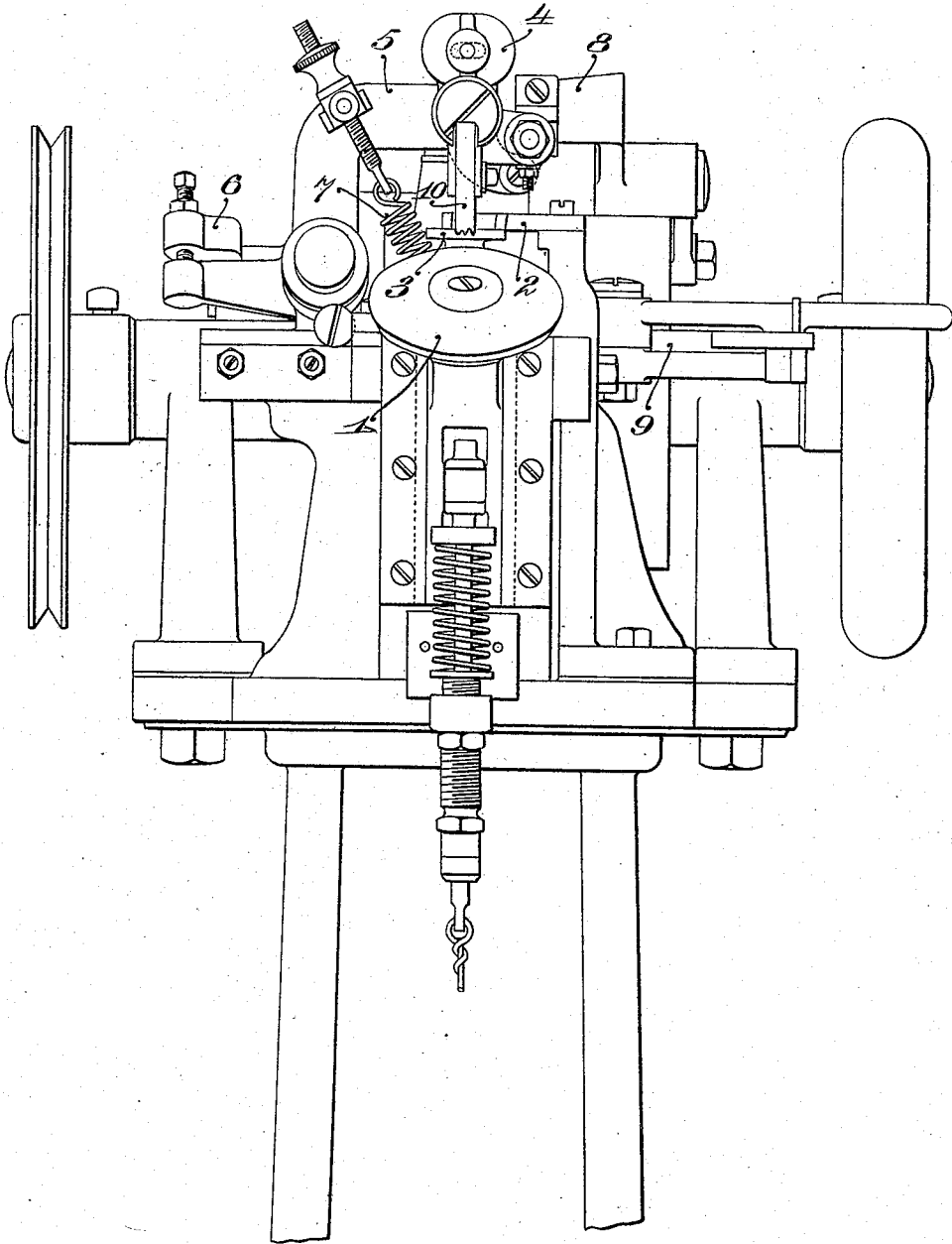


J. B. HADAWAY.
STITCH SEPARATING AND INDENTING MACHINE.
APPLICATION FILED JUNE 18, 1904.

933,175.

Patented Sept. 7, 1909.
2 SHEETS—SHEET 1.

Fig. 1.



