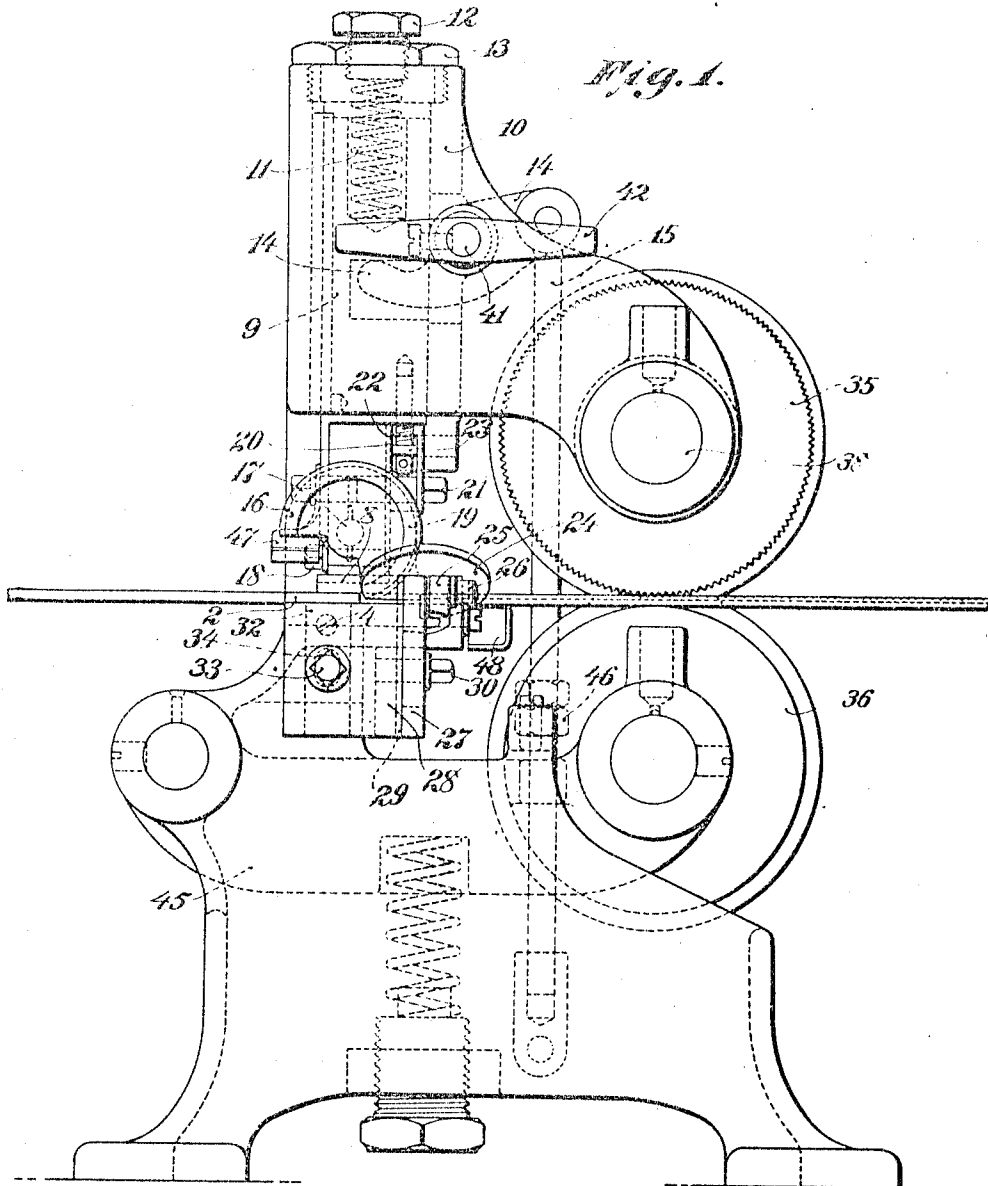


A. EPPLER.
WELT PREPARING MACHINE.
APPLICATION FILED JUNE 20, 1908.

1,020,346.

Patented Mar. 12, 1912.

