

(No Model.)

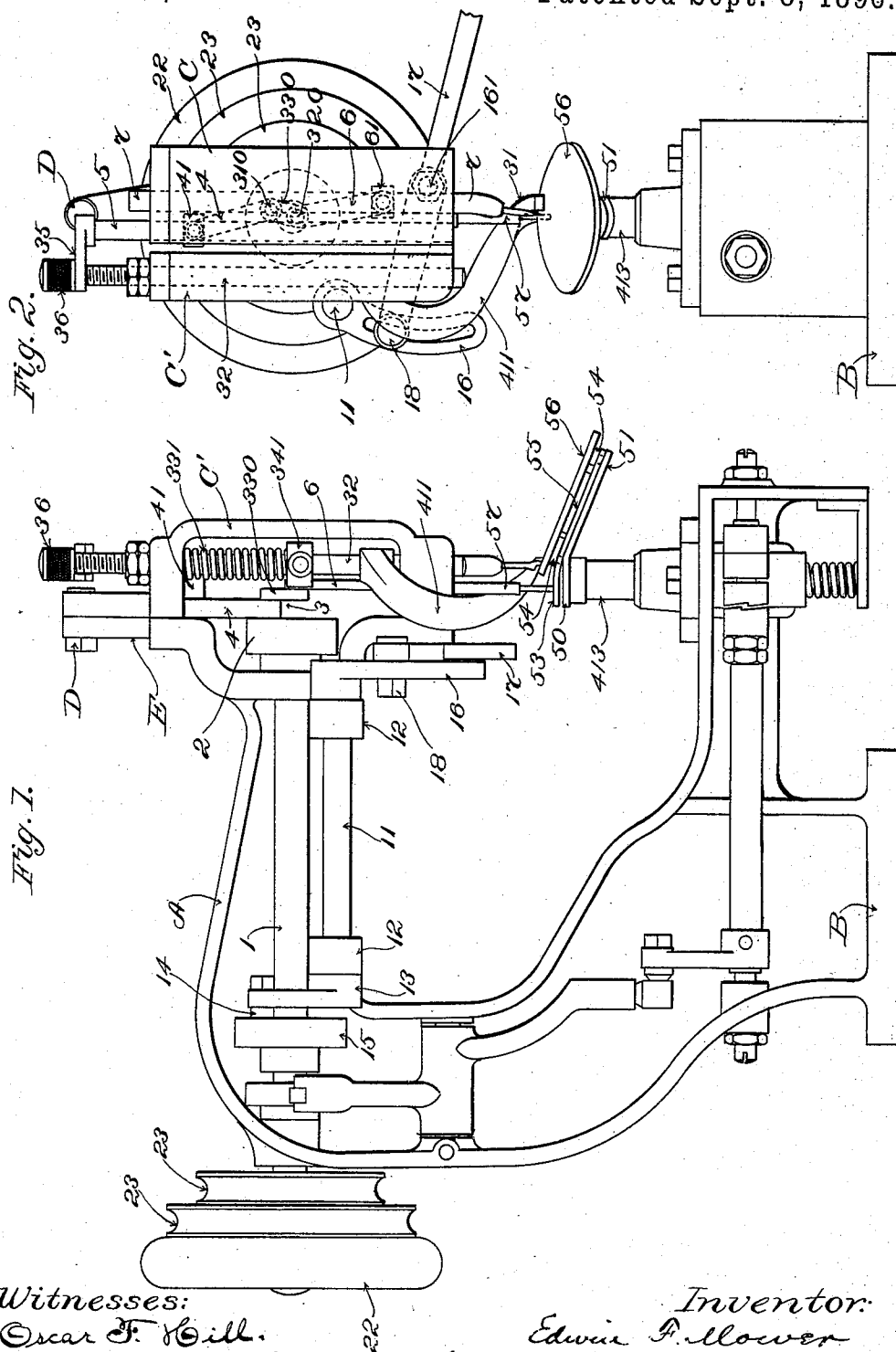
2 Sheets—Sheet 1.

