No. 896,873. PATENTED AUG. 25, 1908.

S. J. WENTWORTH.

HEEL SEAT FORMING MACHINE.

APPLICATION FILED DEC. 8, 1904.

2 SHEETS—SHEET 1.

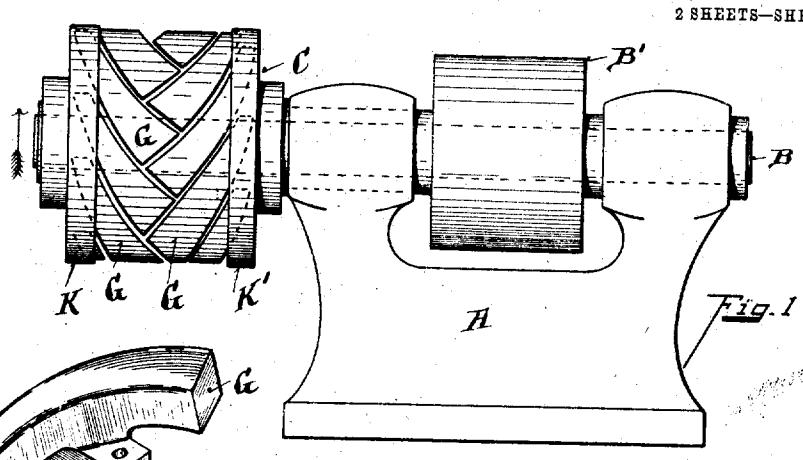


Fig. 1

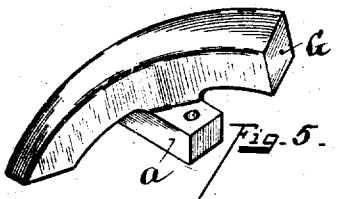


Fig. 5.

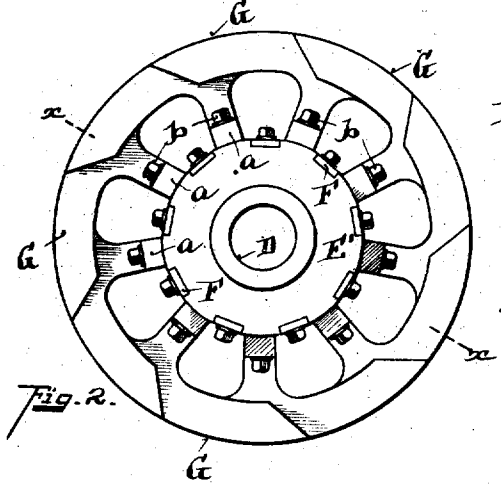


Fig. 2.

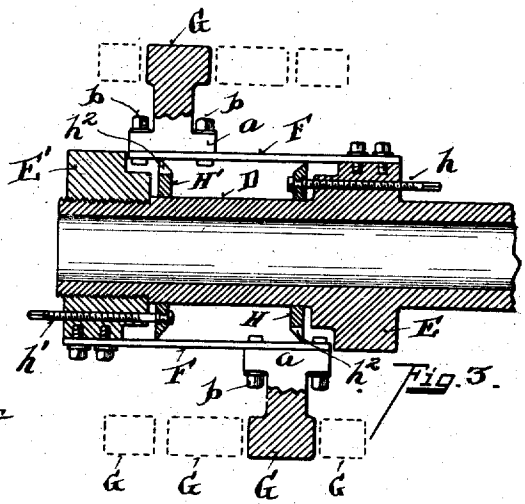


Fig. 3.

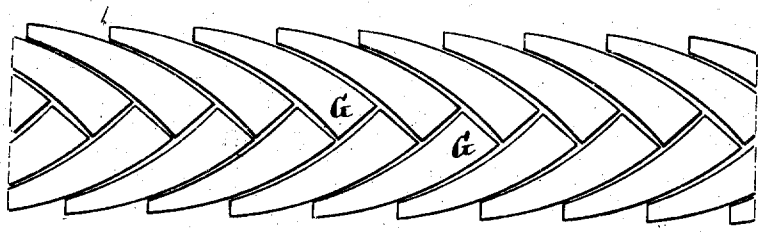


Fig. 4.

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2 SHEETS—SHEET 2.

