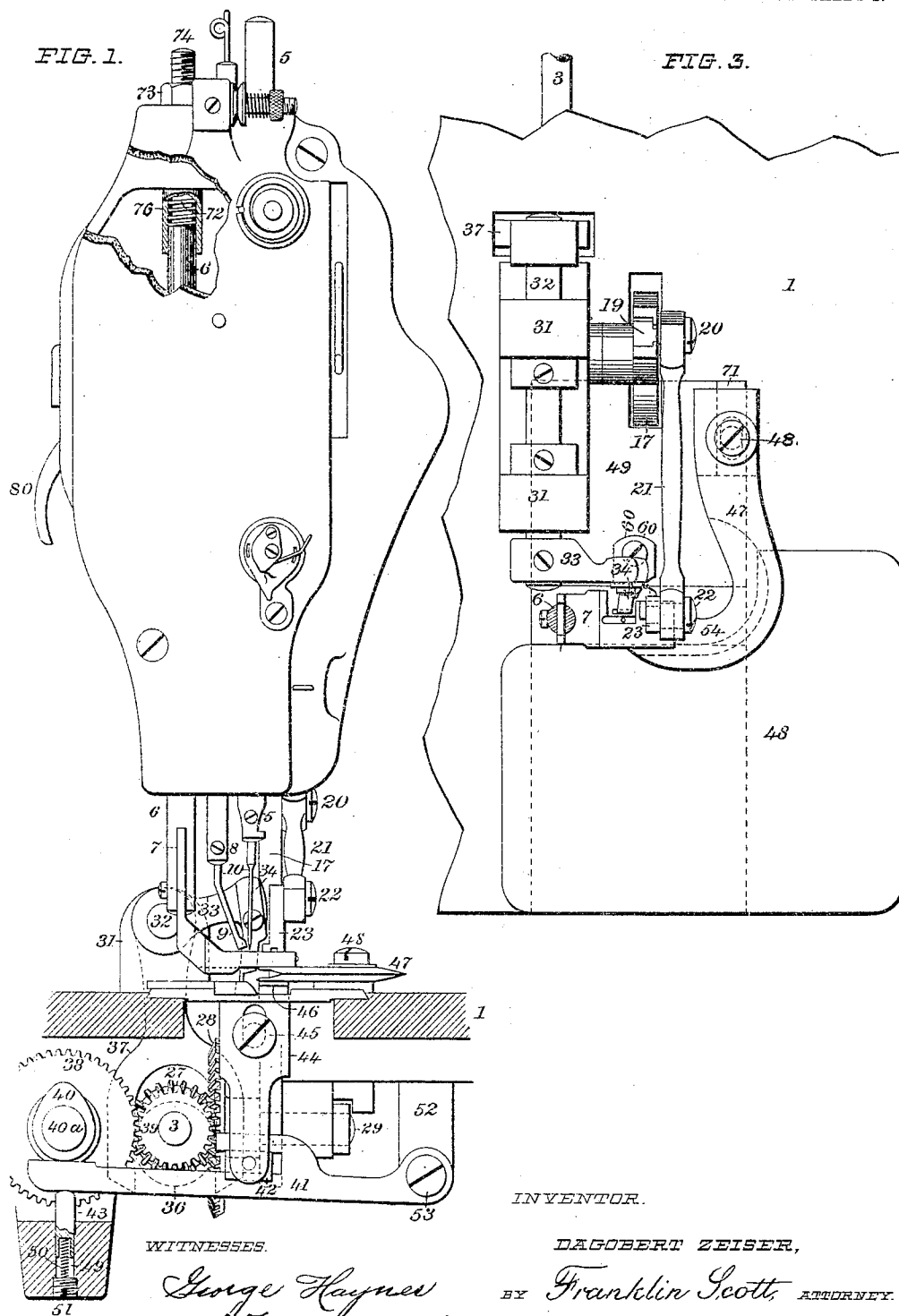


948,364.



INVENTOR.

