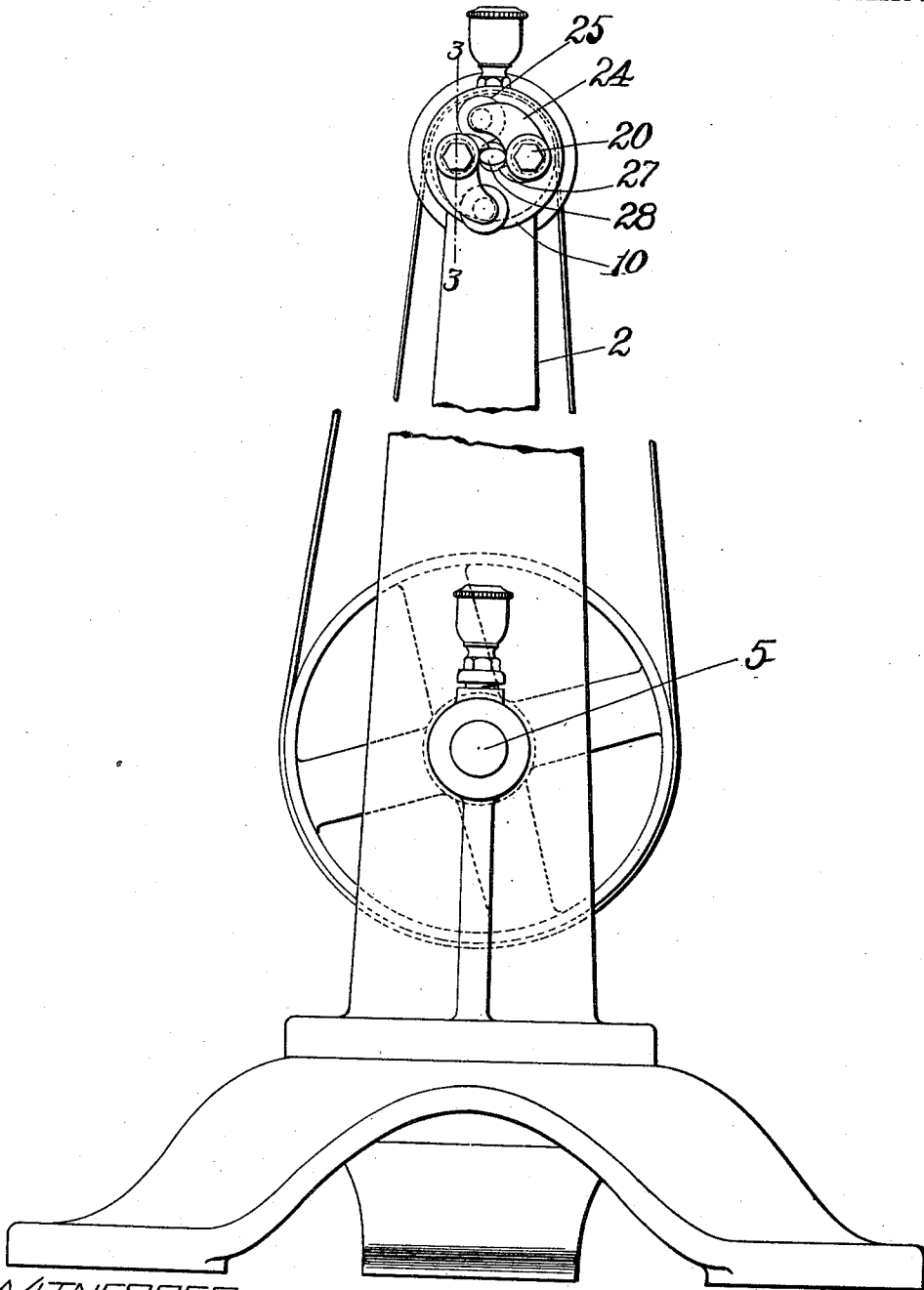


G. M. CARNES.
SHOE SHAPING MACHINE.
APPLICATION FILED MAR. 25, 1911.

1,030,840.

Patented June 25, 1912.

