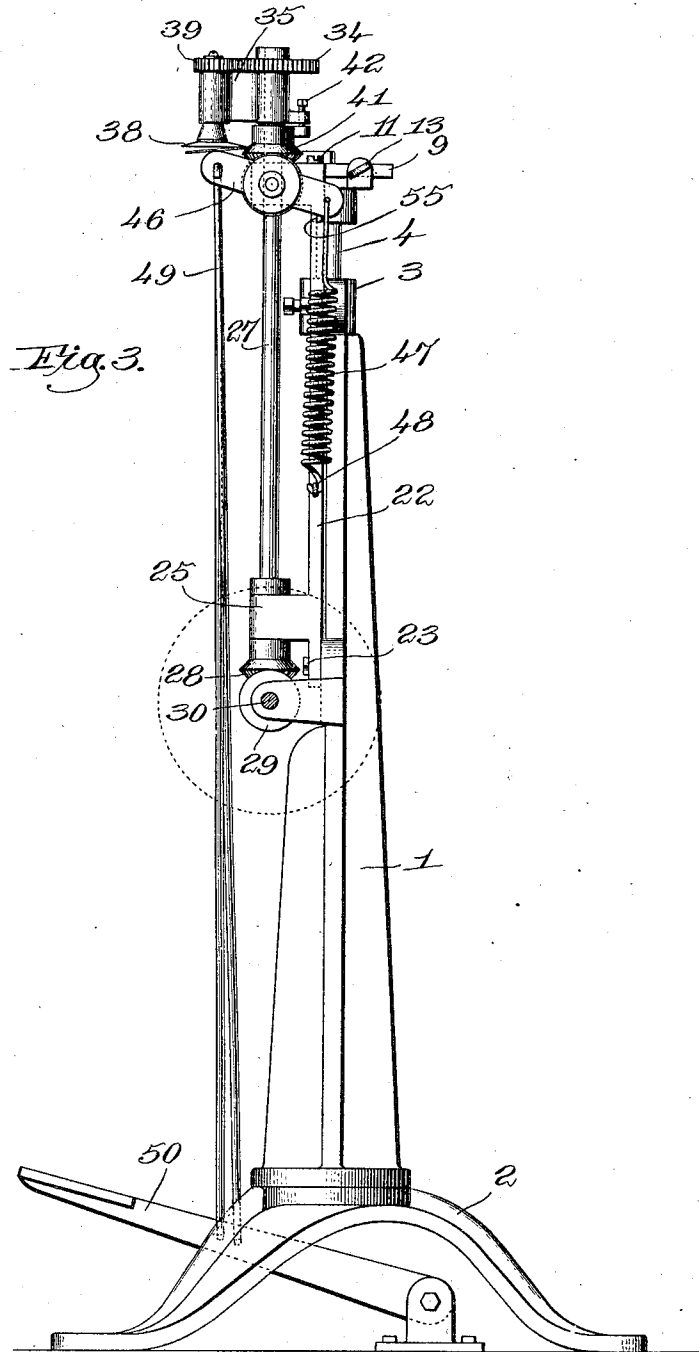


G. L. ROLLINS.
MACHINE FOR BUTTING WELTS.
APPLICATION FILED APR. 18, 1910.

1,030,612.

Patented June 25, 1912.

3 SHEETS—SHEET 2.



Witnesses.
Thomas J. Drummond
Joseph M. Ward.

