June 16, 1925. 1,541,859

T. H. SEELY

INSOLE REENFORCING MACHINE

Filed July 23, 1919 4 Sheets-Sheet 1

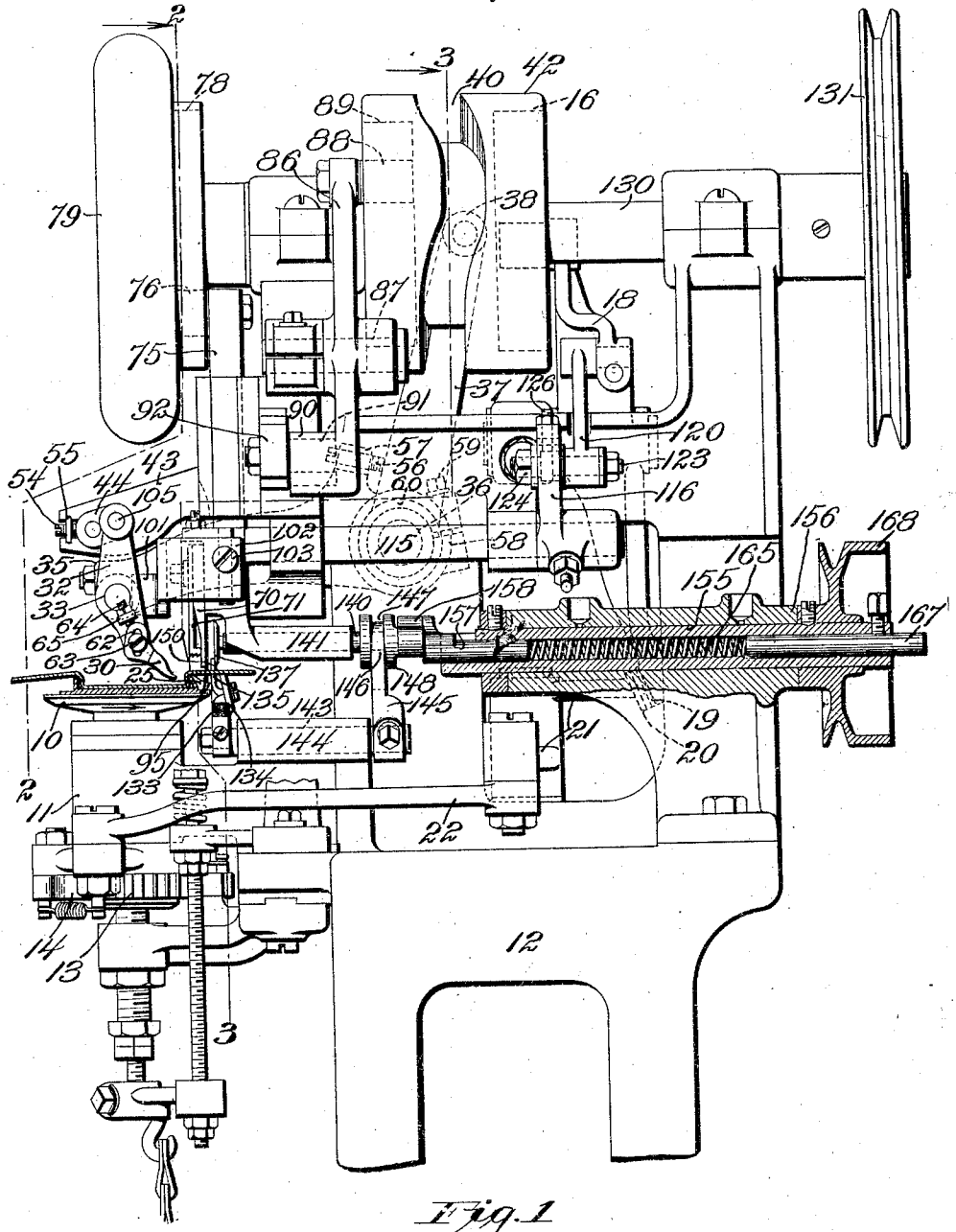

Fig. 1

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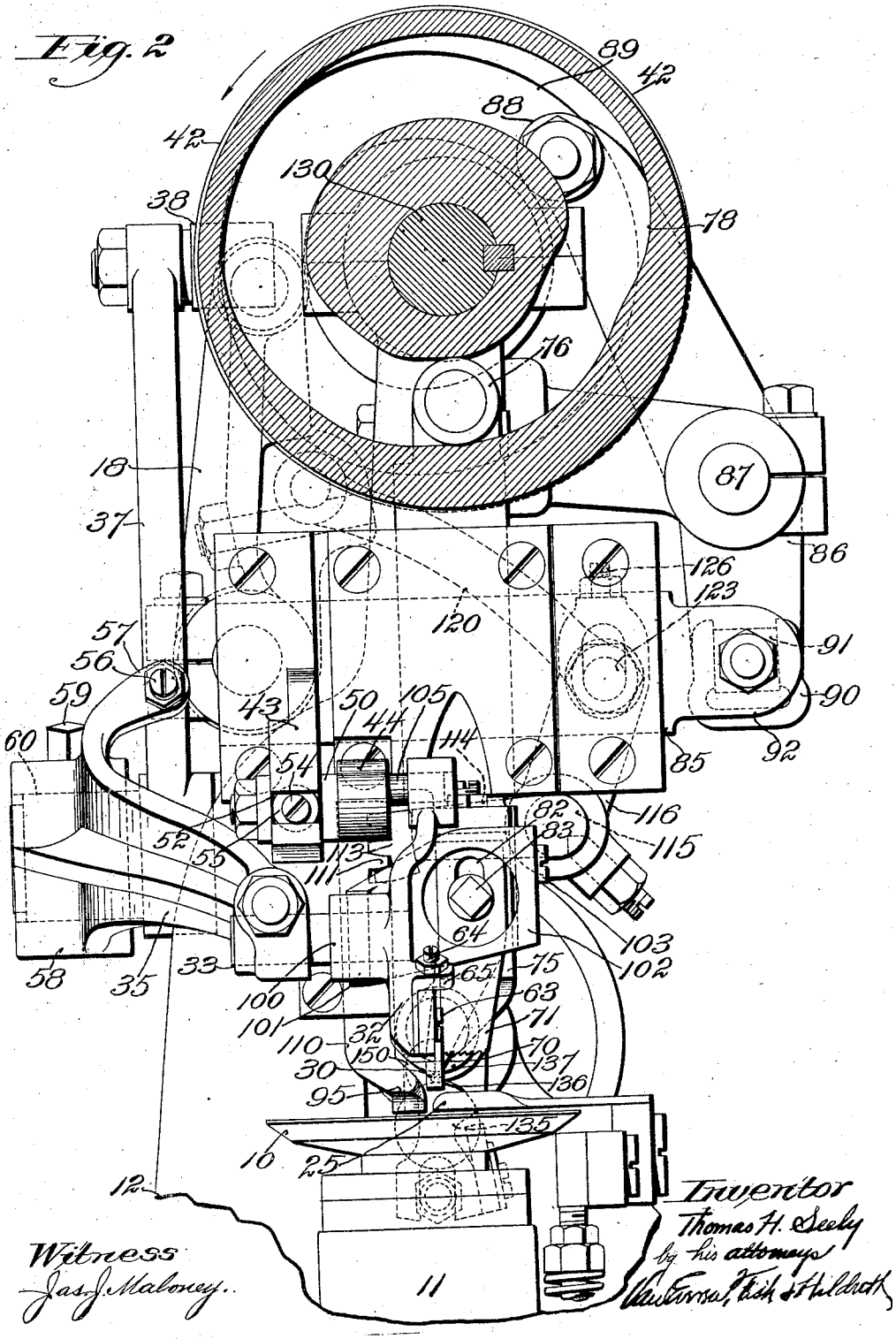
Filed July 23, 1919 4 Sheets-Sheet 2

Fig. 2



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Filed July 23, 1919 4 Sheets-Sheet 3