2 SHEETS—SHEET 1.



WITNESSES.

Elizabeth C. Corp
O. Blanche Hargraves.

Fig. 1.

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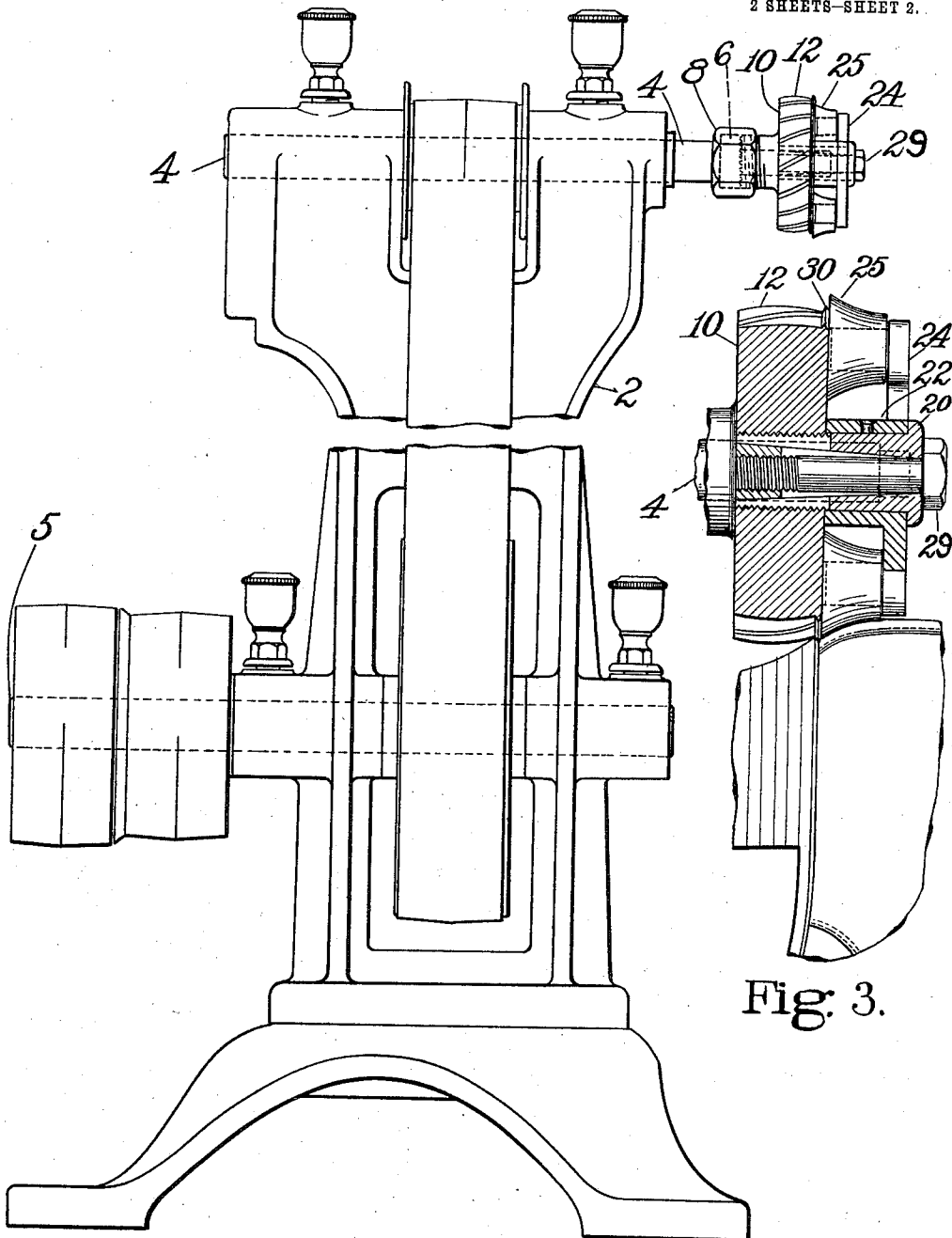


Fig. 3.

Fig. 2.

WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE M. CARNES, OF ROCHESTER, NEW YORK, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

SHOE-SHAPING MACHINE.