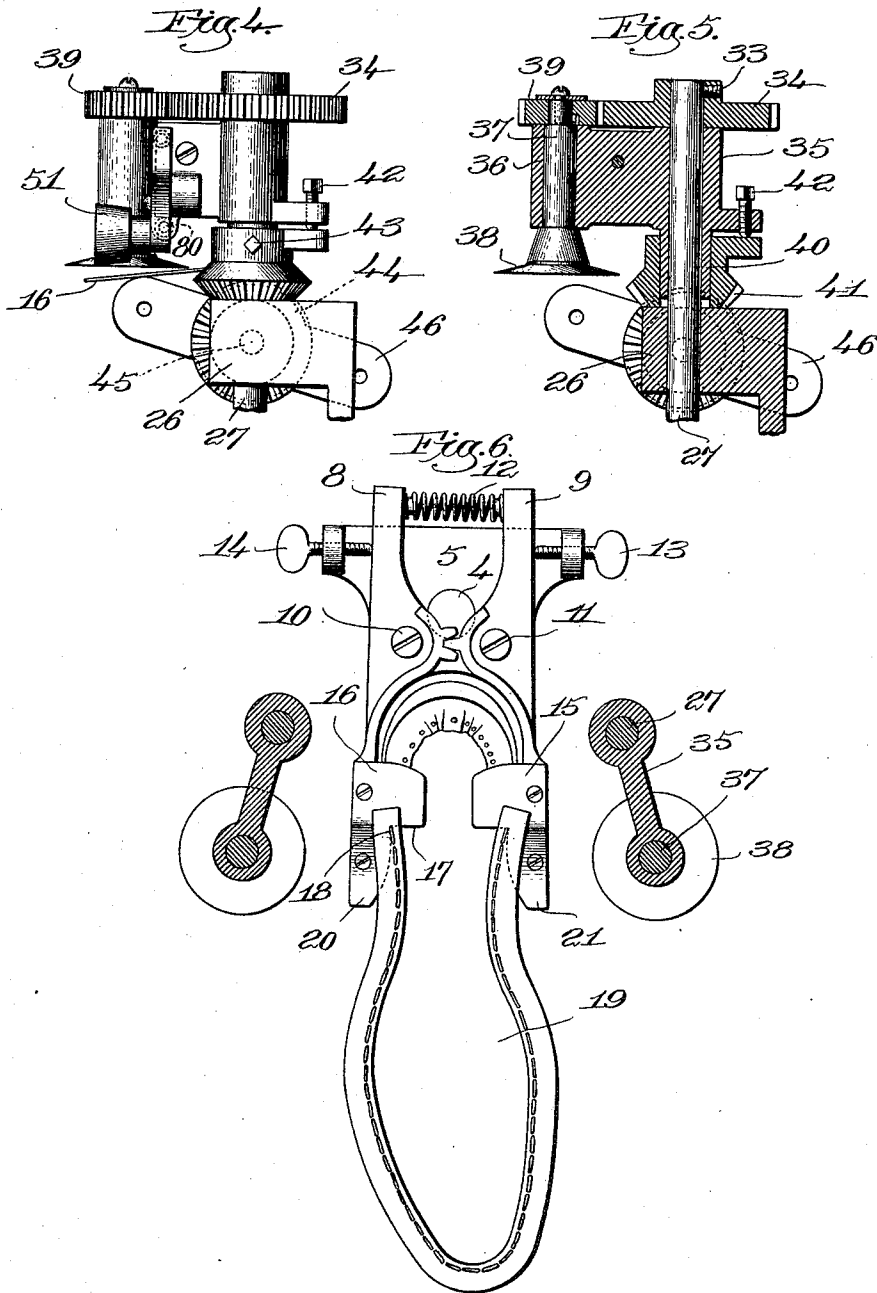
Inventor.
George L. Rollins,
By Wesley Gregory, atty.

G. L. ROLLINS.
MACHINE FOR BUTTING WELTS.
APPLICATION FILED APR. 18, 1910.

1,030,612.

Patented June 25, 1912.

3 SHEETS—SHEET 3.



Witnesses.
Thomas J. Drummond
Joseph M. Ward.

Inventor.
George L. Rollins,
by Messrs. Messrs. Messrs.

UNITED STATES PATENT OFFICE.

GEORGE L. ROLLINS, OF BRIDGEWATER, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MACHINE FOR BUTTING WELTS.

1,030,612.

Specification of Letters Patent.

