E. E. WINKLEY.

WELT BUTTING MACHINE.

APPLICATION FILED NOV. 16, 1899. RENEWED MAY 25, 1908.

984,631.

Patented Feb. 21, 1911.

2 SHEETS—SHEET 1.

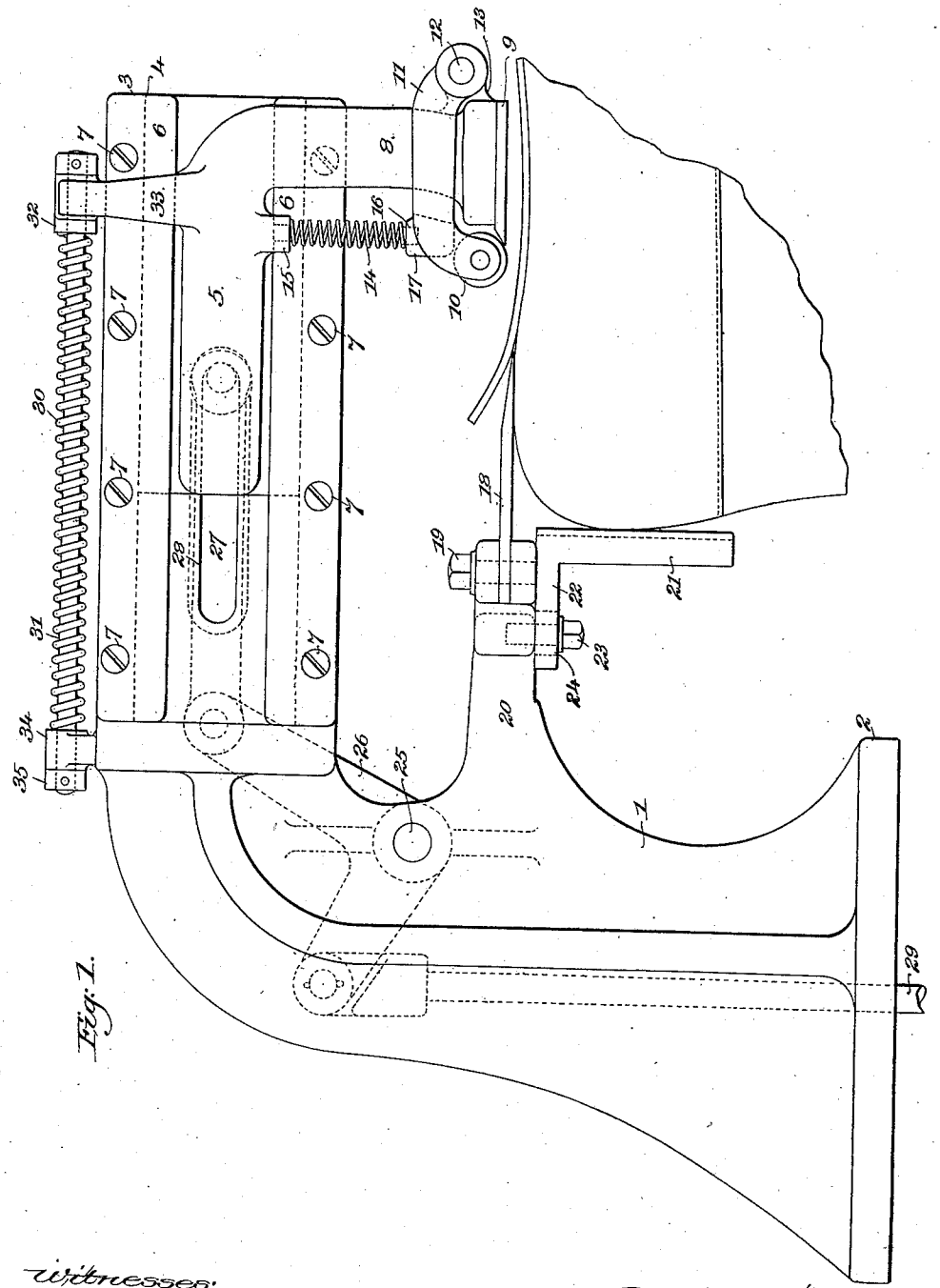

Fig. 1.

Witnesses:
John F. C. Pennebaker
C. E. Whittemore.

