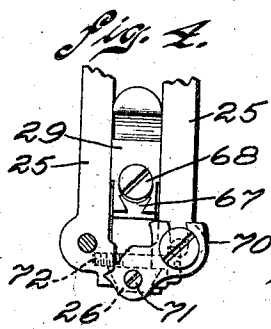
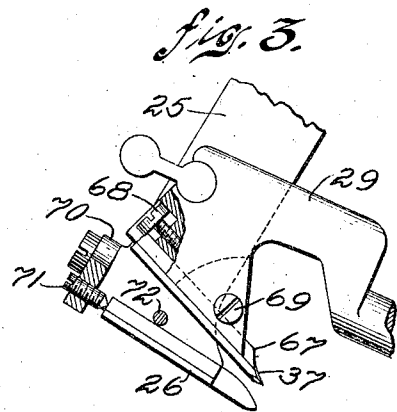
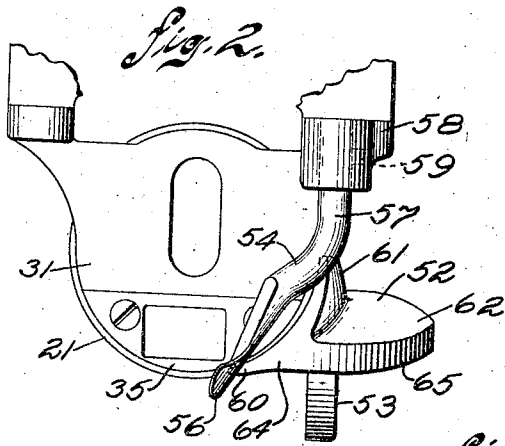
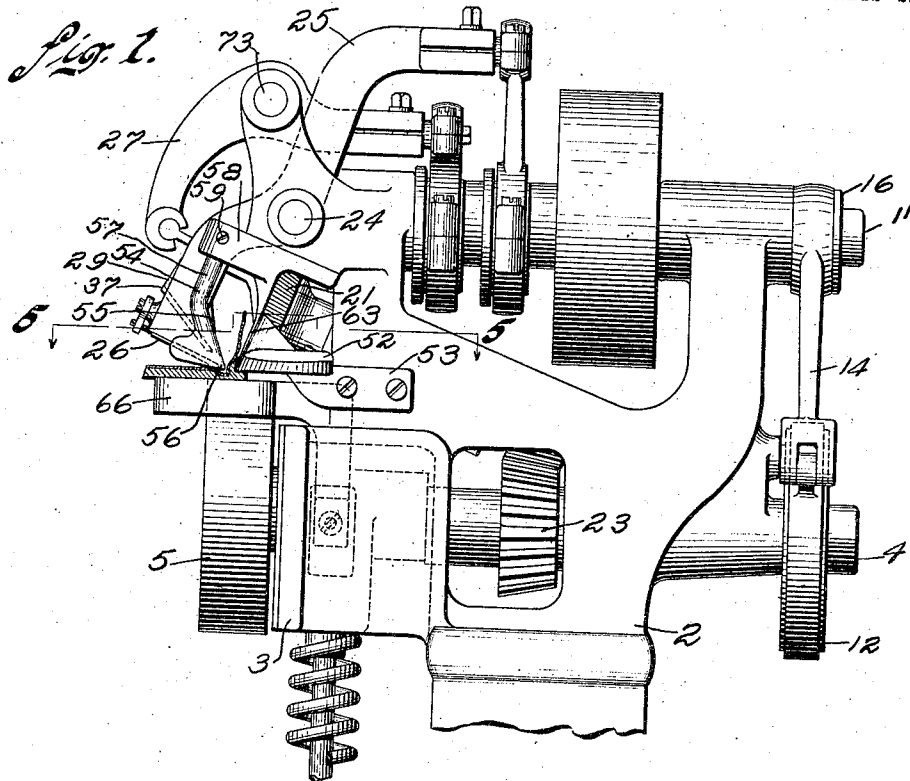


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 INSOLE REINFORCING MACHINE.  
 APPLICATION FILED JULY 10, 1908.

944,239.

Patented Dec. 21, 1909.

