(No Model.) 4 Sheets—Sheet 1.

W. GORDON.

MACHINE FOR INDENTING BOOT OR SHOE SOLES.

No. 588,978. Patented Aug. 31, 1897.

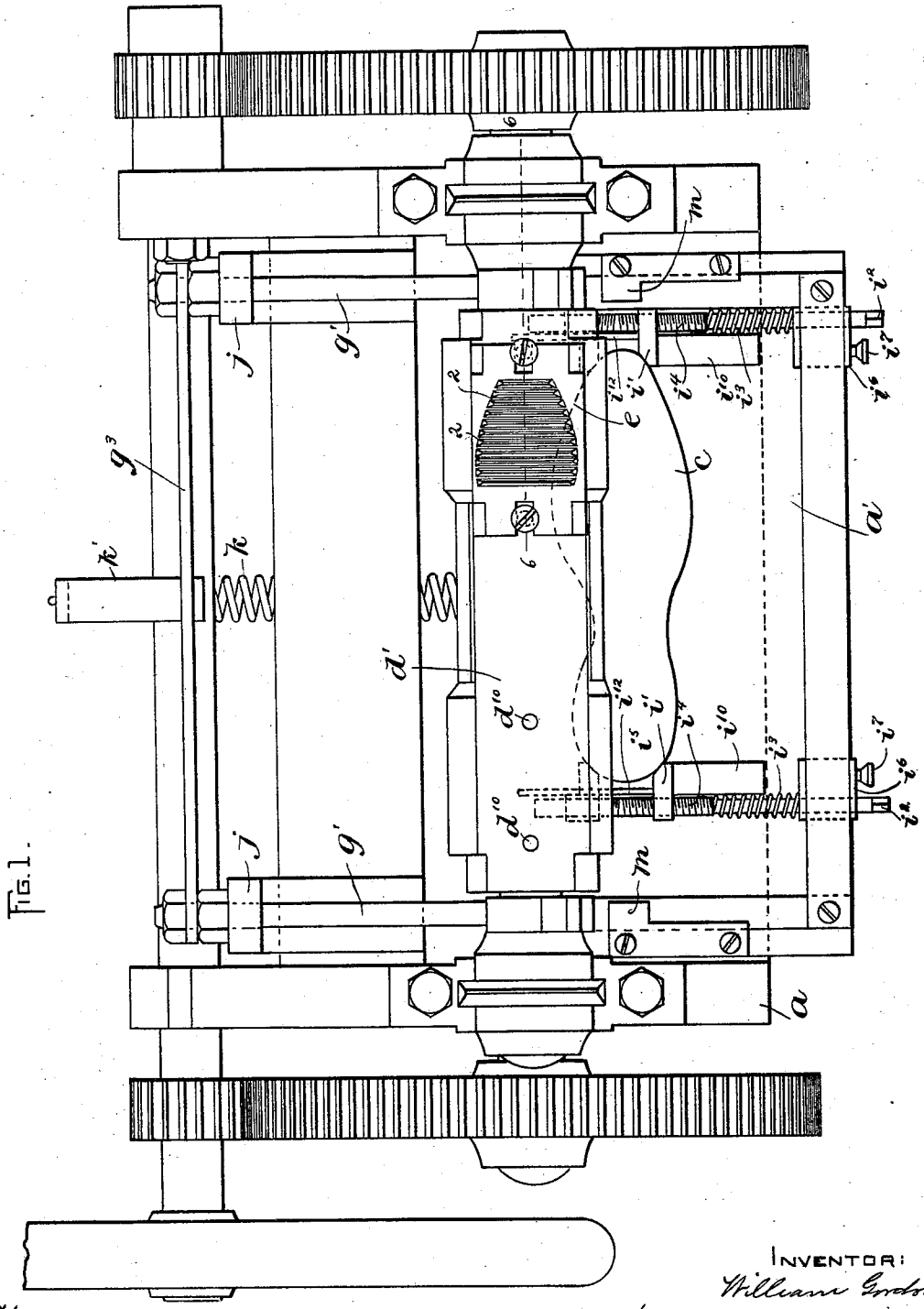


FIG. 1.

WITNESSES:
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P. W. Pezzetti.