Inventor:
Charles E. Winkley,
By his attorneys
Phillips & Anderson

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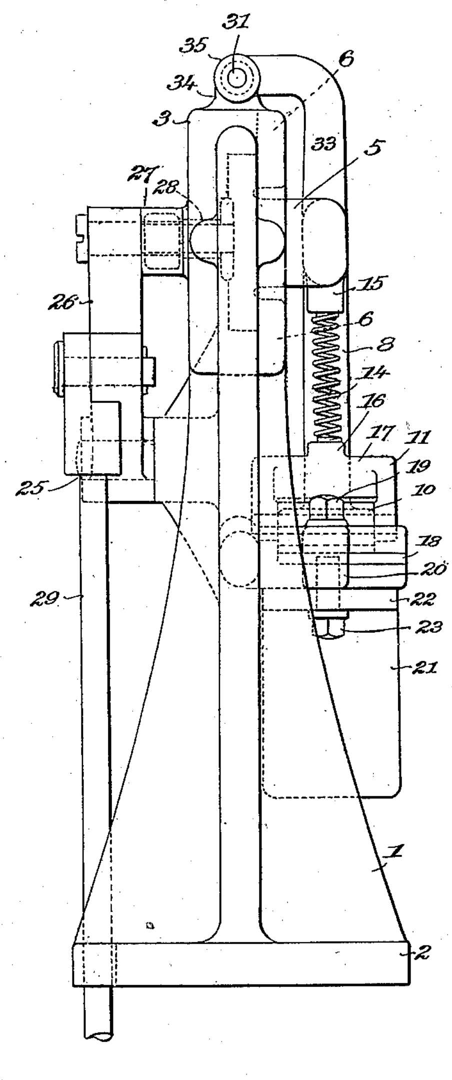
2 SHEETS—SHEET 2.

Fig. 2.



Witnesses:
John F. C. Preinkert
A. E. White.

Inventor:
Erastus E. Winkley
By his attorneys,
Phillips & Anderson

UNITED STATES PATENT OFFICE.

ERASTUS E. WINKLEY, OF LYNN, MASSACHUSETTS.

WELT-BUTTING MACHINE.

984,631. Specification of Letters Patent. Patented Feb. 21, 1911.

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To all whom it may concern:

Be it known that I, ERASTUS E. WINKLEY, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Welt-Butting 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 manufacturing welted boots and shoes, and more particularly to a machine for cutting off the ends of welts of welted boots and shoes. Such machines are designed to perfect the joint formed by the end of the welt with the insole. They are known in the art as welt butting machines and sometimes as jointing machines.

In the manufacture of welted boots and shoes a strip of leather known as the welt is united to the upper and insole, and such welt is usually somewhat longer than is necessary, so that the ends thereof which project rearwardly over the heel portion of the sole must be cut off prior to the attachment of the outer sole and heel, they being usually cut off on a line approximating the forward line of the heel. In cutting off the welt end it is scarfed or cut on a bevel thus permitting a smooth joint to be formed between the welt and insole and properly preparing the shoe bottom to secure the best results from the outsole laying and heel attaching operations. This scarfing or beveling of the ends of the welts is known in the art as "butting", and is now generally performed by hand, although machines have been devised for performing this operation. The machine as well as the hand method of butting welts leaves much to the judgment and skill of the operator, and, as a result, the work is by no means uniform, either in cutting the ends on the same shoe or in other shoes of a corresponding size, that is; the ends of the welts will be often cut off so that they will be of unequal length, rendering the subsequent attachment of the outer sole and heel troublesome and the finished shoe defective.

The object of the present invention is to produce a machine for butting welts, so constructed and arranged that the work may be quickly accomplished, and the ends of the welt cut off uniformly upon both sides of the same shoe, and to produce a uniform butting of the welts in all shoes of the same size.

To the above end the present invention consists of the devices and combinations of devices which will be hereinafter described and claimed.

The present invention is illustrated in the accompanying drawings in which,

Figure 1 shows in side elevation a machine embodying the same, also showing a fragment of a shoe in position preparatory to cutting off the welt. Fig. 2 shows a rear elevation of the machine.

Similar reference characters will be employed throughout the specification and drawings to designate corresponding parts.

The machine comprises a suitable frame 1 which rises from a base 2 adapted to be secured to a work bench or stand in convenient position for the operator. Projecting from the frame 1 is a horizontally disposed overhanging arm 3 in one side of which is formed a straight guideway 4 in which is arranged to be reciprocated a carriage 5, said carriage being held in the guideway by means of plates 6 secured to the arm 3 by screws 7. Projecting laterally and downward from the carriage 5 is an arm 8, which at its lower end supports the cutter 9, said cutter being secured in position in any suitable manner with its cutting edge turned inward toward the frame 1, as clearly shown in Fig. 1 of the drawing.