2 SHEETS—SHEET 1.



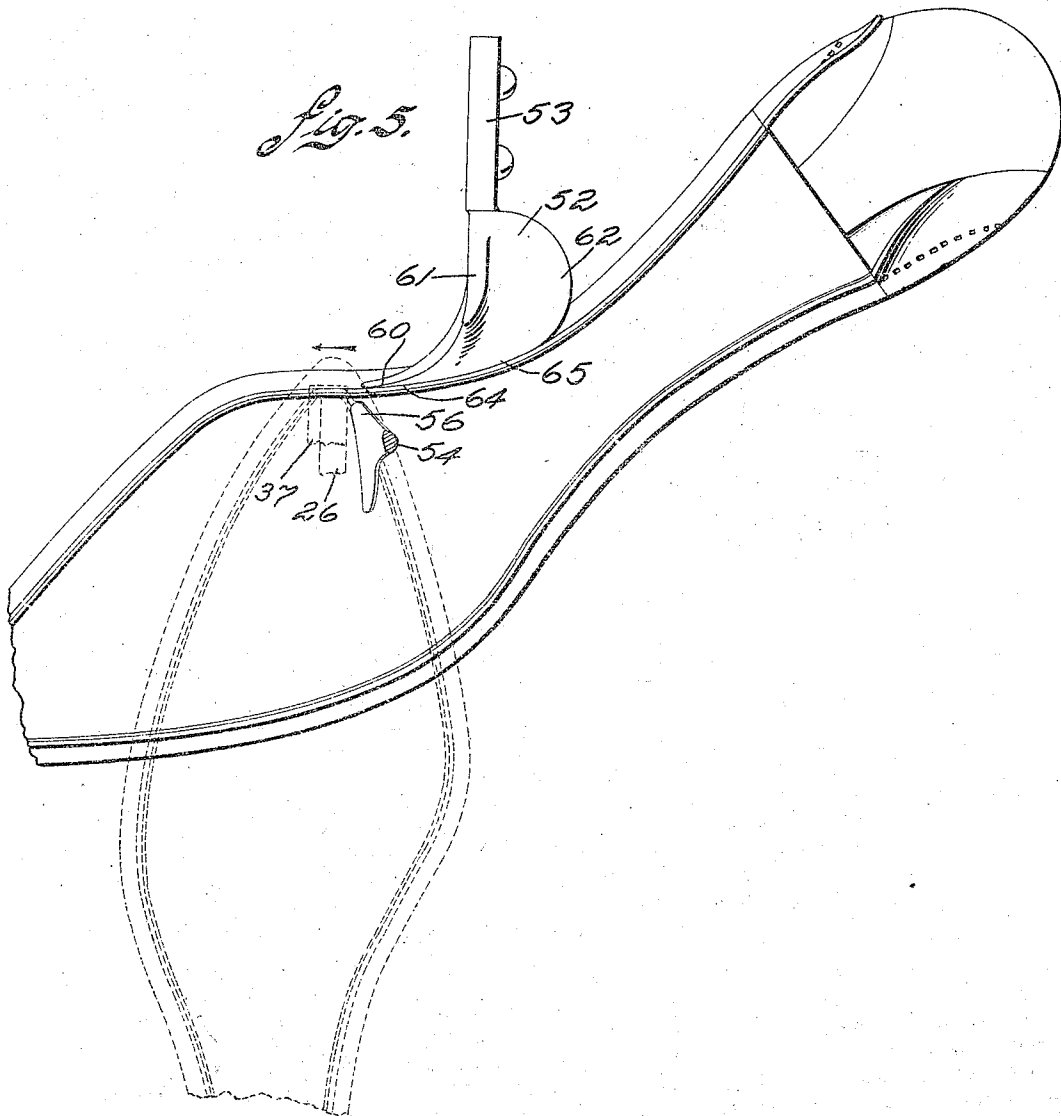
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Inventor,  
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# UNITED STATES PATENT OFFICE.

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## INSOLE-REINFORCING MACHINE.

944,239.

Specification of Letters Patent.

Patented Dec. 21, 1909.

Application filed July 10, 1908. Serial No. 442,911.

*To all whom it may concern:*

Be it known that I, WILLIAM H. HOOPER, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented an Improvement in Insole-Reinforcing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

This invention relates to machines for applying reinforcing material to the insoles of boots and shoes, and is more particularly adapted to machines of the type shown and described in my application for patent filed December 23, 1907, Serial Number 407,639, renewed April 14, 1909, Serial No. 489,848 although many features thereof, as will hereinafter appear, are equally applicable to similar machines of other types.

The machine of the type referred to comprises, in general, a lower work supporting and feeding wheel, an upper feeding and consolidating wheel between which and the lower feeding wheel the marginal portion of the insole is received for the purpose of consolidating or compressing the same and for feeding the work, means for imparting to said wheels a simultaneous intermittent feeding movement, a tucking tool for tucking the reinforcing material into the channel formed by an upwardly and outwardly turned channel lip, and a knife or cutter for trimming the upstanding edge of the reinforcing material substantially flush with the upper edge of said lip.

