

No. 805,763.

PATENTED NOV. 28, 1905.

C. B. TUTTLE.
MACHINE FOR FINISHING HEELS, &c.
APPLICATION FILED MAY 20, 1902.

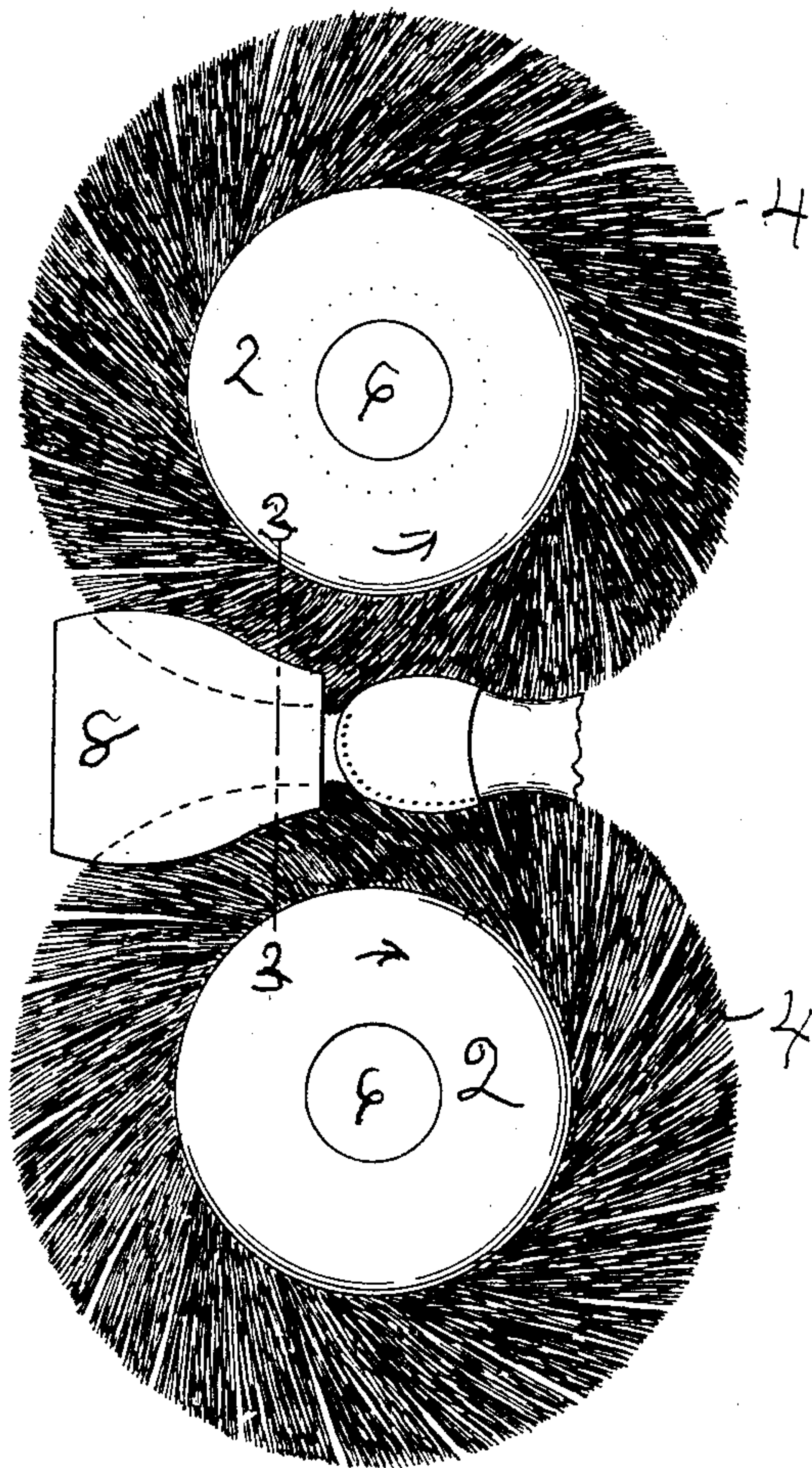


Fig. 1.