Patented June 25, 1912.

Application filed April 18, 1910. Serial No. 556,169.

To all whom it may concern:

Be it known that I, GEORGE L. ROLLINS, a citizen of the United States, and resident of Bridgewater, county of Plymouth, and State of Massachusetts, have invented an Improvement in Machines for Butting Welts, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention provides a machine for performing the operation known in the manufacture of shoes as "butting the welt."

In the manufacture of welt shoes the welt and upper are stitched to the rib of the innersole from a point at one side at about the breast line around the toe and back to a similar point in the opposite side, and the ends of the welt are left unsecured. In the further operation of manufacture the "inseam," or the projecting edges of the upper and lining have usually been trimmed off by hand with a knife, and the same workman has then beveled off the free ends of the welt so that when the outer sole and heel are put on the beveled ends of the welt may be slipped beneath the heel.

Machines have now come into use for trimming the inseam, thus requiring the work of butting the welt; that is, of beveling the ends of the welt, to be performed as a separate operation. It is a somewhat delicate operation to butt the welt, because there is always danger of injuring the upper against which the welt ends rest. The butting must also be done accurately; the bevel must be a long one and should extend across the end of the welt and be substantially the same throughout the width of the welt.

The present invention provides a machine which does this work of butting the welt accurately and expeditiously, requiring no skill on the part of the operator, and in a manner far superior to hand work.

The nature of the invention will more fully appear from the accompanying description and drawings and will be particularly pointed out in the claims.

In the drawings which show a machine embodying a preferred form of the invention, Figure 1 is a front elevation of the machine; Fig. 2 is a top plan view of the upper portion of the machine; Fig. 3 is a side elevation of the machine; Fig. 4 is a side elevation, with parts omitted, of the

upper end of the machine shown enlarged, looking in the direction of the arrow in Fig. 1; Fig. 5 is a view similar to Fig. 4 with the parts largely in cross section; Fig. 6 is a plan view, partially in cross section, of the main instrumentalities at the top of the machine.

A suitable standard is provided and is shown as a flanged iron column 1 supported on a base 2. The main elements of the machine are means for supporting the shoe in proper position, devices for protecting the upper and supporting the welt ends in position to be cut, cutters for beveling off the welt ends, and means for operating the cutters. All these elements are preferably supported upon the standard 1 and in such a position that the operator may stand in front of the machine and conveniently present the shoe thereto. The upper end of the standard 1 is formed with a socket 3. In this socket is mounted a post 4 which carries at its upper end a bed plate 5 upon which bed plate the shoe support is mounted. The post 4 is vertically adjustable on the standard by means of the set screw 6 and is locked in position by the set screw 7 so that the shoe support can be vertically adjusted with respect to the planes of the cutters.

The shoe support is preferably made in two parts, thus enabling it readily to conform to any size and style of shoe. These parts are shown at 8 and 9 and are pivoted at 10 and 11, respectively, to the bed plate 5. Concentric with their pivotal points they are provided with intermeshing gear teeth so that the parts of the shoe support open and close simultaneously. The forward ends of the shoe support are curved to conform to the general outline of a shoe, while the rearward ends are normally separated by the coil spring 12 extending therebetween. Set screws 13 and 14 mounted upwardly-projecting bearings on the bed plate 5 serve to limit the closing movement of the forward or shoe-supporting ends of the parts of the shoe support. But one of these set screws is necessary because the parts move together, but two have been shown for convenience.

The forward end of each part 8 and 9 carries a welt supporting plate 15 and 16, respectively. These plates are preferably made of thin sheet metal and extend into the space between the parts 8 and 9. Each

is provided with a gaging edge 17. In stitching the welt and upper to the insole the operator always begins at a definite point, and this stitch determines the point at which the welt end shall be beveled off. In completing the stitching the workman aims to stop as nearly opposite this point as possible and never beyond it. In Fig. 6 the first stitch is shown at 18. The welt supporting plates are so arranged, therefore, that when the shoe 19 is pushed between the parts of the shoe support the gaging edge 17 of the plate 16 will abut against the first stitch 18 and thus determine the position of the shoe in the machine.

