

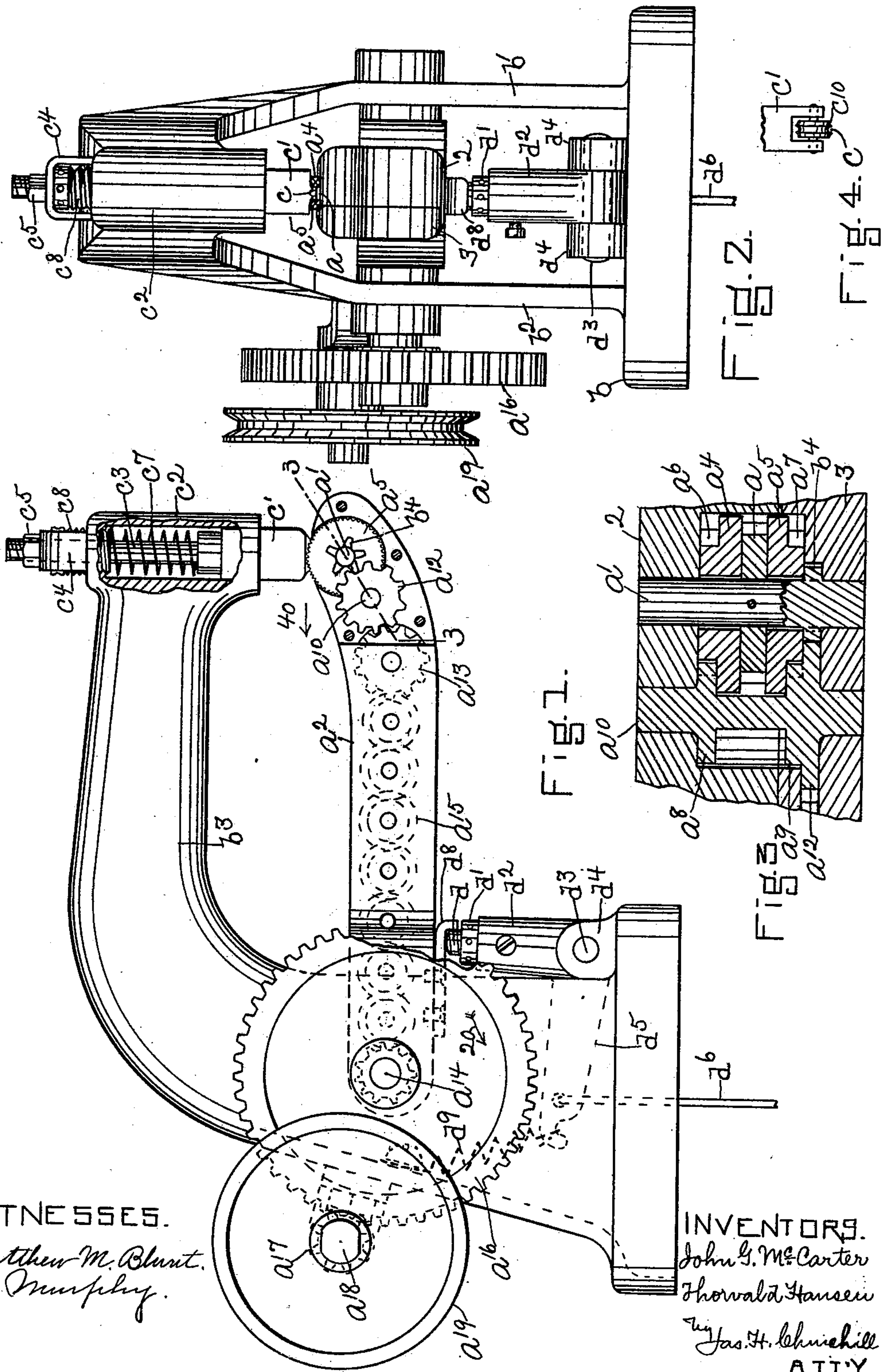
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Patented Apr. 4, 1899.

J. G. McCARTER & T. HANSEN.  
SEAM RUBBING AND WELT PROTECTING MACHINE.

(Application filed Nov. 5, 1897.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## SEAM-RUBBING AND WELT-PROTECTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 622,252, dated April 4, 1899.

Application filed November 5, 1897. Serial No. 657,468. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN G. McCARTER, residing in Boston, in the county of Suffolk, and THORVALD HANSEN, residing in Everett, county of Middlesex, State of Massachusetts, have invented an Improvement in Seam-Rubbing and Welt-Protecting Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention relates to machines for rubbing down seams of boots and shoes, and has for its object to provide a machine which will rub down the seam without destroying or altering the shape of the boot or shoe upper.

