

E. BAYARD.
 APPARATUS FOR USE IN MAKING SHOES.
 APPLICATION FILED FEB. 2, 1907.

1,006,457.

Patented Oct. 24, 1911.

3 SHEETS-SHEET 1.

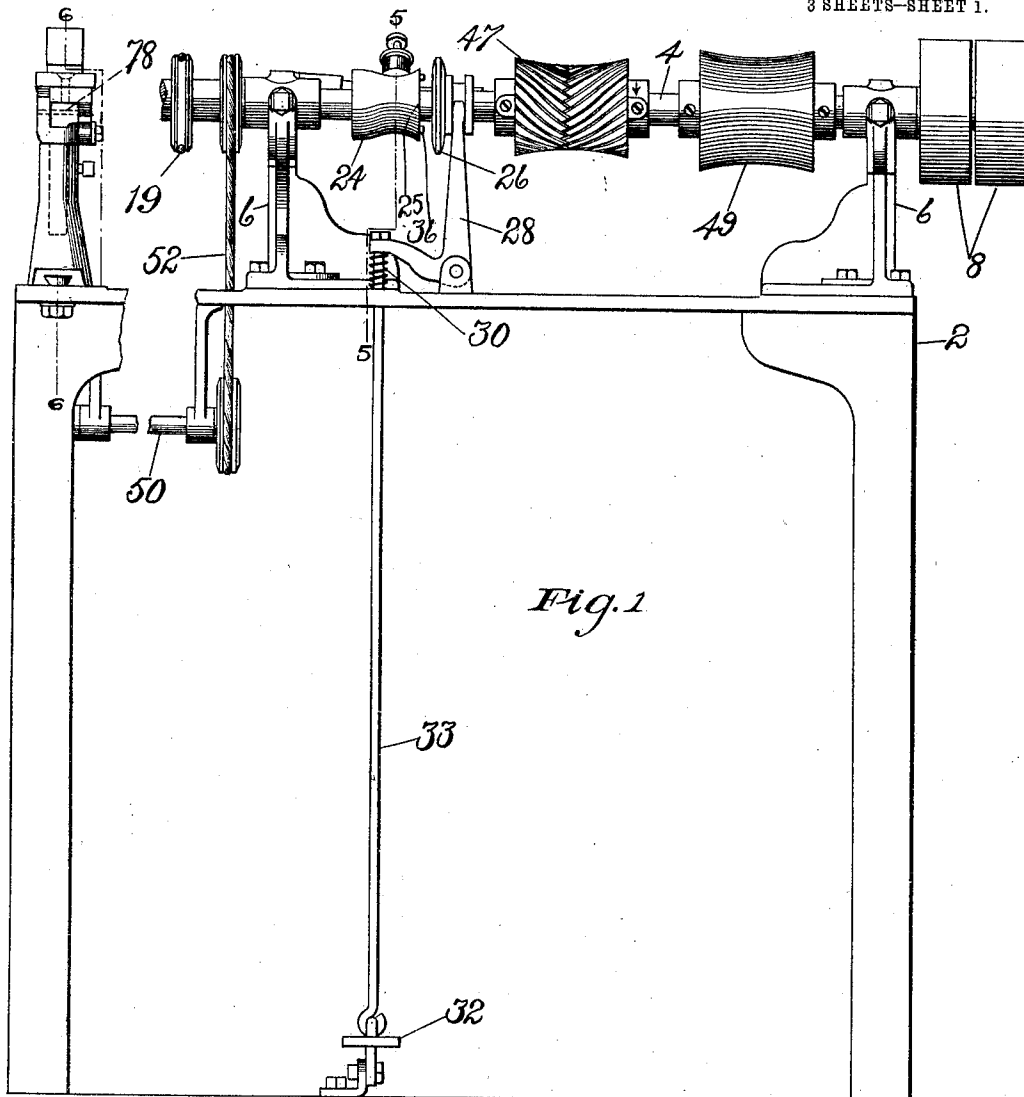


Fig. 1

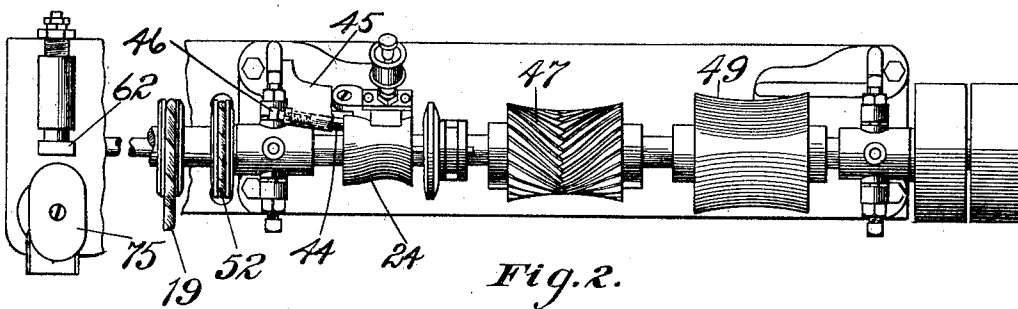


Fig. 2.