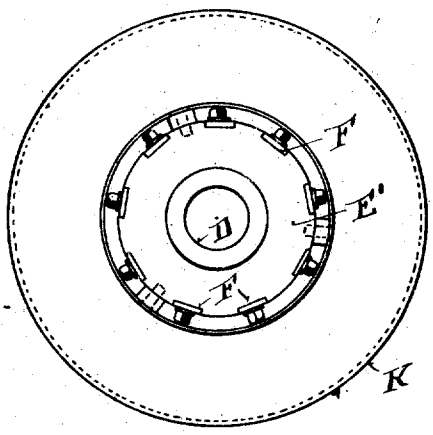


Fig. 6.

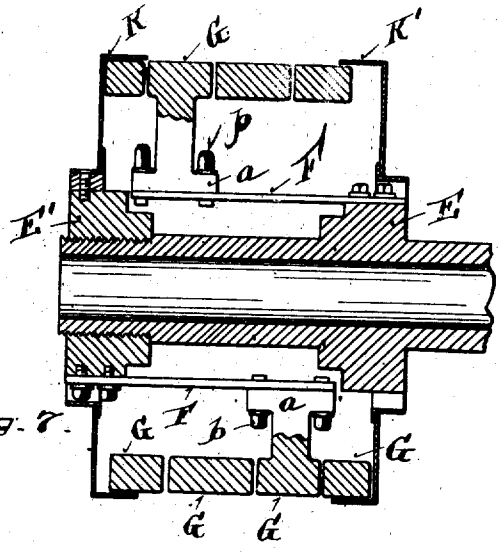


Fig. 7.

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UNITED STATES PATENT OFFICE.

SAMUEL J. WENTWORTH, OF NEWPORT, KENTUCKY, ASSIGNOR TO THE WENTWORTH COMPANY, OF CINCINNATI, OHIO, A CORPORATION.

HEEL-SEAT-FORMING MACHINE.

No. 896,873. Specification of Letters Patent. Patented Aug. 25, 1908.

Application filed December 8, 1904. Serial No. 236,010.

To all whom it may concern:

Be it known that I, SAMUEL J. WENTWORTH, a citizen of the United States, residing at Newport, in the county of Campbell and State of Kentucky, have invented certain new and useful Improvements in Heel-Seat-Forming Machines, of which the following is a specification.

My invention relates to an implement for forming the heel seat of a shoe by uniformly and smoothly turning over the counter.

The object of my invention is, first, to gather and turn over and lay down upon the last the upper or counter portion of a shoe. Second, to hammer or press the turned over edge so that it will lie in the shaped position. Third, to draw and lay over the counter's edge smoothly upon the heel of the insole avoiding all wrinkles or puckers.

In the ordinary method of forming the heel seat, the counter and upper are brought over by pincers and tacked down to hold them in place. Owing to the stiffness of the counter there are puckers or ribs between the tacks leaving an uneven surface. Heretofore it was customary for the operator to beat out by hand this uneven surface to form a flat heel seat.

In practical work with my invention, preferably, the upper and counter are pulled over and secured upon the sole of the last by two or three tacks, the last is then presented to my machine which breaks over the counter and upper and lays them down upon the sole of the last. This facilitates the work of the consolidated lasting machine. After the action of this lasting machine the lasted uppers are again subjected to my machine and the irregularities are beaten out and a flat surface or heel seat is formed. My machine is adapted to perform this character of work in the lasting of shoes in McKay work, welt work, or turned work. Also, my tool operates advantageously upon the toe portions of the upper, and is generally useful in removing irregularities and more perfectly adapting the upper to the last at this stage of the manufacture of boots and shoes.

The features of my invention are more fully set forth in the description of the accompanying drawings, forming a part of this specification, in which:—

Figure 1 is a side elevation of my improvement in position for use. Fig. 2 is an end elevation of the device shown in Fig. 1, with the guards removed. Fig. 3 is a sectional elevation showing two of the irons in section, and dotted lines indicating the position of other irons, taken on lines x, x, Fig. 2. Fig. 4 is a plan view of the face of the irons. Fig. 5 is a perspective view of one of the irons. Fig. 6 is an end view of the device with guard in position. Fig. 7 is a central vertical section of Fig. 6.

For convenience of illustration, the device is mounted upon a frame A.

B represents a driven shaft, journaled in the bearings in the frame.

B′ represents a driving pulley.

C represents the rotary member attached to the shaft B.

The preferred form of construction is as follows:

D represents a sleeve fixed to and revolving with the shaft B.

E, E′, represent flanges preferably the former is formed integral with the sleeve D, while the other in the form of a collar is screw threaded thereon to permit the mounting of tension means upon the sleeve D, to be hereinafter described. These flanges form supports for the irons.