INVENTOR:
William Gordon
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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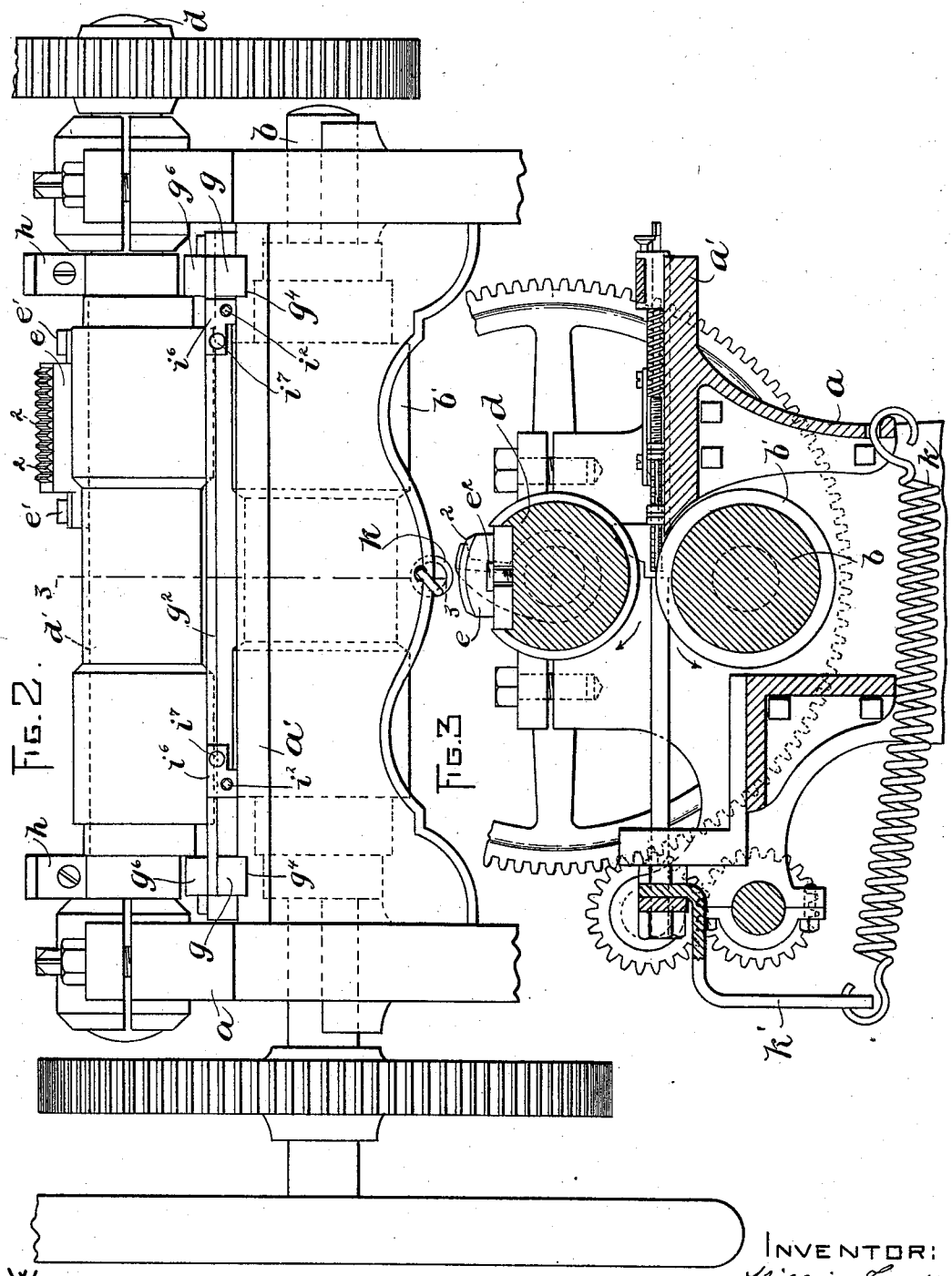


FIG. 2.

FIG. 3.

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FIG. 4.