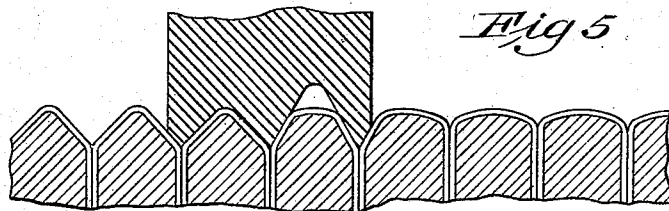
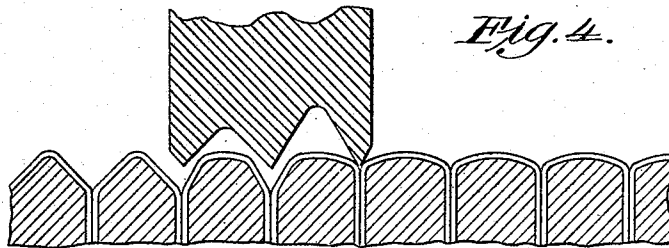
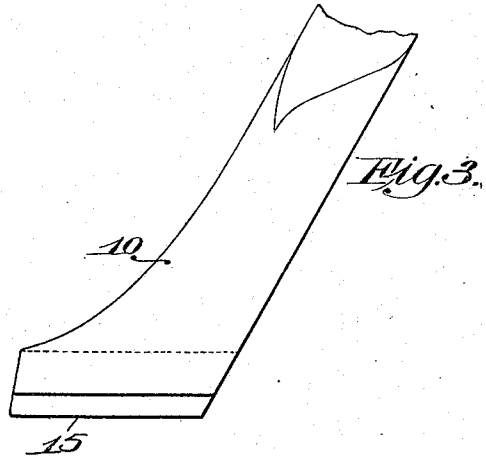
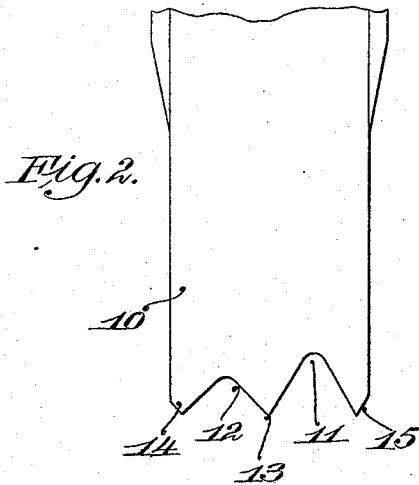
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2 SHEETS—SHEET 2.



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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 AND INDENTING MACHINE.

933,175.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed June 18, 1904. Serial No. 213,093.

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 particularly to stitch separating and indenting machines which are adapted to operate upon a finished seam to indent the intervals between the stitches, whether the stitches are of uniform or varying length, and to shape the crowns of the stitches.

Machines of the class referred to when used to shape the crowns of the stitches as well as to indent the stitch intervals have usually been provided with an indenting tool having a single groove of the shape which it is desired to impart to the crown of the stitch. In the operation of these machines the crown of each stitch is acted upon but once by the indenting tool. On account of the resistance offered to the tool by the work and the tendency of the work to return to its original position after being compressed, difficulty has been experienced in causing the tool to impart the desired shape to the crowns of the stitches. It is desirable that the groove in the tool be shallow in order that the crowns of the stitches may be separated by wide indentations so as to bring them into prominence, the best results being secured when the side walls of the groove are arranged at an angle of about 90° with relation to each other. When the tool is provided with a shallow groove, however, the resistance offered to the tool by the work is increased, and also difficulty is experienced in causing the tool to properly locate the stitch intervals when the stitches vary in length. Furthermore, in many stitch separating machines the tool is utilized to feed the work and when a tool provided with a shallow groove is used there is a tendency for the tool to slip over the work and not feed it with certainty the required distances.

The object of the present invention is to provide a stitch separating and indenting

machine by which the stitch intervals can be indented whether the stitches are of uniform or varying length, and by which the crowns of the stitches can be permanently shaped in a certain and reliable manner.

A further object of the present invention is to provide an improved form of stitch separating and indenting tool for use in stitch separating and indenting machines which is adapted to indent the intervals between the stitches and to impart the desired permanent shape to the crowns of the stitches.

