

(No Model.)

2 Sheets—Sheet 1.

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

No. 549,126.

Patented Nov. 5, 1895.

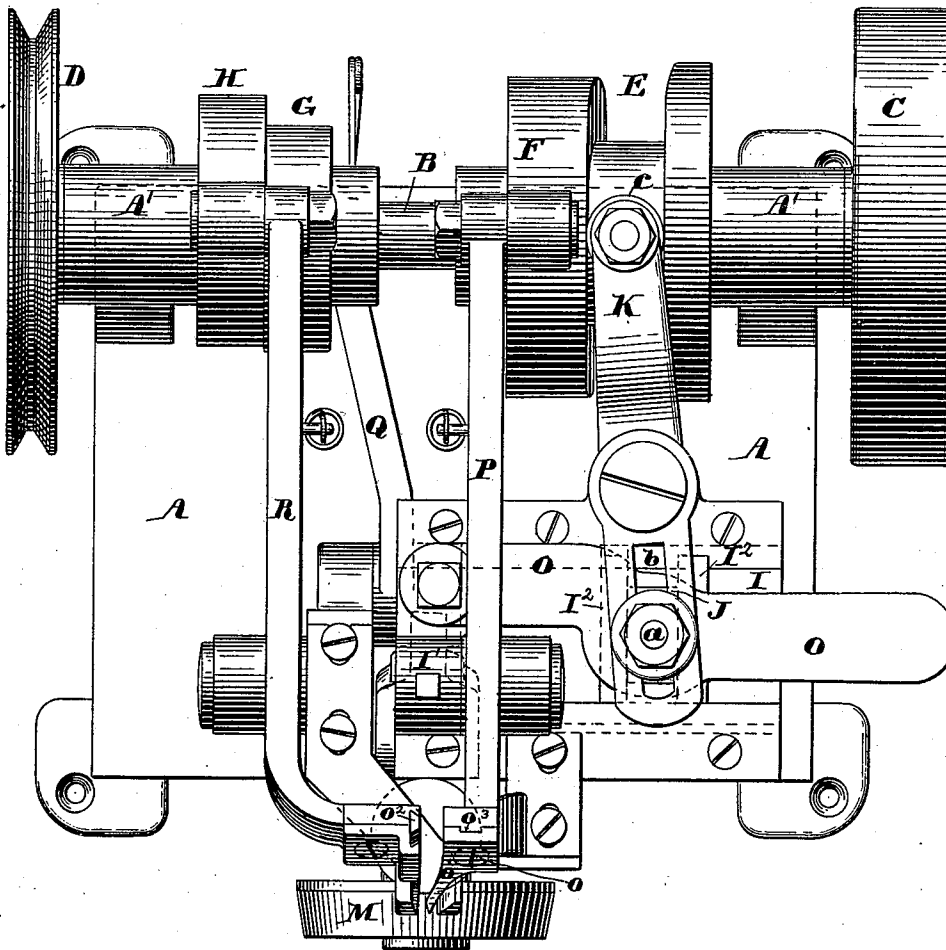


Fig. 1.

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Marshall Underwood

Inventor:

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2 Sheets—Sheet 2.

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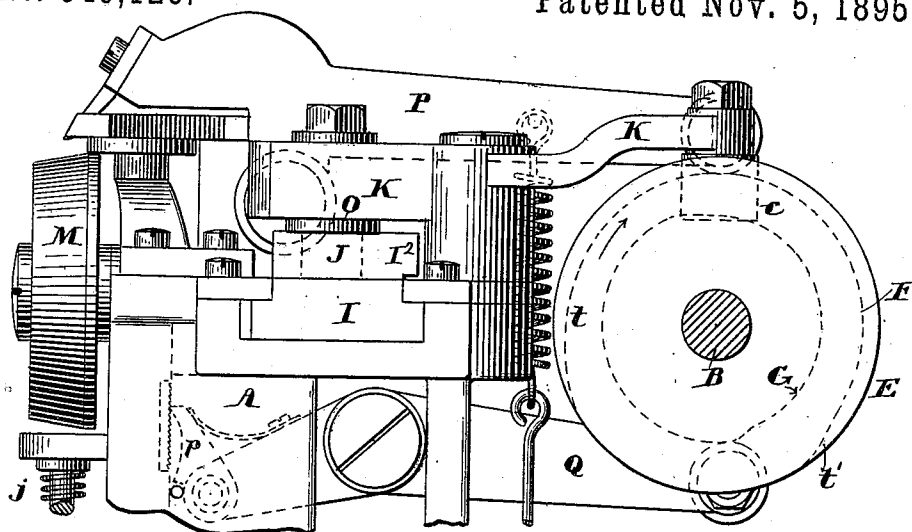


Fig. 2.

