

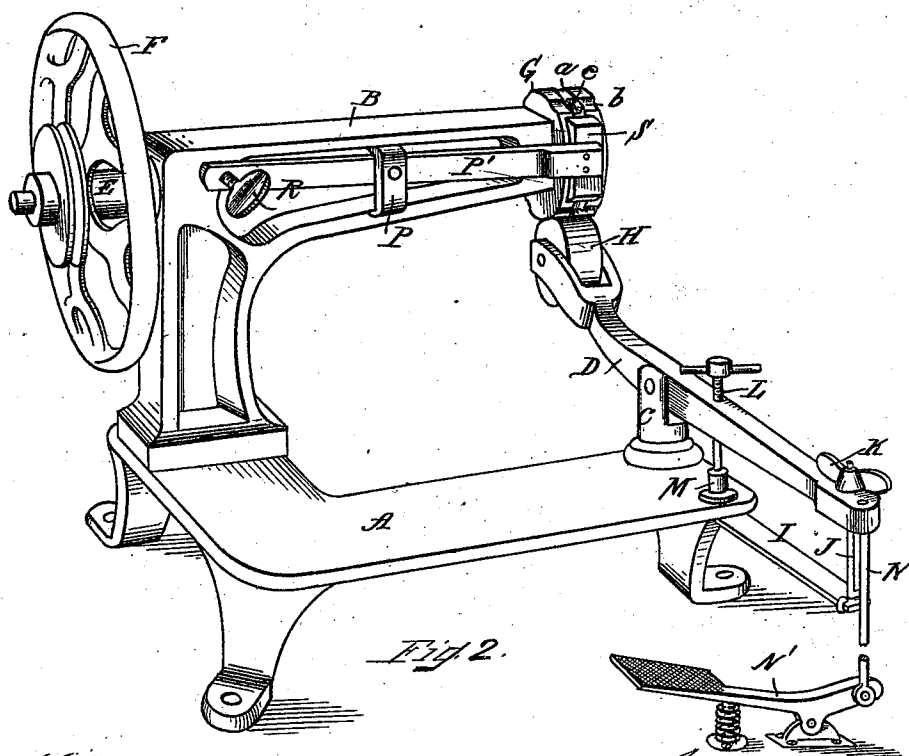
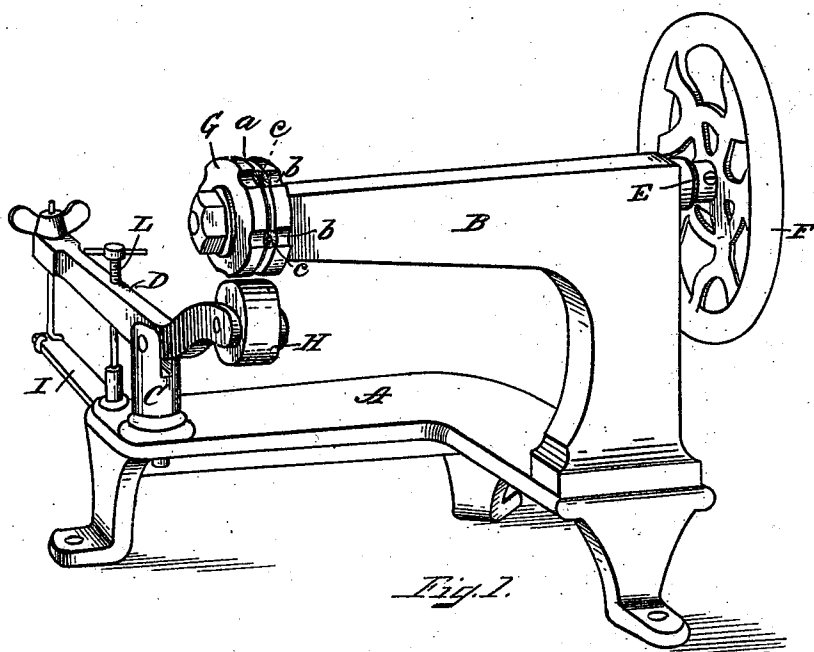
(No Model.)

2 Sheets—Sheet 1.

I. HAYES.
SEAM FINISHING MACHINE.

No. 502,719.

Patented Aug. 8, 1893.



Witnesses
Ralph W. E. Hopper
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Inventor.
Israel Hayes
per Eugene Humphrey
his Atty

(No Model.)