With the above objects in view the present invention contemplates the provision in a stitch separating and indenting machine of means for indenting the stitch intervals whether the stitches are of uniform or varying length, to separate the stitches, and means for shaping the crowns of the stitches which have been previously separated by said indentations. By first indenting the intervals between the stitches the indentations can be formed accurately in the stitch intervals whether the stitches are of uniform or varying length, and the subsequent operation of shaping the crowns of the stitches merely necessitates compressing the material between the indentations so that the crowns of the stitches can be brought readily into the desired shape. Preferably the crowns of the stitches are partially shaped simultaneously with the formation of the stitch separating indentations as thereby the crown of each stitch is compressed twice and is more readily brought to its final shape and the tendency of the material to return to its original position is more effectually overcome.

While the present invention, broadly considered, contemplates the use of any suitable tool or tools for forming the stitch separating indentations and for shaping the crowns of the stitches, a single tool is preferably employed, as the use of a single tool conduces to simplicity of construction and certainty of operation of the machine. This tool is provided with a stitch separating and indenting blade, and with two grooves for shaping the crowns of the stitches, and the mechanism for actuating the tool and feeding the work is so constructed and arranged that the indenting blade is caused to indent the stitch intervals whether the stitches are of uniform or varying lengths, and the grooves are caused to act simultaneously on

the crowns of different stitches and successively on the crown of the same stitch. The grooves in the tool are preferably of different shapes so that one groove acts to partially shape the crown of a stitch while the other groove is acting to complete a previously partially shaped crown.

In addition to the features of invention above referred to, it is believed that it is new in a stitch separating machine or in a machine for forming impression or imitation stitches to provide an indenting tool having a plurality of grooves, and means for actuating the tool and feeding the work to cause the grooves to act successively on the crown of the same stitch, and it is considered that a feature of the invention consists in providing a stitch separating and indenting machine or an impression stitch machine with such instrumentalities. It is also believed that the indenting tool above referred to, provided with two grooves of different shapes, is new and it is considered that this indenting tool in and of itself also constitutes a feature of the invention whether used to separate and indent the stitches of a finished seam or merely to form impression or imitation stitches.

Other features of the invention consist of certain constructions, combinations and arrangements of parts hereinafter described and claimed, the advantages of which will be obvious to those familiar with the art.

The present invention will be clearly understood from the inspection of the accompanying drawings in which—

Figure 1 is a view in front elevation of a stitch separating and indenting machine embodying a preferred form of the same. Fig. 2 is a view in front elevation of the lower end of the improved stitch separating and indenting tool. Fig. 3 is a view in side elevation of the tool illustrated in Fig. 1, and Figs. 4 and 5 are diagrammatic views illustrating the action of the tool on a finished seam.

With the exception of the indenting tool the machine illustrated in Fig. 1 is the same in the construction, arrangement and mode of operation of its various parts as the machine disclosed in applicant's prior patent No. 543,012, dated July 23, 1895, to which patent reference may be had for a complete disclosure of the construction and operation of the parts not hereinafter specifically described.

In Fig. 1, which corresponds to Fig. 2 of the patent above referred to, 1 indicates the lower work support, 2 the upper work support, 3 the edge guide, 4 the tool stock, 5 the lever upon which the tool stock is pivotally mounted, 6 the lever which actuates the lever 5 to raise the tool from the work, 7 the spring which acts on the lever 5 to press the tool lightly against the work during the lo-

cating movements of the tool, 8 the pressure lever which actuates the lever 5 to force the tool into the work, and 9 the feed slide by which the locating and feeding movements are imparted to the tool. The indenting tool is indicated at 10 and is actuated in the same manner as the indenting tool of the machine disclosed in the patent above referred to, the feeding movement imparted to the tool being sufficient to move the work forward a distance equal to the length of a stitch.

