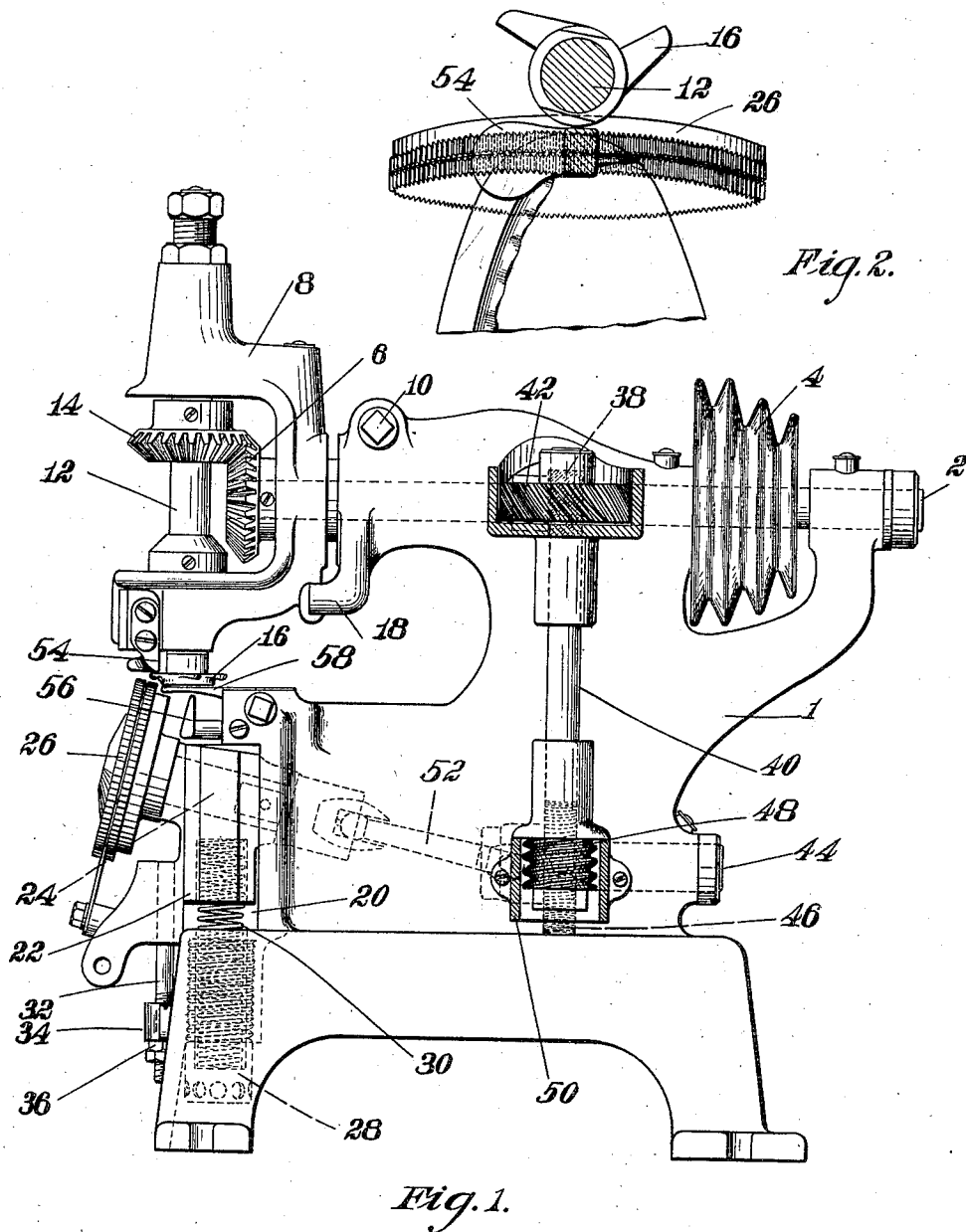


H. W. WINTER.
LIP TURNING MACHINE.
APPLICATION FILED APR. 3, 1908.

1,030,630.

Patented June 25, 1912.



Witnesses.

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UNITED STATES PATENT OFFICE.

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LIP-TURNING MACHINE.

1,030,630.

Specification of Letters Patent.

Patented June 25, 1912.

Application filed April 3, 1908. Serial No. 424,922.

To all whom it may concern:

Be it known that I, HENRY W. WINTER, a citizen of the United States, residing at Methuen, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Lip-Turning Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to machines for turning channel lips, and more particularly to machines for turning lips of soles prior to their attachment to boots or shoes.