2 Sheets—Sheet 2.

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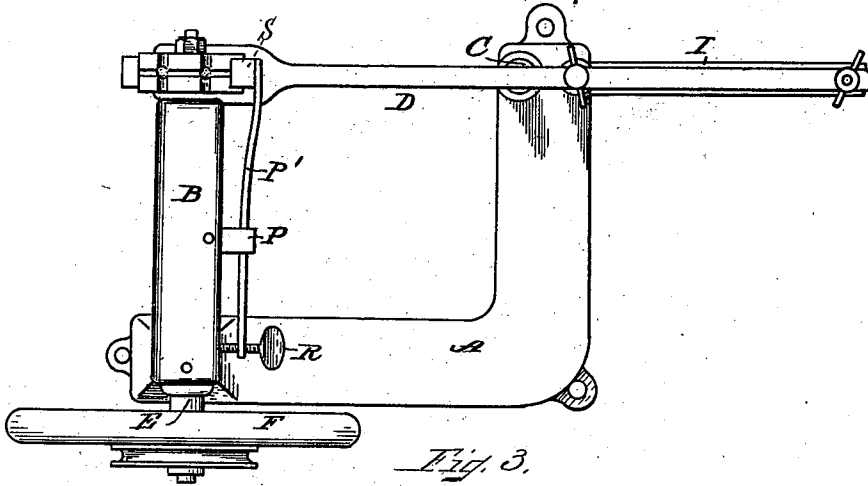


Fig. 3.

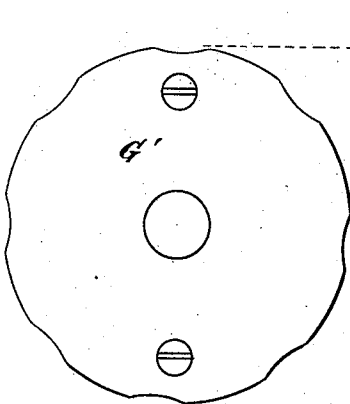


Fig. 4.

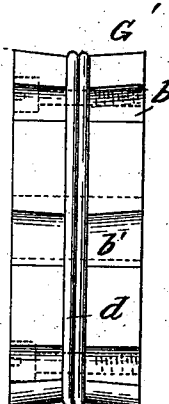


Fig. 5.

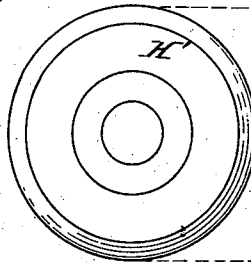


Fig. 6.



Fig. 7.

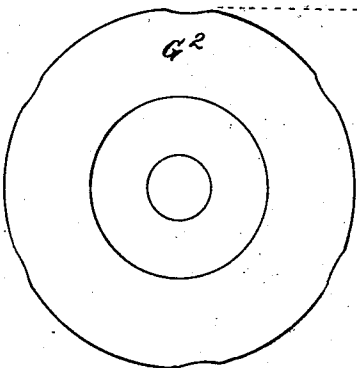


Fig. 8.

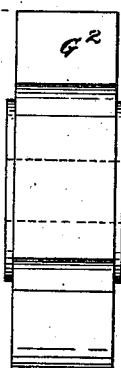


Fig. 9.



Fig. 10.



Fig. 11.



Fig. 12.



Fig. 13.

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UNITED STATES PATENT OFFICE.

ISRAEL HAYES, OF FARMINGTON, NEW HAMPSHIRE.

SEAM-FINISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 502,719, dated August 8, 1893.

Application filed May 1, 1893. Serial No. 472,491. (No model.)

To all whom it may concern:

Be it known that I, ISRAEL HAYES, of Farmington, in the county of Strafford and State of New Hampshire, have invented a new and useful Improvement in Machines for Rubbing, Pressing, and Finishing Seams, which improvement will, in connection with the accompanying drawings, be hereinafter fully described, and specifically defined in the appended claims.

My invention relates to mechanism for finishing the seams of boots or shoes by pressing, flattening and rubbing the same; and also finishing or "setting" the edge of the "welt," when such a piece is interposed between the edges of the material seamed together. And the invention consists in certain novel parts and combinations embodied in the machine hereinafter described, and as pointed out in the appended claims.