The uppers of boots and shoes as now commonly made are united at their backs by means of a welt, and the back of the said upper is reversely curved or of ogee shape to conform to the foot of the wearer. As now commonly practiced and known to us the welt referred to is rubbed down by a machine which is effective for rubbing down the seam, but which changes and substantially destroys the ogee shape of the back of the upper, so that as now practiced a hand operation is pursued in order to restore the ogee shape to the upper.

This invention has for its object to provide a machine for rubbing down the welt-seams referred to without changing the ogee shape of the upper, whereby the hand operation is dispensed with, and without injuring or crushing the welt.

Figure 1 is a side elevation, with parts broken away, of a sufficient portion of a welt-seam rubbing-down machine embodying this invention to enable it to be understood; Fig. 2, a front elevation of the machine shown in Fig. 1, looking toward the left; Fig. 3, a sectional detail, on an enlarged scale, taken on the line 3-3, Fig. 1; and Fig. 4, a modification to be referred to.

In accordance with this invention the machine is provided with a rubbing-down tool, preferably a disk or wheel  $a$ , (see Fig. 3,) pinned or otherwise secured to a shaft  $a'$ , having bearings in the side 2 of a hollow arm  $a^2$  and in a cap 3, removably secured to the side 2 of the said arm. The shaft  $a'$  on opposite sides of the rubbing-down disk  $a$  has loosely

mounted upon it feed-wheels  $a^4 a^5$  of slightly-larger diameter than the rubbing-down disk or wheel  $a$ , and the said feed-wheels have secured to or forming part of them, as herein shown, gears  $a^6 a^7$ , which mesh with and are driven by gears  $a^8 a^9$ , secured to or forming part of a shaft  $a^{10}$ , journaled in the sides of the hollow arm  $a^2$ . The shaft  $a^{10}$  is provided with a larger gear  $a^{12}$ , which meshes with a gear  $a^{13}$ , driven from a shaft  $a^{14}$  by means of a series of intermediate gears  $a^{15}$  within the hollow arm  $a^2$ . The shaft  $a^{14}$  has fast on it a gear  $a^{16}$ , which meshes with a pinion  $a^{17}$ , fast on the main shaft  $a^{18}$ , provided with a driving-pulley  $a^{19}$ . The shaft  $a^{14}$  is journaled in a head or framework comprising a base  $b$ , (see Fig. 2,) side uprights  $b' b^2$ , and an overhanging arm  $b^3$ .

The shaft  $a'$  is provided with a pinion  $b^4$ , which is driven by the gear  $a^{12}$ . (See Fig. 3.) The pinion  $b^4$  is smaller than the gears  $a^6 a^7$ , fast to the feed-wheels  $a^4 a^5$ , and the smaller pinion  $b^4$  meshes with the large gear  $a^{12}$ , while the gears  $a^6 a^7$  mesh with the gears  $a^8 a^9$ , which are smaller than the gear  $a^{12}$ , and consequently the rubbing-down disk or wheel  $a$  is rotated at a much faster speed than the feed-wheels  $a^4 a^5$ .

The feed-wheels  $a^4 a^5$  being larger than the rubbing-down disk  $a$  practically form an annular groove between them, which cooperates with a substantially U-shaped welt-guide  $c$  in a block or plunger  $c'$ , vertically movable in the end  $c^2$  of the arm  $b^3$ , the said block having a rod  $c^3$  extended up through the end  $c^2$  of the arm  $b^3$  and through a band or yoke  $c^4$ , above which it is provided with a nut  $c^5$ , which engages the threaded end of the rod  $c^3$  and enables the welt-guide  $c$  to be adjusted with relation to the rubbing-down disk or wheel  $a$ . The plunger  $c'$  is yieldingly held in its adjusted position by means of a spring  $c^7$ , the tension of which is adjusted by means of the nut  $c^8$ , engaging screw-threads in the end  $c^2$  of the overhanging arm and having a smooth bore for the free passage of the rod  $c^3$ .