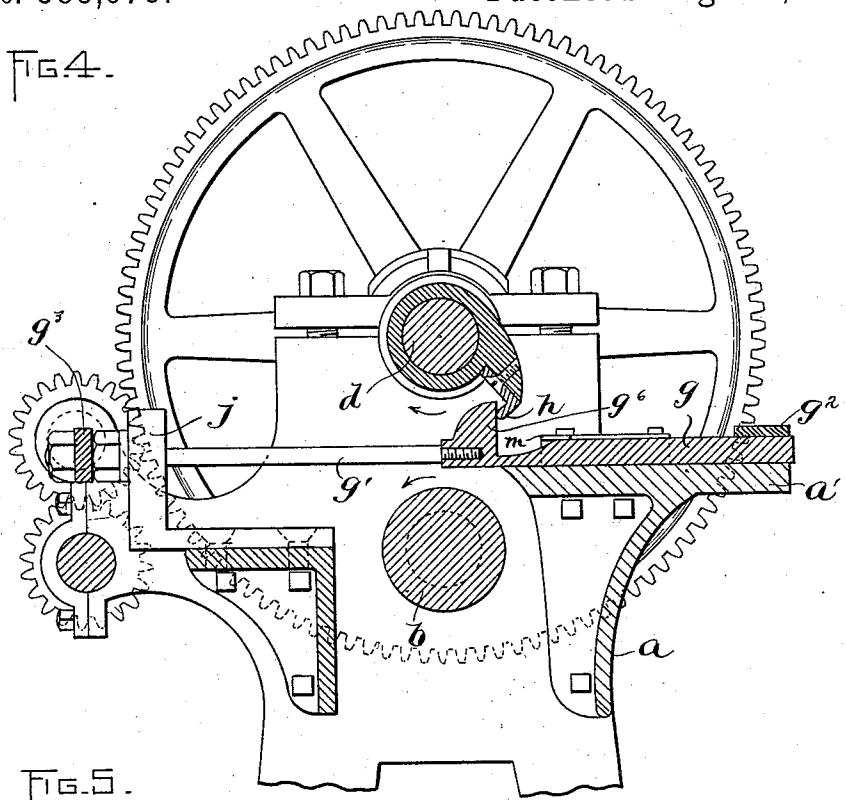
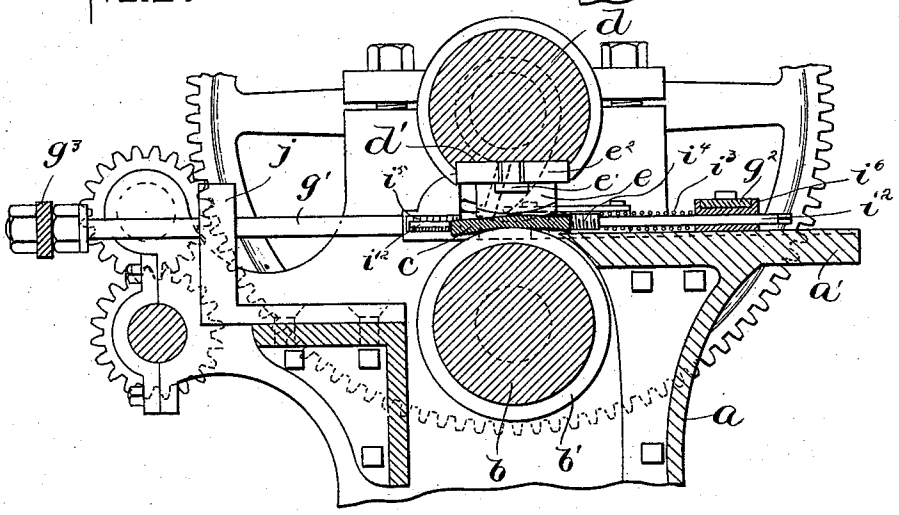


FIG. 5.



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MACHINE FOR INDENTING BOOT OR SHOE SOLES.

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FIG. 7

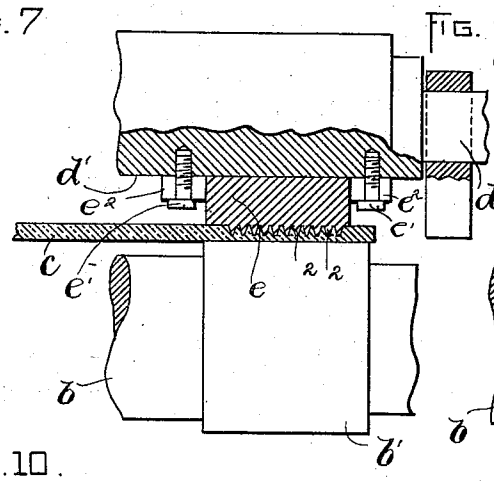


FIG. 6.