As illustrated in Figs. 2, 4 and 5, the indenting tool is provided with two grooves 11 and 12, arranged to act simultaneously upon the crowns of two adjacent stitches. The side walls of the groove 12 are arranged at an angle of about 90° with relation to each other, while the side walls of the groove 11 are arranged at a lesser angle, the grooves being of the same width but of different depth. The adjacent side walls of grooves 11 and 12 form a blade 13 between the grooves, and the other walls of the grooves in conjunction with the inclined surfaces at the sides of the tool form blades 14 and 15 at each side of the grooves. The surfaces which form the blade 15 meet at an acute angle and it will be seen from inspection of the figures that this blade is sharper than either of the blades 13 and 14. The blade 15 is a stitch separating and indenting blade, while the blades 13 and 14 act in the indentations made by the blade 15 and again compress the material if it has returned toward its original position after being indented by the blade 15. The groove 11 acts to partially shape the crown of a stitch and the groove 12 acts to finish the crown previously partially shaped by the groove 11.

The manner in which a finished seam is acted upon by the tool will be apparent from inspection of Figs. 4 and 5, in which Fig. 4 shows the tool after the blade 15 has been located in a stitch interval, and Fig. 5 shows the tool forced into the work to indent the interval in which the blade 15 has been located. When the tool is forced lightly against the work the blade 15 rests upon the tops of the stitches, the other portions of the tool being supported out of contact therewith. As the tool is moved backward and forward over the work, the blade 15 enters the interval between two stitches and thereby the tool is located with relation to the stitches so as to properly indent the stitch intervals and shape the crowns of the stitches whether the stitches are of uniform or varying length. When the tool is forced into the work as indicated in Fig. 5, the crown of the stitch beneath the groove 11 is partially shaped and the crown of the stitch beneath the groove 12 which was partially shaped at the preceding descent of the tool is completed. The stitch intervals are thus

accurately indented and the crown of each stitch is acted upon twice by the tool so that it is brought to the desired shape and retains such shape after the tool is removed from contact therewith.

The nature and scope of the invention having been indicated and a preferred form of the invention having been specifically described, what is claimed is:—

10 1. A stitch separating and indenting machine, having, in combination, an indenting tool provided with two grooves and means for actuating the tool and feeding the work to cause the grooves to act simultaneously
15 on the crowns of different stitches and successively on the crown of the same stitch, substantially as described.

2. A stitch separating and indenting machine, having, in combination, an indenting
20 tool provided with a stitch separating blade and with two grooves, and means for actuating the tool and feeding the work to cause the indenting blade to indent the stitch intervals whether the stitches are of uniform
25 or varying length and the grooves to act simultaneously on the crowns of different stitches and successively on the crown of the same stitch, substantially as described.

3. A stitch separating and indenting machine, having, in combination, means acting
30 automatically to indent the interval between two stitches of a finished seam to separate the stitches whether the stitches are of uniform or varying length and means for shaping the crown of another previously separated
35 stitch, substantially as described.

4. A stitch separating and indenting machine, having, in combination, means acting
40 automatically to indent the interval between two stitches of a finished seam to separate the stitches whether the stitches are of uniform or varying length and to partially shape the crown of a stitch and means for

completing the crown of another previously separated stitch, substantially as described. 45

5. A stitch indenting machine, having, in combination, an indenting tool provided with two grooves of different shapes, and means for actuating the tool and feeding the work to cause one groove to partially shape
50 the crowns of the stitches and the other groove to complete the partially shaped crowns, substantially as described.

6. An indenting tool provided with two grooves of different shapes, one groove being
55 adapted to partially shape the crown of a stitch while the other groove is completing a previously partially shaped crown, substantially as described.

7. An indenting tool for stitch separating machines provided with a stitch separating
60 blade to enter the stitch intervals and locate the tool with relation to the stitches and with two grooves to act simultaneously upon the crowns of two stitches, substantially as
65 described.

8. A stitch separating and indenting machine, having, in combination, means for indenting the interval between two stitches of a finished seam to separate the stitches, and
70 means for simultaneously shaping the crown of another previously separated stitch, substantially as described.

9. A stitch indenting machine, having, in combination, an indenting tool provided
75 with a plurality of crown shaping grooves and means for actuating the tool and feeding the work to cause different grooves to act successively on the crown of the same
80 stitch, substantially as described.

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

JOHN B. HADAWAY.

Witnesses:

FRED O. FISH,
HORACE VAN EVEREN.