In the drawings Figure 1 is a perspective view of the machine embodying my invention as seen from the front, or standpoint of the operator when using the same. Fig. 2 is a like view from the rear or opposite standpoint. Fig. 3 is a top view or plan of the same. Figs. 4 and 5 respectively represent in elevation and section the upper welt-finishing roll. Figs. 6 and 7 respectively represent a side and face view of the grooved under welt-seam roll. Figs. 8 and 9 respectively represent a side and face view of a fluted roll having no central circumferential groove. Fig. 10 represents a cross-section of a seam with a welt and as unfinished. Fig. 11 represents the same as finished. Fig. 12 represents a cross-section of a seam without a welt and as unfinished. Fig. 13 represents the same as finished.

The machine when in practical use is mounted upon a work-bench and secured thereto by screws through its three feet; and its presser-lever is connected by a lifting rod with a treadle mechanism secured to the floor, as shown only in Fig. 2, and by which the end of the lever connected therewith may be forced upward by the foot of the operator to separate the rolls when required.

The machine as represented in the drawings consists of a table A extending in two directions at right angles to each other and supported upon three feet: an overhanging

arm B, mounted upon one end of the table and extending outward therefrom above and beyond the width of that portion of the table: a standard C, upon the opposite end of the table: a horizontal lever D, pivoted in said standard and arranged at right angles to arm B: a shaft E, extending longitudinally through arm B and arranged to revolve in bearings therein: a driving-wheel F, secured to the outer end of said shaft: a seam-rubbing and flattening roll G, secured to the opposite end of said shaft to revolve therewith: a presser-roll H, pivoted in the end of a lever D, and arranged to bear with yielding pressure up against roll G: an adjustable spring I, secured at one end to the under side of the table, and at its opposite and projecting end connected with lever D by a threaded hook J, which clasps the spring at one end while its opposite end passes upward through the lever and is threaded into a nut K, above the lever, by which it is secured in place and adjusted. A lifting screw L is threaded through lever D and bears at its lower end against the top of a boss M on the table. A lifting-rod N is also connected with the rear end of lever D, so as to press upward against the same, as represented in Fig. 2, and at its lower end is attached to a treadle mechanism N', in a manner well known and represented only in said Fig. 2, for raising the end of the lever and depressing the roll on its opposite end when required.

Through a loop P on the back of arm B is extended a flat spring P', threaded through one end of which is an adjusting screw R, which bears against arm B, and by the turning of which more or less pressure of the spring is produced upon the friction-block S, secured to its opposite end and bearing against roll G. This friction roll is serviceable in producing heat in the roll against which it bears with more or less force according to the adjustment of screw R, such frictional heat serving to facilitate the smoothing of the seam and burnishing the edge of the welt. The roll H is forced upward against the material introduced between it and roll G, by spring I acting through lever L. This force may be increased or diminished by turning nut K, as will be readily understood; and may be overcome or counteracted, so as to

separate the rolls, by means of the treadle mechanism acting through rod N. And the rolls may be kept slightly apart to avoid useless wear of one upon the other, and noise, 5 when the machine is running idly in the intervals between presentations of work to the rolls, by the interposed screw L when so adjusted as to sustain the stress of spring I as the screw rests on boss M. The treadle is 10 employed to force the rolls apart to facilitate the introduction of the material to be pressed and finished between them. Roll G is positively driven by the turning of shaft E to which it is secured; while roll H is turned by 15 frictional contact with the work interposed between the two rolls and carried through by roll G; and consequently the operator by holding on to the work firmly may retard its progress under the action of roll G, or draw it 20 backward after it has been carried forward by said roll, and thereby cause said upper roll to produce both a rubbing and pressing effect on the seam and with better finishing results.

Great convenience in handling the work is 25 derived from having the table formed as shown so that the arms by which the rolls are supported are arranged on the table at right angles to each other and overhang an open 30 space at considerable distance beyond the edge of the table. And also by having the under, or presser roll, hung in an arm so extended and arranged to co-act with the upper roll, whereby the machine is adapted to finish 35 seams in flat or curved work or seams that may be partly inclosed, as in boot legs or closed shoes. Rolls of various formation on their peripheral faces are employed interchangeably in the machine, according to the 40 requirements of the work to be finished. Roll G, which is adapted to finish seams without welts, has a central circumferential groove *a*, and is fluted, or provided with a series of transverse grooves *b*, and at the intersections 45 of groove *a* and groove *b* there is a series of small circular cavities *c*. While the sides of groove *a* turn down the marginal edges of the parts which are stitched together and press them respectively on to the body of the material to which they belong, the countersunk 50 cavities *c* tend to support the seam laterally so as to prevent undue strain upon the stitches by such action of groove *a*, and thus avoid impairing the strength and appearance of the seam in the process of finishing the same; and 55 the cross flutes or grooves *b* serve in the rapid rotation of the roll to hammer down the margins of the seam so turned over, and also operate as a feed to cause the work to progress. 60 During the operation above described the lower, smooth-faced roll H is pressed up against the material acted upon by roll G with the elastic force of spring I as it may be adjusted. These rolls G and H, constructed 65 as described, are adapted to the work represented in Figs. 12 and 13.