Coöperating with the cutter 9 is a wiper or presser for pressing down the end of the welt as the cutter is advanced to make its cut, and such presser in the machine of the drawing consists of a roller 10 which is mounted to turn in the forward end of a frame 11 which is pivotally mounted at 12 to a lug 13 at the front of the lower end of the arm 8, the arrangement being such that the presser roller is free to move up and down to accommodate for variations in the stock as will be clear from an inspection of the drawings. The presser roller 10 is yieldingly held down by means of a spring 14, one end of which engages a boss 15 formed on the arm 8 and the other end a boss 16 carried by a cross bar 17 of the swinging frame 11.

Coöperating with the cutter 9 is a blade or tool 18 which is fixedly secured by means of a bolt 19 in a forwardly projecting arm 20 at the front of frame 1, the forward end of the tool 18 being preferably sharpened

to form a cutting edge and projected toward the cutter 9, and said tool 18 is of such a length as to project forward over the heel portion of the shoe to the point at which it is desired to cut off the ends of the welts, and as shown in Fig. 1 of the drawing the under face of said tool acts as a gage to limit the upward movement of the shoe to properly position the shoe with relation to the path of movement of the cutter 9. This tool 18 is provided with a cutting edge to insure the proper positioning of the shoe against the back gage by cutting the loose stitches of the seam uniting the welt to the insole and upper when that seam extends too far toward the heel. It also coöperates with the cutter 9 for raising and supporting the end of the welt at an angle to the sole in position to be beveled or scarfed when it is cut off by said cutter and may for this reason be termed a cutting plate.

Located beneath the tool 18 is a back gage 21, against which the back of the shoe is pressed as shown in Fig. 1 of the drawings, such gage being carried by a plate 22 which is adjustably secured by means of a bolt 23 passing through a slot 24 in the plate 22 to the under side of the arm 20.

It will be observed that by holding the shoe against the back gage when making the cut, that the ends of the welt on opposite sides of the shoe will be cut off uniformly and that by adjusting the gage forward or backward the machine is adapted to butt the welts uniformly in shoes of varying sizes.

The carriage 5 may be reciprocated along the guideway 4 to advance and retract the cutter 9 toward and from the tool 18 by any suitable means; in the machine of the drawings it is shown as being advanced positively by treadle-actuated means and retracted by a spring, the arrangement being as follows:— Pivoted to the frame 1 at 25 is a bell crank lever 26, one arm of which is positively connected to a link 27 which in turn is pivotally connected through a slot 28 in the arm 3 with the carriage 5, the opposite arm of the bell crank lever 26 being pivotally connected to a rod 29 which is arranged to be depressed by a foot treadle (not shown), to advance the knife 9 toward the tool 18. The advance of the carriage 5 and knife 9 takes place against the tension of a spring 30 which surrounds a rod 31 carried by a block 32 mounted in the laterally extending end of an arm 33, projected upwardly from the carriage 5, the opposite end of the spring 30 bearing against a lug 34 through which the rod 31 slides, the rear end of the rod being provided with a stop collar 35 to limit the outward movement of the carriage 5.

The above arrangement is such that a depression of the rod 29 will advance the knife 9 toward the tool 18 in substantially the plane of the sole to make the cut and the spring 30 will return it to its normal position as shown in Fig. 1 of the drawing.

In the operation of the machine, the shoe is positioned with the tool 18 engaging the heel of the sole. It is then pushed back endwise against the gage 21, the tool 18 entering beneath the sole and the welt and cutting the stitches at the end of the seam uniting the welt to the insole and upper if that seam is too long. It will be seen from Fig. 1 of the drawings that the welt supporting end of the blade or tool 18 is beveled downwardly and forwardly away from the free end of the welt and thus acts to govern the extent of the scarf or bevel to be produced. When the shoe is thus positioned, the operator advances the cutter 9 over the welt and lengthwise of the shoe, which cutter by coöperating with the tool 18 cuts off and scarfs or bevels the rear end of the welt. After the cut has been made, the spring 30 returns the cutter 9 and the shoe is again positioned for cutting off the opposite end of the welt.

It will be observed that the cutting tool 18 is arranged with the face of its blade parallel to the inner sole and with its cutting edge transverse of the inseam. Although this is a very effective arrangement of the parts, it should be understood that the invention is not limited to the particular arrangement described but includes within its scope a cutting tool for the purpose described acting from any direction.