1,030,840.

Specification of Letters Patent.

Patented June 25, 1912.

Application filed March 25, 1911. Serial No. 616,786.

To all whom it may concern:

Be it known that I, GEORGE M. CARNES, a citizen of the United States, and resident of Rochester, in the county of Monroe and State of New York, have invented certain Improvements in Shoe-Shaping Machines, 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 shoe shaping machines and is embodied in a machine for shaping the shoe at the juncture of the upper and the sole and particularly for shaping the shoe at and adjacent to the rand crease.

The object of the invention is to give to the shoe stock a uniform appearance along the length of the crease. In making shoes, the upper is lasted over the edge of the bottom face of the innersole and crimped as it is bent inwardly to position for being secured. This lasting operation, particularly about the heel portion of the shoe where the upper materials include a heel stiffener, leaves an edge contour for the shoe bottom which is more or less irregular. Upon the shoe thus prepared the sole is attached and trimmed down to a contour and size approximating closely to that of the adjacent portion of a lasted shoe. Between the upper and the sole thus applied there is a narrow crease and because of the narrowness of this crease slight irregularities in the contour of the upper or the sole are conspicuous and detract from the appearance of the finished shoe.

More specifically stated, it is an object of this invention to shape by beating or rubbing pressure the faces of the shoe which constitute the walls of the rand crease and also to shape the portions of the upper and the sole adjacent to the walls of the crease so as to give to this portion of the shoe a regular and smooth appearance.

Another condition which develops in the making of a shoe is that the adjacent faces of the sole and the bottom of the lasted shoe frequently are found to be slightly out of parallelism along the edge of the shoe bottom so that when said faces are forced together in laying and attaching the sole, and

later in attaching the heel, the rand crease between these faces will be of varying depths at different points because of this lack of exact parallelism or evenness in the contacting faces.

It is an object of this invention to improve the appearance of shoes by overcoming this irregularity in the depth and shape of the rand crease.

To these ends, an important feature of the invention consists in shaping tools which may be beating or rubbing instrumentalities, or both beating and rubbing devices, for treating the upper at and adjacent to the rand crease of the shoe to remove such irregularities in contour as those above mentioned. Advantageously the shaping tools may be beaters arranged to strike light rapid blows against the face of the work and then to rub or roll, or both rub and roll, over the surface adjacent to the point of impact. As shown, these beating devices are rollers having appropriately shaped peripheries to conform to the vertical curvature of the side of the shoe and are mounted upon arms of a rotary carrier, the arrangement being such that the arms project the rollers outwardly by centrifugal force as the carrier turns and thereby causes the beaters to occupy outermost positions from which they will yield against centrifugal force after striking the work. Conveniently means which is adjustable is provided for limiting the outward movement of the arms and the construction herein shown of such limiting means and provision for adjusting it possesses practical merit.

A further feature of this invention consists in the provision of upperbeating means which may be the means above described or other means suitable for the purpose and a cooperating beater of appropriate construction for shaping and hardening the edge of the sole around the heel seat and adapted to do its work at the same time that the upper is being beaten. This combination is embodied herein in a rotary sole edge beating block having a transversely curved beating face and this block serves as the rotary carrier for the upper beating devices above described.

A further feature of the invention consists in providing, in such a combination as

that last above described, means for accurately guiding the shoe to insure its presentation in such a position that the upper beating devices shall treat the upper over the desired area and the sole edge shaping device shall properly act upon the sole without liability of either of said devices engaging and injuriously effecting the portion of the shoe which the other device alone is intended to treat. As shown, this guiding means is a device adapted to engage the shoe in the rand crease. Preferably this rand crease guide is formed and arranged to serve as a molding or shaping tool for imparting to the rand crease around the heel a uniform shape and particularly a uniform width. In the combination described the devices which treat the upper, above the crease, and the edge of the sole, below the crease, cooperate with the crease guide by forcing the stock against the guide so that said three devices form a molding apparatus in which the crease guide is the inner member against which the upper stock and the sole stock, respectively, are forced in order to produce a shaped rand crease. This action of the upper engaging and sole engaging devices, and particularly that of the former device, beats and forces the stock inwardly with relation to the edge of the shoe bottom and tends to close the rand crease as to depth as well as width.

