No. 880,792. PATENTED MAR. 3, 1908.

J. B. HADAWAY.

STITCH SEPARATING MACHINE.

APPLICATION FILED NOV. 22, 1900.

2 SHEETS—SHEET 1.

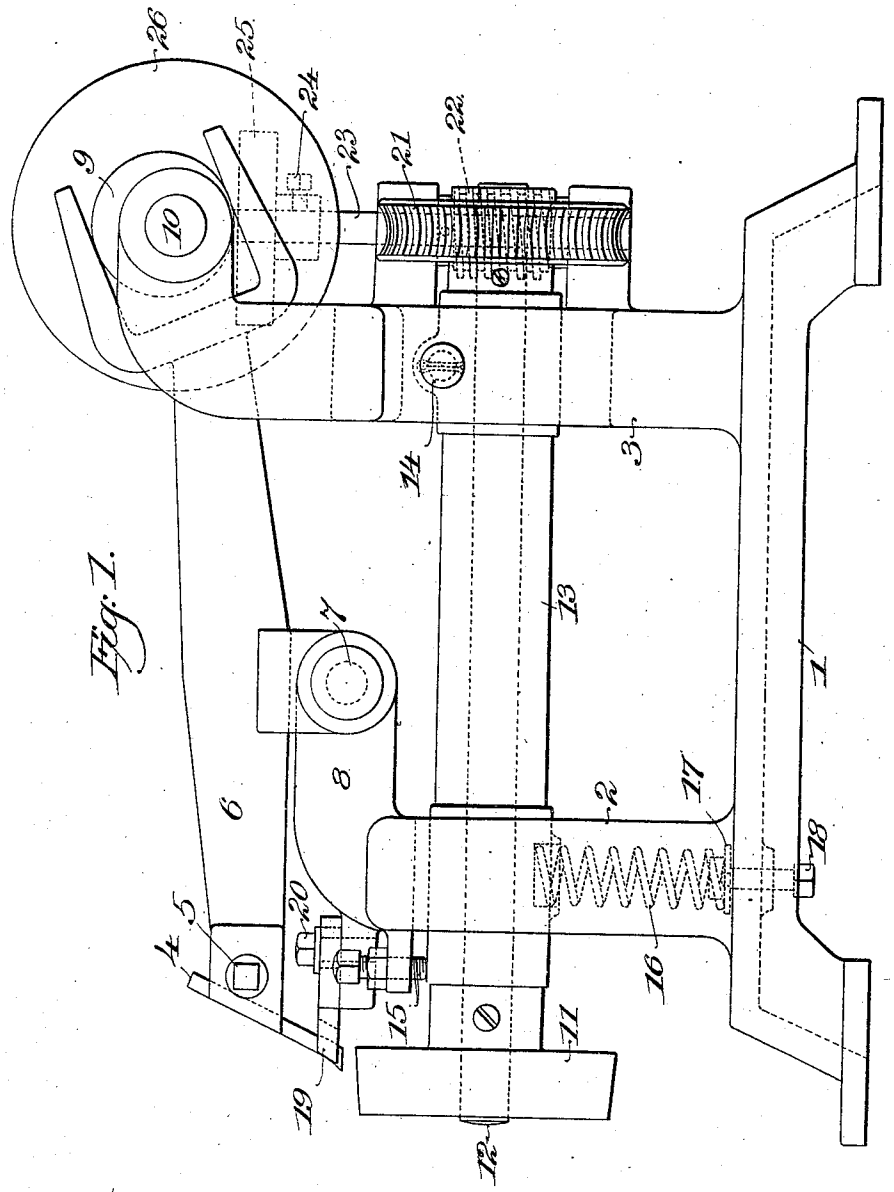


Fig. 1.