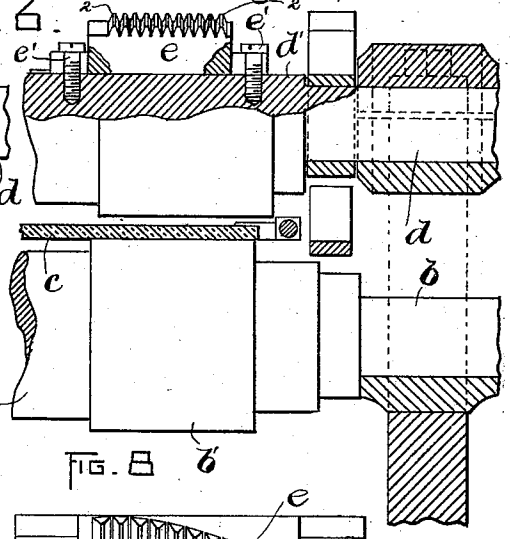


FIG. 10.

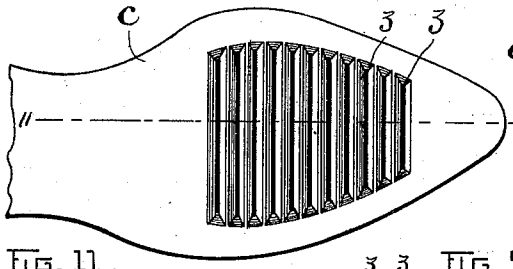


FIG. 8

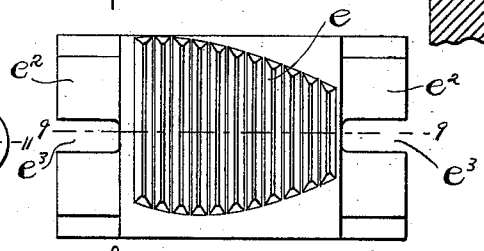


FIG. 11.

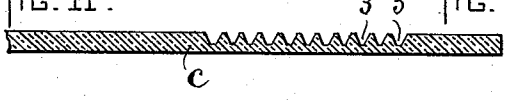


FIG. 9.

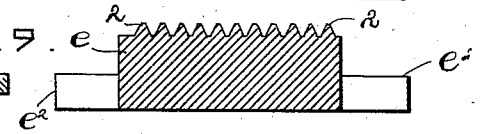
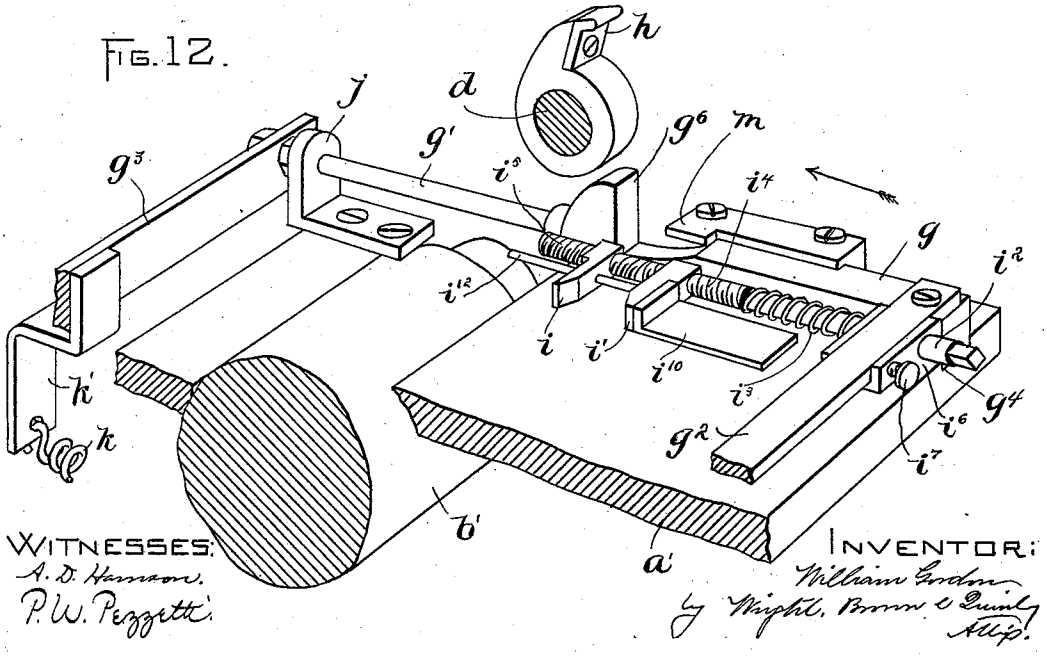


FIG. 12.



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UNITED STATES PATENT OFFICE.