Lip turning machines are in common use in the manufacture of McKay shoes in which the channel lip is turned over by a wiper rotating in a horizontal plane and is pressed down upon the sole by a stationary presser foot arranged at the rear of the wiper. The sole is advanced against these lip turning devices by a feed wheel upon the toothed rim of which it is supported at its margin, the feed wheel being yieldingly pressed upwardly toward said devices.

The object of the present invention is to provide an improved machine of this type.

It is desirable that the channel lip of a McKay sole be turned uniformly throughout its length in order to fully expose the thread groove commonly provided at the base of the channel. The working parts of the machine herein described are so arranged that the lip turning devices may operate uniformly upon the channel lip regardless of variations in thickness of the sole. To this end the feed wheel is so supported and guided in its movement toward and from the lip turning devices that its axis does not change its angular relation to said devices during said movement. Heretofore, in machines of this type, the feed wheel has been so mounted that it moves in a curved path about a point of pivotal support. On this account in the prior machines the surface of the feed wheel in the movement of the wheel toward and from the lip turning devices is not maintained in positions of parallelism, but varies with the movement of the sole. This tends to prevent a uniform action of the machine upon soles of different thicknesses, as well as upon soles where the thickness varies from point to point in the length thereof. Furthermore, on account of the

swinging movement of the feed wheel, in prior machines when the wheel is depressed by an increase in the thickness of a sole at any particular point, for example, when the sole is provided with a tap, the feed wheel is moved outwardly a slight amount away from the edge gage. This outward movement tends to move the sole outwardly from a proper relation to the rotary wiper and the presser foot, and causes the lip to be incompletely turned at the point where this movement occurs.

An important feature of the present invention accordingly consists in a lip turning machine having a wiper arranged for rotation in a horizontal plane, and a presser foot arranged at one side of the wiper, of a positively rotated feed wheel arranged to support a sole upon its toothed periphery in position to be acted upon by the wiper and the presser foot and to advance the sole against these lip turning devices, said feed wheel being arranged for movement toward and from the lip turning devices, and means for guiding said wheel in said movement adapted to prevent horizontal movement of the wheel transverse to the line of feed and to maintain the upper surface of the wheel in positions of parallelism throughout said movement.

Other features of the invention will be hereinafter described and pointed out in the appended claims.

In the drawings, Figure 1 is a view in side elevation of a machine constituting the preferred embodiment of my invention. Fig. 2 is a fragmentary view in horizontal section, illustrating the mode of operation of the machine shown in Fig. 1.

Referring to the drawings, the reference numeral 1 indicates the frame of the machine in the upper portion of which is mounted for rotatory movement a horizontal shaft 2. The shaft 2 is provided near its rear end with a step pulley 4 and at its front end with a bevel gear 6. Supported in the front portion of the frame 1 is a yoke 8, said yoke being provided with an integrally formed sleeve which is received in a recess formed in the frame 1 and is clamped in fixed position by a bolt 10. In the yoke 8 is journaled a vertical shaft 12, provided with a bevel gear 14 in mesh with the gear 6. The shaft 12 carries at its lower end a wiper 16 formed to bend over and press down the

channel flap to be operated upon. It will be seen that by loosening the bolt 10 the yoke 8 may be swung about a horizontal axis to permit convenient access to the wiper 16. A lug 18 upon the frame 1 is arranged to be engaged by the lower part of the yoke 8 in the vertical position of said yoke.

In the lower part of the frame 1 at the front of the machine is formed a vertical guideway 20 in which is received a sliding block or head 22. The head 22 carries journaled therein a short shaft 24 upon which is mounted at its forward end a feed wheel 26. As will appear from the drawings, the shaft 24 is mounted in an inclined position and the periphery of the feed wheel is also inclined longitudinally of its axis. The frame 1 is provided beneath the guideway 20 with an internally threaded bore in which is received a threaded hollow plug 28. The head 22 is provided in its lower portion with a cavity, and a spring 30 is arranged with one end in this cavity and the other end in the plug 28. As will be obvious, this arrangement permits the head 22 to be pressed upwardly with a pressure which may be varied by adjustment of the plug 28. The head 22 is provided with forward extension in which is inserted a depending rod 32, entering a perforated lug 34 upon the frame 1 and provided with an adjustable stop 36 by which the upward limit of movement of the head 22 may be varied.

