No. 649,125. Patented May 8, 1900.

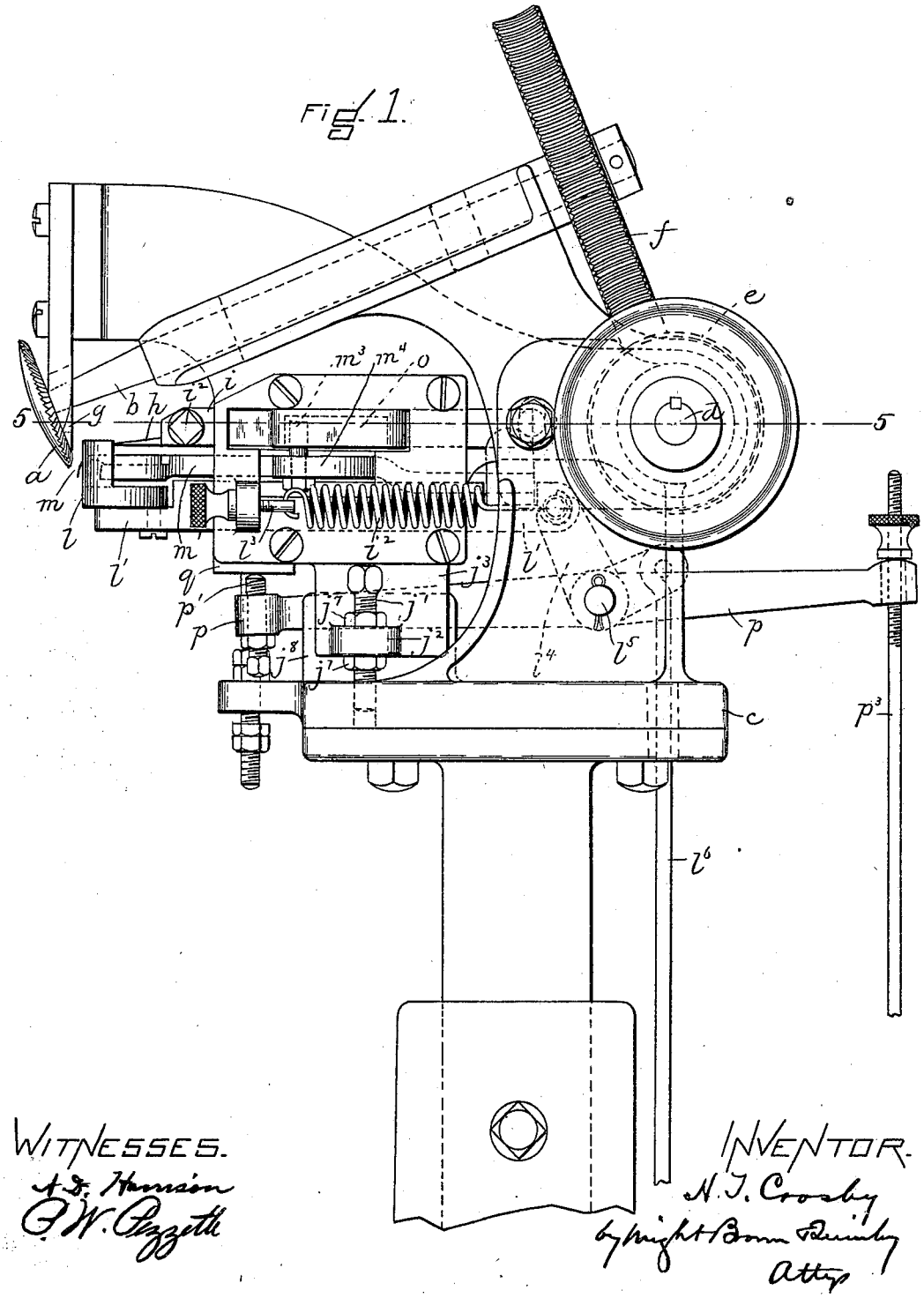
H. T. CROSBY.

SOLE ROUNDING AND CHANNELING MACHINE.

(Application filed Oct. 20, 1899.)

(No Model.) 4 Sheets—Sheet 1.