E. F. MOWER.

SOLE EDGE FINISHING AND ORNAMENTING MACHINE.

No. 567,251.

Patented Sept. 8, 1896.



Witnesses:
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Fig. 3.

Fig. 4.

Fig. 5.

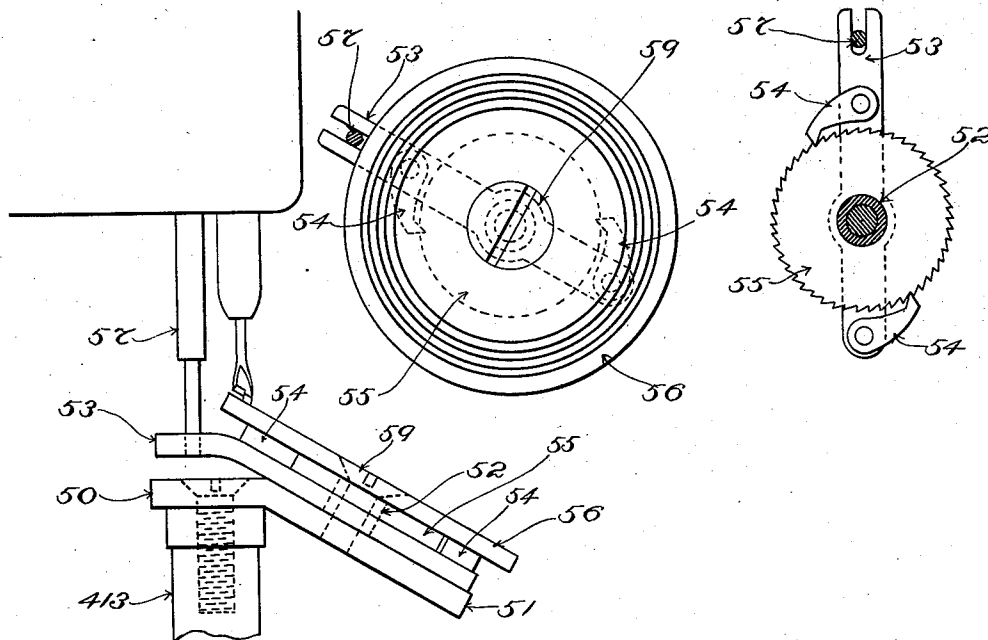


Fig. 6.

Fig. 7.

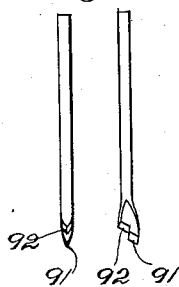
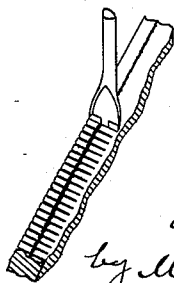


Fig. 8.



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UNITED STATES PATENT OFFICE.

EDWIN F. MOWER, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO FRANK W. WHITCHER, OF SAME PLACE.

SOLE-EDGE FINISHING AND ORNAMENTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 567,251, dated September 8, 1896.

Application filed May 5, 1896. Serial No. 590,333. (No model.)

To all whom it may concern:

Be it known that I, EDWIN F. MOWER, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sole-Edge Finishing and Ornamenting Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object to provide an improved machine for ornamenting the edges of the soles of boots and shoes, as also for pricking up the line of stitches on the sole edge outside the upper; and it consists in a machine constructed as hereinafter set forth, and the novel features of which are pointed out and clearly defined in the claims at the end of this specification.