The welt supporting plate serves to protect the upper from any danger of being cut or injured by the knives and also to guard the knives from being injured by the tacks holding the upper in place, and it extends beneath the end of the welt and supports it in proper position to be cut. The welt supporting plates, therefore, are located in planes slightly inclined to the horizontal away from the center of the machine and their forward ends 20 and 21 are inclined downwardly and toward the front of the machine. The cutting is preferably performed by a pair of rotating cutters mounted to rotate in planes slightly inclined to the horizontal sloping away at each side from the center of the machine to correspond to the inclination of the welt supporting plates, and these cutters are given a bodily movement transversely to the shoe support and plates so as to carry them across and bevel off the welt ends. The ends 20 and 21 of the plates 15 and 16 being inclined downwardly are inclined to the plane of the cutters and this inclination corresponds to the amount of bevel required, so that when the welt ends are pressed upon the plates and the cutters are moved bodily across and above the plates, the welt ends will be beveled off. Regarding the longitudinal axis of these plates as the one extending from front to rear of the machine, or generally parallel with the length of the shoe, and the transverse axis as the one extending at right angles thereto, or transversely of the machine, then it will be noted that the cutting plane is always inclined with respect to the longitudinal axis so as to secure the beveling of the ends, and is also partially inclined to the transverse axis so as to cause the bevel to slope toward the outer edge of the welt.

It is obvious that various cutting mechanisms may be employed, but it is preferred to use a pair of rotary cutters. It is obvious that the bodily transverse movement may be given in different ways but it is preferred to mount the cutters upon oscillating brackets and to oscillate them about suitable axes across the welt supporting plates.

The knife being thus swung bodily about a center makes a sort of draw cut as it passes through the welt. The knife in its cutting movement swings over close to, and rubs against, the flat surface of the plates, thus insuring a clean cut completely through the welt end. In the preferred form shown each cutting mechanism with its correlated parts, one of which is provided at each side of the machine for beveling the corresponding welt end, is of the same construction and, hence, it will be necessary to describe but one. A bracket 22 is supported on the standard 1 by being bolted thereto at 23 and 24 and is arranged at an inclination to the vertical so that the plane of the cutter will incline slightly to the horizontal. This bracket is provided with bearings 25 and 26 in which is mounted a shaft 27. The shaft 27 is rotated by means of bevel gear connections 28, 29 from the driving shaft 30 operated at the required times through the medium of the fast and loose pulleys 31 and 32. The shaft 27 projects over the bearings 26 and has secured to it at its upper end by means of the set screw 33 a spur gear 34. Beneath the gear 34 a cutter bracket 35 is loosely journaled on the shaft. This cutter bracket carries at its forward end a bearing 36 in which is journaled parallel to the shaft 27 a cutter shaft 37 carrying at its lower end a rotary cutter 38 similar to a skiving knife. At its upper end the shaft 37 has fast thereto a pinion 39 intermeshing with the gear 34. It will thus be seen that the cutter shaft and cutter may be oscillated about the shaft 27 and at the same time be constantly driven from shaft 27.

The oscillation of the cutter is the preferred means for securing the bodily movement of the cutter transversely of the welt end to be cut. In the construction shown, this oscillation is secured by providing a downwardly projecting sleeve 40 on the bracket 35 with a bevel gear 41 vertically and angularly adjustable thereon by means of the set screws 42 and 43. A second bevel gear 44 is mounted upon a stud shaft 45, projecting outwardly from the shaft 27, secured in the bracket 26, and intermeshes with the gear 41. While the parts 41 and 44 are referred to as gears they are in practice but sectors of gears. The stud shaft 45 has fast thereto a lever 46, the rear end of which is connected by a coil spring 47 to a pin 48 on the bracket 22, while the forward end is connected by a rod 49 to a treadle or lever 50 at the bottom of the machine. A stop 55 on the bracket 22 limits the movement of the lever 46 under the influence of the spring 47.