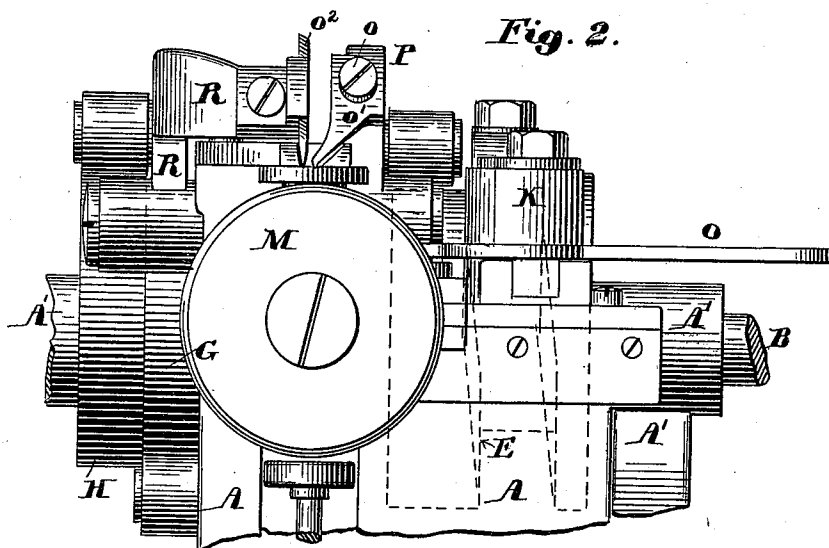


Fig. 3.

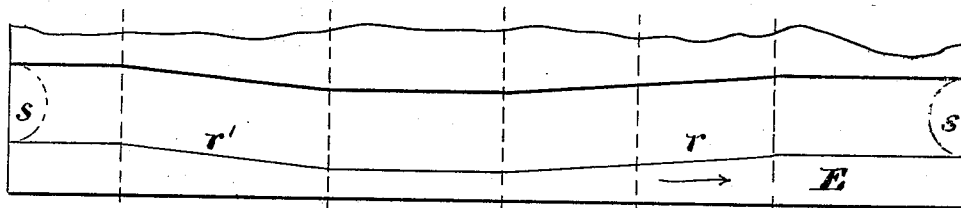


Fig. 4.

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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. 549,126, dated November 5, 1895.

Application filed June 28, 1895. Serial No. 554,372. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. HADAWAY, of Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Stitch-Separating and Indenting Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to stitch-separating and indenting machines, is an improvement upon the invention described in another application of mine filed June 1, 1895, Serial No. 551,342, and it consists in certain novel features of construction, arrangement, and combination of parts, which will be best understood by reference to the description of the accompanying drawings and to the claims hereto appended, and in which my invention is clearly pointed out.

Figure 1 of the drawings is a plan of a machine embodying my invention. Fig. 2 is a partial front elevation of the same. Fig. 3 is a side elevation of so much of the machine as is necessary to illustrate my present invention; and Fig. 4 is a development on a flat plane of the periphery of the cylinder-cam for operating the feed-slide.

In the drawings, A is the frame of the machine.

B is the operating-shaft, mounted in bearings A' A'.

C is the hand-wheel; D, the driving-pulley; E, the feed-cam; F, a face-cam for imparting to the feed an up-and-down movement; G, the locking-cam; H, the cam for imparting a positive up-and-down movement to the separating and indenting tool.

I is the feed-slide, provided with the ear I' and the lips I², between which is fitted the block J.

K is the feed-lever, carrying at its rear end a truck c, fitted to and acted upon by the path of the cam E, and also provided in its front end with the longitudinal slot b, in which is adjustably secured the pin a, the lower end of which carries the block J, and O is the hand-lever by which said pin a and block J may be adjusted to vary the horizontal movement of the feed-slide and the feed-tool.