Machines of this character are usually run at a relatively high rate of speed and it is therefore desirable that some means be provided to assist the operator in guiding the work past the tucking and cutting tools during its relatively rapid passage through the machine, and also that some provision be made for supporting the loose edge of the reinforcing material in a suitable upright position for the action of the cutters, to prevent the same from falling backwardly, on the one hand, and so passing under the upper feeding wheel, or from falling forwardly, on the other hand, and so passing out of the path of the moving cutter, and to prevent puckering or other improper positioning thereof.

The objects and aims of the present invention will best be understood from the

following description of one general form or embodiment thereof taken in connection with the accompanying drawings; it being understood, however, that the illustrated details may be varied by those skilled in the art, and within the true field of the invention which is definitely pointed out in the claims.

In the accompanying drawings, which illustrate one construction in which my invention may be embodied:—Figure 1 is a side elevation of a machine equipped with my improvements, the insole, which is shown in position in the machine, being illustrated in section; Fig. 2 is an enlarged front elevation of the guiding and positioning devices and associated parts; Fig. 3 is a detail view, partly in section, of the tucking and cutting tools and portions of their respective carriers; Fig. 4 is an end view of the parts shown in Fig. 3, viewed from the left thereof; and Fig. 5 is a plan view, partly broken away, of the guiding and positioning devices, illustrating the relative positions of said devices and the sole; tucking and trimming tools being indicated by dotted lines.

The machine frame 2; the vertically movable work supporting slide 3, provided with the lower work supporting and feeding wheel 5, mounted on the shaft 4, intermittently rotated by suitable connections 12, 14, 16 with the driving shaft 11; the upper feeding and consolidating wheel 21, connected by suitable gearing 23 with the shaft 4, and having within its recessed face portion the knife block carrier 31 and fixed knife block 35; and the tucking tool 26 and movable knife or cutter 37, mounted respectively in carriers 25 and 29, actuated by suitable connections with the driving shaft 11, all may be and preferably are substantially as shown in my prior application hereinbefore referred to, except in certain particulars, as will hereinafter appear.

The work positioning and guiding devices preferably comprise an inner member 52, located adjacent the consolidating wheel 21, as shown, and which may be provided with a rearwardly extending arm or bracket 53 suitably secured to the machine frame 2; and an outer member 54 secured in fixed position adjacent the tucking and cutting tools at the forward side of the latter.

The outer positioning and guiding mem-

ber 54, in the construction herein illustrated, is formed with a slightly outwardly inclined inner face 55 and with a downwardly projecting toe 56 adapted to bear upon the work and preferably enter the channel of the insole, and is provided with an upwardly extending shank 57 received in a suitable aperture in an arm or bracket 58, secured to or formed integral with the machine frame, and held in adjusted position therein by suitable means, as by a set screw 59.

The inner positioning and guiding member 52, as shown, is provided with a toe 60 extended under the forward side of the consolidating wheel 21 to a position adjacent the lowermost point on the periphery of said wheel, thereby preventing passage of the reinforcing material under the wheel 21, said member 52 being further formed with a substantially vertical or inclined portion 61 and a substantially horizontal portion 62, said portions curving into one another and operating substantially similarly to a plowshare, to turn upwardly the projecting edge of the reinforcing material which is thereafter maintained in upright position between the outer face 63 of the member 52 and the inner face 55 of the member 54, as clearly shown in Fig. 1, said faces 55 and 63 cooperating to prevent the reinforcing material from falling out of its proper position, with relation to the tucking and cutting tools, in either direction.

In plan the outer face of the member 52 is preferably formed with a substantially straight portion 64 and with a convex portion 65 whose general curvature is made to correspond substantially with the curvature of the shank portion of the soles to be treated.

In order properly to support the work with relation to the positioning and guiding devices, I preferably provide a suitable table 66 carried by the work supporting slide 3 and vertically movable therewith, said table being provided with a suitable opening to receive the upper side of the work feeding wheel 5.

As will now be seen the members 52 and 54 receive between them the upturned channel lip and thereby serve properly to guide the work with respect to the tucking and cutting tools in its passage through the machine. The operation is commenced at the rear portion of the shank at one side of the sole, and in passing around the concave portion of the periphery of the sole the channel lip at the shank engages the curved portion 65 of the member 52, which thereby serves accurately to guide and turn the work to cause the tools to follow the proper path about this part of the sole. Thereafter in passing to and around the convex forepart and in rounding the toe the member 54, by engagement with the inner side of the lip, prevents

the tools from running off the edge of the sole. After rounding the toe the operator is prevented from turning the work too far, thereby to cause the tools to run inwardly over the bottom of the sole, by contact of the outer side of the lip with the straight portion 64 of the member 52.