3 SHEETS--SHEET 1.



Witnesses:

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A. D. McPhail

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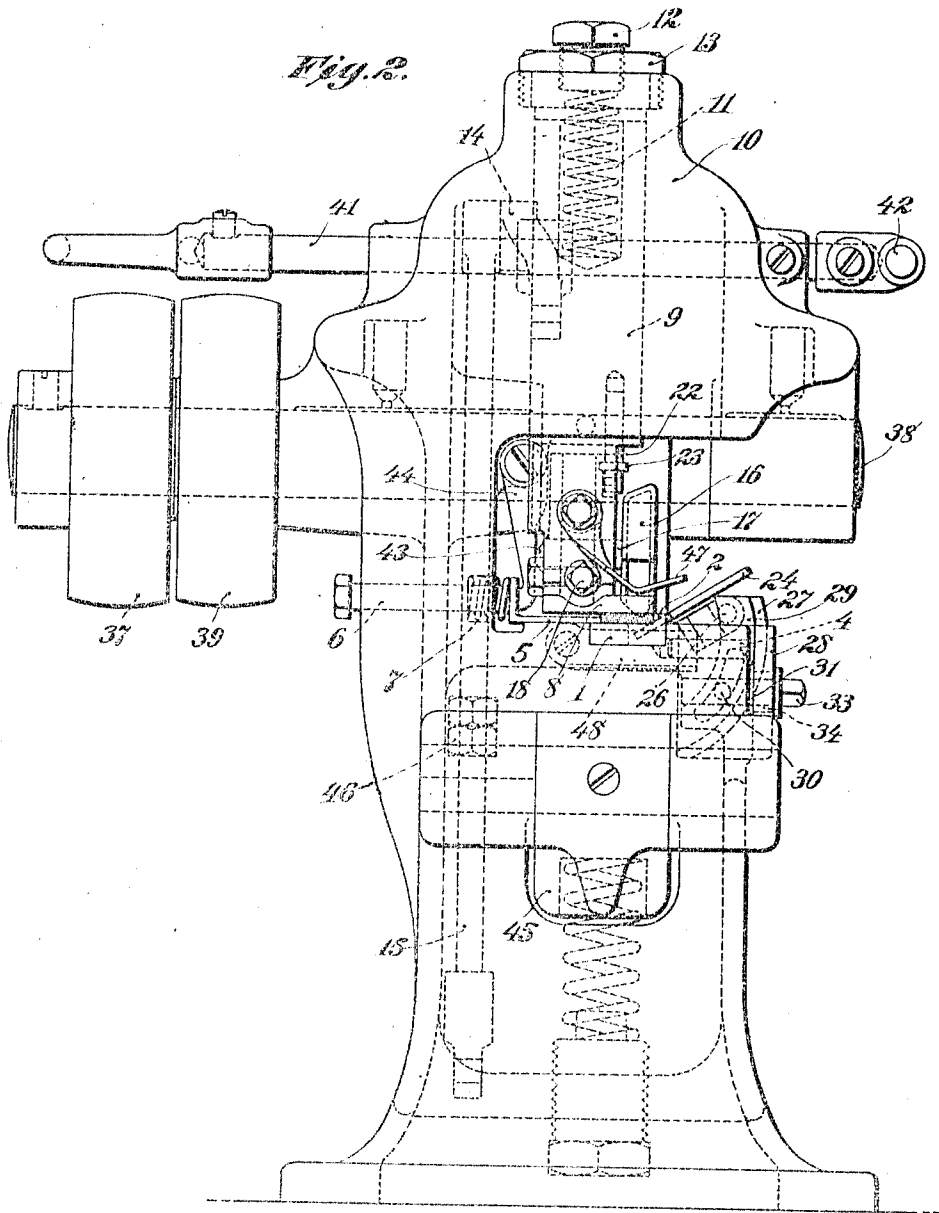
Andrew Eppler
by his attorney
Phillips Van Everen & Fish

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3 SHEETS—SHEET 2.



Witnesses:

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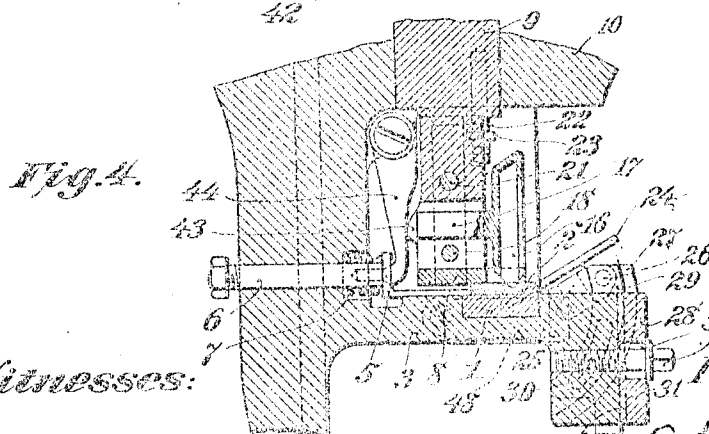
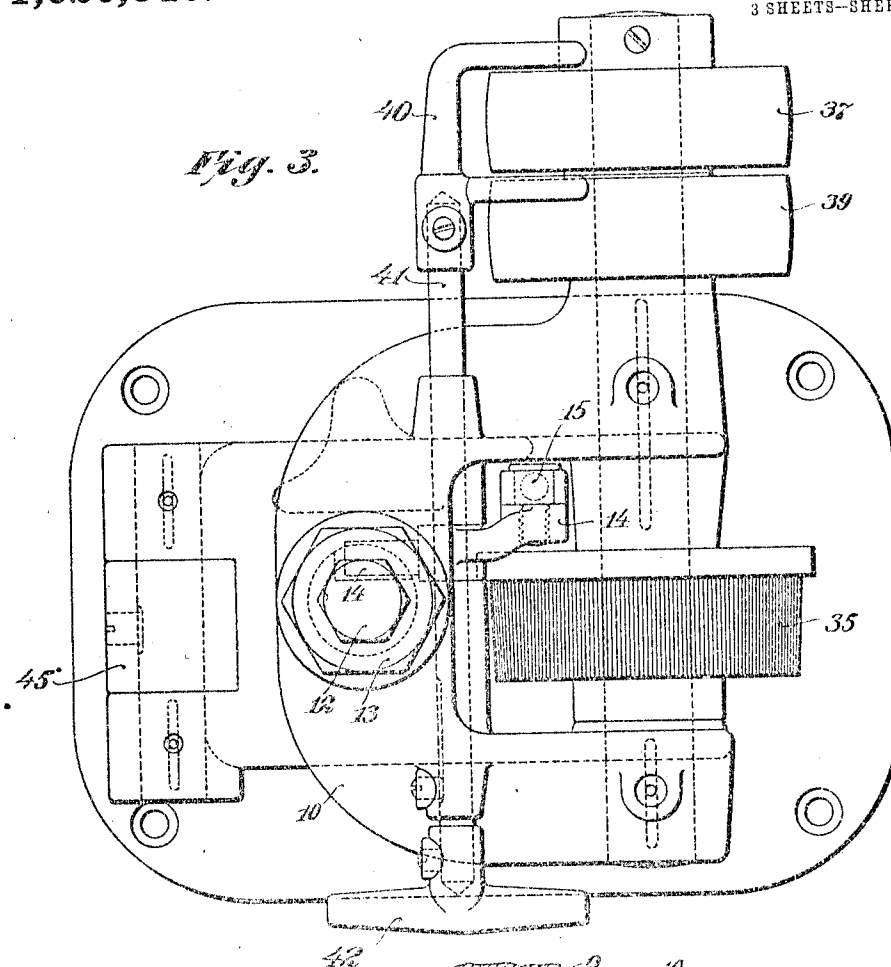
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Phillips Van Emmon & Fitch

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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

ANDREW EPPLER, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

WELT-PREPARING MACHINE.

1,020,346.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Original application filed July 20, 1906, Serial No. 326,970. Divided and this application filed June 20, 1908. Serial No. 439,487.

To all whom it may concern:

Be it known that I, ANDREW EPPLER, citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Welt-Preparing 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 means for preparing welts which are used in the manufacture of welted shoes, and the present application is a division of application No. 326,970, filed July 20, 1906.

The welt of a welted shoe consists of a long, narrow strip of leather which is sewed to the upper and insole of the shoe, and serves as a means for connecting the outsole to the other portions of the shoe. To enable this strip of leather to be readily applied to the insole and upper, it is usually provided with a bevel upon its upper surface at its inner edge, and with a groove upon its under surface near its inner edge.

The object of the present invention is to provide an improved machine for grooving and beveling a welt strip, or for performing one of these operations.

With the above object in view, the present invention consists in improvements in the construction, by which the beveling and grooving knives are mounted for operation upon a welt strip, and in certain combinations and arrangements of parts tending to improve the construction and mode of operation of machines for preparing welts, the advantages of which will be obvious to those skilled in the art from the following description of the preferred embodiment of the invention.

The various features of the invention will be clearly understood from an inspection of the accompanying drawings, in which a machine for preparing welts embodying the various features of the invention in their preferred forms, and adapted to perform the operations of grooving and beveling, is shown.