DAGOBERT ZEISER,

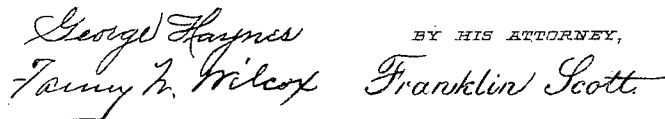
BY Franklin Scott, ATTORNEY.

WITNESSES.

George Haynes
Fanny A. Wilcox

APPLICATION FILED NOV. 19, 1906.

3 SHEETS—SHEET 2.

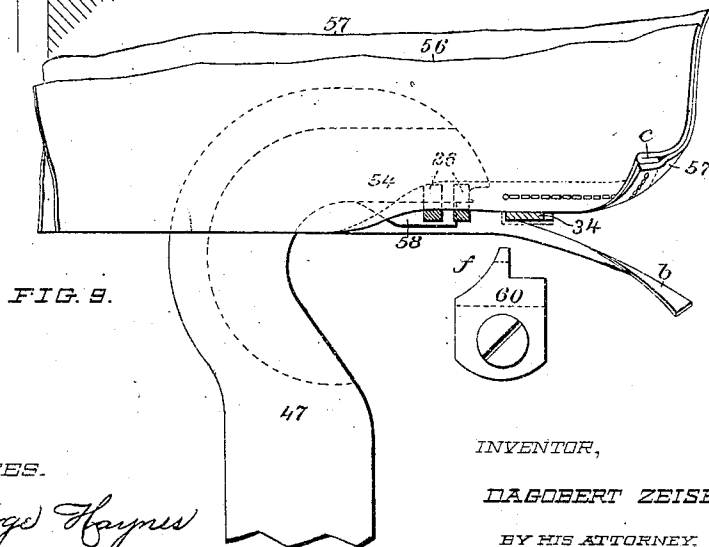
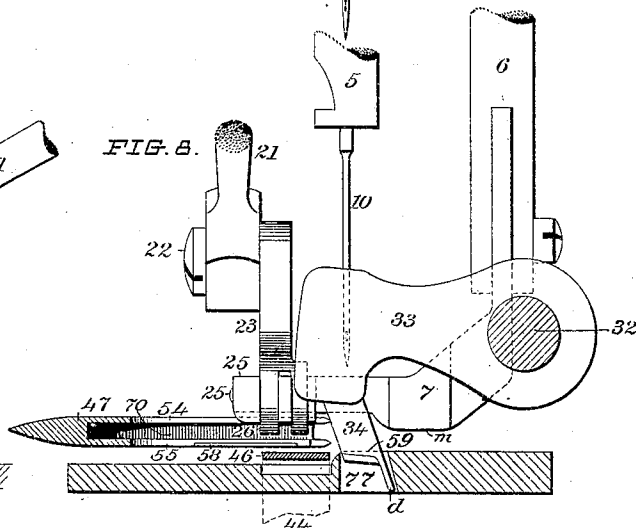
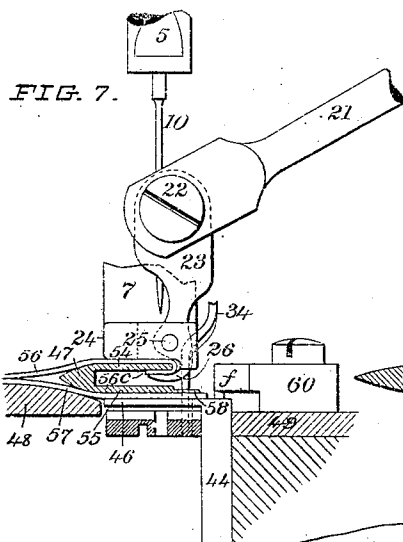
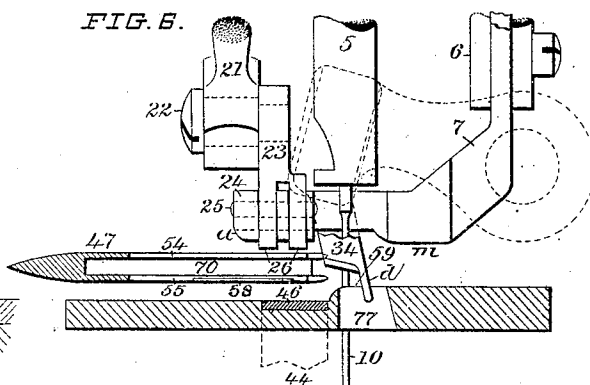
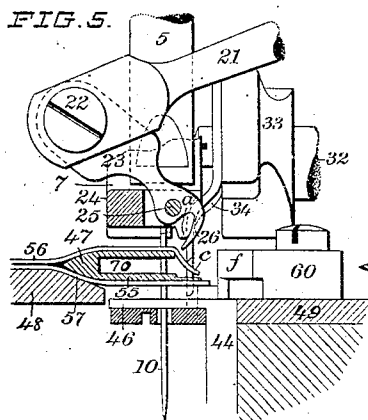