In passing to the opposite side of the shank, the member 52 will again prevent the tools from running inwardly, and in working around this side of the shank the movement of the sole will be controlled, as at the beginning, the work finally being accurately guided from the machine.

In machines of this character some difficulty has been encountered in the improper manipulation of the work by the operator at the time of taking the same from the machine, the work being turned in such a manner as to cause the cutter to clip or cut off the corner of the lip at the rear end thereof, to thereby producing imperfect work. In a rapidly running machine it is very difficult even by the exercise of the greatest care to avoid such mutilation of the stock unless some means be provided which will automatically cause the work to leave the machine in the proper way. With the present construction, however, it will be seen that as the curved portion 65 of the member 52 will cause the sole, as it leaves the machine, to move in a direction substantially coincident with the curvature of the shank, while the member 52, cooperating with the table 66, will prevent the heel end of the sole from rising, thereby obviating the difficulty referred to.

The member 54, in addition to its functions heretofore explained, also serves as a means of its depending toe 56 to smooth out the reinforcing material and lay the same in the channel preparatory to the operation of the tucking tool, thereby preventing picking up or other improper positioning of the material.

Means are preferably provided for adjusting the tucking tool and trimming knife or cutter relative to their respective work, and as herein shown such means are as follows:—The knife carrying slide 29 is provided in its under face with a preferably dove-tailed guideway adapted to receive a corresponding projection or rib 67 on the knife or cutter 37, said knife or cutter being longitudinally movable in said guideway by means of an adjusting or abutment screw 68, and being held in adjusted position by means of a suitable clamp screw 69. The arms 28 of the tucker carrying lever are connected at their lower ends by a preferably removable plate 70 having a threaded aperture to receive an adjustable abutment screw 71 engaging the end of the tucking tool 26, said tucking tool being longitudinally movable

in suitable guideways formed in the arms 25 and being held in adjusted position therein by means of a suitable clamp screw 72.

The knife carrying slide 29 is guided, in part, by the arms 25 of the tucker carrying lever, said slide being located between said arms and being actuated by a suitable lever 27. In the construction shown in my prior application hereinbefore referred to, the levers 25 and 27 were mounted to turn about a common fulcrum pin or shaft 24. In order, however, to provide for better action of the parts, I have, in the present construction, provided a separate fulcrum for the lever 27, the same being furnished by a suitable shaft or pin 73, out of alignment with the pin 24 and preferably located above the latter, as shown in Fig. 1.

While I, in order that my invention may be readily understood, have shown and described the same as embodied in a particular construction and as applied to a machine of a certain type, I wish it to be understood that I do not limit myself to the precise construction shown, it being obvious that many changes might be made therein and that many features thereof might be used to equal advantage in other types of machines without departing from the spirit and scope of my invention, and that the guide 52 might act along the edge of the sole, the general contour of the guide and sole being so far complementary as to secure the guiding effect described.

What is claimed is:—

1. In an insole reinforcing machine, the combination with tucking and trimming tools and means to feed successive portions of an insole to said tools, of means, other than said feeding means, engaging the lip of said insole for controlling the direction of movement of the same in its passage to said tools.

2. In an insole reinforcing machine, the combination with tucking and trimming tools and means to feed successive portions of an insole to said tools, of stationary means constructed and arranged to engage the lip of said insole for controlling the direction of movement thereof in its passage to said tools.

3. In an insole reinforcing machine, the combination with mechanism for applying reinforcing material and means to feed successive portions of an insole to said mechanism, of means independent of said mechanism and constructed and arranged to engage the lip of said insole for controlling the direction of movement thereof in its passage to said mechanism.

4. In an insole reinforcing machine, the combination with mechanism for applying reinforcing material to an insole and for trimming the same, of guiding devices, and means for holding said guiding devices in

fixed position independent of said mechanism, for engaging and maintaining said reinforcing material in proper position for the operation of said mechanism thereon.

5. In an insole reinforcing machine, the combination with mechanism for applying reinforcing material and means to feed successive portions of an insole to said mechanism, of devices for holding the reinforcing material in proper position for the operation of said mechanism thereon and for guiding the insole in its passage to said mechanism.