R is the separator-lever operated by the cam H and having firmly secured to its front

end the separating and indenting tool o², and P is the feed-tool-carrying lever, having firmly secured to its front end the feed-tool o' by means of the screw o and the groove o³ in the rear of its shank and a corresponding lip on said lever.

So far the machine is constructed and the several parts are operated substantially as described in my before-cited application, except as to the construction and operation of the feed-tool.

The feed-tool o' projects obliquely downward from its attachment to the lever P at an angle of about forty-five degrees, more or less, with its extreme point bent to substantially a perpendicular position, and the cams E and F are so formed and timed that the tool o' has imparted to it a positive downward movement at the same time that it is being moved toward the left of Figs. 1 and 3, so that during the first part of the movement of the slide I and lever P toward the left of said figures the point of said tool will move obliquely downward into contact with the stitching, and during the last part of the movement of said slide toward the left of said figures said tool will move horizontally to feed the work.

The horizontal movement of the feed-slide and the feed-tool is adjusted to a throw considerably greater than the length of the standard stitch for the particular job in hand, and said tool is raised only high enough to fairly clear the stitching, so as not to rub upon the stitches injuriously when being retracted after having fed the work.

M is the work-support, constructed and arranged substantially as described in the before-cited prior application.

Q is the locking-lever, carrying at its front end the pawls p to lock the work-support, and acted upon at its rear end by the cam G, which is so constructed that the work-support is locked while the separator is in contact with the work and unlocked when the feed-tool is moved into engagement with the work, and will yield to the pressure of the feed-tool if it comes in contact with the central portion of the stitch, so as to press thereon with a pressure above a predetermined amount before sliding from said stitch into the space between said stitch and the one

in advance thereof, against the shoulder of which the point of said tool bears when the work is being fed.

In all my previous inventions in stitch separating and indenting machines the work-support has been firmly locked, so as to be unyielding when the operating tool or tools descend upon the work.

By the employment of two operating-tools, one to feed the work by contact therewith and the other to separate the stitches and indent the welt, both moved into contact with the work by a positive unyielding movement, and a work-support and locking mechanism constructed and arranged to operate as herein described and imparting to the feed-tool a lateral movement considerably greater than the length of the standard stitch I am enabled to separate the stitches and indent the welt, whether said stitches are of uniform or varying lengths, with positively-operated feed and separating tools, by which a considerable saving is made in the cost of manufacturing the machine. This is desirable, and is attained by so constructing the cams E and F that the feed-tool will move downward in an oblique path during the first part of its movement and then move horizontally to feed the work, as hereinbefore described.

The form of the path of the cam E will be clearly seen upon an inspection of Fig. 4, it being understood that the periphery of said cam moves in the direction indicated by the arrows on Figs. 2 and 4, and that the point s on Fig. 4 indicates the top of said cam E in Fig. 2 and its relative position to the cams F, G, and H.

The operation of my invention is as follows: The several parts of the machine being in the positions shown in the drawings—that is, the separator o^2 being in the work, the work-support locked, the feed-slide at the extreme of its movement toward the right of Figs. 1 and 3, and the feeding-tool raised out of the work—the first movement effected by a rotation of the shaft B is to unlock the work-support, so that it will be held up only by the tension of the spring j , which has been properly adjusted to the desired pressure. The next movement in order is the raising of the separator o^2 out of the work, which leaves the work in condition to be fed. The feeding-tool is next moved downward in an oblique direction by the combined action of the throw t of the cam F and the first part of the throw r of the path of the cam E, causing said tool to come in contact with the upper surface of a stitch between the center thereof and the space between it and the next stitch in advance thereof, and as said tool continues to move downward in its oblique path its point will slide down the shoulder of the stitch upon which it rests into the space between it and the next stitch in advance, against the shoulder of which it bears during the last part of its lateral movement, to feed the work a distance equal to the length of the stitch against

