

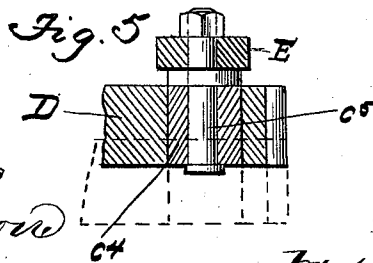
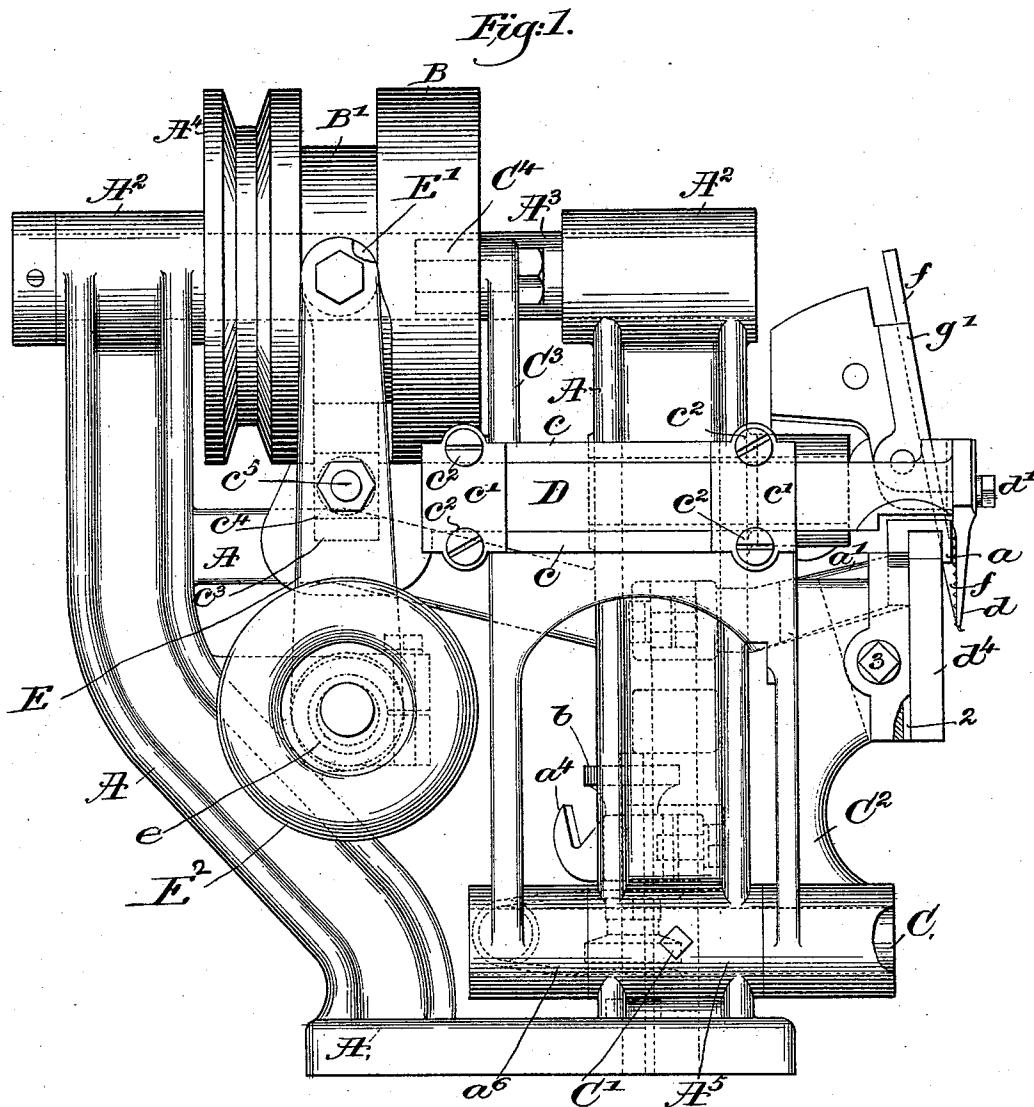
(No Model.)