6. In an insole reinforcing machine, the combination with mechanism for applying reinforcing material and means to feed the work, of means, located in advance of said mechanism in the direction of feed, to guide the reinforcing material into proper position for the operation of said mechanism thereon.

7. In an insole reinforcing machine, the combination with mechanism for applying the reinforcing material, of a work support, an upper feed wheel arranged to engage the upper surface of a sole on said work support, and means for preventing the reinforcing material from passing beneath said feed wheel.

8. In an insole reinforcing machine, the combination with mechanism for applying reinforcing material and means for feeding successive portions of an insole to said mechanism, of devices other than said feeding means, constructed to engage the channel lip and reinforcing material at opposite sides, for guiding said insole in its passage through the machine and preventing the reinforcing material to said mechanism.

9. In an insole reinforcing machine, the combination with a tucking tool, a trimming tool constructed and arranged to trim the reinforcing material substantially flush with the upturned edge of the channel lip, and means to feed the work, of stationary work guiding means having provisions for turning said reinforcing material into an upright position relative to the insole in advance of said tucking and trimming tools for the operation of said tools thereon.

10. In an insole reinforcing machine, the combination with tucking and trimming tools and means to feed the work to said tools, of a fixed guide having a curved surface shaped substantially to contact with the shank portion of an insole.

11. In an insole reinforcing machine, the combination with tucking and trimming tools and means to feed the work to said tools, of a fixed guide having an extended bearing surface adapted to engage an insole to control the direction of feed thereof.

12. In an insole reinforcing machine, the combination with tucking and trimming tools and means to feed the work to said

tools, of a fixed guide having an extended bearing surface adapted to engage an insole to control the direction of feed thereof, and a cooperating guide adapted to enter the channel of said insole.

13. In an insole reinforcing machine, the combination with mechanism for applying reinforcing material and means to feed the work to said mechanism, of a guide to engage the work inside the channel lip, and a cooperating guide to engage the work outside the channel lip, said guides having surfaces for engaging and positioning the reinforcing material for the action of said mechanism and additional surfaces for engaging the channel lip and directing the insole to the action of the reinforcing mechanism.

14. In an insole reinforcing machine, the combination with mechanism for applying reinforcing material to the insole and means to feed the work, of means to guide the work comprising a guide to engage the work inside the channel lip and a guide to engage the work outside the channel lip, both of said guides being disposed in advance of said reinforcing mechanism.

15. In an insole reinforcing machine, the combination with mechanism for applying reinforcing material and means to feed successive portions of an insole to said mechanism, of means to control the direction of movement of said insole under the influence of said feeding means.

16. In an insole reinforcing machine, the combination, with mechanism for applying reinforcing material and means to feed successive portions of an insole to said mechanism, of means for controlling the direction of movement of an insole under the influence of said feeding means, said controlling means including a device adapted to enter the channel of said insole.

17. In an insole reinforcing machine, the combination with mechanism for applying reinforcing material and means to feed successive portions of an insole to said mechanism, of means to guide the insole to said mechanism and place the reinforcing material into the channel of said insole in advance of said mechanism.

18. In an insole reinforcing machine, the

combination with tucking and trimming tools and means to feed the work to said tools, of a pair of fixed guides constructed and arranged to turn the edge of the reinforcing material into an upright position and maintain the same therein for the action of said tools.

19. In an insole reinforcing machine, the combination with tucking and trimming tools, of a pair of fixed guides engaging the insole at opposite sides of the channel lip and directing the insole to said tucking and trimming tools, said guides also having surfaces extending above the insole when in working position to position the reinforcing material for the action of said tools, a yieldingly supported work table adapted to hold the work in engagement with said guides, said table being provided with an aperture, and a work feeding device operable through said aperture.

20. In an insole reinforcing machine, in combination, a tucker carrier having a pair of depending arms, a tucking tool adjustably mounted in said carrier, a knife carrier arranged between the arms of said tucker carrier, and a trimming knife adjustably mounted in said knife carrier.

21. In an insole reinforcing machine, in combination, a tucker carrier having a pair of depending arms, a tucking tool adjustably mounted between said arms, and means for securing said tucking tool in adjusted position.

22. In an insole reinforcing machine, the combination with a tucker actuating lever having a pair of depending arms, a tucking tool mounted between said arms, and a fulcrum pin for said lever, of a knife carrying slide located between and guided by said arms, a knife carried by said slide, an actuating lever for said slide, and a fulcrum pin for said actuating lever out of alignment with said first named fulcrum pin.

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

WILLIAM H. HOOPER.

Witnesses:

THOMAS M. EVANS,

ARTHUR CROUCH.