In the description reference is made to the accompanying drawings, in which—

Figure 1 is a side elevation of a machine embodying my invention, viewed from the rear or open side of the frame. Fig. 2 is an end elevation of the head of the machine, as also of the work-post. Fig. 3 is a detail, somewhat enlarged, showing the mechanism for operating the feeding-disk, as also showing the said disk and the pricking and marking tool and the operative relation of the latter parts. Fig. 4 is a plan view of the feeding-disk, the pawl-and-ratchet-operating mechanism therefor being indicated in dotted lines. Fig. 5 is a plan view of the said pawl-and-ratchet-operating mechanism detached. Fig. 6 is an edge and side view of one form of pricking and marking tool. Fig. 7 is an edge and side view of another form of said tool. Fig. 8 is a perspective showing a section of leather with a line of stitches therein and pricking and marking tool in operative position on the leather, as also showing one portion of the seam pricked up and marked, and the other portion before it has been pricked up and marked.

In the manufacture of boots and shoes it is customary to improve the finish of the shoe, as also the appearance of the seam along the sole edge outside the upper, by what is termed "pricking up" or "stitch-dividing" the line of stitches and marking the sole edge. This

has been done by hand, and in machines previously constructed by me it has been done simultaneously with the placing of a line of stitches around the sole edge. The hand operation is slow and expensive, and on these accounts objectionable, and when the pricking up or stitch-dividing and marking are done by machine at the same time that the stitches are laid the maker of the boot or shoe is obliged to use the stitching, which is performed by the machine which does the marking and pricking up, and this is objectionable, since it is sometimes desired to use a different stitching-machine to produce stitches of different character. By the employment of my present invention the pricking up of the seam, as also the marking of the sole adjacent thereto, may be performed very quickly and easily and without specially skilled labor, and the operations of pricking up or stitch-dividing and marking may be performed subsequently to the stitching, so that stitching of any kind may be employed and the stitching done on an independent machine, any of the well-known types of machine being used.

My machine is simple and will be readily understood from the following description, in which reference is made to the accompanying drawings.

At A is shown the frame of the machine, which is preferably of the goose-neck pattern ordinarily employed in sewing-machines. The frame A is provided with a base-plate B, preferably integral therewith and of circular form. This base-plate is intended to fit within a correspondingly-shaped recess in a metal base, (not shown,) on which the machine is placed when it is in use. This arrangement permits the machine to be turned around conveniently by the operator when for any reason he wishes to get at the rear side of the frame. The rear side of the frame, which is shown in Fig. 1, is preferably open, as shown, so that the working parts may be readily gotten at by the operator. In the base A is journaled the main shaft 1, which is provided with a fly-wheel 22 and pulleys 23 23 in the usual manner. At the opposite end of the shaft 1 and within the frame is secured a disk 2, which is provided with a double crank 3. The double crank consists of a pin 310, a bar or

connection 330, and another crank-pin 320, extending from said bar at the opposite end thereof and in an opposite direction from the said pin 310. The said pin 310 is rigidly secured in place on the face of the disk 2, so that the pins 310 and 320 and the bar 330 revolve with the said disk 2. A link 4 is pivoted to the crank-pin 310, and at its opposite end there is an adjustable collar 41, which is secured to a vertically reciprocating bar 5. A link 6 is pivoted at one end on the pin 320 and at the opposite end to another adjustable collar 61, which is secured to the pricker-bar 7. By this construction the bar 5 and the pricker-bar 7 are alternately reciprocated, one moving up as the other moves down. The said bars are mounted to permit them to slide vertically in a frame C, which constitutes a part of the head of the machine, and which is pivoted at D to an upright E on the forward end of the goose-neck frame A, as will be clear from Fig. 1. By so mounting the frame C which carries the pricker-bar as above described it is permitted to swing laterally, and thus the said bar is moved laterally as well as vertically, thus providing for the feeding forward of the work by the pricking and marking tool. For the purpose of moving the swinging frame C laterally, causing the pricking and marking tool to feed the work forward, a rock shaft 11 is provided, which is journaled in projections 12 12 on the frame of the machine. At one end of the shaft 11 is secured an arm 13, having a cam-roll 14, which coöperates with a cam 15, secured upon the main shaft 1. At the opposite or forward end of the rock-shaft 11 is secured a curved slotted arm 16. A lever 17 is secured by means of a bolt 18 in the curved slot of the said arm 16, said curved slot being provided for the purpose of permitting the adjustment of the lever 17 relatively to said arm, so that the lateral movement of the swinging frame C may be increased or diminished when it is desired to increase or diminish the extent of the feed movement. About midway of the lever 17 the said lever is pivotally connected with the lower end of the frame C at the rear or inside thereof, the connection being indicated at 161, Fig. 2. The free projecting end of the lever 17 is so formed that it may be readily grasped by the hand of the operator, and, as will be clear, the operator may, by raising or lowering the said projecting end, shorten or lengthen the feed movement without arresting the working of the machine. The parts above described are so timed that the feed movement of the pricking and marking tool is obtained while the latter is in the work.