Witnesses.

Elizabeth C. Coupe
 Edith C. Hallbrook

Inventor:
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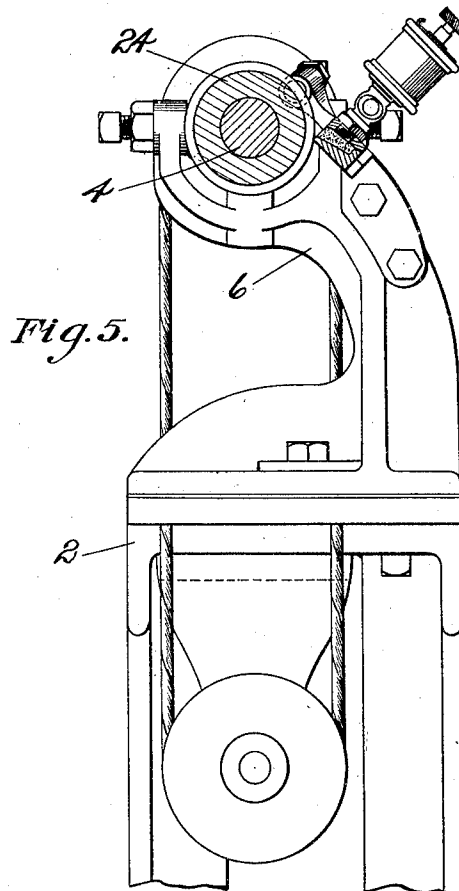


Fig. 5.

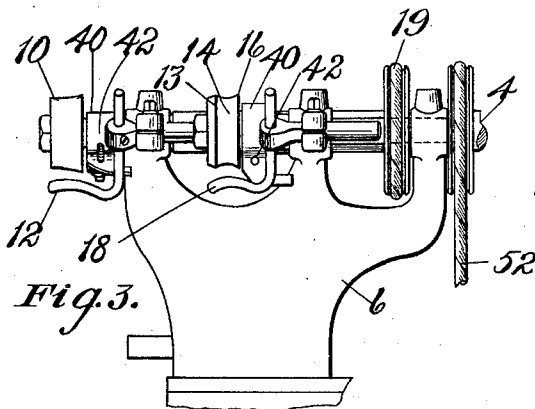


Fig. 3.

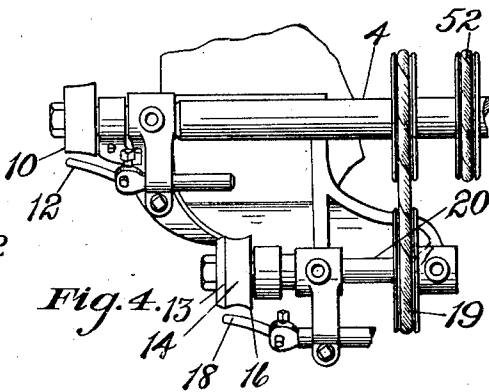


Fig. 4.

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3 SHEETS—SHEET 3.

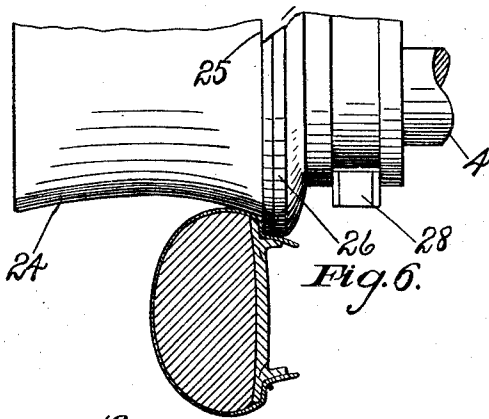


Fig. 6.

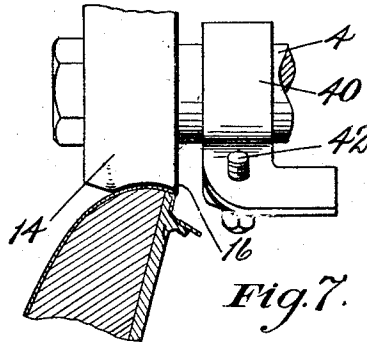


Fig. 7.

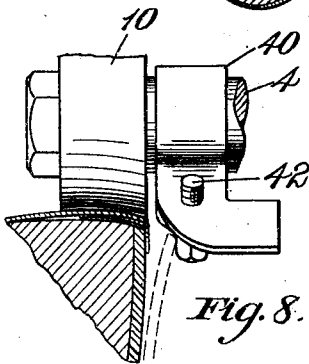


Fig. 8.

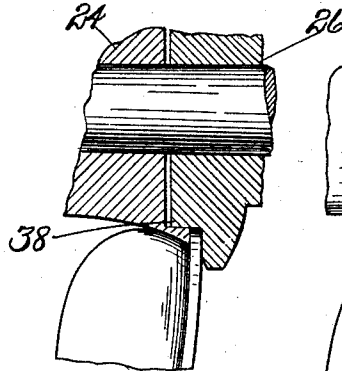


Fig. 9.

