act upon the intervals between stitches of varying length.

Having described the construction and operation of my invention, I claim as new and desire to protect by Letters Patent of the United States—

1. The combination with a stationary separating-tool, of a work-support and means to move said work-support toward the tool with a yielding pressure, and means to positively force said work-support toward the tool at intervals, substantially as described.

2. The combination with a stationary separating-tool, of a presser-foot, and means to alternately move the work-bearing face of

said presser-foot above and below the working end of said tool, substantially as described.

3. The combination with a stationary separating-tool, of a presser-foot, and means to impart to said presser-foot vertical and lateral reciprocations, substantially as described.

4. The combination with a separating-tool adjustably mounted in a stationary position, of a presser-foot and means to alternately move said presser-foot above and below the separating-tool, substantially as described.

5. The combination with a stationary separating-tool, of a work-feed arranged to feed the work uniform distances, and to release said work to permit it to move laterally in either direction to locate the point of the separating-tool in the intervals between the stitches, substantially as described.

6. The combination with a stationary separating-tool, of a presser-foot and work-support, and mechanism to actuate the same to cause them to grip the work and move it laterally past the point of the tool, substantially as described.

7. The combination with a stationary stitch-separating tool of a presser-foot and work-support, means to positively move the presser-foot and work-support toward each other to clamp the work, and then to positively move them in the same direction toward the point of the separating-tool and means to cause said presser-foot to release the work as the work comes in contact with the point of the separating-tool, substantially as described.

8. The combination with a separating-tool, of mechanism for moving the work vertically to bring the same in contact with the tool, and mechanism to move the work laterally past the point of the tool, substantially as described.

9. The combination with a stationary separating-tool, of mechanism arranged to move the work laterally past the point of the tool and vertically toward and from the tool, substantially as described.

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

JOHN B. HADAWAY.

Witnesses:

THOMAS H. ANDERSON,
A. E. WHYTE.