For the work represented in Figs. 10 and

11 rolls like G' and H' represented in Figs. 4, 5, 6, 7, are employed in the place of rolls G and H. Instead of a groove *a* as in roll G, 70 this roll G' is formed or provided with a central, circumferential grooved ridge *d*, which operates on the face side of the seam, and as a welt-setter for finishing the edge of the weltpiece *e* which is stitched into the seam as 75 shown. This roll G' is made in three parts. The face of the roll proper is transversely fluted and slightly concaved, and the roll is divided so as to embrace between its halves a thin steel disk whose rounded and grooved 80 edge constitutes the ridge *d*, as shown in Fig. 5, and the parts are clamped together by screws, as indicated in said figure. Roll H, which is designed to co-operate with roll G', 85 has a broad circumferential groove *f* in its face to receive the edges of the heavy, welted seam and press and flatten the same against the upper roll while the latter is setting the edge of the welt on the upper and finished side 90 of the work. Roll G² is a fluted roll without a circumferential groove, and has a plain surface between the cross-grooves, and is used to advantage on light stock in conjunction with roll H, which serves as a yielding work-support 95 by which the seams are pressed with adjustable elastic force against the various upper rolls. The work being thus supported upon a yielding presser-roll turned only by frictional contact with the moving stock as the latter is caused to progress by the positive 100 rotation of the upper roll in contact therewith, or is caused, by the exertions of the operator, to stand still, or retrace under the rotations of the upper roll, enables the operator to give more or less rubbing to the seam, or 105 to portions thereof, as the nature of the work may require, without injury to the face side of the stock. And the rolls being supported by overhanging arms arranged at right angles to each other, with clear space beneath the 110 same outside of the limits of the table; and the long reach and downward curvature of the arm of lever D, between its standard C and roll H, greatly facilitate the operations of the machine, especially upon curved and 115 inclosed seams.

While the machine which I have now fully described is unusually simple in construction, it is capable of doing, and does do, all the varieties of seam finishing, light and heavy, 120 in a superior manner, and with slight difficulty of manipulation, and requiring little skill on the part of the operator.

I claim—

1. A seam-finishing machine embodying the 125 combination of a table A: an arm B secured to the table and overhanging the edge thereof: a revolving shaft E mounted in said arm: a seam-pressing roll G, secured to said shaft and rotated thereby: a presser-lever D mount- 130 ed upon the table and overhanging the edge thereof at right angles to arm B: a work-supporting roll H pivoted in the end of said lever and arranged to uphold and press the work

against roll G: a spring I arranged to act on lever D to produce said pressure: and means for revolving the shaft E; all substantially as specified.

- 5 2. A seam-finishing machine embodying the combination of a table A, formed as described: an overhanging arm B secured to the table: a revolving shaft E having its bearings in said arm: a roll, adapted to the purpose of
10 finishing seams, secured to, and revolved by, said shaft: a suitable roll arranged to support the work and uphold the same, with the requisite pressure against said revolving roll: a lever secured to, and projecting from the
15 table, and supporting said under roll: a spring I arranged to actuate said lever: and a treadle mechanism connected with the lever whereby the rolls may be separated by the foot of the operator; all substantially as specified.

3. The combination of table A: arm B: 20 shaft E: roll G positively rotated by said shaft: the friction device consisting of block S, spring P', loop P and screw R: lever D: roll H upheld by said lever and turned by frictional contact with the moving seam: screw 25 L threaded into said lever and bearing against the table: spring I attached at one end to the table and having its opposite end connected with the lever: and a treadle mechanism arranged to lift the end of said lever: all operating together and relatively to each other, 30 substantially as and for the purposes specified.

ISRAEL HAYES.

Witnesses:

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