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by his Attorney
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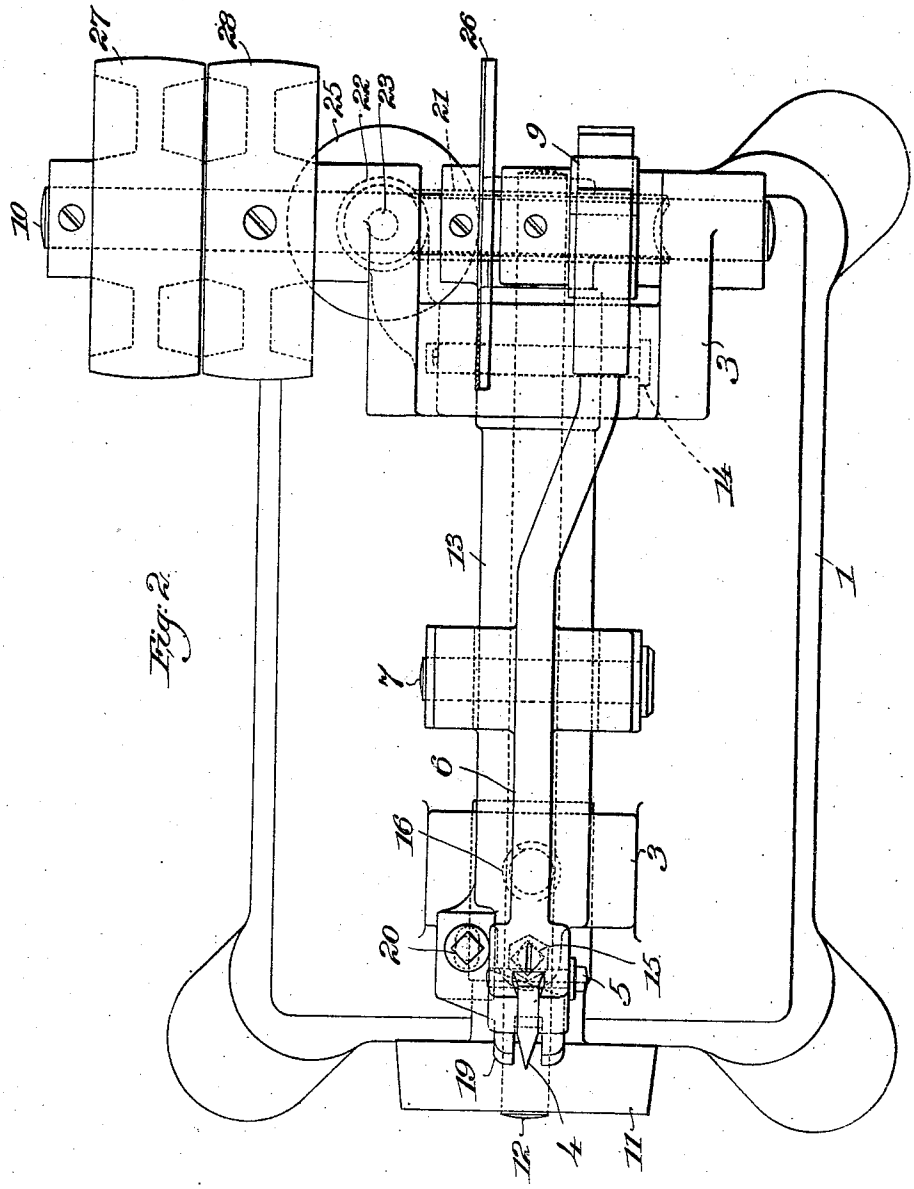


Fig. 2.

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UNITED STATES PATENT OFFICE.

JOHN B. HADAWAY, OF BROCKTON, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

STITCH-SEPARATING MACHINE.

No. 880,792. Specification of Letters Patent. Patented March 3, 1908.

Application filed November 22, 1900. Serial No. 37,337.

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 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 machines which are now commonly used in the manufacture of boots and shoes to indent the material between the stitches appearing on the upper surface of the edge of the sole.

More particularly my invention relates to that class of such machines adapted to operate on a boot or shoe sole after the seam has been finished.

Among the objects of my invention are to provide a simple and efficient machine of the class referred to which can be run at a high rate of speed, which will operate to feed the work with certainty the distance between successive stitches, which will accurately indent the intervals between the stitches whether of uniform or varying length and which can be adjusted to operate on various styles of work.