The shaft 2 is provided intermediate the pulley 4 and the bevel gear 6 with a spiral gear 38. A vertical shaft 40 is journaled upon the frame 1 at one side of the shaft 2, and has mounted upon its upper end a spiral gear 42 in mesh with the gear 38. As will appear from Fig. 1, the gear 42 is incased by a portion of the frame 1. On the lower part of the frame 1 is journaled a horizontal short shaft 44 provided with a worm gear 46. The vertical shaft 40 has mounted upon its lower end a worm 48 in mesh with the gear 46. The worm 48 is inclosed by a casing 50 secured to the frame 1. The forward end of the shaft 44 is connected to the shaft 24 by a universal joint permitting the shaft 24 to be positively rotated in different vertical positions by the shaft 44.

A presser foot 54 is secured to the lower part of the yoke 8 with its acting part in position to engage the channel flap and press it over and down upon the sole after the action of the rotary wiper 16. An edge gage 56 is provided to limit the extent to which a sole may be inserted beneath the wiper 16, the edge gage being arranged for adjustment transversely to the line of feed. A channel gage 58 is also provided, the forward end of this gage being formed to enter the channel of the sole beneath the channel lip. This gage is also arranged for adjustment forwardly or rearwardly to accommo-

date different kinds of work. It will be understood that the wiper, the presser foot, the edge gage and the channel gage are well-known in the art, and a detailed description of their functions and advantages is therefore not herein given.

In the operation of the machine shown, the wiper 16 and feed wheel 26 are in continuous rotation. The feed wheel is depressed by a treadle, not shown, to permit the insertion of a sole. The sole to be operated upon is placed in the machine so that the channel gage 58 lies in the channel beneath the channel lip. As the sole is advanced against the rotary wiper and the presser foot 54, the wiper exerts a rubbing action upon the edge of the channel lip and raises it and bends it over and down upon the sole. The presser foot 54 acts subsequently to the wiper and presses the lip closely into engagement with the sole. Whenever in the course of operating upon a sole the feed wheel is depressed by an increase in thickness of the sole it will be seen that it moves in a vertical direction and has no horizontal movement. There is consequently no tendency of the feed wheel to shift the sole outwardly as said feed wheel is depressed. Since the surface of the feed wheel is maintained in positions of parallelism throughout its up and down movement, the action of the machine upon soles varying in thickness is rendered more nearly uniform than has been the case with prior machines. The construction and general arrangement of parts above described is also more simple than in the machines heretofore used for performing the operation of turning channel lips of soles prior to attaching them to boots or shoes.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A machine for turning the channel lip of a sole, having in combination, a wiper arranged for rotatory movement in a horizontal plane, a stationary presser foot arranged to press down upon the sole the lip raised by the wiper, a feed wheel rotatable about an axis inclined to the operative plane of said wiper for sustaining and advancing the work arranged for movement toward and from said wiper and presser foot, means for guiding said wheel in said movement constructed to prevent horizontal movement thereof transverse to the line of feed, and to maintain the upper surface of the wheel in positions of parallelism during said movement, means for yieldingly supporting said wheel and means for rotating said wheel constructed to accommodate its vertical movement.

2. A machine for turning the channel lip of a sole, having in combination, a power-driven member, a wiper arranged for ro-

tatory movement in a horizontal plane, a presser foot formed and arranged to press down upon the sole the lip raised by the wiper, a channel gage formed to enter the channel of the sole, a vertical guideway arranged beneath said channel gage, a head arranged for vertical sliding movement in said guideway, a rotary feed wheel mounted in an inclined position on said head, means for yieldingly supporting said head, means for transmitting rotary movement from said member to said wheel constructed to accommodate vertical movement of the head, and means for transmitting rotary movement from said member to said wiper.

3. A machine for turning the channel lip of a sole having in combination a wiper arranged for rotatory movement about a substantially vertical axis, a stationary presser foot arranged to press down upon the sole the lip raised by the wiper and impart the final contour to said lip, a vertical guideway arranged beneath the wiper, a head arranged for vertical sliding movement in said guideway, a rotary feed wheel mounted upon said head, and movable therewith into various parallel positions at an angle to the

plane of said wiper, means for yieldingly supporting the head, and means for rotating said wheel constructed to accommodate vertical movement of the head.

4. A machine of the class described comprising a slide, means for guiding said slide in a vertical path, a rotary feed wheel mounted in said slide and movable therewith into various parallel positions at an angle to the horizontal, a power-driven member, driving mechanism between said member and said wheel, a wiper and a head by which said wiper is carried, the construction and arrangement being such that said head is movable angularly about the axis of the power-driven member to bring said wiper into one position for operative rotation and into another position to facilitate inspection and adjustment.

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

HENRY W. WINTER.

Witnesses:

BERNARD BARROWS,
ALLAN H. BARROWS.