In the drawings, Figure 1 is a side elevation of a welt grooving and beveling machine embodying the invention in its pre-

ferred form; Fig. 2 is an end elevation of the machine illustrated in Fig. 1, looking toward the right; Fig. 3 is a plan view of the machine; and Fig. 4 is a detail sectional view illustrating the mechanism by which the yielding side guide is retracted when the presser foot which acts upon the welt is raised.

In the machine shown the welt is supported while being acted upon by the welt grooving and beveling knives by a bed plate 1 provided with a guiding flange 2 at its outer edge arranged to engage the inner edge of the welt. The bed plate is mounted in a groove in the base plate 3, and is held in position by a set screw 4 so that it may be readily removed and replaced, or another plate substituted therefor, when the plate becomes so worn as not to properly support the welt. The welt is held in engagement with the guiding flange 2 while being fed through the machine by a spring pressed edge guide 5 which is provided with a guiding stud 6 projecting through a guiding recess formed in the frame of the machine. A coiled spring 7 surrounds the stud 6, and tends to force the guide 5 toward the guiding flange 2. By this construction the welt is held securely in position against the guiding flange 2, and in proper relation to the beveling and grooving knives, so that the welt is grooved and beveled in a uniform manner, regardless of variations in the width of the welt.

The welt is held firmly against the bed plate 1 during the operation of the machine by a presser foot 8 arranged to bear upon the upper surface of the welt. The presser foot is secured to a vertical slide 9 mounted to reciprocate in the standard 10, and acted upon by a coiled spring 11 which tends to force the presser foot against the welt. The spring is seated in a recess in the upper end of the slide, and at its upper end bears against an adjusting screw 12 seated in a cap screw 13 at the upper end of the standard 10. The presser foot slide may be raised to permit a welt strip to be placed in the machine by means of a lever 14 pivoted upon the frame of the machine, and connected by means of a rod 15 with a treadle (not shown).

The welt passes through the machine with

the surface which is uppermost in the completed shoe resting upon the bed plate 1, and the grooving knife is accordingly arranged to act upon the surface of the welt which is uppermost in the machine. The grooving knife is indicated at 16, and in order that the groove formed by the knife may be of the same depth, regardless of variations in the thickness of the welt, it is mounted upon the slide 9 so as to move up and down with the presser foot. As shown, the knife blade is curved in the arc of a circle, and is formed upon the periphery of a flat disk which is provided with a notch, one side of which forms the cutting edge of the knife. The grooving knife is secured to the slide 5 by means of a stud 17 projecting laterally from the center of the disk, and held in a split clamp formed in the lower end of the slide 9 by a clamping screw 18. By this construction, the grooving knife may be given a rotary adjustment to bring the cutting edge of the knife into the required position as the blade of the knife becomes worn away in re-grinding it, and may also be given a lateral adjustment to vary the distance of the groove from the edge of the welt. Also the arrangement of the blade of the grooving knife in the arc of a circle permits the knife to be so placed in the machine that the portion of the knife directly back of the cutting edge extends in the direction in which the welt strip is fed, the cut surface of the strip being tangential to the groove of the knife blade. The knife blade thus cuts to the best possible advantage and the chip or strip removed by the knife passes easily over the upper surface of the blade.

In order that the depth of the groove which is formed in the welt by the grooving knife may be regulated as desired, the presser foot is so mounted that it may be adjusted on the slide 9 to vary the extent to which the grooving knife projects below the surface of the presser foot. For this purpose the presser foot is provided with a vertically extending portion 19 arranged to engage one side of the slide 9, and provided with a guiding rib 20 which fits within a guiding groove formed in the face of the slide. The presser foot is held in position upon the slide by means of a clamping bolt 21 which passes through a slot formed in the vertical portion 19 of the presser foot, and is threaded into a hole in the slide. The means for vertically adjusting the presser foot upon the slide 9 consists of an adjusting screw 22 arranged in the slide, and provided with a flange 23 engaging a recess formed in the vertical portion 19 of the presser foot.