To certain of these ends my invention consists in a stitch separating machine provided with a stitch separating or indenting tool movable toward and from the work, a work feeding device, and connected mechanism arranged to actuate the tool and to impart to the feeding device a continuous forward movement whereby the work is moved a distance equal to the average length of a stitch between successive actuations of the tool.

By imparting a continuous forward movement to the feeding device the feeding operation is performed with greater certainty and the stitch intervals are more accurately positioned beneath the separating tool than is the case where an intermittently acting feeding device is employed and the machine can also be run at a higher rate of speed.

In order to compensate for the varying lengths of stitches often found in boot and shoe work, my invention contemplates arranging the feeding device to permit the work to be moved by the action of the tool on the rounded ends of the stitches whereby the stitch intervals will be accurately indented whether the stitches are of uniform or varying length.

My invention also contemplates providing the mechanism for imparting a continuous forward movement to the feeding device with provision for adjustment whereby the speed of such movement may be varied to increase or diminish the distance through which the work is moved between successive actuations of the tool and the machine made capable of operating on different styles of work, that is, on seams the stitches of which are of different lengths.

My invention also consists in the devices and combinations of devices hereinafter described and claimed.

Having thus indicated the nature and scope of my invention I will now proceed to describe the illustrated embodiment thereof shown in the accompanying drawings to which however my invention is not to be limited as it may be embodied in many different constructions without departing from the spirit thereof.

In the drawings accompanying this application, Figure 1 is a view in side elevation of a stitch separating machine embodying my invention, and Fig. 2 is a plan view thereof.

The frame of the machine consists of the base 1 and front and rear standards 2 and 3.

4 designates the stitch separating and indenting tool secured by means of a clamping bolt 5 in the split forward end of a lever 6, pivoted at 7 on a lug 8 projecting rearwardly from the top of the standard 2. The rear end of the lever 6 is provided with an open ended slot with which engages a circular cam 9 eccentrically secured to a driving shaft 10 journaled in lugs projected upwardly and rearwardly from the standard 3, the construction being such that as the shaft 10 is rotated, vertical oscillating movements are given to the lever 6 and indenting tool 4. Beneath the tool 4 is a work supporting and feeding roller 11 secured to the forward end of a shaft 12 journaled in a block 13 pivoted by means of a horizontal pivot 14 in an opening in the rear standard 3. The forward end of the block 13 is situated in an opening in the front standard 2 and is free to move vertically therein, being pressed upwardly against an adjustable stop screw 15 screwed through a lug projecting laterally from the upper portion of the standard 2

by means of a coiled spring 16, the upper end of which is seated in a recess in the block 13, and the lower end of which rests on a plate 17 carried by an adjusting screw 18 projecting upwardly through the base 1.

Extending horizontally above the feeding roll 11 is a work gage 19 adjustably secured to a lug on the top of the standard 2 by means of a bolt 20 passing through a slot in the gage. The forward end of the gage 19 is provided with a slot through which the separating tool 4 passes so that the gage extends on both sides of the tool. Secured to the rear end of the shaft 12 is a worm gear 21 with which meshes a worm 22 secured to a short vertical shaft 23 journaled in lugs projecting rearwardly from the standard 3. To the upper end of the shaft 23 is adjustably secured by means of a set screw 24 a friction disk 25 the peripheral surface of which bears against the face of a friction disk 26 secured to the driving shaft 10. By this construction as the shaft 10 is rotated, the feed roll 11 will be rotated continuously, the peripheral speed of the roll depending on the adjustment of the disk 25 on the shaft 23, the speed of the roll being increased when the disk 25 is moved away from the center of the disk 26 and being diminished when the disk 25 is moved toward the center of the disk 26.