2 Sheets—Sheet 1.

Z. T. FRENCH & W. C. MEYER.
SHANKING AND FEATHER EDGING MACHINE.

No. 540,616.

Patented June 4, 1895.



Witnesses
Ad Harmon
Edward F. Allen.

Inventors,
Nachary I. French
William C. Meyer.
by Crosby & Gregory
attys.

UNITED STATES PATENT OFFICE.

ZACHARY T. FRENCH AND WILLIAM C. MEYER, OF BOSTON, MASSACHUSETTS.

SHANKING AND FEATHER-EDGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 540,616, dated June 4, 1895.

Application filed May 21, 1894. Serial No. 511,945. (No model.)

To all whom it may concern:

Be it known that we, ZACHARY T. FRENCH and WILLIAM C. MEYER, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Shanking and Feather-Edging Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

In the production of welted boots and shoes, it is customary on the part of some manufacturers to feather-edge the outer-sole at its inner side, this being done usually by the operator with a hand-operated knife. Some manufacturers have employed a machine having a blade to feather-edge the shank of the outer-sole while the outer side of the outer-sole was supported on a roller, but such machine was not adapted to automatically feather-edge the entire outer-sole on the last. We have devised a novel machine adapted for shanking and also feather-edging the outer-sole while on the last, the feather-edging commencing at the breast end of the shank and extending entirely about the sole to the breast end of the shank at the other edge of the sole. To do this practically and expeditiously our novel machine has been provided with a peculiar feeding mechanism, one member of which is made as a dog adapted to enter the space between the outer and inner soles while tacked on the last, said dog engaging by its serrations or teeth the inner face of the outer-sole, the other member of the feed being a plate against which the outer side of the outer-sole is forced and clamped by the dog as the latter, in engagement with the inner face of the outer-sole, is being moved to draw the sole toward the feather-edge cutter.

A feature of our invention of very considerable importance, consists in the combination with the two members of the clamping feeding mechanism, of an edge gage located and freely movable between said feeding members by or through a treadle mechanism.

Figure 1 is a right-hand side elevation of a shanking and feather-edging machine embodying our invention; Fig. 2, a front elevation thereof; Fig. 3, a detail showing the cut-

ter and its holder. Fig. 4 is a partial top or plan view of the plate d^4 and the gage. Fig. 4^a is a detail showing the face of the plate d^4 and part of the gage; and Fig. 5 is a section through the shank D of the feed-dog, said figure showing the block c^4 , upon which said bar slides back and forth, and the pin for supporting said block loosely.

The frame-work A, of suitable shape to sustain the working parts, will have, in practice, its base or foot A' supported on a suitable column or bench at the proper height from the floor. This frame-work has suitable bearing hubs A² to support the cam shaft A³ provided with a belt pulley A⁴ adapted to receive a belt driven from some suitable source. The shaft A³ has also fast upon it a hub B having a peripheral cam B' and at its face a cam-groove B². Best shown in Fig. 2.

One portion of the frame-work A, has a bearing A⁵ which receives a stud C, which is secured in said bearing by means of a suitable set screw C', said stud serving as a pivot for a feed frame C², it being shown as having two arms with hubs to fit the said stud at opposite sides of the bearing A⁵, the said feed frame having an arm C³ provided with a roller or other stud C⁴ which enters the cam groove B² at the front of the cam hub B, said cam groove moving said feed frame intermittently backward and forward in the direction of the feeding movement of the shoe being acted upon, the latter being held in the hand of the operator with the edge of the sole pressed against the edge gage a .

The feed frame is provided at its upper end with a suitable horizontally arranged guideway, the sides of which are marked c , between which sides is placed the shank D connected to or forming part of the feed dog d , attached thereto as herein represented by a bolt d' and having its inner side toothed or serrated.