F represents a series of flexible arms rigidly secured to the flanges. They are alternately secured right and left to the periphery of the flanges E, E′.

G represents beating members or irons. These irons are preferably attached to the free end of the spring arms F, by means of a lug a projecting from the lower edge of the irons, and screw bolts b passing through the arms F and lugs. These irons are preferably made curved and their general outline is shown in Fig. 4, they are inclined and alternately lapped past each other. Said lug is placed back of the center of the iron, so as to allow the forward end to be depressed more than the rear end for the purpose of an inward drawing motion.

H, H′, represent collars seated upon the sleeve D and secured in adjusted position by the adjusting screws h, h'. The collars engage under the edges of the springs and they may be set closer together or separated on the sleeve D to adjust the tension of the springs.

It will be observed that the collars at the heel end of the respective spring bars are in contact therewith, and that the opposite collar has a cut away portion h^2 adjacent to

the free end of the spring arm so as to allow the arm to descend the regular distance. The blades it will be observed are wider at their front ends and taper rearward. This is done to create an inward wiping action, when the seat of the shoe is brought in contact with the irons.

K, K', represent guard rings secured on supports E, E', overlapping and covering the outer ends of the irons as a safety device to the operator, see Figs. 6 and 7.

Mode of operation.—In forming the heel seat, the operation is as follows:—After the upper has been placed upon the last and the forward portion thereof from the heel forward has been secured in the usual manner to the insole and last, the edge of the heel or counter portion stands upright. The rotary member moves in the direction of the arrow, Fig. 1, the operator takes the shoe and presents the point of the heel to the central portion of the tool and presses it back until the irons have come in contact with the entire heel surface. By means of the shape and action of the irons, the upper is drawn over by the inclined position of the iron, and as each succeeding iron is brought in contact with the heel, together with the rapidity of the rotation each succeeding iron strikes a drawing blow upon the upper as it is drawn and turned, and hammers it into position forming a complete stretching, hammering or leveling operation, so that the upper is smoothly drawn, turned over, and hammered as it is stretched, thereby smoothly shaping and laying down the counter edge to conform exactly with the seat on the last. The leather is tempered and the irons are preferably heated so as to dry the leather in the operation. By this means I quickly form a smooth seat avoiding wrinkles or puckers, stretching the leather to the desired shape, hammering it into position, and at the same time performing the operation of lasting the heel, very quickly and much more rapidly, than by the means heretofore employed. By this method, I avoid, not only the uneven pulling of the heel and the tedious process of tacking the same, but also the hand hammering after the heel has been ironed.

It is to be understood that the term "irons" does not refer to the material essentially, but to the drawing or wiping members disposed on a rotary member to affect the operation herein set forth. It is also to be understood that in the direction of movement of the rotary member the outer diverging ends of the irons are first presented to the counter. The inner or converging ends of the irons draw the opposite edges of the counter inwardly, uniformly and smoothly turning over the edge of the counter in converging lines around the heel.

The operation is such that the outer portions of the irons are continuously engaging opposite portions of the counter edge and simultaneously wiping or drawing successive portions of the counter edge inward convergingly around the heel, the action is so powerful that the stiffest material capable of bending without breaking, will readily yield and smoothly mold itself to the form.

The device is applicable to other uses than molding the edge of the counter to the heel of the insole in forming heel seats, for instance, such uses as the removal of superfluous or uneven bunches of material or other analogous uses.

Having described my invention, I claim:—

1. In a machine of the class described, a rotary member having on its periphery an alternate, circular series of oppositely inclined irons yieldingly mounted upon said support, and adapted to act alternately on two sides of the heel, substantially as described.

2. In a machine of the class described, a rotary member having its periphery composed of an alternate, circular series of irons, alternate yielding arms secured upon a shaft, said irons having their inner ends oppositely inclined and mounted upon the said arms rearward of their centers, and overlapping each other at their inner ends, substantially as described.

3. A machine of the class described, composed of an alternate, circular series of irons, alternate yielding arms secured upon a shaft, said irons having their inner ends oppositely inclined and mounted upon said arms rearward of their respective centers, and overlapping each other at their inner ends, and guards protecting the outer ends of the said irons, substantially as described.

4. A machine of the class described, composed of an alternate, circular series of irons, alternate yielding arms secured upon a shaft, said irons having their inner ends oppositely inclined and mounted upon said arms rearward of their respective centers, and overlapping each other at their inner ends, and means for adjusting the tension of the said yielding arms, substantially as described.