Fig. 3

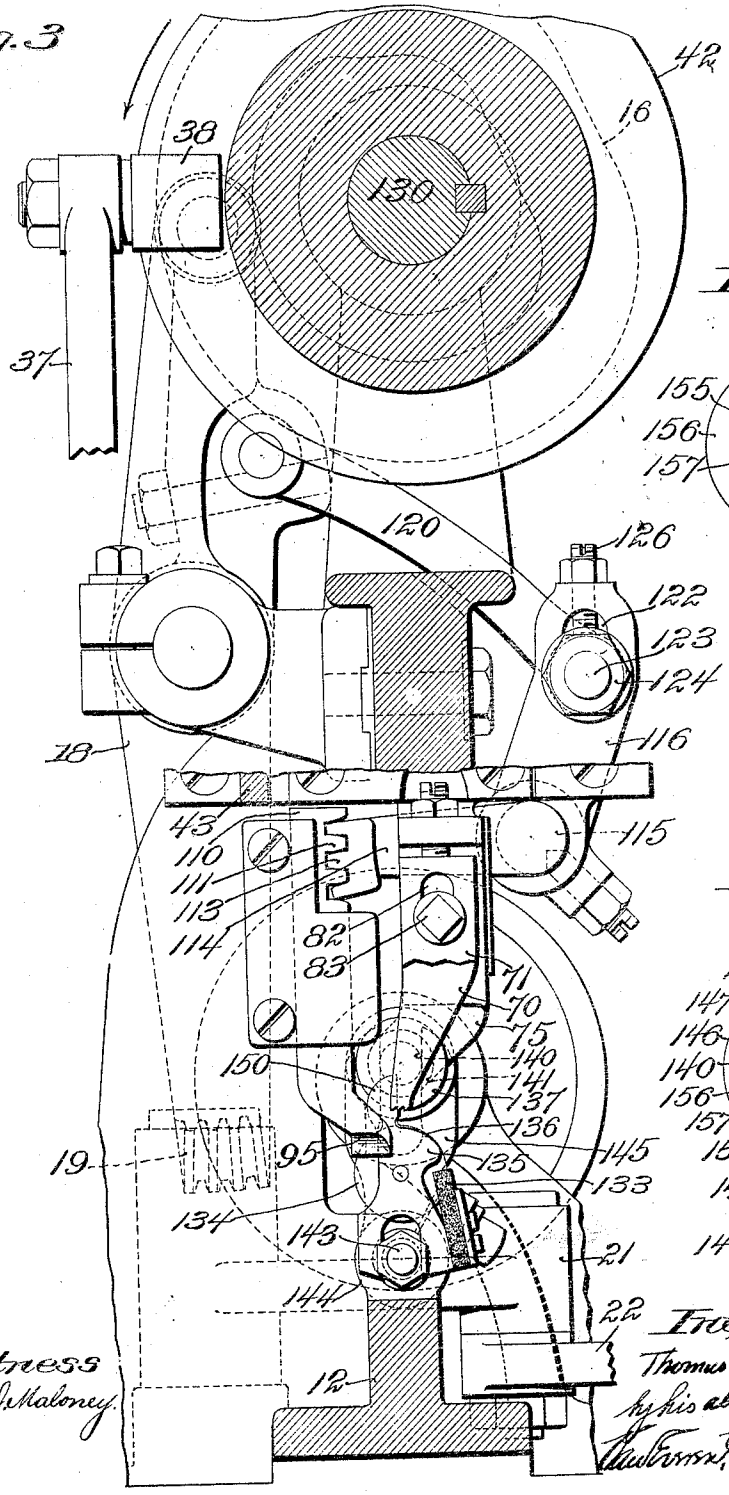


Fig. 5

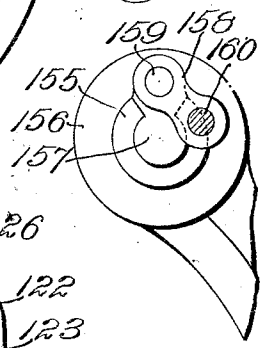
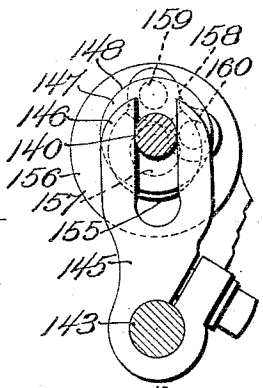


Fig. 6



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INSOLE REENFORCING MACHINE