D. ZEISER.
FOLDING AND TRIMMING MECHANISM FOR SEWING MACHINES.
APPLICATION FILED NOV. 19, 1906.

948,364.

Patented Feb. 8, 1910.

3 SHEETS—SHEET 3.



WITNESSES.

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UNITED STATES PATENT OFFICE.

DAGOBERT ZEISER, OF TROY, NEW YORK.

FOLDING AND TRIMMING MECHANISM FOR SEWING-MACHINES.

948,364.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed November 19, 1906. Serial No. 343,970.

To all whom it may concern:

Be it known that I, DAGOBERT ZEISER, of the city of Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Folding and Trimming Mechanism for Sewing-Machines; and I hereby declare that the following description, in connection with the three sheets of drawings which accompany the same, constitutes a clear and accurate specification thereof and of the best method of operating the same.

The invention relates to mechanism adapted for use in the manufacture of such articles as shoes, gloves and other structures made from leather or analogous material, where two or more plies of the material are employed one of which constitutes a facing and the other a lining or backing, in the combination of which it is desired to inturn the edge of one ply, sew the facing and lining together close to the inturned margin, and trim off the projecting selvage of the lining or back ply flush with the folded margin of the inturned ply, so that the sewed and trimmed margins of the completed edge of the work shall be even and true and the line of stitching, the rolled or folded edge of the face ply, and the trimmed edge of the lining or back ply, shall be parallel and smooth.

This invention is especially adapted to stitching and trimming the edges of the uppers of shoes, and generally in finishing articles in fine leather where such an edge is required.

Machines for manufacturing collars and cuffs by continuous operation, in which provisions for inturning the edges of the face and back plies of the fabric composing the body of the article and sewing them together concurrently have been combined in one organization, have heretofore existed. The machine of this patent differs from such machines in that instead of inturning the edges of both plies it infolds the edge of only one, leaving the edge of the other projecting beyond the folded edge while the two plies undergo the process of being sewed together, and trimming off this projecting edge flush with the folded edge after the plies are sewed together. This trimming operation is probably best performed by a cutting mechanism located and acting alongside the needle or slightly in its rear, so that the trimming

will be performed while the goods or fabrics being operated on will be under the presser foot and firmly held.

The invention resides in the means provided and in their mode of operation whereby the mechanism for infolding the edge of one ply has been dispensed with, and provisions for guiding and protecting that edge have been introduced, and in the provision of a trimming device and means for its concurrent operation with the sewing mechanism.

The invention is here shown as applied to the well known Wheeler & Wilson manufacturing sewing machine, the construction and operation of which are well understood by sewing machine operators and others versed in the art of operating such machines. It is fully disclosed in the drawings wherein—

Figure 1 shows an elevation of the head of a sewing machine and in elevation a view of such parts of the invention as are visible in a transverse section taken on a plane between the shuttle and the needle. Fig. 2 is a front elevation of such parts of the machine as appear in a longitudinal section taken on the vertical plane of the front edge of the lower clamping jaw. Fig. 3 is a partial plan of the infolding and trimming devices. Fig. 4 is an inverted plan of the gearing connected with the driving mechanism. Fig. 5 is a front elevation of the position of the co-operative parts of the invention as they appear just before the descent of the presser foot preparatory to the commencement of the infolding stroke of the turning fingers. Fig. 6 is a right hand side elevation of the same parts in the same position. Figs. 7 and 8 are respectively front and side elevations of the same parts at the completion of the infolding stroke, Fig. 7, showing the edge of the upper ply turned in under the edge of the upper folding blade and still in the grasp of the turning fingers. Fig. 9 is a plan view of the fabric as it appears in process of manipulation by the mechanism of the invention.