The above mentioned features of the invention and others which will appear from the following description will be more definitely pointed out in the claims.

Figure 1 of the drawings shows a front elevation of a shoe shaping machine embodying this invention; Fig. 2 is a side elevation, and Fig. 3 is a section on the line 3-3 of Fig. 1 and shows a shoe in position to be treated.

The machine comprises a standard 2 in which a tool shaft 4 is mounted at a convenient elevation for the operator to present the shoe to the tools. The shaft 4 is driven from a pulley shaft 5 and on its forwardly projecting portion has a flange 6 against which a short threaded sleeve or nut 8 has bearing. This nut forms a support for the hub of a rotary block 10 and clamps said hub endwise against the serrated end face of the shaft, as shown most clearly in Fig. 2, whereby the block is compelled to rotate with the shaft but may be adjusted rotatively thereon when the nut is loosened.

The rotary block 10 has a peripheral face 12 shaped to engage the edge face of a shoe sole, said face being shown as interrupted by transverse grooves which are inclined to the axis of rotation of the block, and cause the block to have a slight beating as well as a rubbing action upon the sole edge. The block 10 has eccentrically located screw

threaded recesses parallel with its axis of rotation in which are mounted studs 20 the inner ends of which are threaded and the outer portions of which are smooth with a flange at the outer end, as shown in the sectional view, Fig. 3. Upon each of these studs 20, of which there are two, is mounted the hub 22 of an arm 24, said arm having at its free end a stud extending toward the block 12 and upon which a beater 25 is mounted. The beater is shown as a roll turning freely on the stud and having its periphery shaped in substantial accordance with the vertical curvature of the side of the shoe just above the rand crease. Each of the arms 24 has an inwardly projecting heel 27 which is adapted to engage the elliptical end 28 of the shaft 4 or, it may be, of a stud rigidly attached to the shaft, to limit the turning movement of the arm in the direction to project the beater 25 outwardly upon the axis of rotation. By loosening the nut 8 the block 10 with the parts carried by it can be adjusted with relation to the stop 28 to permit more or less projection of the beaters and the block 10 can then be locked in its adjusted position by the nut and the serrations on the end face of the shaft. The studs 20 are held securely in place in the block 10 and thereby safely confine the hub of the arm 22 between the block and the flange of the stud and confine the beater 25 between the arm and the adjacent face of the block by forming the threaded portion of each stud 20 as a split sleeve, the bore of which is tapered. A bolt 29 is employed to draw a taper nut into the split portion of the stud thereby locking it against turning.

The rand crease shaping device 30 is located between the beaters 25 and the face of the block 10 which operates against the edge of the shoe sole. The rand crease shaping device is here shown as formed by a fin or flange projecting from the rotary block 10 at its front edge.

In the use of the machine the shoe may be presented as in Fig. 3 to cause the upper materials above the rand crease to be beaten by the centrifugal beaters 25 and to cause the edge of the sole to be beaten by the face 12 of the block 10. This action of the rapidly striking beaters 25 shapes the upper materials closely to the contour of the last and leaves the outer surface of the shoe above the rand crease smooth and regular. The action of the beaters 25 also forces the upper at the edge of the shoe bottom into the rand crease and tends to close the rand crease. The action of the sole edge beater 12 compacts, hardens and smooths the surface of the sole edge and also tends to force the sole stock into the rand crease. The rand crease shaping device 30 stands constantly in the crease between the point

where the upper is being beaten on one side of the crease and the point where the sole is being beaten on the other side of the crease and produces, in combination with
 5 said beaters, a rand crease of definite shape and of uniform width and depth all the way around the heel. The beaters and the shaping device thus cooperate to mold the shoe stock at and upon opposite sides of
 10 the rand crease to determine the shape and size of the crease and the contour of the surfaces of the sole and upper adjacent to the crease.