The shank D of the feed dog is retained in the guide by means of caps c' held in place by suitable screws c^2 , and the inner end of said shank is slotted, as represented by dotted lines at c^3 , to embrace loosely three sides of a loose block c^4 , also shown by dotted lines Fig. 1, mounted on a stud c^5 carried by a lever E, provided at its upper end with a roller or other stud E' and having at its lower end a hub

which embraces an eccentric e , forming part of a short shaft provided with a hand wheel E^2 , so that by rotation of said hand wheel the lever E may have its lower end adjusted to
 5 correctly adapt the position of the feed dog d to the thickness of the material to be interposed between it and the co-operating feed member d^4 , to be described, or to the thickness of the sole to be feather-edged. The cam
 10 B' for vibrating this lever E and consequently for reciprocating the shank D of the feed dog to cause the feed dog to grasp and release the sole at the proper time, may be the same for all thicknesses of sole, because the cam
 15 has only to move sufficiently to release the work while the feed dog moves backward over the work held by the operator and then to clamp the work and feed it while the feather-edge cutter f acts to cut into the leather.

20 The feeding surface d^4 is herein represented as a plate of metal having a smooth face, the back of the said plate being provided with a dove-tail projection 2 to enter a suitable dove-tail slot in the face of the feed frame C^2 , the
 25 frame being suitably slotted or split so that it may, by or through the action of a suitable set screw 3, be made to clamp the dove-tailed portion of said plate d^4 firmly in place.

In the operation of the feed mechanism the
 30 dog d is made to move laterally to and from the plate or member d^4 to grasp and release the material, and during the feeding operation and while the material is clamped firmly between the feed dog d and the opposed member d^4 , the frame C^2 is vibrated, as described,
 35 to feed the shoe and draw the portion thereof which is to be acted upon by the cutter against the edge of said cutter.

The feather-edge cutter f in practice has its
 40 shank clamped between a guide composed of sides g, g' , by means of a set screw g^2 , and the clamp composed chiefly of said sides is attached to an arm or upright portion g^3 of a split hub g^4 clamped on a stud g^5 by a set
 45 screw g^6 , the loosening of the set screw g^6 permitting the hub g^4 to be moved backward and forward on the stud g^5 according to the thickness of the material to be acted upon, and the extent of the bevel represented by the feather-
 50 edge cut is determined by loosening the set-screw g^7 carried by the guide holding the feather-edge cutter, thus enabling said stud to be moved in the slot g^8 , when it is desired to change the inclination of the cutter and
 55 place it in a more or less upright position. A segmental spline 6, extended from the shank of the cutter guide, enters a groove in the arm or upright g^3 , thus insuring correct circular movement of the said guide in its adjustments.

60 The edge gage a , as herein shown, is shaped to embrace the top of the feed plate or member d^4 , the shape being such as to enter the space between the said member and the said feed dog d .

65 The edge gage is attached to or forms part of a lever or arm a^4 , suitably connected to a slide rod a^2 having clamped upon it a hub a^3

provided with an arm a^4 , with which is suitably engaged one end of a connection a^5 , which in practice is extended down to the floor and
 70 is at that point connected with a suitable treadle by which it is possible to depress the rod a^2 and cause the acting end of the edge gage, located as before said between the member d^4 and the dog d , to keep the edge of the
 75 outer sole at a greater or less distance, as desired, from the lower edge of the bevel edged cutter f , the lower the edge gage the thicker the edge of the outer-sole left by beveling off a portion thereof at its inner face. The rod
 80 a^2 is normally elevated by a spring a^6 . Shown by full lines in Fig. 2, and by dotted lines in Fig. 1.

We have provided the arm a^4 referred to with a regulating stop b , shown as a screw, 85 connected in an adjustable manner with said arm, said screw being made to project from said arm for a greater or less distance according to the amount of play desired for the edge gage, or according to the difference desired
 90 in the thickness of the edge of the sole along the shank and about the fore-part.

In practice, the edge gage will occupy its highest position when the feed dog is inserted between the inner and outer-soles to com- 95 mence feather-edging the shank next the breast of the heel, and the shoe having been fed sufficiently far to feather-edge the shank, the operator, by his foot upon the treadle referred to, will lower the gage to shorten the
 100 bevel cut and leave the edge of the outer-sole about the ball and toe thicker than at the edge of the shank.