Each cutter bracket carries a presser by means of which the welt end is held down upon the welt supporting plate beneath it

during the cutting action. These pressers are of the same construction, and in the preferred form each comprises a rotary presser wheel 51 mounted on an axis parallel to the plane of the cutter but having its surface of frusto-conical form, the angle of which is the same as the angle of the forward end 20 or 21 of the plates 15 and 16. The roller 51 is mounted on a lever 52 fulcrumed at 53 on the cutter bracket and pressed downwardly toward the welt by a spring 54 against an adjustable stop screw 80 carried by the cutter bracket. As the cutter bracket oscillates the presser is thus carried over the plate beneath it with the surface of the presser roller 51 parallel to the surface of the plate, thus holding the welt yieldingly and firmly against the plate at the desired angle with respect to the plane of the cutting action of the cutters.

As previously stated, the cutting mechanisms are of similar construction—both are driven simultaneously and in a similar manner from the driving shaft 30 and both are oscillated toward and from each other to carry the cutter across the welt supporting plates by similar connections to the single treadle 50. The set screw 6 enables the shoe support to be adjusted vertically with respect to the cutters, and the set screws 42 and 43 enable each cutter to be adjusted independently of the other and of the shoe support, both vertically and angularly.

The operation of the machine will now be apparent. When the parts of the shoe support have been adjusted to conform to the general run of shoes, a shoe in the condition shown in Fig. 6 is pushed by the operator between the parts of the shoe support until the ends of the welt extend over the plates 15 and 16 and the first stitch 18 of the welt comes against the gage 17. The spring 12 is compressed by the insertion of the shoe and serves to cause the parts of the shoe support to clamp and hold the shoe. The operator then places his foot upon the treadle 50, depressing the levers 46 against the spring 47 and causing the cutter brackets with the cutters and pressers to be moved bodily and transversely across the welt supporting plates. The pressers rolling over the welt ends press the welt ends against the inclined ends 20 and 21 of the plates 15 and 16 and the cutters follow immediately and bevel off the welt ends with absolute accuracy. When the foot is raised from the treadle the springs 47 act and restore the parts to open position.

In the preferred form of the invention illustrated and specifically described the main cutting movement of the cutter is a transverse one with respect to the welt and its supporting plate, although when the cutter oscillates as illustrated it also moves longitudinally of the welt and said plate during

the cutting action. The invention is not, however, to be limited in this respect, but includes any cutter operating in any direction with respect to the welt supporting plate and welt to cause the beveling of the latter.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. A machine for butting welts comprising means for supporting the welt end of an unsoled welt shoe, a rotary cutter, means for rotating said cutter in a plane inclined to said supporting means, and means for bodily moving said cutter transversely of said supporting means to bevel the welt end.

2. A machine for butting welts comprising means for positioning an unsoled welt shoe, welt supporting plates extending beneath the welt ends to protect the upper and support the welt ends in position to be cut, a pair of rotary cutters, means for rotating said cutters in planes inclined to said plates, and means for bodily moving said cutters transversely of said plates to bevel the welt ends.

3. A machine for butting welts comprising means for positioning an unsoled welt shoe, welt supporting plates extending beneath the welt ends to protect the upper and support the welt ends in position to be cut, a pair of rotary cutters, means for rotating said cutters in planes inclined to said plates, means for bodily moving said cutters transversely of said plates to bevel the welt ends, and pressers mounted to move with the cutters and acting to hold the welt ends against the plates during the cutting action.

4. A machine for butting welts comprising shoe supporting means composed of two pivotally mounted simultaneously-movable, yieldingly-separable parts adapted to grasp and hold an unsoled welt shoe, welt supporting plates carried by said means extending between the upper and the welt ends to protect the upper and support the welt ends in position to be cut, a pair of cutters, and means for moving said cutters transversely of said plates with the cutting planes inclined thereto to bevel the welt ends.