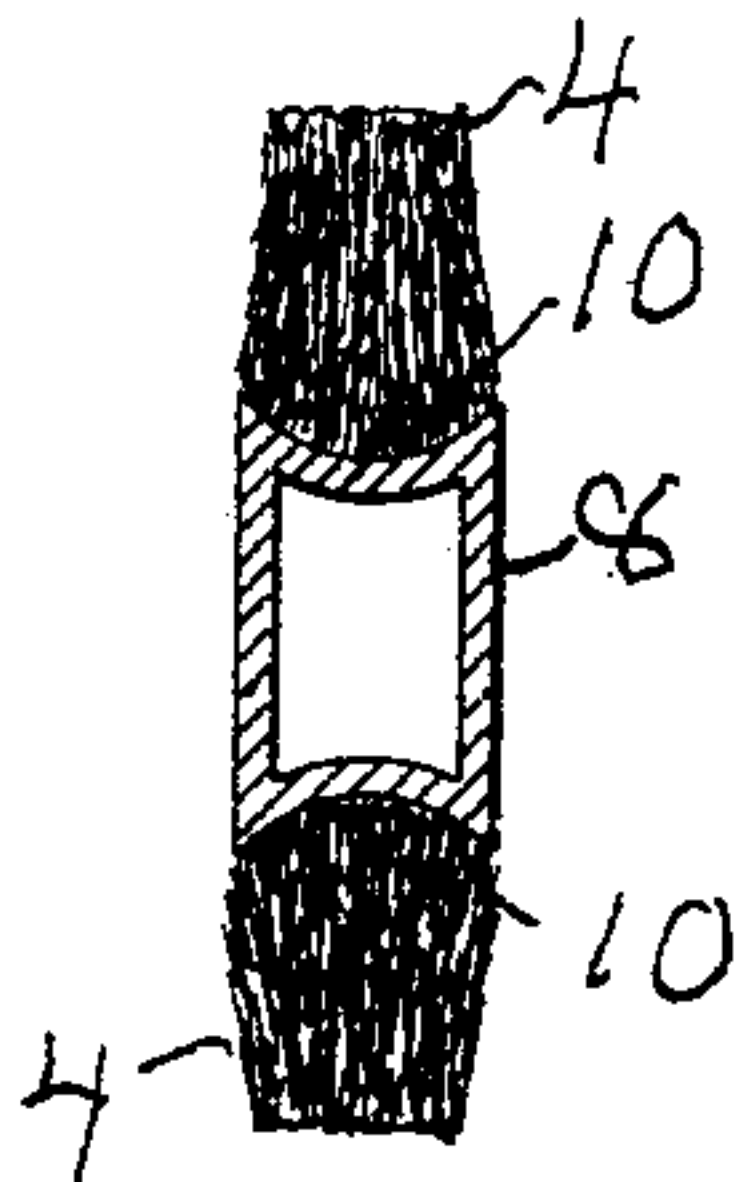


Fig. 2.

WITNESSES:
M. C. Prudg
A. M. Tuttle

INVENTOR:
Calvin B. Tuttle

UNITED STATES PATENT OFFICE.

CALVIN B. TUTTLE, OF LYNN, MASSACHUSETTS, ASSIGNOR TO UNITED-XPEDITE FINISHING COMPANY, OF BERWICK, MAINE, A CORPORATION OF MAINE.

MACHINE FOR FINISHING HEELS, &c.

No. 805,763.

Specification of Letters Patent.

Patented Nov. 28, 1905.

Application filed May 20, 1902. Serial No. 108,240.

To all whom it may concern:

Be it known that I, CALVIN B. TUTTLE, of Lynn, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Machines for Finishing Heels and the Like, of which the following, read in connection with the accompanying drawings, is a specification.

This invention relates generally to means for finishing boots and shoes, and more particularly to means for finishing heels, soles, and other parts of boots and shoes by scouring, rubbing, wax-burnishing, or similarly treating the surfaces to be finished.

The invention has for its object to provide means by which the finishing operations may be effected with great rapidity and superior results attained and by which other advantages are secured, which will appear in the following description.