My invention is shown as applied to a machine having the well known needle feed movement, that is, the advancing movement of the material being operated on is effected by a swing of the needle bar and needle while the needle is in penetration of the fabric and when the material is released

from the pressure of the presser foot. To carry out my invention I provide such a machine with a presser foot of special design not only for holding the material immovable while the stitching and trimming are being done, but to so shape its bearing face that it will coöperate with other parts in folding and holding down the folded edge of the upper ply of material undergoing manipulation. I also provide a stationary former over and under which the respective plies of material pass having two thin blades arranged horizontally with a space between them to receive the infolded edge of the upper ply, which blades have their operative parts located immediately under the presser foot. The upper of these blades I term the "folding blade" and the under one the "counter blade" to distinguish it from the other. Beneath the presser foot and immediately in front of the needle is located a vertically reciprocating flat jaw which in its upward movement engages the under side of the bottom ply of material and clamps it between itself and the bottom side of the under blade of the former. In close proximity to the needle but a little to one side of the line of stitches is located a trimming knife or blade which shears against an under stationary ledger shear blade and trims off the waste edge of the under ply of material flush with the folded edge of the upper ply. On the upper side of the presser foot is pivoted a rocking folding finger for folding and inturning the edge of the upper ply in front of the sewing needle. These several parts are actuated by appropriate operating mechanism as will now be shown.

The sewing mechanism, consisting of the needle bar 5, needle 10, presser bar 6, presser foot 7, stripping finger bar 8 and finger 9 performs the same functions as in the Wheeler & Wilson machine before referred to. The shuttle and bobbin 11, and its driving gears 12 and 13 are the same as in that machine.

In providing a bed or table for the support of the material to be folded, sewed and trimmed, that part of it lying to the left of the needle is slightly raised above the level of that on the right. Directly in front of the needle is located the folding former 47. This former consists of a shank which is screwed to a base as at 48, Fig. 3, which has a limb projecting at a right angle therefrom toward the needle. This limb is grooved as shown at 70, Figs. 6-8, thus leaving an upper folding blade 54 and an under counter blade 55. Blade 55 has an extending lip 58 which serves to prevent the ply of material under it from curling up in the way of the folding fingers. In practice one ply of material lies upon the top of blade 54 and the other passes under blade 55. The blades are so adjusted in relation to the needle that the

edge of the upper one shall project slightly beyond the stitching line according to the distance it is desired to have the stitching set in from the finished edge. In this respect this distance can be varied by loosening screw 48 and moving the former 47 slightly on its base 71, Fig. 3, the elongated slot in the former in connection with the screw permitting of such adjustment.

The device provided for bending and infolding the margin of the upper ply around and under the edge of folding blade 54 is seen in Figs. 5 and 6 and consists of a rocking claw 23 which is hinged to the upper side of the presser jaw 24 on the pivot 25. It has two fingers 26 which, as the jaw descends, engage the margin of the ply and fold it around and under the edge of folding blade 54 into the position seen in Fig. 7. This claw is oscillated by means of the connecting rod 21 which is pivoted to the upper arm of the claw and has its other end connected with the upper arm of lever 17, Fig. 2, by an adjustable pivot box 19 carried in a slotted way in lever 17 and held in place by the set screw 20, Fig. 3. Lever 17 is oscillated by means of an eccentric cam 30 which is attached to the shaft 29 of bevel gear 28 which in turn is driven by a pinion gear 27 on the driving shaft 3.