which it is acting. The length of movement of the feed-slide, and consequently the lateral movement of the feed-tool o' , must be somewhat greater than the length of the longest stitch to be fed in the sample of work being operated upon. If the stitch in advance of the feed-tool is longer than the standard stitch, the tool may come in contact with the shoulder of said stitch before it has fully completed its oblique downward movement, and the work will begin to move forward sooner than if said stitch were of standard length; but if the stitch in advance of said tool is of standard length the downward movement will be completed before the work begins to move forward, and if the stitch is of a length less than the standard length the downward movement of the feed-tool will be completed before the point of said tool has entered the space between the stitches, in which case the work-support will yield to the pressure of the feed-tool and allow said tool to slip over the shoulder of the stitch upon which it rests, when the work-support will be moved upward again to insure the point of the feed-tool engaging the shoulder of the stitch in advance thereof and feed the work a distance just equal to the length of the stitch in advance of said tool, and in every case, whether the stitch is of standard length or shorter or longer than the standard, the forward movement of the feed-tool will cease when the space in which its point rests is directly beneath the point of the separator o^2 , when the work-support is again locked in its raised position. The feeding-tool is then raised by the throw t of the cam F and moved backward to its starting-point by the throw r' of the cam E, and then the separator descends into the space between the two stitches just left by the feed-tool and separates the stitches and indents the welt, if desired, it being understood that the machine may be used to separate the stitches only or to separate the stitches and indent the welt by simply changing the separator-tool O^2 —that is, in case it is only desired to separate the stitches a tool will be used having a width from front to rear on its working end only equal to the width of the line of stitches, but if it is desired to indent the welt also a wider tool will be necessary. The descent of the separator into the space between the stitches completes a revolution of the cam-shaft, and these several operations are separated at each revolution of the shaft and may be continued until the stitches on the particular piece of work in the machine have all been separated.

In another application of mine, filed June 1, 1895, Serial No. 551,342, is shown and described a machine which, in general appearance, is very similar to that shown and described in this application, but there are essential differences in the two machines as follows: In the prior application cited the feed-tool is secured to its operating-lever in a substantially-perpendicular position, has imparted to

it a horizontal movement corresponding to the length of the standard stitch, and is moved toward and from the work in a vertical direction and is intended to separate and indent
 5 stitched surfaces only, in which the stitches are of substantially uniform lengths, while in the present application the feed-tool is secured to its operating-lever in an inclined position, is moved toward and from the work in
 10 an oblique direction, and has a lateral movement imparted thereto of a length equal to about one and one-half times the length of the standard stitch, whereby the machine is adapted to separate and indent stitched surfaces
 15 in which the stitches vary considerably in length.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a stitch separating and indenting machine, the combination of a work support; a
 20 feed tool movable in a plurality of directions in different planes; means for moving said tool into contact with the work by a positive or unyielding movement to locate the spaces
 25 between the stitches; means for moving said tool horizontally after the space between two stitches has been located, a distance equal to the length of the stitch next in advance
 30 thereof whether said stitch be of standard length or longer or shorter than the standard length, to feed the work; a separating and indenting tool; and means for positively moving
 35 said separator toward and from the work to separate the stitches and indent the welt.

2. In a stitch separating and indenting machine, the combination of a work support; a

feed tool; means for moving said tool toward the work in an oblique direction by a positive or unyielding movement; means for moving
 40 said feed tool horizontally to feed the work a distance equal to the length of the stitch in advance thereof; a separating and indenting tool; and means for positively moving said separator toward the work to separate the
 45 stitches and indent the welt.

3. In a stitch separating and indenting machine, the combination of a work support mounted upon a yielding bearing; a locking device constructed and arranged to lock said
 50 work support against downward movement while the separator is separating the stitches and indenting the welt, and release said support while the feed tool is being moved into
 55 contact with and feeding the work; a feed tool; means for moving said tool toward the work in an oblique direction by a positive or unyielding movement; means for moving said
 60 tool horizontally to feed the work a distance equal to the length of the stitch in advance thereof; a separating and indenting tool; and means for positively moving said separator
 65 into contact with the work to separate the stitches and indent the welt.

In testimony whereof I have signed my name to this specification, in the presence of
 two subscribing witnesses, on this 27th day of
 June, A. D. 1895.

JOHN B. HADAWAY.

Witnesses:

N. C. LOMBARD,
 WALTER E. LOMBARD.