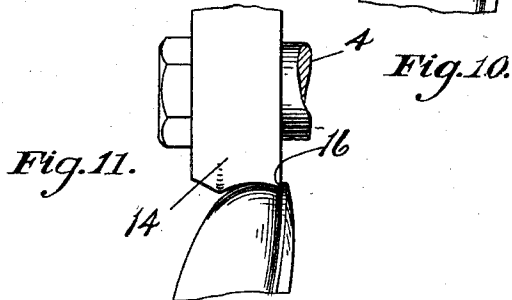


Fig. 11.

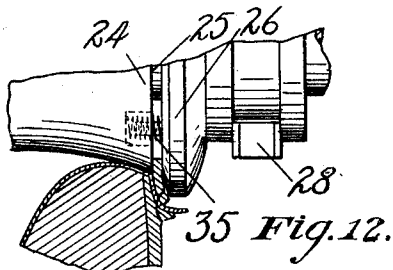


Fig. 12.

Witnesses.
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UNITED STATES PATENT OFFICE.

EMERY BAYARD, OF ROCHESTER, NEW YORK, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

APPARATUS FOR USE IN MAKING SHOES.

1,006,457.

Specification of Letters Patent.

Patented Oct. 24, 1911.

Application filed February 2, 1907. Serial No. 355,509.

To all whom it may concern:

Be it known that I, EMERY BAYARD, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain Improvements in Apparatus for Use in Making Shoes, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to the manufacture of boots and shoes and particularly to a novel apparatus for shaping a shoe at and in the region of its edge.

An object of this invention is to provide a machine by which this operation of shaping a shoe can be performed more rapidly, with less labor, and better than the operation has been heretofore carried out.

An important feature of this invention consists in mechanical means for blocking a shoe by rubbing the upper on the side of the shoe adjacent to its edge. As herein shown, the blocking means comprises a driven roller having its periphery shaped to adapt it to operate on the side of the shoe. In the use of the blocking means the shoe is pressed against the acting face of the roller and advanced to cause the roller to rub and smooth the upper along the side of the shoe adjacent to its edge. Rollers having different peripheral contours may be employed for blocking different portions of the shoe. Preferably the rollers will be shaped to engage different portions of the side of the shoe at or near the edge of the shoe to shape the shoe to the last and to smooth out any wrinkles that might otherwise be visible in the completed shoe. To this end the roller may have a more or less distinct flange to engage the shoe at its edge. If the roller is used upon a shoe having a sole with a projecting edge the flange may enter the crease between the upper and the top of the sole edge.

Another feature of the invention consists in providing means for shaping the shoe at or adjacent to its edge by supporting the shoe on one side of the edge while it is

rubbed on the other side of the edge. In the embodiment of this feature of the invention herein shown means is provided for engaging the side of the shoe from its edge upwardly and the bottom of the shoe from the edge inwardly, said two means preferably cooperating to shape the surfaces being treated in accordance with the contours of the engaging means. Preferably said means have continuous engagement with the shoe and are both actuated to rub the shoe for shaping it. As herein shown, the engaging means are rotatable devices, the device engaging the side of the shoe being a roller having a peripheral acting face and the device engaging the bottom of the shoe being a disk the end face of which supports and rubs the bottom of the shoe.

In the manufacture of turn shoes, in which the upper is sewed directly to the single sole while the parts are inside out and the shoe then turned and relasted, not only is it necessary to conform the upper to the side of the last but the projecting edge of the sole must also be formed or shaped. It has been customary to do this by beating and rubbing with a hammer alternately on the lower face of the sole and then on the upper face of the sole edge and the adjacent portion of the upper. This operation is slow and unsatisfactory, because the sole is acted upon only at one side at a time and yields at its edge in the direction of the pressure applied. This condition and the fact that the sole is damp and very pliable at this stage in the manufacture of a turn shoe makes it difficult to shape the edge of the sole properly.

In accordance with a further feature of this invention means is provided for treating simultaneously the two sides of the projecting edge of a shoe sole to shape it. In the illustrated embodiment of this feature of the invention the roller and disk above referred to are employed, the disk being arranged for movement toward and from the roller to effect the engagement and release of the sole edge. The shoe is presented by introducing the edge of the sole between the roller and the disk, the roller engaging by its

periphery with the side of the shoe and by its end face with the upper face of the edge portion of the sole, while the disk engages the opposed lower face of the sole. Means is provided, under control of the operator, for moving the disk toward the upper so that the edge of the sole is pressed between the end faces of the roller and disk, which parts as they rotate rub and smooth the portions of the shoe engaged by them and shape the edge portion of the sole. The roller and disk may be suitably dimensioned with relation to the portion of the shaft between them or suitably formed relatively so that the edge face of the sole will engage and be rubbed and shaped by the shaft or by a face on one of said parts while the side faces of the sole are being rubbed and shaped by the adjacent end faces of the roller and disk. This feature of the invention by which the edge face of the sole is treated is not herein claimed, but is reserved to form the subject-matter of a separate application. While for the best results all the said engaging faces will be rotated, it is not essential that this be done. For example, the roller alone might be driven and the devices engaging the edge and bottom of the sole be stationary or arranged to move only by contact with the shoe as the shoe is fed along.