The invention is herein described for convenience with particular reference to wax-finishing boot and shoe heels; but its application to other ways of finishing the several parts of a shoe will be readily understood.

According to a common mode of finishing parts of boots and shoes the parts to be finished are given a coating of carnauba wax, and the surface of this coating or wax film is then acted upon by various polishing instrumentalities. Some of the instrumentalities employed include rapidly-rotated members having their acting portions formed of rubber or felt or provided with bristles, yarn, tongues of leather, cotton cloth, or the like, as is well known, and in practice the work is commonly acted upon by a number of these different instrumentalities in succession. The boot or shoe to be finished is manually presented to the several polishing devices employed and manipulated to subject the entire surface to be finished to the action of said devices.

My invention is concerned more particularly with the production of a machine of the class above referred to which while permitting parts of boots and shoes to be given a superior finish will reduce as far as possible the amount of manipulation of the work required to bring all portions of the faces to be finished in contact with the work members. According to the machine herein disclosed the

arrangement is such that the work may be acted upon simultaneously by a plurality of separate and independent finishing devices. Prior to my invention it has been the practice to bring the work in contact with but one finishing device at a time, and the operation has been necessarily slow on account of the time required to bring all parts to be finished in contact with the polishing device for a sufficient length of time and to move the work from one device to another. It will be understood that in the use of such devices the rapidity with which the finishing operation can be performed cannot be increased by accelerating beyond a certain maximum the speed of the work members, as it has been found that to secure the best results said work members should not be rotated at too high a speed. Experiments have led me to believe that if friction between work member and work be excessive—for example, where the work member travels too fast or the work is forced with too great pressure against the work member—a satisfactory finish cannot be obtained.

In the machine herein disclosed, which constitutes one embodiment of the invention, I provide a plurality of rotary work members, shown in this instance as rotary brushes arranged with their respective acting faces opposite one another and in an adjacent relation, so that the work may be advanced between them and opposite sides simultaneously subjected to the action of said faces. The boot or shoe is advanced end first between the work members, and its varying width from point to point along its length is accommodated by relative yielding of said work members. A stop is provided to limit the introduction of the work between the work member to the extent desired. In the machine for finishing heels herein disclosed the stop and work members are so arranged relatively that opposite sides of the heel may be acted upon throughout their entire area when the heel is advanced between the work members.

Other features of the invention will be hereinafter described, and pointed out in the claims.

In the drawings which illustrate a machine constituting one embodiment of the invention, Figure 1 is a view in side elevation of

the more important parts of the machine. Fig. 2 is a view in vertical section on the line 3 3 of Fig. 1.

The machine shown on the drawings, which is adapted for finishing heels, comprises two work members arranged one above the other. These work members consists of hub 2, carrying bristles 4, projecting obliquely from the peripheries of said hubs, preferably at an angle of approximately sixty-five degrees with the peripheral face of the hub. The peripheries of the work members are arranged adjacent to permit a heel to be advanced horizontally between them and to be acted upon simultaneously by the two work members, and the acting faces of said members are approximately equal in width to the height of the heel. The work members are carried by shafts 6 and are rotated by any suitable means and preferably in the respective directions indicated by the arrows in Fig. 1. The work members are spaced apart to an extent suitable to permit their acting faces to bear with the desired pressure on opposite sides of a heel when the heel is positioned midway between them, variations in width of the work being accommodated by yielding of the acting parts of said work members, the yielding of said parts also serving to increase the area of contact between the work and the work members. The work members are preferably rotated in directions to cause the movement of their acting faces to be from the curved end of the heel toward the breast. The heel is conveniently advanced curved end foremost between the work members, and the work members are hence rotated in the directions indicated by the arrows in Fig. 1. This arrangement is advantageous in that it permits a heel to be finished by movement of the acting finishing-surface one way of the grain on the respective sides of the heel without turning the heel, and opposite sides of the heel may thus be given the same appearance. It will be seen also that where the movement of the acting parts of the work members is toward the breast of the heel the action of said members upon the heel is attended with less distortion or disturbance of the material constituting the acting parts of the members than would be the case if said parts moved toward the curved end of the heel. Successive portions of the acting peripheries of the working members first come in contact with the rounded part of the heel and easily pass over the sharp corner at the breast edge.