The presser-foot 31 is of the form shown, Figs. 1 and 2, and comprises a foot, which rests upon the upper surface of the work and serves to hold the work firmly in place on the work support, and a curved shank portion 411, considerably longer and having a greater curve than the presser-feet usually employed in sewing-machines. By constructing the presser-foot in this manner it is entirely out of the

way of the work, which is usually a lasted shoe. The last being in the shoe, the sides of the upper are unyielding and curve outwardly at many points, projecting over the seam on the sole edge. By curving the shank of the presser-foot as shown the said foot may be placed and held on the sole edge when the last is in the shoe. The presser-foot is mounted on the presser-bar 32, and is secured to the bar at a point above the lower end of the latter, as shown. By thus attaching the foot to the bar a foot of the construction shown may be employed, while the bearing at the lower end of the bar is preserved and insures the proper support thereof. The said presser-bar 32 is arranged vertically in a frame C', which is rigidly secured to the goose-neck in any well-known manner. The spring 331, which encircles the presser-bar, is secured between the upper part of the frame C' and an adjustable collar 341, which is secured upon the presser-bar, and said spring serves to hold the presser-foot in engagement with the work. As the bar 5 ascends and during the time at which the feed takes place the projection 35 engages the thumb-nut 36 on the upper end of the presser-bar and raises the presser-foot from the work, freeing the latter and permitting it to be fed forward.

The work-post 413 is preferably constructed and mounted so as to automatically adjust itself to any thickness of stock which may be in the machine. It is held rigid while the machine is operated to prick up a stitch and mark the sole adjacent thereto and until the end of the feed movement, when it is free to adjust itself in case the stock shall have varied in thickness at the point at which the succeeding mark or indentation is to be made. As the automatically-operating work-post is not essential to my present invention, I do not deem it necessary to describe it in detail.

For the purpose of assisting the operator in holding the work in the right position relatively to the pricking and marking tool, as also to assist in the more convenient feeding forward of the work, I provide a work-support, which comprises a plate 50, (see Fig. 3,) which is rigidly secured by means of a screw or other suitable device to the top of the work-post 413. The plate 50 is provided with an inclined projecting portion or arm 51, from which there extends upwardly at right angles thereto a post or arbor 52. On this post is pivotally mounted a lever 53. Upon the lever 53 are pivoted two pawls 54, which coöperate with the ratchet-wheel 55, which is secured to a disk 56. The ratchet-wheel and disk are also mounted on the arbor 52, so that they may revolve thereon and are suitably secured in place, as by a screw 59. If the lever 53 be reciprocated, it will be clear that the disk 56 will be revolved with a step-by-step motion. For the purpose of reciprocating the lever 53 I connect the upwardly-extending slotted end thereof (see Fig. 5) with a downwardly-projecting portion or arm 57,