The means described for use in shaping the projecting edge portion of the sole and the adjacent portion of the upper of turn shoes may also be employed with advantage in shaping the welt alone or the welt and the adjacent portion of the upper of a Good-year shoe. For this purpose the welt will be inserted between the disk and the end face of the roller, the disk and roller co-operating to rub and press the opposite sides of the welt and preferably also the adjacent portion of the upper. It will be observed that the roller and disk rub the welt lengthwise thus tending to stretch it into such form that it may be made to stand out straight from the shoe at places where it is bent about convex edge portions of the shoe. The extent to which any portion of the welt will thus be stretched can be manually regulated by applying more or less pressure to the welt through the treadle controlled disk. The welt may therefore be stretched most at the bent portions where it tends to curl up and merely smoothed and straightened at other portions of the shoe. The welt-rubbing surfaces may advantageously be relatively formed so that the welt will be rubbed with greatest force along its outer edge portion where stretching is most effective and to this end the disk is herein shown as provided with a beveled edge.

In the use of the machine for shaping McKay shoes and welt shoes before the welt is applied the disk engages the upper ma-

terial on the bottom of the shoe, while the roller rubs the upper material on the side of the shoe, and preferably the disk and roller will for this purpose be positioned closely adjacent to each other so that they will coöperate to shape the edge of the shoe at the junction of its side and bottom faces. For this class of work the disk might if preferred be integral with the roller or consist in an extended flange thereof, instead of being movable toward and from the roller as is desirable in the construction designed for use upon turn shoes. When the machine is to be used for shaping welt shoes, in which the upper material is lasted against a lip formed on the innersole near its edge, the disk or an equivalent flange on the roller will also preferably serve to press the upper material firmly into its correct position. For this purpose the disk will be of suitable form and dimensions relatively to the roller to overlie the shoe bottom the desired distance to rub the upper material on the bottom of the shoe toward and against the shoulder formed by the upper material lasted against the lip of the innersole. The rubbing action of the disk will crimp or set the upper material in its proper position to form a seat for the welt which is to be subsequently attached.

The method of making shoes herein disclosed and which may be practiced by aid of this machine is not claimed in this application, but the right is reserved to claim this invention in a divisional application.

Another feature of the invention consists in heating the rubbing means that engages the upper so that the portion of the upper engaged by it in any of the before described uses of the machine may be "ironed", or rubbed with a heated instrument, to smooth and polish its surface while the shoe is being shaped. This operation of ironing the upper at and adjacent to the edge of the shoe can be advantageously performed simultaneously with the shaping or blocking of the shoe as no additional time is consumed by doing so. The rollers may be heated in any convenient way for ironing the shoe and as herein shown friction devices are provided for heating each of the rubbing rollers.

Sometimes it may be found desirable to hammer a shoe or certain portions of a shoe to block it instead of or in addition to shaping it by means of the rubbing rollers. In accordance with another feature of my invention the machine is equipped with a hammering mechanism which may be used for blocking turn shoes as well as other types of shoes. This feature of the invention forms the subject-matter of Letters Patent No. 918,486, granted April 13, 1909, on my divisional application Serial No. 376,600, filed May 31, 1907.

These and other features of the invention, including certain details of construction and combinations of parts, will be explained in the following description and pointed out in the claims.

The accompanying drawings form part of this specification and illustrate a preferred construction embodying the several features of the invention.

Figures 1 and 2 are, respectively, side and plan views of the machine, a portion of the shaft being broken away and certain of the tools being omitted from these views and shown in corresponding views 3 and 4. Fig. 5 is a vertical section on the line 5—5 of Fig. 1. Fig. 6 is a side elevation of the cooperating roller and disk hereinafter described, showing also a Goodyear shoe in position to be operated upon by these parts. Fig. 7 shows one of the blocking rollers operating upon the toe portion of a shoe. Fig. 8 shows one of said rollers operating upon the heel portion of a shoe. Fig. 9 shows the roller and disk of Fig. 6 employed for blocking the side of a shoe and shaping the projecting edge of its sole. Fig. 10 shows a modified form of roller and disk illustrated in Fig. 9. Fig. 11 shows a roller operating upon the toe portion of a turn shoe. Fig. 12 shows the roller and disk as employed for shaping the welt and adjacent portion of the upper of a Goodyear shoe.

The machine is mounted on a bench or frame 2 and comprises a shaft 4 journaled in stands 6, as shown in Figs. 1 and 3. The shaft is provided with fast and loose pulleys 8 by which it is driven and it is operatively connected with the several working parts of the machine. At the end opposite the pulleys the shaft is provided with a roller 10 having a periphery shaped to adapt it to engage and rub the upper on the side of the shoe adjacent to its edge for blocking the shoe. A shoe rest 12 is adjustably mounted in position to support a shoe while it is being presented to the roller 10, as in Fig. 8. A second roller 14 is preferably provided, the two rollers 10 and 14 having peripheries of different contours to adapt them to operate upon different portions of a shoe,—as, for example, the heel and toe of the shoe. For rubbing the toe portion of a shoe, as shown in Figs. 7 and 11, said roller 14 is preferably provided with a reduced middle portion and a flaring or enlarged end portion, forming what will be herein called a "flange," as at 16 which is blunt so that there is no danger of its injuring the stitches of the insole.