Filed July 23, 1919 4 Sheets-Sheet 4

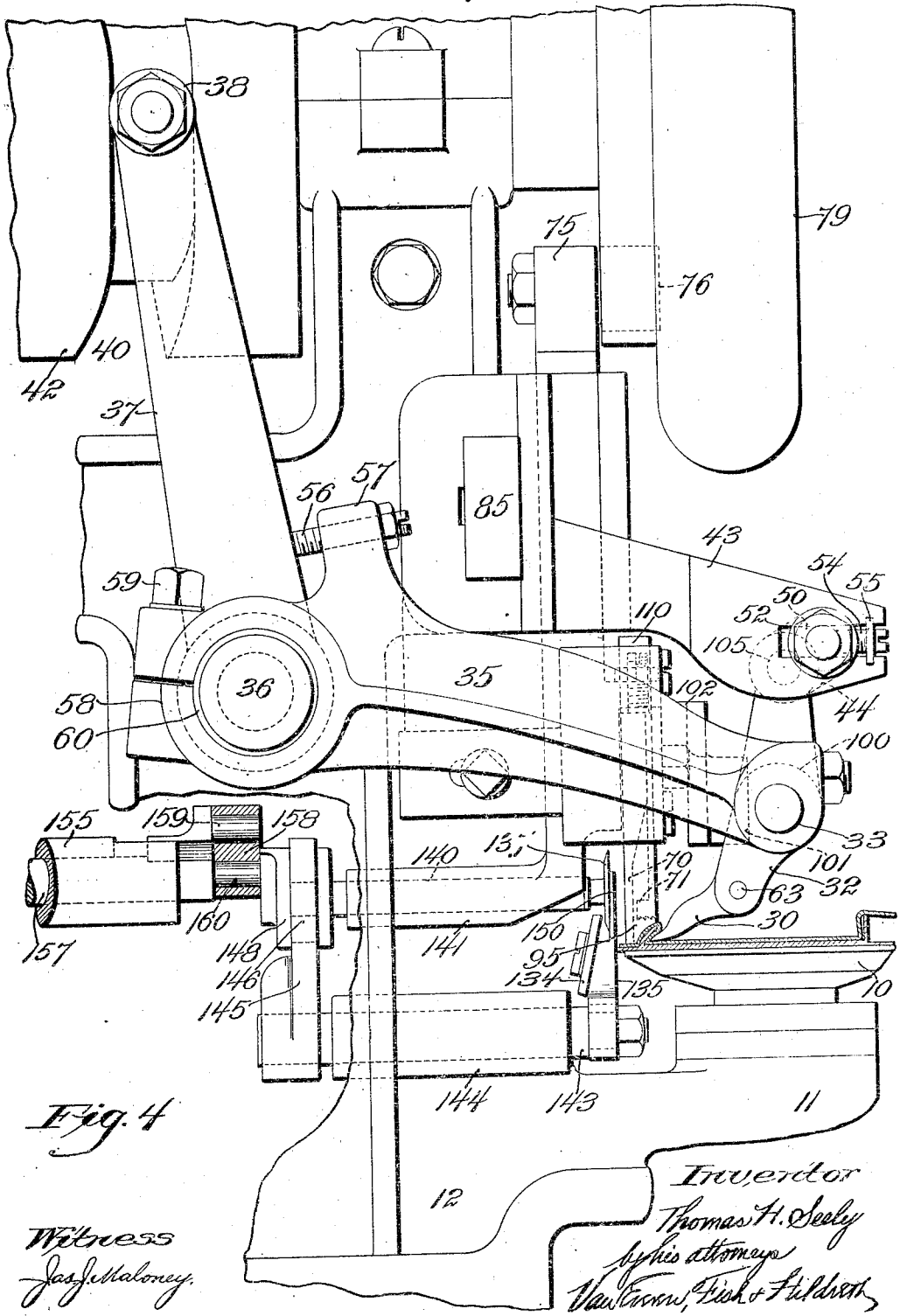

Fig. 4

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Patented June 16, 1925. 1,541,859

UNITED STATES PATENT OFFICE.