WILLIAM GORDON, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO PETER A. COUPAL, OF SAME PLACE.

MACHINE FOR INDENTING BOOT OR SHOE SOLES.

SPECIFICATION forming part of Letters Patent No. 588,978, dated August 31, 1897.

Application filed December 19, 1896. Serial No. 616,302. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GORDON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Indenting Boot or Shoe Soles, of which the following is a specification.

This invention has for its object to provide a machine adapted to form a series of grooves or indentations in a boot or shoe sole for the purpose of corrugating its tread-surface and thus adapting it to resist slipping, or for the purpose of increasing the flexibility of the sole, my invention having in view the formation of grooves or indentations without the removal of any of the material of the sole.

My invention consists in the improvements which I will now proceed to describe and claim.

In the accompanying drawings, Figure 1 represents a top plan view of a machine embodying my invention. Fig. 2 represents a front elevation of the same. Fig. 3 represents a section on line 3 3 of Fig. 2. Fig. 4 represents a section on line 4 4 of Fig. 1. Fig. 5 represents a section on line 5 5 of Fig. 1. Fig. 6 represents a section on line 6 6 of Fig. 1. Fig 7 represents a view similar to Fig. 6, showing the grooving or indenting die in a different position. Fig. 8 represents a plan view of the grooving-die, detached. Fig. 9 represents a section on line 9 9, Fig. 8. Fig. 10 represents a view of a sole grooved or indented by my improved machine. Fig. 11 represents a section on line 11 11, Fig. 10. Fig. 12 represents a perspective view of a portion of the machine.

In the drawings, in which the same letters or figures designate the same parts or features, a represents the supporting-frame of the machine, the same having a horizontal bed or table portion a'.

b represents a shaft which is journaled in bearings on the frame a and having enlargements b', constituting bed-rolls or bed-roll sections arranged to support a sole c, that passes from the inner end of the bed or table a', the upper surface of said sections b' being substantially flush with the upper surface of the bed a'.

d represents a shaft or holder which is journaled in bearings in the frame a above the shaft b, and is provided with a flat seat or face d', to which is detachably secured, by bolts or screws e', a grooving-die e, the back or inner surface of which is flat and is formed to fit the seat d', while its outer face is convex and provided with ribs 2 2, formed to make grooves or indentations 3 3, Figs. 10 and 11, in one side of the sole c, which is passed between the die e and the bed-roll b'.

The die e is provided with flanges e^2 e^2, having slots e^3 e^3, which receive the attaching-screws e', said slots and screws permitting the die to be adjusted longitudinally. The shafts b and d are positively rotated by suitable gearing, which may be arranged as shown in the drawings or in any other suitable way, to rotate the said shafts and their attachments in the direction indicated by the arrows in Figs. 3 and 4.

A slide or carrier is provided to grasp the sole c and present it at the proper time to the die e and the coöperating bed-roll section b' to cause the dies to indent the sole, as indicated in Fig. 10. The said slide or carrier, as here shown, comprises a frame composed of two side bars, each made up of two members g g', Fig. 12, a front cross-bar g^2, connecting said side bars g g' at the front of the machine, and a rear cross-bar g^3, connecting said side bars at the rear of the machine.

The members g of the side bars are fitted to slide in guides g^4 in the bed or table a', and are provided with upwardly-projecting lugs g^6, which are engaged by cams h, affixed to the shaft d, said cams by their engagement with the lugs g^6 causing the feed frame or carrier to move forward in the direction indicated by the arrow in Fig. 12. To the feed slide or carrier are connected two pairs of jaws i i', adapted to hold the end portion of a sole, as indicated in Fig. 1, said jaws being yieldingly connected with the feed slide or carrier by means of a rod i^2, which slides lengthwise in guides i^6, adjustably mounted on the front cross-bar g^2, and springs i^3, interposed between the guides i^6 and shoulders on the rod i^2, said springs enabling the jaws i i' to yield toward the front cross-bar g^2.

The rods i^2 are provided with right and left hand screw-threads i^4 and i^5, which are engaged with correspondingly-threaded orifices in the jaws i' and i, so that when the rods i^2 are turned they adjust the jaws i i' simultaneously toward and from each other, thus adapting them to soles of different widths.

The guides i^6 are adjustable toward and from each other on the cross-bar g^2, and are held at any desired adjustment by means of set-screws i^7, so that the jaws can be adapted to any length of sole.