Prior to our invention we are not aware that a machine for shanking an outer sole when 105 on the last has ever been so constructed as to also continue the cutting to feather-edge the ball and toe of the outer sole, nor are we aware, prior to our invention, that a shanking machine has ever been used having a
 110 four-motioned clamping feed to grasp only the outer sole at its outer and inner faces, one member of the said feeding mechanism playing freely between the inner and outer sole, leaving the welt unclamped so that it is not
 115 pinched, stretched, or marred in any way during the shanking or feather-edging. So this invention is not limited to the particular shape of the feeding mechanism so long as it grasps and releases the outer sole intermittingly, nor
 120 is our invention limited to the exact shape shown for the edge gage, as the said devices might be variously modified without departing from the spirit and gist of our invention.

This invention is not limited to the particular means herein represented for adjusting 125 the throw of the dog d with relation to the feeding member d^4 to adapt the material to different thicknesses, as instead of the particular means shown, we may employ other
 130 suitable equivalent mechanism, which might be done with the exercise of only mechanical skill.

Having described our invention, what we

claim as new, and desire to secure by Letters Patent, is—

1. In a shanking and feather-edging machine, a cutter to feather-edge the outer-sole while on a last, a guide to hold the said cutter in a plane inclined with relation to the plane of the face of the outer sole combined with a four-motioned clamping feed, composed of a dog and an opposed member adapted to grasp said outer-sole between them, the said dog working in the space between the inner side of the outer-sole and the outer side of the inner-sole, substantially as described.

2. A four-motioned clamping feeding mechanism having a feed dog to enter the space between the inner face of the outer-sole and the inner-sole or welt, and having a member d^4 to act against the outer face of the outer-sole and move substantially in unison with the said dog while the sole is being moved to effect the feather-edging thereof; and a suitable cutter f , combined with a freely movable edge gage having its acting face located in the space between the feed dog and the feeding member d^4 , to operate, substantially as described.

3. The feed frame, a feed dog having its shank mounted in a guide-way in said frame, and an opposed feeding member carried by said frame, combined with devices to move said frame and carry with it the said feeding dog and opposed feeding member, and to reciprocate said feeding dog independently on said frame to grasp and release the outer-sole, and a cutter, to operate, substantially as described.

4. The feed frame, a feed dog having its shank mounted in a guide-way in said frame, and an opposed feeding member carried by said frame, combined with devices to move said frame and carry with it the said feeding dog and opposed feeding member, and to reciprocate said feeding dog independently on said frame to grasp and release the outer-sole; a cutter; an interposed edge gage; and a movable spring-supported carrier therefor, where-

by the said edge gage may be moved to vary the quantity of the material removed from the edge of the outer sole while on the last, substantially as described.

5. The swing frame, and its attached feeding members; the shanking cutter, and a guide in which it is clamped, combined with an arm g^3 , and devices to connect said arm and guide adjustably, substantially as described.

6. The swing frame, its feeding members; devices to swing said frame and reciprocate one of said feeding members in said frame; and the inclined cutter, combined with a guide in which said cutter is clamped, an arm having a hub, a stud on which said arm and hub are adjustable horizontally, and devices to adjust said guide on said arm, to operate, substantially as described.

7. In a machine for shanking and feather-edging an outer sole while on a last, the following instrumentalities, viz:—a cutter; a swing frame, a feeding member d^4 fixed thereto; a feed-dog adapted to slide in said frame toward and from said feeding member; means for moving said swing frame; means for reciprocating the said dog toward and from said feeding member d^4 ; and devices to regulate the extent of movement of the dog d according to the thickness of the material being acted upon, substantially as described.

8. The blade-holder provided with a blade f , and an edge gage for the edge of the sole to be acted upon, combined with a four-motioned clamping feed mechanism between which said edge gage is interposed, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ZACHARY T. FRENCH.
WILLIAM C. MEYER.

Witnesses:

GEO. W. GREGORY,
LAURA T. MANIX.