A stationary member 8 is arranged in line with and adjacent to the acting portions of the work members. The inner vertical face of the member 8 serves as a stop or gage to limit the extent to which the work may be advanced between the work members and may also serve as a rest for the heel in the event that it is desired to maintain it momentarily in contact with either or both work members. The top

and bottom faces 10 of the member 8 serve to bend the bristles inwardly toward the center of the work members immediately prior to contact of said bristles with the work. They are thus caused to approach the work at a greater obliquity than would be the case if they were not acted upon by the member 8. The faces 10 may be concaved transversely to correspond approximately to the contour of the face of the heel being acted upon. When so shaped, the faces 10 act immediately prior to the contact with the heel of any portion of the peripheries of the work members to impart to said portion a contour approximately complementary to that of the heel, so that the work members bear evenly upon the heel throughout its width. It will be understood that the contour of the faces 10 may be varied to suit different forms of heels.

It will be noted that according to the preferred embodiment of the invention shown the work members and member 8 are relatively arranged so that the entire heel of a shoe may be inserted between said work members, thus permitting the side faces adjacent to the breast edge to be acted upon simultaneously without tilting the shoe vertically. As will appear from the drawings the work members may simultaneously act upon both sides of the heel progressively from curved end to breast edge.

In the preferred mode of operation of the machine shown the heel is pushed between the work members with its curved end in advance. In this operation one side of the curved end of the heel may be brought in contact with one of the working faces during the forward movement of the heel, and the other side of the end of the heel may be finished by contact with the other working face in the return movement of the heel from between the work members, or, if desired, the entire end of the heel may be finished by being brought in contact with a convenient part of a single work member. While the heel is held between the work members, the pressure upon any part of the portion to be finished may be increased or diminished by moving said part toward or away from one of the work members. Preferably the work members are so spaced that they bear with the desired pressure upon the heel when it is held in operative position midway between their acting peripheries. It may be desired, however, to space the work members farther apart and produce the desired pressure alternately upon opposite sides by moving the work vertically. It will be understood that the arrangement of the work members in this respect may be varied and many of the advantages of this invention still be secured. In this connection it will be observed that a desirable feature of the invention consists in an arrangement of work members which permits opposite sides of a heel to be acted upon without turning the heel.

As will be obvious, the invention is not

limited to the use of the particular forms of finishing devices herein shown or referred to by way of example. Other forms of finishing devices commonly employed in finishing operations may be used.

If desired, removable coverings for the work members may be used, such as the detachable textile coverings now commonly placed upon rotary work members having yielding peripheries. In the event that such removable coverings be employed the direction of movement above referred to of the acting parts of the work members is particularly desirable, since it obviates the danger of such coverings being torn from said members by the sharp breast edge of the heel.

It will be seen that according to the preferred arrangement illustrated each of the work members serves not only to act upon one side of the work, but also to hold the work yieldingly against the other member. I regard this feature as of advantage because it relieves the operator of much of the labor required to hold the work with sufficient pressure against the work member of a finishing-machine of ordinary construction and also because it insures that the work members will bear evenly upon the work throughout the entire width of the surface being acted upon and causes said members to bear with substantially the same pressure on the two sides of the work when it is advanced between them.

Having now described this invention and the manner of using same, I claim—

1. A machine for the purposes stated, comprising work-rubbing means having a plurality of parts or faces which are composed of bendable material, said faces being relatively disposed adjacent to each other for treating opposite sides of the heel without necessarily turning the heel, and means to bend the said parts or faces preparatory for engaging the work.

2. A machine for the purposes stated, comprising work-rubbing means adapted for yielding under pressure of the work to increase the area of contact with the work, and having different parts or faces relatively disposed for acting on opposite sides of a heel without necessarily turning the heel, and means for gaging the position of the work relative to said faces.

3. A machine for the purposes stated, comprising a revoluble work member adapted for yielding to increase the area of contact with the work by pressure and return to normal shape when said pressure is removed, combined with means to shape the working face of the members into a form having a cross-sectional contour adapted to fit approximately that of a heel.