The feed slide or carrier is movable on the frame of the machine in a direction at right angles to the axes of the shafts b and d, and is guided by fixed ears or guides j j, in which the members g' of the side bars are fitted to slide. The said feed-slide is moved in the direction required to carry a sole engaged with the jaws i i' toward the meeting point of the indenting-die and corresponding bed-roll by means of the cams h, the latter engaging the ears g^6 on the feed-slide, as shown in Fig. 4. When the cams pass over the ears g^6, the feed-slide is released and is returned to its starting position by means of a spring k, attached at one end to the frame of the machine and at the other end to an arm k', affixed to the rear cross-bar g^3.

m m represent stops which limit the movement of the feed-slide by means of the spring k.

The operation is as follows: After the feed-slide has been returned by the spring k to its starting position and before the cams h reach the lugs g^6 the operator engages a sole with the jaws i i'. When the cams engage the lugs g^6, the feed-slide is moved forward, carrying the sole with it and presenting the sole to the die e and the accompanying bed-roll just as the die reaches the position to engage the advancing edge of the sole at a point within its margin. The cams continue to advance the feed-slide and sole while the die is acting upon it, the result being the formation of the grooves 3 3 in the sole, as shown in Figs. 10 and 11. After the die has completed its action the cams release the lugs g^6 and the feed-slide is returned to its starting position, which is determined by the stops m.

In operating upon the soles which are formed as "rights" and "lefts" the die for one form will be placed at one end of the seat d', while for the other form the die will be placed at the opposite end of said seat, which, as shown in Fig. 1, is made of sufficient length to receive two dies, the screw-holes d^{10} d^{10} (shown at the left-hand end of the seat in Fig. 1) indicating where the other die would be attached to the holder.

i^{10} i^{10} represent ears or plates which are attached to the jaws i' to prevent the jaws from dropping onto the shaft b when they are moved over the latter, said plates i^{10} trailing after the jaws and remaining on the table a'. The jaws i are at the same time supported by rods i^{12}, attached to the jaws i' and having a sliding fit in holes formed in the jaws i.

I claim—

1. A machine of the character specified, comprising a rotary holder or shaft, a grooving or indenting die mounted on said holder, a sole-support or bed-roll coöperating with said die, and means for feeding a sole between the roll and die.

2. A machine of the character specified, comprising a rotary holder or shaft, a grooving or indenting die mounted on said holder, a sole-support or bed-roll coöperating with said die, a feed slide or carrier movable between the die-holder and bed-roll, and provided with means for holding a sole, and means for advancing said feed-slide.

3. A machine of the character specified, comprising a rotary holder or shaft, a grooving or indenting die mounted on said holder, a sole-support or bed-roll coöperating with said die, a feed slide or carrier movable between the die-holder and bed-roll, and means for reciprocating said feed-slide to cause it to advance the sole between the die and bed-roll, and then retract the sole.

4. In a machine of the character specified, the combination of a positively-rotated holder or shaft having a grooving or indenting die, a bed-roll coöperating therewith, a feed slide or carrier, and means for reciprocating it, said feed-slide comprising a frame movable between the die-carrier and bed-roll and provided with adjustable sole-grasping jaws, yieldingly connected with the feed-slide.

5. In a machine of the character specified, the combination of a positively-rotated holder or shaft having a grooving or indenting die, a bed-roll coöperating therewith, a feed slide or carrier and means for reciprocating it, said feed-slide comprising a frame movable between the die-carrier and bed-roll, two pairs of jaws on said frame, means for adjusting the jaws of each pair simultaneously toward and from each other, and means for adjusting one pair bodily toward and from the other pair.

6. A machine of the character specified, comprising a rotary holder or shaft, a grooving or indenting die mounted on said holder, a sole-support or bed-roll coöperating with said die, a feed slide or carrier movable between the die-holder and bed-roll, and comprising a frame movable on guides on the machine-frame, and sole-engaging jaws yieldingly connected with said movable frame, means for positively advancing said movable frame, and means for yieldingly retracting said frame.

7. In a machine of the character specified, the combination of a rotary shaft having a die-holder and cams at the ends of said die-holder, a grooving or indenting die affixed to said holder, a bed-roll arranged to coöperate

with said die, a feed-slide comprising a frame having lugs arranged to engage said cams, and sole-grasping jaws yieldingly connected with said frame, the frame and jaws being projected by the cams, and a spring arranged to retract said frame and jaws.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 16th day of December, A. D. 1896.

WILLIAM GORDON.

Witnesses:
C. F. BROWN,
A. D. HARRISON.