THOMAS H. SEELY, OF MALDEN, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY CORPORATION, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

INSOLE-REENFORCING MACHINE.

Application filed July 23, 1919. Serial No. 312,662.

To all whom it may concern:

Be it known that I, THOMAS H. SEELY, a citizen of the United States, residing at Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Insole-Reenforcing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to machines for operating upon insoles and more particularly to machines of this type employed for operation upon composite insoles having a layer of reenforcing material which serves to strengthen the rib or lip of the insole.

The present invention is designed primarily to facilitate the application of the reenforcing material to what are known as "Gem" insoles. In the manufacture of insoles of this type as now commonly practised the reenforcing material, after being initially positioned upon the insole, is formed over the inside and outside of the lip and trimmed to correspond with the contour of the sole after which the sole is subjected to a rib tightening operation to force the material into engagement with the base of the lip and perhaps incidentally shape the reenforced lip or rib to the desired form and angle relative to the face of the sole.

It is an object of the present invention to provide an insole reenforcing machine which shall complete in a single operation the application of the reenforcing fabric to the insole after the fabric has been initially positioned thereon, the machine effectually forming and tightening the fabric about the insole lip in such a manner that the reenforced insole thus produced is immediately available for incorporation in a boot or shoe.

A further object of the present invention is to improve the fabric severing mechanism in such a manner that the fabric is cleanly and accurately trimmed on a line lying within the margin of the sole to avoid any possibility of later exposing the fabric in the completed shoe.

With these objects in view the several features of the invention consist in certain novel features of construction, combinations and arrangements of parts hereinafter described and claimed, the advantages of which will be obvious to those skilled in the art from the following description.

In the drawings illustrating the preferred form of the invention, Figure 1 represents a side elevation partly in section of a machine embodying the several features of the invention with the tools in position for entering a sole; Fig. 2 is a front elevation of the machine with a portion taken in section upon the line 2—2 of Fig. 1; Fig. 3 is a longitudinal section of the machine taken upon the line 3—3 of Fig. 1 with the work table and cooperating parts removed; Fig. 4 is a side elevation upon an enlarged scale illustrating the inside former and operating mechanism and showing the position of the lip at the completion of the reenforcing and rib tightening or setting operation; Fig. 5 is a detail illustrating a portion of the mechanism for driving the rotary knife; and Fig. 6 is a detail illustrating a portion of the mechanism for operating the under cutting blade in accordance with the lateral movements of the rotary knife.

The illustrated embodiment of the invention is constructed along the general lines of the machine disclosed in the patent to Hadaway No. 614,860, November 29, 1898, and in certain details utilizes the identical construction of this machine. For example, the sole is supported upon a rotary table 10 journaled in a head 11 projecting laterally from the machine frame 12 and rotated intermittently to feed the sole through a ratchet wheel 13 and driving pawl 14. This driving pawl is oscillated from a cam path 16 through a bell crank 18 having a toothed segment 19 formed upon the end of one arm which meshes with a similar segment 20 formed upon one arm of a horizontal bell crank 21 connected to the pawl through a link 22. The under-former which engages with the outside of the insole lip and over which the reenforcing material passes is indicated at 25 and is connected with the work table through the usual connections, partly broken away in the drawings, to cause a depression of the former with the work table to permit the insertion and removal of the work. This former and the accompanying connections are shown more par-

ticularly in Figure 2 of the drawings. The above construction is identical with that disclosed in the Hadaway patent hereinbefore referred to, although in the present machine the under former 25 serves as a rib gage for guiding the insole through the machine.

After the work has been located upon the table and the latter elevated into operative position the reenforcing fabric is engaged by an inside former which serves to initially tuck the fabric against the inside of the lip, drawing this fabric from the outside over the under-former 25. Thus the inside former delivers a relatively light blow the purpose of which will appear later. Thereafter the fabric is engaged upon the outside of the lip by a feeding former or foot which draws the fabric down against the outside of the lip and presses it against the feather. This feeding former is then moved laterally in synchronism with the rotary movement of the table to feed the work. A feeding movement is also imparted to the inside former at the same time, it having previously been withdrawn from engagement with the lip, and at the completion of the feeding movement a second advancing movement is imparted to the inside former to deliver a relatively heavy blow and complete the tucking of the fabric into the apex of the angle at the inside of the lip. While the work is thus held stationary between the table and the inside former the feeding former is withdrawn and an outside former is advanced into engagement with the work to complete the shaping of the fabric to the rib and in addition to bend the reenforced rib into an inclined position relative to the plane of the sole body. This construction serves to lay the reenforcing fabric closely on opposite sides of the lip and at the same time permits the desired final shaping of the rib to facilitate subsequent operations, more particularly the lasting and inseam sewing.