The presser jaw 24 is provided with a depending ledge or shoulder *a*, which extends from the front edge of the claw 23 to the front end of the jaw. The function of this ledge is to engage the edge of the ply in front of the folding fingers 26, and, as the jaw descends, to close and firmly hold the upper ply or plies of material against the top and edge of the blade 54 after they have been folded and inturned by the claw 26 as seen in Fig. 7. This ledge holds the plies fixed in position after the claw has released contact therewith in starting its upward stroke preparatory to the next stroke. Without some such protection to hold the plies against the blade, when the claw fingers drew away from the blade the plies would uncurl and the stitching would not be properly done.

In Fig. 1 is shown the means for supporting and holding the lower ply of material and for clamping it to the under blade 55. This consists of a vertically reciprocating slide 44 from the top of which a ledge or small table 46 projects to the left. This slide is held and guided by the guide-screw 45 which passes through an elongated slot in the slide. Its lower end is pivoted to a box 42 which is adapted to slip as necessary in ways in the lever 41. This lever 41 is pivoted at 53 to bracket 52 on the main frame or base, and its free end is interposed between cam 40 on shaft 40^a, and the top of a spring plug 43 which plays in socket 49. Under the bottom end of plug 43 is

a spring 50 which acts to force the lever and the connected clamping jaw upwardly against the under ply of material between the former counter blade 55 and jaw 46 thus clamping it in a flat condition against the under side of lip 58, which holds it out of the path of the folding claw. As the thickness of this under ply may vary with different kinds of material or in number of thicknesses, the spring 50 permits the jaw and lever to be accommodated to these varying conditions. Cam 40 is rotated by gear 38 which is driven by pinion 39 on main shaft 3.

A knife 34 Figs. 1, 6, and 8, for trimming the edge of the under ply is provided which is adjustably attached to a vibrating arm 33 which is carried by shaft 32. This knife plays through a slot 77 in the needle plate and has a leading tongue *d* which rides against the side of the slot. Shaft 32 is carried in bearings 31, 31, on the table and is oscillated by an arm 37 which is forked at its lower end as seen in Fig. 1, and is swung by the eccentric cam 36, on shaft 3. This knife makes two strokes to one of the clamping jaw 46.

The operation of the machine is as follows: Assuming that the machine is to be used in making shoes, for which it is specially adapted, the outside and the lining of which are to be stitched together and trimmed at their edges, the two plies are brought together with their edges flush, and are then inserted in the machine, the upper being placed over blade 54 and the lining under blade 55 as in Fig. 5, the presser being raised to admit the passage of the upper ply under its foot. The machine being started and the parts having taken the positions shown in Fig. 5, the several movements which will occur will be as follows: The stripper finger will be down with its lower end on the leather. Here it will remain to hold the plies down while the needle rises and is withdrawn therefrom. Then the needle rises, backing as it starts upwardly to produce the feed movement and then swinging forwardly to position to pierce the leather when it shall descend, meantime the presser foot descends and rests upon the leather on the top of blade 54 holding it firmly. This drop of the presser jaw bends the edge of the upper leather down across the edge of blade 54 and concurrently with this drop of the presser the claw and folding fingers 26 also engage the bent edge of the leather and as the claw rocks on its pivot folds said edge into the recess 70 between the blades and into the position seen in Fig. 7. Concurrently with the drop of the presser 24 the clamping jaw 46 rises and meeting the under ply of leather pushes it up into contact with the under side of blade 55 and holds it there. At this stage

of operation the knife makes its cutting stroke starting the detached selvage seen in Fig. 9. Then the needle commences its downward stroke the stripping finger following it, the folding claw backs out of the groove between the blades, the presser rises and the clamping jaws recede together leaving the two plies unconfined when the needle feeds by swinging backwardly to the first described position when the same movements are repeated for the next stitch.

I therefore claim as my invention and desire to secure by Letters Patent, the following:

1. In a machine of the character described, the combination of a stationary former blade and means for clamping a ply of material, to one side thereof, with a reciprocating folding claw adapted to oscillate in a plane transverse to the plane of the blade and of its operative edge and to engage the upper side of the ply and by a direct oscillatory stroke to fold the free edge of the ply across the blade-edge and under and against its bottom side, substantially as specified.