With a cutting tool, such as the tool 18, arranged to bear against the bottom face of a shoe, it will be obvious that not only will the stitches on the inseam be severed but that all protruding materials at the heel-seat portion of the shoe will be severed. Thus the cutting tool 18 acts as a planer to level off the heel-seat up to the point where the welt is butted. This is distinctly advantageous, as will be readily recognized by those skilled in the art, as it provides a smooth seat for the reception of the outer-sole.

While the present machine is designed for cutting off only one end of the welt at each operation thereof, it is perfectly obvious that with slight changes in the form and arrangement of parts it could be adapted for cutting off both ends of the welt upon opposite sides of the shank at a single operation and such a construction I consider to be clearly within the scope of my invention.

In all machines for butting welts heretofore proposed, the location of the cut depended upon the location of the end of the seam which unites the welt to the upper and insole, or was left to the skill and judgment of the operator. I believe that I am the first to provide in a machine of this class any means for positioning the shoe with reference to

the welt-butting devices so that the work done by the machine will be uniform and the results independent of the skill and judgment of the operator. I also believe that I am the first to provide a cutter adapted to extend under the welt, which device is of great importance in this art, since if the inseam of the shoe is sewed unevenly with refrence to the heel, that is to say, if it ends farther from the heel on one side than it does on the other, the seam may be cut by the under cutter so that the welt can be butted on both sides at a uniform distance from the back of the heel. My invention, therefore, is in no manner limited to the specific details of construction disclosed in the illustrated embodiment thereof, but

I claim as new and desire to protect by Letters Patent of the United States:—

1. In a machine for butting welts, the combination with a back gage, of a stitch cutter arranged to be inserted beneath the welt, a cutter above the welt coöperating therewith and means to relatively actuate said cutters, substantially as described.

2. In a machine for butting welts, the combination with a back gage, of a combined gage and stitch cutter arranged to be inserted beneath the welt and to position the shoe, and a cutter above the welt coöperating therewith, substantially as described.

3. In a machine for butting welts, the combination with a cutter arranged to be inserted beneath the welt to cut the stitches uniting the welt to the insole and upper, of a cutter above the welt coöperating therewith to bevel the free end of the welt, and means to relatively actuate said cutters, substantially as described.

4. In a machine for butting welts, the combination with suitable means for positioning the shoe, of a tool arranged to be inserted beneath the welt, a movable cutter, means for advancing the movable cutter toward the tool and a spring for retracting said cutter, substantially as described.

5. In a machine for butting welts, the combination with a back gage, of a combined cutter and gage arranged to be inserted beneath the welt, and a movable cutter, substantially as described.

6. In a machine for butting welts, the combination with means for supporting the end of the welt at an angle to the sole, of a cutter movable lengthwise of the shoe in substantially the plane of the sole and a yielding presser supported in advance of the cutting edge of the movable cutter, substantially as described.

7. In a machine for butting welts, the combination with welt-butting means, of a cutter arranged to be inserted beneath the welt to cut the stitches uniting the welt to the insole and upper, substantially as described.

8. In a machine for butting welts, the combination with a back gage, of a tool supported above the back gage, a sliding carriage, a welt butting cutter carried by said carriage, means for positively moving said carriage in one direction and a spring for moving the carriage in the opposite direction, substantially as described.

9. In a machine for butting welts, the combination with a cutter arranged to be inserted beneath the welt to cut the stitches of the inseam, of a cutter for cutting off the end of the welt, substantially as described.

10. In a machine for butting welts, the combination with a stitch cutter arranged to be inserted under the welt, of means for governing the distance from the end of the heel to which the stitches shall be cut preparatory to the butting operation, substantially as described.

11. In a machine for butting welts, a combined stitch cutter and cutting plate arranged to be inserted beneath the welt and to support the end thereof in position for the butting operation, substantially as described.

12. In a machine for butting welts, the combination with a welt butting cutter, of means coöperating therewith for leveling off the protruding materials at the heel seat portion of the shoe to prepare said portion for the reception of the outersole, substantially as described.

13. In a machine for butting welts, the combination with a welt butting cutter, of a second cutter coöperating therewith and arranged to act in the plane of the heel seat to level off said heel seat by a removal of the surplus materials therefrom, substantially as described.

14. A welt butting machine having in combination a cutter movable over the welt and lengthwise of the shoe, independently mounted means beneath the welt for supporting the welt end in position to be beveled by said cutter, a back gage, and provision for relative adjustment of the gage and welt support to determine the distance of the cutting point from the end of the heel, substantially as described.