5. A machine for butting welts comprising shoe supporting means composed of two simultaneously-movable, yieldingly-separable parts adapted to grasp and hold an unsoled welt shoe, welt supporting plates carried by said means extending between the upper and the welt ends to protect the upper and support the welt ends in position to be cut, a pair of rotary cutters, means for rotating said cutters in planes inclined to said plates, and means for bodily moving said cutters transversely of said plates to bevel the welt ends.

6. A machine for butting welts comprising

- ing means for positioning an unsoled welt shoe, a welt supporting plate extending between the upper and welt end to protect the upper and support the welt end in position to be cut, a rotary cutter, a shaft for said cutter, a bracket for supporting said shaft at an inclination to the plate, and means for moving said bracket to carry the cutter transversely of the plate to bevel the welt end.
7. A machine for butting welts comprising means for positioning an unsoled welt shoe, a welt supporting plate extending between the upper and welt end to protect the upper and support the welt end in position to be cut, a rotary cutter, a shaft for said cutter, a bracket for supporting said shaft at an inclination to the plate, means for moving said bracket to carry the cutter transversely of the plate to bevel the welt end, a presser yieldingly mounted upon said bracket to press upon and hold the welt against the plate during the cutting action.
8. A machine for butting welts comprising means for supporting the welt end of an unsoled welt shoe, a cutter, and means for moving said cutter transversely of said supporting means and with the cutting plane inclined with respect to both the longitudinal and the transverse axes of the welt supporting means whereby the welt is beveled toward its end and toward its side.
9. A machine for butting welts comprising means for supporting the welt end of an unsoled welt shoe, a rotary cutter, means for rotating said cutter in a plane inclined with respect to both the longitudinal and the transverse axes of the welt supporting means, and means for bodily moving said cutter transversely to said supporting means to bevel the welt toward its end and toward its side.
10. A machine for butting welts comprising means for positioning an unsoled welt shoe, welt supporting plates extending beneath the welt ends, a pair of cutters, and means for moving said cutters transversely of said plates with the cutting plane of each cutter inclined with respect to both the longitudinal and the transverse axes of its plate.
11. A machine for butting welts comprising means for positioning an unsoled welt shoe, welt supporting plates extending beneath the welt ends to protect the upper and support the welt ends in position to be cut, a pair of rotary cutters, means for rotating each cutter in a plane inclined with respect to both the longitudinal and the transverse axes of its plate, and means for bodily moving each cutter transversely of its plate to bevel the welt ends.
12. A machine for butting welts comprising means for positioning an unsoled welt shoe, welt supporting plates mounted on the jack, each plate comprising a flat portion to protect the upper and guard the cutting knives and an inclined portion to extend beneath the welt end and support the same, a pair of cutters, and means for moving each cutter transversely of its plate and parallel and close to the flat portion thereof.
13. A machine for butting welts comprising means for supporting the welt end of an unsoled welt shoe, a rotary cutter, means for rotating said cutter in a plane inclined to said supporting means, and means for bodily moving said cutter with respect to said supporting means to bevel the welt end.
14. A machine for butting welts comprising means for positioning an unsoled welt shoe, welt supporting plates extending beneath the welt ends to protect the upper and support the welt ends in position to be cut, a pair of rotary cutters, means for rotating said cutters in planes inclined to said plates, and means for bodily moving said cutters with respect to said plates to bevel the welt ends.
15. A machine for butting welts, having, in combination, means for supporting the welt end of an unsoled welt shoe, a cutter mounted at one side of the shoe, and means for moving the cutter in a curved path over the shoe and across the welt in a plane to cause the welt end to be severed with a beveled cut.
16. A machine for butting welts, having, in combination, a rotary disk knife, means for continuously rotating said knife, a flat plate for supporting the free end of the welt, and means for moving said knife while in motion through the welt to butt the welt, the plane of travel of the knife being in substantially the plane of the welt supporting plate.
17. A machine for butting welts, having, in combination, a pair of rotary disk knives, means for supporting the two welt ends of an unsoled welt shoe between said knives, means for rotating said knives, and means for swinging said knives while in motion inward over the shoe and across the welt to butt the welt.
18. A machine for butting welts, having, in combination, a rotary disk knife, a flat plate for supporting the free end of the welt, and means for relatively moving the knife and welt supporting plate in a plane substantially coincident with the plane of said plate to sever the welt end.
19. A machine for butting welts, having, in combination, a rotary disk knife, a support for the welt end beside the knife, and means for relatively moving the knife and support in a direction to cause the knife to butt the welt by passing widthwise there-through.
20. A machine for butting welts, having, in combination, a plate for supporting the