2. In a machine of the character described, the combination of a former having two blades about the edge of one of which a ply of material may be folded and the other of which having a portion extending beyond the engaging edge of the other blade to prevent such folding, jaws for clamping material against the outer surfaces of both of said blades, means for folding said material about the edge of one of said blades, and means for operating said clamping and folding means, substantially as specified.

3. In a machine of the character described, the combination of means for holding and supporting two plies of material with their edges separated so as to leave a space between them, reciprocating means for infolding the edge of one of said plies upon itself leaving the edge of the other ply projecting beyond the folded edge so formed, means for sewing said plies together through said folded edge, and means for trimming the projecting surplus of material from the unfolded edge, substantially as specified.

4. In a machine of the character described, the combination of a pair of former blades, means for pressing plies of material against the outer sides of said blades, means for infolding the edge of one of said plies upon the inside of its supporting blade, means for preventing the infolding of the edge of the opposite ply: a sewing mechanism and means for trimming the edge of said opposite ply, substantially as specified.

5. In a machine of the character described, the combination of a pair of former blades, a pair of jaws for pressing plies of material against the outsides of said blades, a folding claw mounted and pivoted upon one of

said clamping jaws, having folding fingers adapted to engage the edge of one of said plies and fold it around the edge of its supporting blade, means for oscillating said

5 claw, and reciprocating said jaws, and a sewing mechanism, substantially as specified.

6. The combination with a presser jaw and a stationary former provided with a blade, of a folding claw pivoted on said jaw, 10 the presser jaw adapted to engage said upper surface of the clamped material to fold the edge thereof around and under the edge of the blade, and means for oscillating said claw, substantially as specified.

15 7. In a machine for sewing together the edges of two plies of material, the combination therewith of a former blade, reciprocating means for folding the edge of one ply over said blade before it is sewed, and means 20 for trimming off the surplus edge of the other ply after it is sewed, substantially as specified.

8. In a machine of the character described, the combination of a stationary former blade 25 and means for clamping a ply of material to one side thereof, with a reciprocating folding claw adapted to oscillate in a plane transverse to the plane of the blade and of its operative edge and to engage the upper 30 side of the ply and by a direct oscillatory stroke to fold the free edge of the ply across the blade edge and under and against its bottom side and a plate carried by the former blade constructed and arranged to 35 prevent the turning of the edge of the lower layer of material when fed in line with the edge of the upper layer.

9. In a machine of the character described, the combination of a stationary former blade 40 and means for clamping a ply of material to one side thereof, with a pivoted folding member adapted to oscillate in a plane transverse to the plane of the blade and of its operating edge and to engage the upper side 45 of the ply and by a direct oscillatory stroke to fold the free edge of the ply across the blade edge and under and against its under

side, and an operating lever connected to said folding member.

10. In a machine of the character de- 50 scribed, the combination of a stationary former blade and means for clamping a ply of material to one side thereof, with a pivoted folding member adapted to oscillate in a plane transverse to the plane of the blade 55 and of its operating edge and to engage the upper side of the ply and by a direct oscillatory stroke to fold the free edge of the ply across the blade edge and under and against its under side, an operating lever connected 60 to said folding member, and power driven mechanism for said lever.

11. In a machine of the character described, the combination of a stationary plate, means movable relative to the station- 65 ary plate for engaging the upper surface of the material to be folded and holding it in clamped engagement with the stationary plate, and a pivoted folder carried by said means arranged to swing over the edge 70 thereof and under the stationary plate to fold the material under and against the bottom side of said plate.

12. In a machine of the character described, the combination of a stationary 75 plate adapted to receive the upper layer of material, a movable presser member carrying a projection adapted in the lowering movement of the member to overlap the edge of the stationary plate and the material and 80 thereby fold the material, and a pivoted folder on said member arranged to swing over said projection and under the stationary plate for engaging the free edge of the folded material with the under side of the 85 plate.

In testimony whereof I have hereunto subscribed my name in the presence of two witnesses.

DAGOBERT ZEISER.

Witnesses:

FANNY N. WILCOX,
FRANKLIN SCOTT.