The inside former, indicated at 30, is supported upon the lower end of the lever 32 fulcrumed at 33 upon one arm 35 of a bell crank lever fulcrumed upon the frame of the machine at 36. The second arm 37 of the bell crank lever is provided with a cam roll 38 received in a cam path 40 formed in the main cam disc 42. The upper end of the lever 32 which carries the inside former is connected to a stationary arm 43 through a link 44. With this construction the oscillatory movements of the bell crank having the arms 35 and 37 serve to move the inside former 30 upon an arcuate path so controlled by the link 44 that the former during its advancing movement will enter the apex of the inside angle at about the time it reaches the bottom of its arc, as shown in Fig. 4. The pressing movement is thereafter in direction parallel to the face of the sole and applies the reenforcing fabric tightly in the angle without disturbing the upper portion of the lip. It is particularly pointed out that the tucking movement of the former 30 is positive, there being no interposed springs whatever in the operating train, but the action is so adjusted as to apply just the amount of pressure desired as will now be explained.

In order to vary the path of movement of the inside former and in addition the inner and outer limits of movement as desired, the link 44 at the upper end of the lever 32 is adjustably connected with the stationary arm 43 through a block 50 slidingly received in a transverse slot 52 formed in the arm into which is threaded an adjusting screw 54 having a head 55 held against longitudinal movement in the slot, as shown in Figures 2 and 4. The link 44 is pivotally connected to the block and a rotation of the adjusting screw 54 serves to move the block in and out in the slot to vary the angular position of the lever 32 about its pivot 33. In addition the angular relation of the two arms 35 and 37 of the bell crank may be varied through the provision of an adjusting screw 56 threaded in a boss 57 formed upon the arm 35 and engaging with the arm 37 adjacent the fulcrum 36 of the bell crank. The two arms are normally maintained in any adjusted relation through the provision of a split hub 58 forming a part of the arm 35 and having the two portions clamped together by a bolt 59. This split hub 58 embraces a shaft 60 projecting from the hub of the arm 37. The inside former is adjustably secured to the lever 32 through the provision of an elongated slot 62 which receives a cap screw 63 threadedly secured in the lever, an adjusting screw 64 threaded in a lug 65 on the lever serving to move the former when the clamping bolt 63 is released. As will be obvious from an inspection of Fig. 2 the inside former 30 is connected to the lever 32 through tongue and groove connections which preserve the proper alined positions of the two members.

By means of the adjustments just described the throw and path of the inside former may be set to accommodate any type of sole on which the machine is to act. In Gem work the variations in lip thickness are taken care of by the adjustable block 50, the change in height being compensated for by a vertical adjustment of the former through the screw 64. Variations in sole thickness may be compensated for by the screw 64 alone. A change in the path of movement of the former, due to operation on Economy-Gem insoles having a channel inside the lip, is readily taken care of by properly related variations in the position of the former through the adjustments described. The adjustable screw 56 may be

employed in this connection but its principal function is to receive the thrust transmitted to the lever 35 by the cam lever 37.

Immediately after the initial engagement of the work by the inside former the sole is engaged upon the outside of the lip and feather by a feeding former or foot 70 adapted to engage with and press the reenforcing fabric against the feather and an auxiliary foot or former 71 adapted to engage with and press the reenforcing fabric against the top of the lip, as is usual in machines of this class. The feeding former 70 is secured upon the lower end of a vertical slide 75 which is provided with a cam roll 76 on the upper end received within a cam path 78 formed in the hub of a hand wheel 79. This mechanism serves to impart the proper movements to the feeding former toward and from the work. The auxiliary former 71 is adjustably secured to the front face of the former 70 through a slot 82 formed in the member 71, which receives a clamping bolt 83 threaded in the member 75, as shown in Fig. 2. In order to impart the lateral feeding movements to the former at predetermined intervals the slide 75 is received in a second horizontal slide 85 supported for movement in ways formed in the machine frame. The proper movements are imparted to this horizontal slide 85 by a bell crank 86 fulcrumed upon a stationary stud 87 and having a cam roll 88 upon the upper end which is received in a cam path 89 formed in one face of the cam disc 42. The lower arm of the lever 86 is provided with a slotted lug 90 which receives a slide block 91 pivotally secured at the rear side of the projecting end 92 of the slide 85. This construction serves to depress the feeding former into engagement with the work upon the table 10, to move the former laterally in synchronism with the feeding movements of the table and to thereafter elevate and return the former to initial position out of engagement with the work.

As heretofore stated, the inside former is moved laterally with the feeding former and this is conveniently accomplished in the present construction by connecting the inside former with the slide which carries the feeding former. To this end, as shown clearly in Figures 1 and 2 of the drawings, the lever 32 is provided with a slotted hub 100 which is engaged by a projecting tongue 101 formed upon a right angled bracket 102 clamped to the side of the slide 75 through a member 103. In order to permit the requisite lateral movements of the inside former and supporting lever 32 the latter is freely movable upon studs 33 and 105 secured, respectively, to the arm 35 and link 44, as shown in Fig. 2. The cam path 40 is designed with a double throw to impart two tucking movements to the inside former respectively before and after the feeding movement, the first tucking movement serving to measure out the requisite amount of reenforcing fabric on the inside of the lip and the second movement serving to bring the fabric finally into place. The inside former thereafter retains its position against the lip during the action of the outside former, presently to be explained, providing an anvil over which the lip is bent inward. The inside former at the end of the feed has been moved to a position opposite the outside former, and the feeding former occupies a position behind the outside former, being received in a recess in the back thereof. With this construction the inside former is caused to engage twice with the same portion of the reenforcing fabric and effectually tuck the fabric into the junction of the lip and body of the insole.