5. In a machine of the class described, a rotary member having a series of irons presenting outwardly diverging ends, whereby the edge of the counter is drawn over the heel in converging lines, substantially as described.

6. In a machine of the class described, a rotary member having irons diverging outwardly and presenting inwardly converging ends for the purpose described.

7. In a machine of the class described, a rotary member having a series of irons outwardly diverging and having inwardly overlapping ends, and means for yieldingly attaching the said irons to the rotary member, substantially as described.

8. In a machine of the class described, a shaft, a pair of supports thereon, springs

tached alternately to said supports, collars adjustably mounted on said shaft between the supports, engaging under the free ends of the springs, an iron attached to the free end of each spring, said irons having inwardly converging ends between said supports, and means for rotating said shaft, substantially as described.

9. In a machine of the class described, a shaft, a pair of supports thereon, springs attached alternately to said supports, an iron attached to the free end of each spring, said irons presenting converging ends between the said supports, and means for rotating said shaft, substantially as described.

10. In a machine of the class described, a shaft, a pair of supports thereon, spring bars alternately attached to said supports, having their rear ends overlapping between the supports, a series of irons having their bases attached to said free ends of the said bars respectively, the irons being transversely inclined relative to the said spring bars, and presenting inwardly converging ends between said supports, and means for rotating said shaft, substantially as described.

11. In a machine of the class described, a shaft, a support, a series of irons attached to the support, the said irons outwardly diverging and overlapping alternately at their inner ends, and means for rotating said shaft, whereby the edge of the counter presented to said irons will be uniformly and smoothly turned over in converging lines around the heel, substantially as described.

12. In a machine of the class described, a rotary member having a series of drawing irons presenting outwardly diverging ends, the said irons converging inwardly toward the middle of the supporting member, substantially as described.

13. In a machine of the class described, a rotary member having its periphery formed with a series of yieldingly mounted drawing irons, presenting outwardly diverging ends, the inner ends of said irons converging, substantially as described.

14. In a machine of the class described, a rotary member having its periphery formed with a series of yieldingly mounted drawing irons presenting outwardly diverging ends, said irons converging inwardly and alternately overlapping at their inner ends, substantially as described.

15. In a machine of the class described, a supporting member provided with oppositely inclined and independently yielding beating irons for simultaneously engaging opposite portions of a presented surface and uniformly and smoothly drawing in said surface in converging lines, substantially as described.

16. In a machine of the class described, a rotary carrier having working members arranged to act simultaneously upon the opposite sides of a heel-counter edge and turn the same over upon the heel of an insole to form a heel seat, substantially as described.

17. In a machine of the class described, a rotary member having beaters provided with inwardly converging drawing edges, each beater being independently yieldingly supported relative to the axis of rotation, and adapted to simultaneously and continuously engage opposite portions of a presented edge, and uniformly and smoothly draw in the same in converging lines, substantially as described.

18. In a machine of the class described, a rotary member having a series of irons forming the periphery, said irons inwardly converging and alternately overlapping at the inner ends, each iron tapering wider toward its inner end, substantially as described.

19. In a machine of the class described, a rotary member the periphery of which is formed with inwardly converging irons alternately overlapping and independently yielding supports for said irons, substantially as described.

20. In a machine of the class described, a rotary carrier having working members independently yieldingly supported thereon arranged to act simultaneously upon opposite sides of the edge of a heel-counter and turn the same upon the heel of an insole to form the heel seat, substantially as described.

21. A machine for beating out shoe uppers, having, in combination, two series of rotating beaters arranged to act simultaneously upon the lower edge of a shoe upper at opposite sides of the shoe and beat out the lower edge of the upper upon the insole, and means for actuating said beaters, substantially as described.

22. A machine for beating out shoe uppers, having, in combination, two series of rotating beaters acting simultaneously to beat out the lower edge of a shoe upper upon the insole at opposite sides of the shoe and to draw the upper over the edge of the insole towards the medial line of the insole, and means for actuating said beaters, substantially as described.

23. A machine for beating out shoe uppers, having in combination, two series of rotating beaters acting simultaneously to beat out the lower edge of a shoe upper upon the insole at opposite sides of the shoe and arranged to exert a wiping action on the upper from the edge of the sole towards the medial line of the sole, and means for actuating said beaters, substantially as described.

In testimony whereof, I have hereunto set my hand.

SAMUEL J. WENTWORTH

Witnesses:
OLIVER B. KAISER,
LEO O'DONNELL.