4. A machine for the purposes stated, comprising a revoluble work member provided

with work-engaging means composed of bendable materials, which project peripherally therefrom, and means to bend the materials during the operation of the member preparatory for engagement with the work.

5. A machine for the purposes stated, comprising a plurality of revoluble work members adapted for yielding under pressure to increase the area of contact with the work said members being disposed with their working faces opposed one to another and suitably spaced apart for treating simultaneously the opposite sides of a heel interposed therebetween, and means to gage the position of the work with relation to said members.

6. A machine of the class described, comprising a pair of rotary brushes arranged to act upon opposite sides of a heel, combined with a work-rest arranged relatively to said brushes to be engaged by the heel when presented to either brush.

7. A machine of the class described, comprising a plurality of rotatable brushes arranged to act on opposite sides of a heel, and means arranged between said brushes for imparting to the brushes adjacent to the point where they engage the heel a shape corresponding approximately to the contour of the portion of the heel to be acted upon by the brushes.

8. A machine of the class described, comprising a plurality of rotatable brushes arranged to act upon opposite sides of a heel simultaneously, and a combined gage and shaping device arranged between said brushes for resting the heel, said device being adapted to be engaged by the brushes for imparting thereto a shape corresponding approximately to the contour of the portions of the heel to be acted upon by the brushes.

9. A machine for finishing parts of boots and shoes comprising a pair of rotary work members arranged one above the other in position to act simultaneously upon opposite sides of the work advanced between them, and a stop for determining the position to which the work may be advanced between said members in a direction transverse to their axes of rotation.

10. A machine for finishing parts of boots and shoes comprising a pair of rotary work members rotated in opposite directions and arranged one above the other to act simultaneously upon opposite sides of the work advancing between them, and a stop for determining the position to which the work may be advanced.

11. A machine for finishing parts of boots and shoes, comprising a plurality of rotary work members having yielding peripheries and mounted with their acting peripheral faces adjacent and arranged to permit the heel of a boot or shoe to be advanced curved end foremost between them, said work members be-

ing rotatable in directions to cause the movement of their acting faces to be from said curved end toward the breast of the heel.

12. A machine for finishing parts of boots 5 and shoes, comprising a plurality of rotary work members, having their respective acting faces arranged in an opposed relation and adjacent to each other, to permit the work to be advanced between them, said work mem- 10 bers being arranged for relative yielding to accommodate work of varying width, and a stop arranged to limit the introduction of the work between said faces in a direction approximately perpendicular to the axes of ro- 15 tation of said work members.

13. A machine for finishing parts of boots and shoes, comprising a plurality of rotary work members arranged with their acting faces adjacent in position to permit the heel 20 of a shoe to be inserted between them, and a stop arranged to limit the introduction of the heel between said faces in a direction transverse to the axes of rotation of said members, said stop and work members being arranged 25 to permit opposite sides of the heel adjacent to the breast edge to be acted upon simultaneously.

14. A machine for finishing parts of boots and shoes, comprising a plurality of rotary 30 work members arranged with their acting faces adjacent in position to permit the heel of a shoe to be advanced between them in the

line of movement of said faces, and a stop arranged to limit the introduction of the heel 35 between said faces, said stop being so positioned with relation to said work members that opposite sides of the heel may be simultaneously and progressively acted upon by said members from curved end to breast edge.

15. A machine for finishing parts of boots 40 and shoes, comprising a plurality of rotary work members having yielding peripheries and arranged in approximately the same plane and adjacent to each other to permit a shoe to be advanced in the plane of said members end 45 foremost between their peripheral faces, and a stop arranged in position to engage the shoe to limit its introduction between said faces.

16. A machine for finishing parts of boots and shoes, comprising a plurality of rotary 50 work members arranged in approximately the same plane and adjacent to each other to permit the work to be advanced in the plane of said members between their acting faces, and a stationary stop arranged in position to engage 55 the work and limit its introduction between said members.

Signed by me at Lynn, Massachusetts, this 16th day of May, 1902.

CALVIN B. TUTTLE.

Witnesses:

M. C. MUDGE,
A. M. TUTTLE.