free end of the welt of an unsoled welt shoe at an angle to the shoe bottom, a pin beside the support substantially perpendicular to said plate, a bracket pivoted on said pin, a rotary disk knife carried by said bracket, and means for oscillating said bracket to cause the knife to traverse the plate and sever the welt end with a beveled cut.

21. In a welt butting machine, a welt supporting plate having a portion to overlie the heel seat of a shoe provided with a gaging edge to engage the last inseam stitch, and a portion projecting forwardly and inclined downwardly to engage in the crease between the welt and upper and cause the free end of the welt to project at an angle to the surface of the portion overlying the heel seat.

22. In a welt butting machine, a welt supporting plate having a portion to overlie the heel seat of a shoe provided with a gaging edge to engage the last inseam stitch, and a portion projecting forwardly and inclined downwardly to engage in the crease between the welt and upper and cause the free end of the welt to project at an angle to the surface of the portion overlying the heel seat, a movable cutter arranged to traverse the surface of the portion overlying the heel seat, and means to actuate said cutter.

23. In a welt butting machine, a welt supporting plate having a portion to overlie the heel seat of a shoe provided with a gaging edge to engage the last inseam stitch, and a portion projecting forwardly and inclined downwardly to engage in the crease between the welt and upper and cause the free end of the welt to project at an angle to the surface of the portion overlying the heel seat, said plates also being inclined downwardly away from the center of the machine.

24. A machine for butting welts, having, in combination, a plate for supporting the welt end of an unsoled welt shoe, a cutter pivotally mounted for movement in substantially the plane of the surface of said plate, means for oscillating said cutter across said plate, and a welt presser mounted for movement with and in advance of said cutter.

25. In a machine for butting welts, a cutter and a welt presser in advance thereof having its bearing surface in a plane at an angle to the plane of the cutting stroke of the cutter.

26. A machine for butting welts, having, in combination, a plate extending into the crease between the welt and upper, a cutter, means to move said cutter in a plane at an angle to the surface of said plate, and a welt presser in advance of the cutter having its bearing surface in a plane parallel to the surface of said plate.

27. A machine for butting welts, having, in combination, means for supporting the welt end of an unsoled shoe, a cutter having its cutting plane inclined with respect to both the longitudinal and transverse axes of the welt supporting means, and means for advancing said cutter through the welt end.

28. A machine for butting welts, having, in combination, means for supporting an unsoled welt shoe, and means for severing the welt end of said shoe with a cut producing a bevel toward the welt end and toward its side.

29. A machine for butting welts, having, in combination, means for positioning the welt ends, a continuously rotating disk knife at each side of the shoe, and means under control of the workman for simultaneously moving the knives inward over the shoe and through the welt.

30. A machine for butting welts, having, in combination, means for positioning the welt ends, continuously rotating disk knives at each side of the shoe, a single means for simultaneously advancing said knives toward each other and through the welt ends, and springs for returning the knives to their inoperative positions.

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

GEORGE L. ROLLINS.

Witnesses:

LEONA CHANDLER,
THOMAS J. DRUMMOND.