In order to complete the forming of the reenforcing fabric about the outside of the rib initiated by the feeding former and to cause the reenforced rib to stand at the proper angle relative to the sole, a member 95 is employed having the combined functions of an outside former and lip bending hammer. This tool, as shown in the drawings, is provided with an inclined face, preferably concavely curved, adapted to engage the outside of the reenforced lip and bend the lip inward over the inside former 30, and a horizontal face to press the fabric on the feather, the angle between these faces serving to set the fabric into the outside angle. The outside former 95 is formed upon the lower end of a vertical slide 110 having rack teeth 111 formed upon one side which are engaged by a toothed segment 113 formed upon an oscillatory arm 114 secured to one end of a shaft 115. The opposite end of the shaft 115 carries a second arm 116 which is connected to the feed cam lever 18 through a link 120, as shown in Fig. 3. In as much as the rotation of the feed table 10 takes place in the direction of the arrow shown in Fig. 1, the feeding movement takes place when the upper end of the lever 18 is moved to the right and the lower end of the lever to the left in Fig. 3. This feeding movement of the lever 18, through the hereinbefore described connections, serves to elevate the outside former 95 and the return of the lever to initial position, preliminary to the next succeeding movement, returns the outside former 95 into operative position. Thus it will be seen that the movement of the outside former into engagement with the insole takes place while the sole is held in a stationary position upon the work table.

Provision is made for varying the limits

of movement of the outside former to compensate for varying thickness in the stock to be operated upon and to provide a harder or lighter blow as may be desired. Accordingly the arm 116 (Figs. 1 and 3) is provided with a slot 122 which receives a bolt 123 secured in the end of the link 120 and clamped to the arm by a nut 124. A screw 126 threaded through the upper end of the slot 122 and engaging at its lower end with the bolt 123 serves to vary the position of the link 120 relative to the arm as desired, when the nut 124 is loosened.

The cam disc 42 and hand wheel 79 are mounted upon a drive shaft 130 journaled in the upper portion of the machine frame 12 and having a drive pulley 131 mounted upon one end. The cam disc 42 with the several cam paths formed therein and the cam formed on the hub of the hand wheel 79 serves through suitable connections to impart all of the operative movements to the work table and the various forming tools cooperating therewith.

In the present construction the reenforcing fabric is severed along a line which causes the fabric to lie within the edge of the insole when finally applied thereto. This is conveniently accomplished by trimming the fabric, before it has been laid upon the outer side of the lip and feather, at a distance from the edge of the sole so measured as to cause the fabric to extend only part way across the feather when finally applied, as shown in Fig. 4. By thus trimming the fabric inside of the sole edge and before it is laid upon the feather, all liability of the fabric being exposed after the insole has been incorporated in a boot or shoe is avoided. To this end an under shear plate or cutting blade 135 is supported behind the under-former 25 and when the sole is initially placed upon the work table the marginal portion of the fabric extends outwardly over this plate and rests upon it and a freely rotatable supporting wheel 134 which serves to hold the fabric in a plane above and parallel to the plane of the feather. The wheel 134 is spaced from the blade 135 to permit the severance of the fabric just in the rear of the blade. An oil pad 133 keeps the supporting wheel wiped clean of cement. The shear plate is provided with a curved edge 136 which cooperates with the edge of a rotary knife in the form of a cutting disc 137 to cleanly sever the fabric. The cutting disc 137 is normally supported in the position shown in Fig. 1 above the fabric and is arranged to trim the fabric upon the downward movement of the feeding foot 70. To this end the cutting disc is mounted upon the inner end of a shaft 140 journaled in a head 141 which is secured to the vertical slide 75 carrying the feeding foot. With this construction it will be noted that the rotary cutting disc 137 moves in unison with the feeding foot 70, the downward movement of the foot serving to impart a chopping cutting movement to the disc which thereafter moves laterally with the foot during the feeding movement, thus serving to avoid interference with the work during the feeding movement. The cutting blade 135 is also moved laterally during the feeding movement through a connection with the rotating disc. To this end the cutting blade 135 is secured to one end of a shaft 143 supported in a stationary bearing 144. The opposite end of the shaft 143 has an arm 145 secured thereto and provided with a forked upper end 146 which is received within an annular groove 147 formed in a collar 148 secured to the shaft 140. With this construction it will be observed that the cutting of the fabric takes place solely during the downward movement of the feeding foot and while the work is stationary, and during the feeding movement the cutters move with the work, after which the rotary cutter is elevated out of the work and the two members are returned with the feeding foot. It will be noted from an inspection of Fig. 3 that the non-rotatable blade 135 is provided with an upstanding deflector 150 which serves to direct the severed portions of the fabric out of the machine, more especially during the return movement of the blade into position for a new cut. The upstanding portion 150 of the under cutting blade also acts as a guard or abutment for the disc 137 as it reciprocates in the line of feed. The disc 137 is continuously rotated during the operation of the machine, in order to facilitate the cutting action, through a drive shaft 155 journaled in fixed bearings 156 and connected with the cutter shaft 140 through a sliding shaft 157 splined within the drive shaft 155 and a short link 158 which, as shown in Fig. 5, connects crank-pins 159 and 160 secured, respectively, to the shafts 157 and 140. With this construction the shaft 140 is rotated by the shaft 155 and at the same time has provision for endwise and transverse movements relative thereto. An accurate cutting relation is maintained between the blade 135 and the cutting disc 137 by an adjustment of the arm 145 upon the shaft 143, the adjustable connections shown in Fig. 1 affording provision for all necessary adjustment. The trimming of the fabric is controlled by engagement of the under blade 135 with the edge of the sole and in order to permit the two cutters to yield bodily for variations in the width of feather, a coiled spring 165 is received within the shaft 155 behind the sliding shaft 157 and serves to yieldingly press the under blade against the edge of the sole, the

bearings 141 and 144 affording provision for the necessary movements of the two shafts, as indicated in Fig. 1. The spring 165 is engaged at its outer end by a stud 167 which may be adjusted lengthwise in the shaft to vary the force of the spring as desired. The rotation of the shaft is secured by a grooved pulley 168 mounted upon its outer end.