This contour of the roller 14 enables it to rub the upper at and adjacent to the edge of the shoe, the flange overlapping the edge of the shoe slightly, if desired, or if the shoe being blocked is provided with a sole, as

shown in Fig. 11, the flange will extend into the rand crease or the angle between the sole and upper. The periphery of the roller thus serves to rub and shape the upper on the side of the shoe, while the end face of the roller rubs and shapes the upper face of the projecting edge portion of the sole. A rest 18 is provided for sustaining a shoe while it is being operated upon by the roller which may be mounted on the main shaft 4, but is preferably carried by a counter shaft 20, as shown most clearly in Fig. 19, the counter shaft being driven by a belt 19, see Fig. 4, extending from the main shaft.

The roller 24, which is suitably secured to the main shaft 4, is preferably shaped at its right-hand end similarly to the roller 14 having a flange 25. The left-hand end portion of the roller is slightly convex to adapt it to fit such portions of the shoe as the side at the shank. Cooperating with the roller 24 is a disk 26 of somewhat larger diameter than the roller so that its edge projects beyond the periphery of the roller to engage the bottom face of a shoe while the side of the shoe is being presented to the roller, as shown, for example, in Figs. 6, 9, and 12. It will be observed by reference to Fig. 6 that the disk is of suitable size and shape to force the upper material on the bottom of the shoe into the angle between the lip and feather edge of the innersole while it rubs and smooths the upper on the shoe bottom and the roller rubs and smooths the upper on the side of the shoe. The roller and disk arranged in the relation shown in this figure cooperate to shape the edge of the shoe, each of said parts serving to guide the shoe in its presentation to the other part. It is obvious that for performing this operation the roller and disk might be fixed with relation to each other or formed in one piece. Some of the advantages of the invention would also be obtained if the disk were not positively driven or even if the disk were stationary and cooperated with the roller in shaping the edge of the shoe by merely supporting the upper on the bottom of the shoe. Preferably, however, the disk and roller are both driven and the disk is movable axially from and toward the roller. This permits the projecting edge portion of the bottom of a shoe,—as, for example, the sole of a turn shoe, see Figs. 9 and 10,—or the welt of a Goodyear shoe, see Fig. 12,—to be interposed between the adjacent end faces of the roller and disk. In the relation of the parts shown in Fig. 9 the upper and lower sides of the projecting portion of the sole are rubbed and shaped by the end faces of the disk and roller, while the side of the shoe is rubbed and shaped by the peripheral face of the roller. This construction is very useful in treating turn shoes in which it is especially important to shape the projecting

edge of the sole which becomes more or less distorted in the operation of turning the shoe. It is also of great advantage to shape simultaneously the side of the shoe and the projecting edge of the sole, as may be done by this apparatus, because if these parts were shaped successively there would be a tendency to disturb the position of one of them while shaping the other. The pressure with which the opposite surfaces of the sole will be acted upon may be regulated by the operator by applying more or less force to the treadle 32. If desired, springs 35 may be interposed between the disk and roller to prevent the sole from being clamped too tightly, or stops 36 may be employed as shown in Fig. 1 for unyieldingly limiting the approach of the disk to the roller. In Fig. 10 a modified construction is shown in which the roller has in its end faces a recess which receives a hub 38 on the disk 26. The hub forms a rubbing face for engagement with the edge face of the sole, whereby the sole may be shaped on its three faces simultaneously as illustrated in that figure.

For shaping the welt attached to a Goodyear shoe, or the welt and the upper in and adjacent to the rand crease, the shoe is presented to the roller 24 and disk 26, as shown in Fig. 12, and the disk pressed against the lower face of the welt. The rubbing action of the roller and disk lengthwise of the welt tends to stretch the welt and straighten it where it is curled up at the toe and corners of the ball of the shoe. Preferably the welt rubbing face of the disk 26 is beveled slightly from its edge inwardly so that the welt is engaged more firmly along its marginal edge than nearer the inseam where little or no treatment is required. The pressure of the disk upon the welt may be regulated by the treadle 32 to vary the force with which the welt is acted upon according to the conditions of the welt at different portions of the shoe. The spring 35 prevents the welt being gripped too tightly.

Means will preferably be provided for heating the several rollers 10, 14, and 24 and for this purpose friction devices 40 are shown as applied to the shaft adjacent to the rollers 10 and 14, screws 42 being arranged to vary the frictional engagement of the collars with the shafts and thus regulate the heating of the rollers. For heating the roller 24 a friction pin or block 44 is mounted in a bracket 45 in position to engage the end face of the roller 24. The pressure of the friction pin against the roller is regulated by a screw 46. When the rollers are heated the upper will be ironed or rubbed with a smooth instrument to polish as well as smooth and shape it.