The hollow arm  $a^2$ , as herein shown, is movable toward and away from the welt-guide  $c$ , it being hung upon the shaft  $a^{14}$ , so as to drop away from the welt-guide  $c$  in a vertical direction when permitted to do so by the engagement of a locking device under



the control of the operator. The locking device referred to comprises, as herein shown, a screw-threaded rod  $d$ , provided with a nut  $d'$  and extended into the upright arm  $d^2$  of an elbow-lever mounted upon a pivot or shaft  $d^3$ , having bearings in lugs, arms, or ears  $d^4$ , erected from the base  $b$ , the said elbow-lever having its other arm  $d^5$  (see dotted lines, Fig. 1) connected by a rod  $d^6$  to a foot-treadle, (not herein shown,) by means of which the elbow-lever may be rocked in the direction indicated by the arrow 20, Fig. 1, so as to withdraw the rod  $d$  from engagement with the stop or bent plate  $d^8$ , attached to the under side of the arm  $a^2$ . The elbow-lever is restored to its normal position (shown in Fig. 1) by means of a spring  $d^9$ . When the rod  $d$  is moved in the direction indicated by arrow 20, the arm  $a^2$  is permitted to drop by gravity away from the guide  $c$ .

The operation of the machine herein shown may be briefly described as follows: The upper of the boot or shoe is placed by the operator with its upper surface in contact with the under side of the plunger  $c'$  and with the outer edge of the welt in the substantially U-shaped guide or groove  $c$ , and the upper so placed has the inner side of the welt-seam presented to the rubbing-down disk or wheel  $a$ , which acts to rub down or smooth the welt-seam, while the feed-rolls  $a^4 a^5$  draw the upper along in the direction indicated by the arrow 40, Fig. 1. By reason of the feed-rolls  $a^4 a^5$  being mounted on the same shaft with the rubbing-down disk or wheel  $a$  the ogee shape or form of the upper is not destroyed or changed, owing to the fact that the point of contact of the feed-rolls with the upper is substantially small and in fact tangential. By mounting the feed-rolls  $a^4 a^5$  loosely on the shaft  $a'$  the said feed-rolls may be rotated at a much slower speed than the rubbing-down disk  $a$ .

We have herein shown the welt-guide  $c$  as made in the plunger itself; but we do not desire to limit our invention in this respect, as the said guide may be made in a wheel or roller  $c^{10}$ , mounted in the plunger, as shown in Fig. 4, which latter construction may be preferred for thick or heavy work. The substantially U-shaped guide protects the welt from being forced or pressed out of shape as the upper is fed through the machine.

In the use of rubbing-down machines as heretofore constructed the upper was presented to the machine wrong side out, and after it had been rubbed down it had to be turned, which also tended to destroy the shape or form of the back of the upper, whereas in the present instance the upper is first turned right side out before it is presented to the machine, so that when it has passed through the machine any change in or distortion of the form by the turning of the upper is corrected by the machine.

With the machine herein shown it will be noticed that the welt remains in the sight of the operator, and he is enabled thereby to

properly present the welt to the guide  $c$ , so as to avoid the welt being injured or crushed out of shape.

We claim—

1. In a machine of the character described, the combination of the following instrumentalities, viz: a framework or head provided with a welt-guide, an arm supported by said head and movable toward and from the said welt-guide, a shaft mounted in said arm provided with a rubbing-down disk or wheel, feed-rolls loosely mounted on the said shaft on opposite sides of the rubbing-down disk, and means to produce rotation of the said shaft and feed-rolls, substantially as and for the purpose specified.

2. In a machine of the character described, the combination of the following instrumentalities, viz: a framework or head provided with a yielding welt-guide, an arm supported by said head and movable toward and from the said welt-guide, a shaft mounted in said arm provided with a rubbing-down disk or wheel, feed-rolls loosely mounted on the said shaft on opposite sides of the rubbing-down disk, and means to produce rotation of the said shaft and feed-rolls, substantially as and for the purpose specified.

3. In a machine of the character described, the combination of the following instrumentalities, viz: a rubbing-down disk or wheel, a shaft on which it is mounted, feed-wheels loosely mounted on said shaft on opposite sides of said rubbing-down disk or wheel and revolving on the same axis, and means to rotate said rubbing-down disk and feed wheels at different speeds, substantially as described.

4. In a machine of the character described, the combination of the following instrumentalities, viz: a shaft, rotary feed-wheels loosely mounted thereon, a rubbing-down tool fast on said shaft intermediate of said feed-wheels and revolving on the same axis as the feed-wheels, gears attached to said feed-wheels, a pinion fast on said shaft, a counter-shaft, and gears on said counter-shaft in mesh with the gears attached to the feed-wheels and with said pinion, substantially as described.

5. In a machine of the character described, the combination of the following instrumentalities, viz: rotary feed-wheels mounted in the same axial line, a rubbing-down tool intermediate of said feed-wheels and revolving on the same axis as the feed-wheels, means to operate said feed-wheels and rubbing-down tool, and a welt-guide located above the said rubbing-down tool, substantially as and for the purpose specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

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THORVALD HANSEN.

Witnesses:

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