Having explained the nature of this invention and described a preferred construction embodying it, I claim as new and desire to secure by Letters Patent of the United States:

1. A shoe shaping machine having, in combination, a yielding beater to beat the upper material upon the side of the shoe above the rand crease, a beater to beat the edge of the sole below the rand crease, and a crease shaping device arranged between the upper
 20 beater and the sole edge beater and cooperating with said beaters to form a rand crease of predetermined shape.

2. A shoe shaping machine having, in combination, a rand crease shaping device
 30 having oppositely inclined sides, and means positioned immediately adjacent to said inclined sides for beating the upper material and the sole edge at opposite sides of the shaping device and serving to crowd the
 35 shoe stock toward the shaping device.

3. A shoe shaping machine having, in combination, a rotary sole edge rubbing block 10, a centrifugal upper beater 25 rotating with said block, said devices treating the shoe stock at opposite sides of the rand crease, and a rand crease shaping device engaging the shoe in the rand crease between
 40 said block and beater.

4. A shoe shaping machine having, in combination, a shoe finishing roll, arms eccentrically pivoted on an end face of the roll, beaters mounted on the free ends of the arms to be projected outwardly by centrifugal force into position to beat a portion of the shoe adjacent to that being treated by the roll, and means for adjustably limiting the outward movement of the beaters.

5. A shoe shaping machine having, in combination, a shaft, a beater carrying block
 55 angularly adjustable on the shaft, centrifugal beaters mounted on the block and arranged to engage an extension of the shaft for adjustably limiting the outward movement of the beaters in accordance with the
 60 angular position of the block and shaft.

6. A shoe shaping machine having, in combination, a shaft, a beater carrier, said shaft being formed with a fixed flange, a nut loose on the shaft and having threaded
 65 engagement with the beater carrier to clamp

the carrier against the outer face of the flange.

7. A shoe shaping machine having, in combination, a shaft having a flange, a cup nut turning freely on the shaft at one side of the flange and covering the flange, serrations on the opposed side of the flange, a beater on the shaft at said opposed side of the flange and having screw threaded connection with the nut whereby the beater is clamped in angular position upon the shaft by engagement with the serrated face of the flange.

8. A shoe shaping machine having, in combination, a rotary beater carrying a shoe finishing roll, eccentrically arranged studs projecting from one side face of the roll, arms mounted to turn on said studs, beaters carried by the free ends of said arms, and means for limiting the movement which said beaters and arms may have by the action of centrifugal force upon them.

9. A shoe shaping machine having, in combination, a beater carrying block, a beater arm and a beater on the arm to be actuated by centrifugal force as the carrier is rotated, a split stud threaded in such block and forming the pivoted support for said arm, and a wedge to expand said stud in the carrier, and means for forcing said wedge into the stud, substantially as described.

10. A shoe shaping machine having, in combination, a rotatable carrier, eccentrically located studs projecting from one side face of the carrier, arms having hubs confined on said studs and having at their outer ends studs projecting inwardly toward the said face of the carrier, and beating devices mounted on said last named studs and confined thereon between the faces of the carrier and the arms.

11. A shoe shaping machine having, in combination, a rotary rubbing tool to engage the edge of the sole, and centrifugal beaters rotated with said tool and arranged relatively thereto to beat the shoe above the rand crease.

12. A shoe shaping machine having, in combination, means to shape the faces of the shoe which constitute the walls of the rand crease, and means comprising relatively yielding members to shape the portions of the upper and of the sole adjacent to the upper and lower walls of the crease.

13. A shoe shaping machine having, in combination, a rotary centrifugal beater comprising beating members shaped to conform to the contour of the side face of the shoe adjacent to the rand crease and a guide arranged relatively thereto and shaped to extend into the rand crease to determine the presentation of the shoe to said members.

14. A shoe shaping machine having, in combination, a rotary rubbing tool to engage the edge of the sole and centrifugal

beaters rotated with said tool and arranged relatively thereto to beat the shoe above the rand crease, and a guide to enter the rand crease and control the position of the shoe upper and sole with reference to said two working devices.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

GEORGE M. CARNES.

Witnesses:

IRVING E. BOOTH,
ROY C. WEBSTER.

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