In the use of the machine a shoe will be presented to one or more of the rollers according to the particular portions of the

shoe it may be desired to treat or according to the nature of the shaping operation required for the different portions of the shoe. For shaping a turn shoe with the roller 24 and disk 26, the edge portion of the sole projecting beyond the seam that connects the sole and upper is inserted between the roller and disk. The shoe is pressed against the roller and the disk is forced against the lower face of the sole. The upper is rubbed by the periphery of the roller to block the shoe while the disk supports and presses the upper face of the sole against the end face of the roller so that the upper and face of the sole in and adjacent to the rand crease are simultaneously shaped by rubbing pressure while the opposite face of the sole is supported. It is to be noted also that the disk is rotated and that the disk and end face of the roller each support the projecting portion of the sole against the rubbing pressure of the other so that the projecting portion of the sole is shaped by rubbing pressure applied simultaneously to its opposite sides. The force with which the disk and roller press against the opposite faces of the sole will be regulated by the operator through the treadle. It will be observed that the flange or angular edge 25 of the roller enters the crease between the upper and the sole, thus opening and shaping this crease, and rubbing and smoothing the portions of the upper in and adjacent to the crease which will be visible in the completed shoe. By the coöperation of the roller and disk the edge portion of the sole and the side of the shoe are simultaneously shaped and are worked into the relative form and position determined by the contours of the roller and disk. By these means these portions of a turn shoe may be shaped with great rapidity and much better than this operation can be done by hand or by treating the upper and the sole alternately. The labor required for this operation is very small as compared with that necessary when the operation is carried out by hand as has heretofore been the practice. With the construction shown in Fig. 10 the edge face of the sole as well as its upper and lower faces may be rubbed and shaped while the upper on the side of the shoe is being blocked. For shaping the edge and marginal portion of the bottom of a Goodyear shoe before the welt is attached to the same the disk 26 is moved into or substantially into engagement with the end face of the roller and the shoe is pressed against the roller and disk, as illustrated in Fig. 6. The roller then blocks the shoe by rubbing pressure upon the upper on the side of the shoe while the disk smooths the upper on the bottom of the shoe by rubbing pressure inwardly from the edge of the shoe to the shoulder formed by the upper lasted against the lip of the

innersole. Preferably the disk is of such dimensions relatively to the roller that it rubs and presses the upper against the lip of the innersole. This operation produces a smooth and properly shaped seat for the welt which is to be attached to the upper and the lip of the innersole. The disk and roller also cooperate to shape the edge of the shoe at the junction of the side and bottom faces. For shaping the welt of a Goodyear shoe, as shown in Fig. 12, the procedure is very similar to that followed in shaping the projecting portion of the sole of a turn shoe. The beveled acting face of the disk engages the welt most firmly at the margin of the welt and the pressure of the disk against the lower face of the welt is varied by the foot treadle to secure the shaping and stretching action required at the different portions of the shoe. The roller blocks the upper at the side of the shoe while the welt is being shaped.

Preferably the rollers 10, 14, and 24 will be heated for the purpose of ironing or polishing the upper on the side of the shoe at the same time that the shoe is being blocked. The bottom face of the sole of the shoe receives a different finish from the upper leather and frequently is differently finished from the upper surface of the sole and it is, therefore, usually not desirable to heat the instrument with which the bottom face of the sole is rubbed.

Having explained the nature of this invention and described a construction embodying the same in the best form now known to me, I claim as new and desire to secure by Letters Patent of the United States:

1. In a machine of the class described, the combination with means continuously engaging the upper lengthwise of the shoe edge of a shoe adjacent to the edge of the shoe bottom, of means for actuating said engaging means to rub the upper, and means arranged to assist the operator in presenting the shoe in operative relation to said engaging means.

2. In a machine for shaping shoes, the combination with a blocking roller having a peripheral contour shaped to adapt it to operate on the side and edge of a shoe, of means for actuating the roller to block the shoe, and a guide arranged to engage the shoe bottom for assisting the operator in presenting the work to the blocking roller.

3. In a machine for shaping shoes, the combination with a blocking roller formed to engage the side of a shoe adjacent to its edge, of means for driving the roller, and means for guiding the shoe in position for the upper to be rubbed by the roller.

4. In a machine of the class described, the combination with upper smoothing and shaping means continuously engaging the

upper of a shoe adjacent to the edge of the shoe bottom, and means cooperating with a non-working face of the engaging means to heat said means, of means for actuating said engaging means to rub the upper.

5. In a machine for shaping shoes, the combination with a blocking roller having a peripheral contour adapted to the shape of the side of a shoe adjacent to its edge, of means for actuating the roller to block the shoe, and friction heating means arranged to engage an end face of the roller.

6. In a machine for shaping shoes, the combination with a roller shaped to engage the side of a shoe adjacent to its edge and provided with a blunt edged flange to overlie the edge of the shoe, of means for actuating the roller to rub the shoe.

7. In a machine for shaping shoes, the combination with a roller shaped to engage the side of the shoe and to extend into the crease between the sole and upper, of means for actuating said roller to rub the upper and the sole of the shoe, and means arranged to guide the sole in contact with the roller.