15. A machine for butting welts, having, in combination, means for leveling off the protruding materials at the heel seat and for butting the welt, and a device for gaging the position of the shoe relative to said means, substantially as described.

16. A machine for butting welts, having, in combination, a stitch cutter, a welt butting cutter and a back gage to determine the distance from the end of the heel of the point at which said cutters shall act, substantially as described.

17. A machine for butting welts, having, in combination, a welt supporting plate, a welt butting cutter movable in a right line in a plane at an angle to the welt supporting

surface of said plate, and a yielding presser for holding the welt end on the plate during the operation of the cutter, substantially as described.

18. A machine for butting welts, having, in combination, a welt butting cutter supported above the welt, an independently mounted support for the welt end beneath the welt, and means for variably determining the distance between the cutter and the end of the shoe when in working position, substantially as described.

19. A machine for butting welts, having, in combination, a support for the end of the welt, a welt butting cutter mounted with its cutting edge in a plane to bevel the end of the welt so supported, a back gage, and provision for relative adjustment of the gage and support to variably determine the cutting point from the end of the heel, substantially as described.

20. In a machine for butting welts, the combination with suitable means for positioning the shoe, of a tool arranged to be inserted beneath the welt, a movable cutter, and means for reciprocating the movable cutter toward and from the tool and in substantially the plane of the shoe sole, substantially as described.

21. In a machine for butting welts, the combination with a back gage, of a tool supported above the back gage, a sliding carriage, a welt butting cutter carried by said carriage, and means for reciprocating said carriage in a right line lengthwise of the shoe to butt the welt, substantially as described.

22. A machine of the class described having welt butting means arranged to permit the shoe to be moved endwise for positioning it relatively to the butting means, combined with a stop for the shoe and independent means for supporting the butt end of the welt.

23. A machine of the class described having a welt butting cutter and means cooperating therewith for removing surplus material from the heel seat portion of a shoe.

24. A machine of the class described having a welt butting cutter and means coöperating therewith for preparing the heel seat portion of a shoe for the reception of the outersole.

25. In a jointing machine, a welt rest in the form of a blade adapted to enter between the welt and the bottom of the shoe in supporting engagement beneath the welt, and scarfing mechanism coöperating with said rest in scarfing the welt-end thus supported on said rest, the supporting end of said rest being beveled downwardly and forwardly away from the free end of the welt for governing the extent of the scarf.

26. In a jointing machine, a welt rest in the form of a blade adapted to enter between the welt and the bottom of the shoe in supporting engagement beneath the welt, scarfing mechanism coöperating with said rest in scarfing the welt-end thus supported on said rest, and adjustable means for regulating the point at which the scarfing shall take place in the length of the shoe.

27. In a jointing machine, a welt scarfing means, a welt supporting blade into operative relation to which the shoe is to be moved endwise and by the engagement of which with the end of the inseam the longitudinal position of the shoe relative to the scarfing means may be determined, and additional means for positioning the shoe longitudinally in case the shoe is not stopped in the proper position by the engagement of the inseam with the welt supporting blade.

28. In a jointing machine, scarfing mechanism, supporting means on which the welt-end may rest while being scarfed, and a heel stop to position the shoe in proper relation to said supporting means.

29. In a welt butting machine, a stitch cutter arranged to permit the shoe to be pressed backwardly against it for cutting the stitches, and a stop to engage the heel end of the shoe to limit the distance from the heel end at which the stitches may be cut.

30. A welt butting apparatus, having in combination, a welt rest, a driven butting knife to bevel the welt and a wiper arranged to rub over the welt immediately in advance of the knife to hold the welt down on the rest.

31. A welt butting machine, having a yielding presser carried with the knife to engage the welt in advance thereof and adapted to yield as the knife cuts through the welt at an angle to its surface.

32. A machine of the class described, having, in combination, a stitch cutter arranged to act lengthwise of the inseam, a welt butter, means to actuate the welt butter lengthwise of the inseam in the reverse direction, and means to position the shoe endwise to receive the action of said cutter and butter at the desired point.

33. A machine of the class described, having, in combination, a stitch cutter arranged to act lengthwise of the inseam, a welt butter, and means to actuate the welt butter lengthwise of the inseam in the reverse direction.

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

ERASTUS E. WINKLEY.

Witnesses:
F. HART ANDERSON,
A. E. WHITE.