The welt beveling knife is indicated at 24, and consists of a flat disk notched or cut away to provide a cutting edge. The disk is secured in position by means of a stud

projecting laterally from the center of the disk, and entering a split clamp 25 in which it is held by means of a clamp screw 26. This construction permits a rotary adjustment of the disk to bring the guiding edge into the desired position as the edge becomes worn away in re-grinding, and the shape of the knife permits the knife to be repeatedly re-ground before it becomes worn out. The clamp 25 forms a part of a plate 27 which is mounted upon a block 28 so as to be capable of an angular adjustment to change the angle of the bevel produced by the knife on the welt strip. The plate 27 is provided with a curved rib 29 which enters a curved slot formed in the block 28, and the rib and slot are substantially concentric with the point of operation of the knife on the welt, so that an angular adjustment of the plate produces no substantial displacement of the knife with relation to the welt. The knife carrying plate 27 is held in adjusted position by means of a clamping bolt 30 passing through a slot in the plate and threaded into the block 28. To vary the depth of the cut produced by the beveling knife, provision is made for adjusting the block 28 vertically. As shown, the block 28 is arranged to engage a vertical surface 31 formed on the frame of the machine, and is provided with a guiding rib 32 which fits within a guiding slot formed in the surface 31. The block is held in adjusted position by means of a clamp bolt 33 which passes through a slot 34 formed in the block, and is threaded in a hole in the frame.

The welt strip is fed through the machine by a power operated feeding mechanism which acts to impart a continuous feeding movement to the strip. This feeding movement comprises a driven feed roll 35 and a spring pressed pressure roll 36 between which the welt strip passes, and by which the strip is pulled through the machine against the action of the grooving and beveling knives. The roll 35 is driven through a belt passing over a pulley 37 secured to the shaft 38 which carries the roll. To enable the machine to be thrown into and out of operation, a loose pulley 39 is mounted upon the feed shaft 38, and a belt shifting device 40 is provided for shifting the belt on to either the fast or loose pulley at will. The belt shifting device is secured upon a shipper rod 41 which extends from the front of the machine, where it is provided with a handle 42 by means of which it may be conveniently actuated by the operator in throwing the machine into and out of operation.

When a welt strip is to be inserted in the machine, the spring pressed side guide 5 should be retracted, and to enable this to be conveniently done, connected mechanism is provided through which the operator may cause the presser foot to be raised and the

side guide to be retracted. In the construction shown the lower end of the presser foot slide is provided with a projection 43 which, during the movement of the presser foot slide, engages guides upon a lever 44, the lower end of which is arranged to engage the upturned portion of the edge guide 5. The arrangement of the projection 43 and lever 44 is such that the presser foot is raised from the work a short distance before the edge guide is retracted, and during the downward movement of the presser foot slide the edge guide is led to move into engagement with the work before the presser foot is brought into contact therewith.

In order that the feeding rolls may be conveniently separated when the presser foot is raised for inserting a welt strip, the rod 15 through which the operator raises and lowers the presser foot slide is arranged to pass through the lever 45 which carries the feed roll 36, and the rod is provided above the lever with adjustable nuts 46, which, as the rod is depressed, force the lever downward to separate the lower feed roll from the upper feed roll.

In order that the strips of waste material removed from the welt by the grooving and beveling knives may be directed away from the path of movement of the welt strip, so that they are not liable to interfere with the proper operation of the machine, deflecting guides 47 and 48 are provided, which are arranged to engage and deflect the waste strips as they come from the grooving and beveling knives respectively.

It will be understood that the construction and arrangement of parts illustrated in the drawings, and above described, are not essential to the invention in its broader aspects, although they embody the various features of the invention in their preferred forms, and that except as defined in the claims the invention is not limited to the construction and arrangement of parts shown and described.

Having explained the nature and object of the invention, and specifically described one form of apparatus in which it may be embodied, what I claim is:—

1. A machine for preparing welts, having, in combination, means for supporting and guiding a welt strip, grooving and beveling knives, feeding mechanism for feeding a welt strip to the knives, and guides arranged to direct the strips of material removed by the knives away from the path of movement of the welt strip, substantially as described.

2. A machine for preparing welts, having, in combination, means including a yielding presser foot for supporting and guiding a welt strip, grooving and beveling knives, feed rolls for feeding the welt strip to the knives, and connected mechanism under the control of the operator for raising the

presser foot and separating the feed rolls, substantially as described.

3. A machine for preparing welts, having, in combination, means including a yielding presser foot and a yielding side guide for supporting and guiding a welt strip, grooving and beveling knives, and connected mechanism under the control of the operator for raising the presser foot and retracting the yielding side guide, substantially as described.

4. A machine for preparing welts, having, in combination, means including a yielding presser foot and a yielding side guide for supporting and guiding a welt strip, grooving and beveling knives, feed rolls for feeding the welt strip to the knives, and connected mechanism under the control of the operator for raising the presser foot, separating the feed rolls, and retracting the yielding side guide, substantially as described.