8. In a machine for shaping shoes, the combination with a heated member having a body portion including an extended, substantially cylindrical part shaped to engage the side of a shoe adjacent to its edge and a flange shaped to overlie the edge of the shoe, of means for actuating said heated member to block the shoe and iron the upper at the side and edge of the shoe.

9. In a machine of the class described, the combination with means constructed and arranged for continuous engagement with the bottom of a shoe and the upper on the side of the shoe adjacent to its bottom, of means for actuating said engaging means to rub the bottom and side of the shoe.

10. In a machine of the class described, the combination with a shaping tool acting on the bottom of a shoe, of smoothing means for engaging the upper on the side of the shoe, and means for actuating the smoothing means lengthwise of the shoe.

11. In a machine for shaping shoes, the combination with means for engaging the opposite sides of the projecting edge portion of a shoe and also the upper adjacent to the rand crease, of means for actuating the engaging means to rub the upper and the projecting edge portion of the shoe.

12. In a machine for shaping shoes, the combination with means for supporting one side of the projecting edge portion of a shoe and means for engaging the other side of said projecting edge portion and the upper adjacent to the rand crease, of means for actuating said engaging means to rub the shoe.

13. In a machine for shaping shoes, the combination with means for simultaneously

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rubbing the upper and sole in the rand crease, of means for supporting the edge portion of the sole against the pressure of the rubbing means upon the sole.

5 14. In a machine for shaping shoes, a blocking roller formed to engage the side of the shoe, and means for actuating the roller, combined with means constructed and arranged to engage the bottom of the shoe and to cooperate with the blocking roller in shaping the shoe.

15 15. In a machine for shaping shoes, a blocking roller formed to engage the side of the shoe adjacent to the edge of the shoe, combined with a disk for engaging the bottom of the shoe adjacent to the edge of the shoe, and means for actuating said roller and disk, substantially as described.

20 16. In a machine for shaping shoes, a blocking roller having a peripheral contour formed to engage the side of a shoe adjacent to the edge, combined with a disk having an end face to engage the bottom of the shoe adjacent to its edge, and means for actuating said roller and disk.

25 17. In a machine for shaping shoes, a blocking roller having a peripheral contour formed to engage the side and edge of a shoe, combined with a disk movable toward and from the roller and having an end face to engage the bottom of the shoe, means for moving the disk relatively to the roller, and means for rotating the disk and roller.

30 18. In a machine for shaping shoes, a blocking roller having a peripheral contour formed to engage the side and edge of a shoe, and means for actuating the roller to block the shoe, combined with a disk having an end face shaped to engage the bottom of the shoe, and means for actuating the disk toward the roller.

35 19. In a machine for shaping shoes, a blocking roller formed to engage the side of the shoe, combined with means constructed and arranged to engage the bottom of the shoe and to cooperate with the blocking roller in shaping the shoe, and mechanism for actuating said means.

40 20. In a machine of the class described, the combination with a roller shaped to engage the side of a shoe, and a disk having an end face for engaging the lower face of the sole of the shoe, of a shaft upon which the roller and disk are relatively movable toward and from each other, and means for actuating the roller and disk to rub the upper and sole, respectively, of the shoe.

45 21. In a machine of the class described, the combination with a roller and a disk relatively movable toward and from each other to engage by their end faces the opposite sides of the edge of a shoe sole projecting beyond the upper, of means under control of the operator for actuating said roller and disk as described, and means for rotat-

ing the roller and disk to rub the two sides of the sole edge simultaneously.

22. In a machine of the class described, the combination with two rotatable members arranged in axial alinement, of manually controlled means for relatively moving them axially to engage opposite side faces of the projecting edge of the sole of a shoe, and means for rotating said members in contact with the sole to rub the two sides of the sole simultaneously.

23. In a machine of the class described, the combination with a member adapted to engage one side of the projecting edge of the sole of a shoe and means for driving said member to rub the sole, of a cooperating member, and means under control of the operator to cause the cooperating member to support the projecting edge of the sole against the rubbing member.

24. In a machine of the class described, the combination with a roller shaped to engage the upper on the side of a shoe and the upper face of the projecting edge portion of the shoe sole, of means for supporting the lower face of the sole, and means for rotating the roller.

25. In a machine of the class described, the combination with a rubbing member arranged to extend into the crease between the upper and sole of a shoe and means for actuating said member to rub the adjacent portions of the upper and sole, of a member for supporting the lower face of the sole, whereby the edge portion of the sole is shaped between said two members during the rubbing operation.

26. In a machine of the class described, means for simultaneously shaping the projecting edge portion of the sole of a shoe and blocking the sole.

27. In a machine of the class described, means comprising relatively movable rotatable members constructed and arranged to clamp the projecting edge portion of a shoe between them and shape the work by rubbing and pressing action, said machine having provision for simultaneously shaping by rubbing pressure the upper adjacent to the top side of said projecting sole.

28. In a machine of the class described, the combination with a plurality of rubbing members constructed and arranged to be forced into substantial contact and to be separated to receive between them the projecting portion of the sole of a shoe, of means for actuating said members to shape the edge portion of the shoe by a rubbing action, and means which can be actuated while said members are running to move them from one and toward one another.