which is secured to the lower edge of the laterally-swinging frame C, so that at each reciprocation of the said frame the lever 53 will be reciprocated and the work-supporting disk 56 will be moved forward a step in its revolution. The movement of the parts is timed so that the disk will be moved as the work is being fed forward by the pricker and marker. By mounting the said disk in the inclined position shown the work is presented to the machine in a more favorable position to be acted upon. Should it be desired to change the angle at which the disk 56 is placed, the change may be readily effected by removing the plate 50 and arm 51 and inserting in place thereof a plate having an arm inclined at the angle desired. I do not desire to limit myself to the employment of a disk 56 which is operated positively so as to give it a step-by-step movement, since very good work may be done and good results obtained by the employment of an idler-disk, in which case the pawl-and-ratchet mechanism and reciprocating lever and its actuating mechanism would not be necessary and might be eliminated. The pricking and marking tool is mounted in a socket provided with a suitable clamping or securing device at the lower end of the marker-bar. The operative end of said tool is of the shape shown, Figs. 6 and 7, and is beveled or inclined so that the inclination of its face will correspond with the inclination of the work on the work-support and thus will produce a mark or indentation of equal depth throughout its length. The working or operative end of the pricking and marking tool may be varied in accordance with the length and character of the mark which it is desired to produce.

At Figs. 3 and 6 I have shown a tool provided with a projection 91 for dividing or pricking up the stitch and having a marking-face 92 extending on one side of the part 91. This tool or device will prick up the line of stitches and mark the same with a mark extending substantially at right angles to the line and on one side thereof. At Figs. 7 and 8 I have shown a pricking and marking tool provided with a marking-face extending on both sides of the line of stitches as shown in said Fig. 8. By the employment of my machine I am enabled to accurately divide or prick up and mark a line of stitches, the point 91 of the dividing or pricking-up tool entering the hole in the stock through which the threads of the stitch pass. When the projection 91 of the tool strikes in its descent any portion of the depression which exists between the stitches, which depression is formed by the downward curve of the thread of each stitch as the said thread passes into the stock, the said projection will find the center of said depression—that is, it will pass downwardly along the line of least resistance

and will enter between the stitches fairly, thus producing an accurate dividing or pricking up, as also an accurate marking. In other words, the pricking-tool will find the center point between the stitches and will center itself accurately, and it is enabled to do this because the support upon which the work is placed is free to move slightly, and the shank of the pricking-tool will spring slightly in case the said tool is not in exactly the right position when the pricking projection 91 first touches the stitch. This quality of slight adjustability which exists is very important, as it enables the machine to feel its way and adjust itself so as to enter the stitch at exactly the right point and thus prick up or divide the line of stitches accurately and mark the line accurately. In this respect, and for the reasons stated, the machine is enabled to do almost, if not quite, exactly what is performed by hand-work.

What I claim is—

1. In a machine for pricking up and marking a line of stitches the combination of a presser-foot and its operating mechanism, and a movable work-support advancing in unison with the advance of the work resting thereagainst of a pricking and marking tool, and its operating mechanism, the said pricking and marking tool having a movement toward and from the stock to prick up and mark the same and having a lateral movement to feed the stock forward, substantially as set forth.

2. A machine for pricking up and marking a line of stitches, comprising in combination a presser-foot and its operating mechanism, a work-support, a pricking and marking tool, a movable support therefor, a rock-shaft, means for actuating the said rock-shaft, a slotted arm on said rock-shaft, and a lever pivoted to the movable support for the pricking and marking tool, engaging the slot of the said arm and having a projecting end or handle by means of which the lever may be adjusted by the operator to vary the feed movement as desired, substantially as and for the purposes set forth.

3. In a machine for pricking up and marking a line of stitches, the combination with pricking and marking mechanism of means for holding the stock rigidly while the stitches are being pricked up and of freeing the stock while it is being fed forward, comprising a presser-foot and a work-support which is positively actuated while the stock is being fed forward, substantially as set forth.

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

EDWIN F. MOWER.

Witnesses:

ROBERT WALLACE,
WM. A. COPELAND.