When the insole to be reenforced is initially presented to the machine the insole is located upon the work table with the outer margin of the fabric projecting over the under-former 25 and cutting blade 135, the lip being so located as to be engaged on its respective sides by the inside and feeding formers and on its outer side by the lip bending outside former. When the operation is started the lip is pressed against the under-former which thereafter gages the transverse position of the sole. The inside former then advances in a direction to tuck the fabric into the junction of the lip and the body of the insole, drawing the fabric from the outside of the lip over the under-former and cutting blade. This initial movement of the inside former serves to measure off a sufficient amount of fabric to cover the inside of the lip. Thereafter the feeding foot 70 is advanced into engagement with the reenforcing fabric and presses the fabric against the outside of the lip and the feather so that the fabric is beaded over and formed approximately to the shape of the lip. After the feeding movement has been completed the inside former is again advanced to finally tuck the fabric into place and form the fabric at the inside angle of the lip and thereafter the outside former 95 is advanced to engage with the ouside of the lip and the feather to complete the forming the fabric upon the lip and bend the lip into an inclined position relative to the body of the insole. During the downward movement of the feeding foot the trimming knives sever the fabric above the sole and along a line predetermined to cause the fabric to lie just within the edge of the sole when finally tucked about the lip and pressed into contact with the feather.

While it is preferred to employ the specific construction and arrangement of parts shown and described, it will be understood that this construction and arrangement is not essential except so far as specified in the claims, and may be changed or modified without departing from the broader features of the invention.

What is claimed as new, is:

1. An insole reenforcing machine having, in combination, means for supporting an insole, feeding it step-by-step and operating upon its marginal portion including reciprocatory tools at both sides of the rib for beading the reenforce about the rib, and additional reciprocatory means cooperating with one of said tools for finishing the bead and setting the rib in an inclined position.

2. In an insole reenforcing machine of the type in which the reenforce is beaded over the rib by a reciprocatory inside former and a four-motion feed former, the provision of a second reciprocatory former outside the rib having a working face at an angle to the plane of the sole for engaging the rib and bending it inward toward the center of the insole.

3. In an insole reenforcing machine of the type in which the reenforce is beaded over the rib by a reciprocatory inside former and a four-motion feed former, the provision of a second reciprocatory former outside the rib shaped to cooperate with said inside former and set the reenforced rib in an inclined position by pressure on its outer face.

4. In an insole reenforcing machine of the type in which the reenforce is beaded over the rib by a reciprocatory inside former and a four-motion feed former, the provision of a second reciprocatory former outside the rib having a face to press the reenforce on the feather, an inclined face to bend the rib inward, and an angle between said faces to set the reenforce in the outside angle.

5. An insole reenforcing machine having, in combination, means for supporting and feeding the insole, an inside former movable in the line of feed, means to cause said former to impart two blows against the rib, and a tool to bend the rib inward after the second blow by the inside former.

6. An insole reenforcing machine having, in combination, means for supporting and feeding the insole, including a feeding former actuated by a slide movable in the line of feed, an inside former movable in the line of feed, connections to said feed slide for moving the inside former, and means for causing the inside former to impart two blows against the rib respectively before and after such movement.

7. An insole reenforcing machine having, in combination, means for supporting and feeding the insole, including a rotary work support and actuating mechanism therefor, an inside former, an outside former movable toward and from the inside former, and means controlled by the work support actuating mechanism for operating the outside former.

8. An insole reenforcing machine having, in combination, means for supporting and feeding the insole, an inside former, means for imparting to said former a reenforce measuring stroke and a reenforce setting stroke at the inside angle of the rib, an outside former, and means for causing the out-

side former to impart a blow against the outer face of the rib after the second stroke of the inside former has been imparted.

9. An insole reenforcing machine having, in combination, means for supporting and feeding the insole, including a rotary work support and mechanism for actuating said support step-by-step, an outside former movable toward and from the rib shaped to bend the rib inward, and means controlled by the work support actuating mechanism for advancing said former toward the rib while the support is stationary.

10. An insole reenforcing machine having, in combination, a work support, means for advancing said support intermittently, an outside former movable toward and from the support having an inclined face to engage the rib and bend it inward, means to advance said former at each period of rest of the work support, and an inside former against which the rib is set by the outside former.

11. In an insole reenforcing machine an inside former, means to reciprocate said former toward and from the rib, and means to control the path of movement on the approach stroke providing for an oblique approach toward and engagement with the rib and then a pressing movement transversely of the rib.

12. In an insole reenforcing machine an inside former, means to reciprocate said former toward and from the rib, and means to control the path of movement on the approach stroke providing for an initial engagement with the sole in the angle at the base of the rib and thereafter a pressing movement in substantially the plane of the sole face.