The operation of the machine above described is as follows: By means of the screw 15 the forward end of the block 13 is adjusted to position the roll 11 at the proper distance below the gage 19. The peripheral surface of the feed roll is inclined as shown so that when a shoe is placed in position to be operated upon by the separating tool, with the sole of the shoe resting on the feed roll the upper edge of the sole will contact with the lower surface of the gage which will thus determine the position of the sole edge with relation to the separating tool. The proper position for the roll 11 will therefore be determined by the thickness of the shoe sole and the width of the edge. The disk 25 is adjusted toward or from the center of disk 26 to cause the feed roll 11 to be rotated at such speed that the work will be moved by the roll a distance equal to the length of a stitch while the tool 4 is out of contact with the work. A shoe is now placed in position to be operated upon, the bottom of the sole resting on the roll 11 and the edge of the sole extending beneath the tool 4 and the machine thrown into operation by shifting the driving belt from the loose pulley 27 to the fast pulley 28. As the driving shaft 10 rotates the separating tool will be moved toward and from the work and the feed roll 11 will be rotated continuously. The feed roll 11 engages the bottom of the sole with sufficient friction to feed the sole when the separating tool is out of contact therewith but allows the tool to stop the work while indenting a stitch interval. The work is moved uniform distances between successive actuations of the separating tool, the length of each feed movement being equal to the length of the average stitch. So long therefore as the stitches are of uniform length the work will be moved beneath the separating tool while the tool is out of contact therewith, a distance equal to the length of a stitch and the tool at each descent will strike in the space between two stitches. When however irregularities occur in the length of the stitches, the distance through which the work is moved will be greater or less than the length of a stitch according as to whether the stitch is shorter or longer than the average and the tool will strike to one side of the stitch interval and upon the rounded end of a stitch. The frictional engagement of the feed roll with the work however permits the work to be moved by the action of the tool on the rounded end of a stitch, and the work will be moved forward by the tool in the case of a long stitch and backward in case of a short stitch so that the tool will accurately indent the intervals between the stitches whether of uniform or varying length.

It will be seen that by my invention I am enabled to provide a stitch separating machine which is simple in construction and reliable in operation.

By providing mechanism for continuously actuating the feeding device I have rendered the feeding operation certain in its action as the feeding device constantly tends to feed the work and will perform its function whenever the work is released. The continuously acting feeding device also allows the machine to be run at a high rate of speed, as the momentum of the parts constituting the feeding device does not have to be overcome at each feeding operation.

Having thus described my invention, I claim as new and desire to secure by Letters Patent of the United States:—

1. A stitch separating machine, having, in combination, a stitch separating tool movable towards and from the work to indent the stitch intervals successively, automatic mechanism for actuating the tool and continuously acting feeding mechanism acting to feed the work approximately the length of a stitch between successive actuations of the tool and arranged to allow the work to be stopped by the tool and to slip on the work while the work is held by the tool, substantially as described.

2. A stitch separating machine, having, in combination, a stitch separating tool movable towards and from the work to indent the stitch intervals successively, automatic mechanism for actuating the tool, a continuously rotating feed roll acting on the bottom

of the sole to feed the sole approximately the length of a stitch between successive actuations of the tool and arranged to allow the sole to be stopped by the engagement of the tool therewith and to slip on the sole while the sole is held by the tool, substantially as described.

3. A stitch separating machine, having, in combination, a stitch separating tool movable towards and from the work to indent the stitch intervals successively and automatic mechanism for actuating the tool and for continuously feeding the work while the tool is out of engagement therewith, constructed and arranged to allow the work to be positioned and stopped by the tool as the tool engages each stitch interval, substantially as described.

4. A stitch separating machine, having, in combination, a stit h separating tool movable towards and from the work to indent the stitch intervals successively, automatic mechanism for actuating the tool, and feeding mechanism acting continuously on the work and arranged to allow the work to be stopped and positioned by the tool as the tool engages each stitch interval and to feed the work when released by the tool, and means for adjusting the feeding mechanism to cause the work to be moved approximately the length of a stitch between successive actuations of the tool, substantially as described.

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

JOHN B. HADAWAY.

Witnesses:
ALFRED H. HILDRETH,
FRED O. FISH.