29. In a machine of the class described, the combination with a rotatable rubbing member constructed and arranged to engage a shoe in the crease between the sole and up-

per, of a cooperating rubbing member for engaging the lower side of the sole, means for holding the said members normally separated, said means having provision for manual operation to move the members toward each other to engage frictionally the sole presented between them, and means for actuating said members to rub the work.

30. In a machine of the class described, the combination with a rotary device constructed and arranged to engage the upper on the side of a shoe adjacent to its edge, of a second rotary device arranged with relation to the first device to engage the bottom of the shoe, and means for driving the two rotary devices to rub the bottom and side of the shoe simultaneously.

31. In a machine of the class described, the combination with a roller constructed and arranged to engage the upper on the side of a shoe adjacent to its edge, of a disk arranged adjacent to the roller to project beyond the periphery of the roller for engaging the bottom of the shoe, and means for rotating the disk and roller to rub the portions of the shoe engaged by them.

32. In a machine of the class described, the combination with a heated ironing tool continuously engaging the upper of a shoe adjacent to the edge of the shoe bottom, of unheated means adapted for continuous engagement with the bottom of the shoe adjacent to its edge, and means for actuating said two engaging means to rub the bottom of the shoe and iron the side of the shoe.

33. In a machine for shaping shoes, the combination with work rubbing members constructed and arranged to have continuous engagement with the opposite faces of the projecting edge portion of a shoe, of means for moving said members relatively to engage and disengage the work, and means for actuating said members to shape said projecting edge portion of the shoe by rubbing pressure.

34. In a machine for shaping shoes, the combination with means for supporting on one of its sides an edge portion of a shoe which projects beyond the upper at the side of the shoe, and means for engaging said projecting edge portion of the shoe on its opposite side, of means for actuating said engaging means to shape the work by rubbing pressure, and means under the control of the operator for varying the pressure during the operation of the machine on the shoe.

35. In a machine for shaping shoes, the combination with work rubbing members constructed and arranged to engage simultaneously the edge and two side faces of a projecting edge portion of a shoe sole and the upper adjacent to said projecting portion, of mechanism for actuating said means to shape the engaged portions of the shoe by rubbing pressure.

36. In a machine for shaping shoes, the combination with a work rubbing member constructed and arranged to engage the side of a shoe, and a rotary work rubbing member constructed and arranged to engage the upper on the bottom of a Goodyear shoe from the edge inwardly to the shoulder, of means for actuating the latter member to rub the upper from the edge of the shoe inwardly toward the shoulder.

37. In a machine for shaping shoes, the combination with a rotary work-shaping member constructed and arranged to engage the upper on the side of a shoe at and adjacent to its edge, of a work-rubbing member constructed and arranged to engage the upper on the bottom of the shoe from the edge inwardly, and means for actuating the latter member to rub the upper from the edge inwardly and to cooperate with the first-mentioned member for shaping the upper at the edge of the shoe.

38. In a machine for shaping a shoe, the combination with means for supporting the projecting edge of a shoe at one side, and means for engaging said edge at the opposite side, the acting faces of said two means being relatively formed and arranged to engage the projecting edge of the shoe more firmly at its marginal portion than at the portion adjacent to the upper, of means for actuating the engaging means to engage and disengage the shoe, and means for actuating them to shape the work by rubbing pressure.

39. In a machine for shaping a shoe, the combination with work rubbing members having relatively inclined opposed faces for engaging opposite sides of the projecting edge of a shoe, of means for separating said members to admit the work and for moving them to engage the work, and means for actuating said members to shape the projecting edge of the shoe by rubbing pressure.

40. A machine of the class described having, in combination, an upper creasing tool, a blocking tool, and means for actuating said tools.

41. A machine of the class described having, in combination, an upper creasing tool, a blocking tool supported for yielding movements relative to the creasing tool, and actuating means for said tools.

42. A machine of the class described having, in combination, upper creasing means and upper blocking means.

43. In a machine of the class described, the combination with two rotatable members arranged in axial alinement and constructed to block the upper at the side of a shoe and to force the upper into the angle formed by the feather edge and lip of an inner sole, of actuating means for said members.

44. In a machine of the class described,

the combination with a rotatable member
constructed and arranged to shape the upper
at the side of a shoe and a rotatable member
to act upon and shape the edge portion of
5 the shoe bottom, said members being ar-
ranged in axial alinement, of actuating
means for said members.

In testimony whereof I have signed my
name to this specification in the presence
of two subscribing witnesses.

EMERY BAYARD.

Witnesses:

GEORGE CLARK,
GEO. F. WOLFE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."

It is hereby certified that in Letters Patent No. 1,006,457, granted October 24, 1911, upon the application of Emery Bayard, of Rochester, New York, for an improvement in "Apparatus for Use in Making Shoes," an error appears in the printed specification requiring correction as follows: Page 6, line 106, for the word "sole" read *shoe*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 14th day of May, A. D., 1912.

[SEAL.]

C. C. BILLINGS,

Acting Commissioner of Patents.