13. In an insole reenforcing machine an inside former, means to reciprocate said former toward and from the rib, and unyielding means controlling said reciprocations for guiding said former toward the rib first obliquely and then substantially in the plane of the sole face.

14. In an insole reenforcing machine of the type in which the inside former is moved obliquely toward and from the sole by a vibrating lever pivoted on the frame and extending forwardly over the sole, means for pivotally mounting said former centrally on the free end of said lever, a fixed bracket above the lever, and a link connecting the upper end of the former with said bracket.

15. In an insole reenforcing machine of the type in which the inside former is moved obliquely toward and from the sole by a vibrating lever pivoted on the frame and extending forwardly over the sole, means for pivotally mounting said former centrally on the free end of said lever, and means for varying the angular relation of said lever and former to alter the path of movement of the latter.

16. In an insole reenforcing machine of the type in which the inside former is moved obliquely toward and from the sole by a vibrating lever pivoted on the frame and extending forwardly over the sole, means for pivotally mounting said former centrally on the free end of said lever, and means for varying both the throw and path of movement imparted to said former by the vibrations of said lever.

17. Trimming mechanism for reenforced insoles comprising a disc knife, means for continuously rotating said knife, and means for imparting a four-motion movement to said knife in its own plane.

18. Trimming mechanism for reenforced insoles comprising a disc knife, means for continuously rotating said knife, means for imparting to said knife chopping strokes in a plane normal to the surface of the reenforce and through the reenforce to trim it and means for feeding the insole in a direction substantially parallel to said plane.

19. Trimming mechanism for reenforced insoles comprising a disc knife, means for continuously rotating said knife, means for feeding the insole automatically and means for imparting to said knife chopping strokes to trim the reenforce progressively as the insole is fed.

20. A machine for operating on reenforced insoles having, in combination, means for forming the reenforce over the rib, a rotary disc knife, and means for imparting to said knife a chopping stroke to trim the reenforce at a predetermined distance from the rib.

21. A machine for operating on reenforced insoles having, in combination, a feed member, actuating mechanism therefor, and a rotary disc knife for trimming the reenforce, connected, for movement in the line of feed, to said actuating mechanism.

22. A machine for operating on reenforced insoles having, in combination, a four-motion feed member, a rotary disc knife for trimming the reenforce, and means for causing said knife to partake of the movements of said feed member.

23. A machine for operating on reenforced insoles having, in combination, a feed member, actuating mechanism therefor, a rotary disc knife for trimming the reenforce, a shearing blade cooperating therewith, said knife and blade being connected for simultaneous movement in the line of feed, and means controlled by said actuating mechanism for imparting said movement.

24. A machine for operating on reenforced insoles having, in combination,

means for forming the reenforce over the rib, means for feeding the insole progressively, a trimming knife, and means for imparting to said knife a chopping stroke substantially perpendicular to the face of the insole, to trim the reenforce at a predetermined distance from the rib.

25. A machine for operating on reenforced insoles having, in combination, means for trimming the margin of the reenforce, and means for thereafter forming the reenforce over the rib constructed and operated to press into an angle at the base of the rib a portion of the reenforce which lies directly inside of a portion of the margin which has been trimmed.

26. A machine for operating on reenforced insoles having, in combination, means for feeding and guiding the insole, means for trimming the margin of the reenforce at a predetermined distance from the rib and means for forming the reenforce over the rib constructed and operated to press the reenforce after such trimming into the outside angle at the base of the rib with the margin of the reenforce lying within the margin of the insole.

27. Trimming mechanism for reenforced insoles comprising a support for the free margin of the reenforce including a shear plate standing normal to the plane of the reenforce, a rotary disc knife at the other side of the reenforce, and means for reciprocating said knife past the edge of said plate.

28. Trimming mechanism for reenforced insoles comprising a cutting blade at one side of the free margin of the reenforce provided with a deflector for the severed material, a second cutting blade at the other side of the reenforce, and means relatively to move said blades across the plane of the reenforce to effect a severance of the reenforce.

29. Trimming mechanism for reenforced insoles comprising a cutting blade below the free margin of the reenforce having a deflector for the severed material upstanding from its cutting edge, and a second cutting blade above the reenforce movable past the lower blade to effect a severance of the reenforce.

30. Trimming mechanism for reenforced insoles comprising rotary cutting means on a driven shaft, means to impart a four-motion movement to said shaft, a driving shaft in fixed bearings, and a coupling between the shafts constructed and arranged to permit a continuous rotation of the cutting means during its movements.

31. Trimming mechanism for reenforced insoles comprising rotary cutting means on a driven shaft, means to impart a four-motion movement to said shaft, a driving shaft in fixed bearings, and a coupling between the shafts permitting continuous rotation of the cutting means during its movements comprising a crank-pin on each shaft and a link connecting said crank-pins.

32. Trimming mechanism for reenforced insoles comprising rotary cutting means on a driven shaft, means to impart a four-motion movement to said shaft, a driving shaft in fixed bearings, a tubular member having a sliding member splined therein, a spring carried by the tubular member for urging said sliding member toward the cutting means, and connections for transmitting the movement of said sliding member to the cutting means.

33. A machine for applying reenforcing material to insoles having, in combination, an inside former, means for operating said former to tuck the reenforce in the inside angle while its margin is still free, an outside former, means for supporting and trimming the margin before application in the outside angle, and means for thereafter actuating the outside former to complete the application of the reenforce to the outside angle.

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