5. A machine for preparing welts, having, in combination, means for supporting and guiding a welt strip, a grooving knife arranged to cut a groove in the surface of the welt near one edge, a yielding carrier in which the knife is mounted, and a presser foot adjustably mounted upon the carrier to vary the depth of groove cut, substantially as described.

6. A machine for preparing welts, having, in combination, means for supporting and guiding the welt strip including a bed plate provided with a guiding flange, a yielding side guide for holding the welt strip against the flange, a presser foot for holding the welt strip against the bed plate, and a grooving knife mounted to move with the presser foot, substantially as described.

7. A machine for preparing welts, having, in combination, means for supporting, guiding and feeding a welt strip, and a beveling knife arranged to bevel the edge of the strip and mounted for adjustment concentrically with the point of operation of the knife on the welt and for adjustment to vary the depth of cut, substantially as described.

8. A machine for preparing welts, having, in combination, means for supporting, guiding and feeding a welt strip, a beveling knife arranged to bevel the edge of the welt strip, a plate upon which the knife is mounted, means for supporting the plate for adjustment about an axis located approximately at the point of operation of the knife on the welt, and a block on which the plate is mounted adjustable to vary the depth of cut, substantially as described.

9. A machine for preparing welts, having, in combination, means for supporting and guiding a welt strip, including a presser foot and a side guide, grooving and beveling knives, and connected mechanism under the

control of the operator for raising the presser foot and retracting the side guide, substantially as described.

10. A machine for preparing welts, having, in combination, means for supporting and guiding a welt strip, means for feeding the strip, grooving and beveling knives, and connected mechanism under the control of the operator for moving the guiding means and feeding means out of working relation to permit the introduction of a welt strip, substantially as described.

11. A machine for preparing welts, having, in combination, means for supporting and guiding a welt strip, feed wheels between which the welt strip passes and whereby it is fed, a knife holder, and a horizontally yielding gage arranged to bear against the edge of the welt, substantially as described.

12. A machine for preparing welts, having, in combination, means for supporting and guiding a welt strip including a guideway, a yielding side gage for engaging one edge of the welt strip and holding the opposite edge against the side of the guideway, and a knife for operating upon the welt fed through the guideway, substantially as described.

13. A machine for preparing welts, having, in combination, means for supporting and guiding a welt comprising a plate over which the welt strip passes, a fixed guide for engaging one side of the welt, a yielding gage for engaging the other side of the welt, a knife for operating on the welt, and feed rolls between which the welt strip passes, substantially as described.

14. A machine for preparing welts, having, in combination, a guideway for the welt strip, feed wheels between which the welt strip passes, an adjustable knife holder, a knife carried by said holder, and a yielding gage arranged to bear against the edge of the welt when in the guideway, substantially as described.

15. A machine for preparing welts, having, in combination, means for supporting and guiding a welt strip, a grooving knife

arranged to cut a groove in the surface of the welt near one edge, comprising a knife blade curved in the arc of a circle and means for securing the knife in the machine so that the cut surface of the welt strip will be tangential to the curve of the knife blade.

16. A machine for preparing welts, having, in combination, means for supporting and guiding a welt strip, a welt grooving knife comprising a notched disk provided with a knife blade extending around its periphery, and with a stud projecting laterally from the center of the disk, and a clamp to receive the stud and permit a rotary adjustment of the knife to compensate for the wearing away of the knife blade in regrinding.

17. A machine for preparing welts, having, in combination, means including a yielding presser foot for supporting and guiding a welt strip, a welt grooving knife mounted to move with the presser foot and provided with a cutting blade curved in the arc of a circle, and securing means for the knife constructed and arranged to permit a rotary and lateral adjustment of the knife.

18. A machine for preparing welts, having, in combination, means including a yielding presser foot for supporting and guiding a welt strip, a grooving knife mounted to move with the presser foot and provided with a cutting blade curved in the arc of a circle, a welt beveling knife consisting of a notched disk provided with a cutting edge extending inwardly from the periphery of the disk, and securing means for the grooving and beveling knives constructed and arranged to permit a rotary adjustment of the knives to compensate for the wearing away of their cutting blades in re-grinding.

In testimony whereof I affix my signature, in presence of two witnesses.

ANDREW EPPLER.

Witnesses:

IRA L. FISH,
ANNIE C. RICHARDSON.