Fig. 1.



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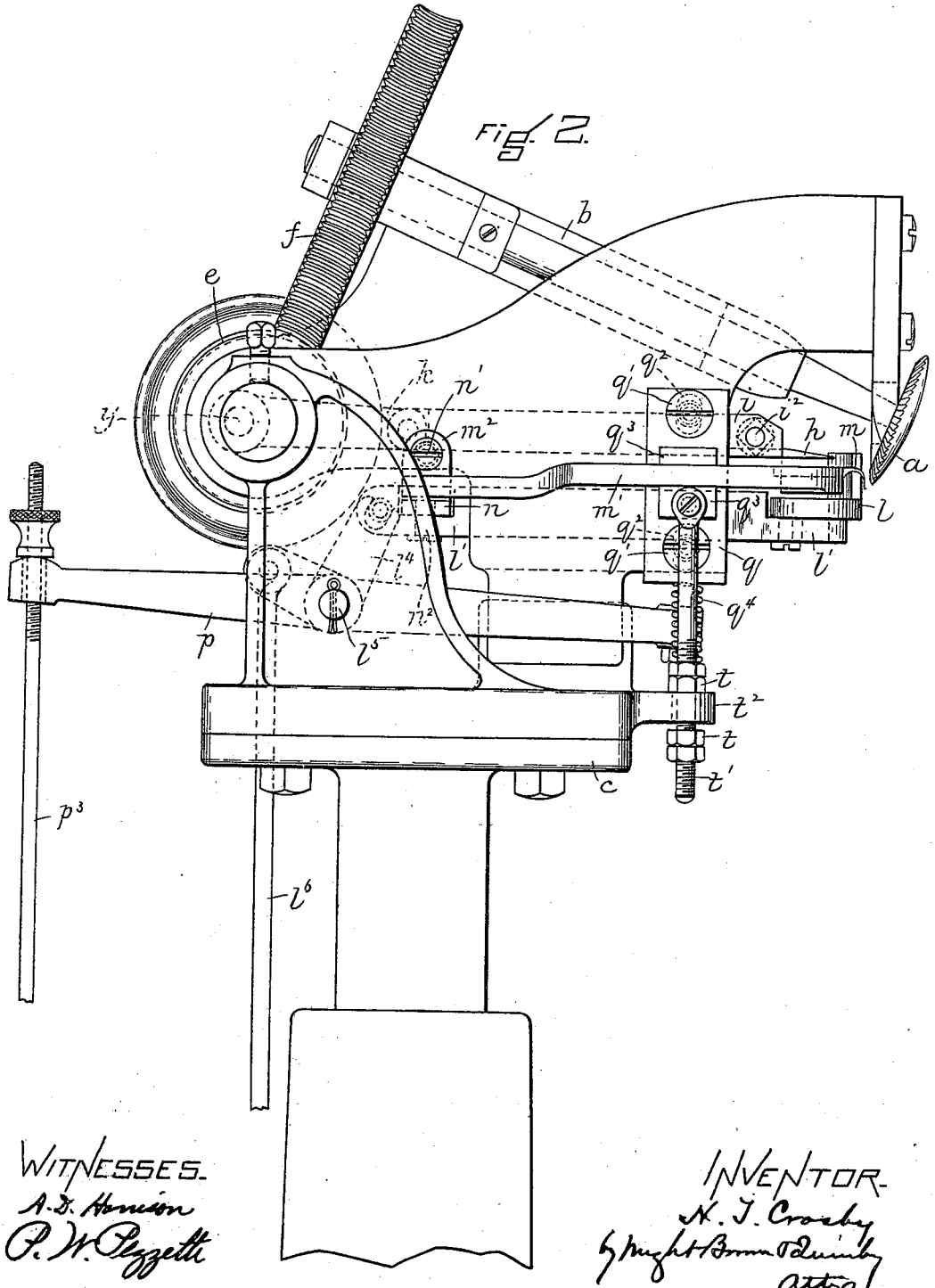
4 Sheets—Sheet 2.

Fig. 2.



WITNESSES.
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(No Model.) 4 Sheets—Sheet 3.

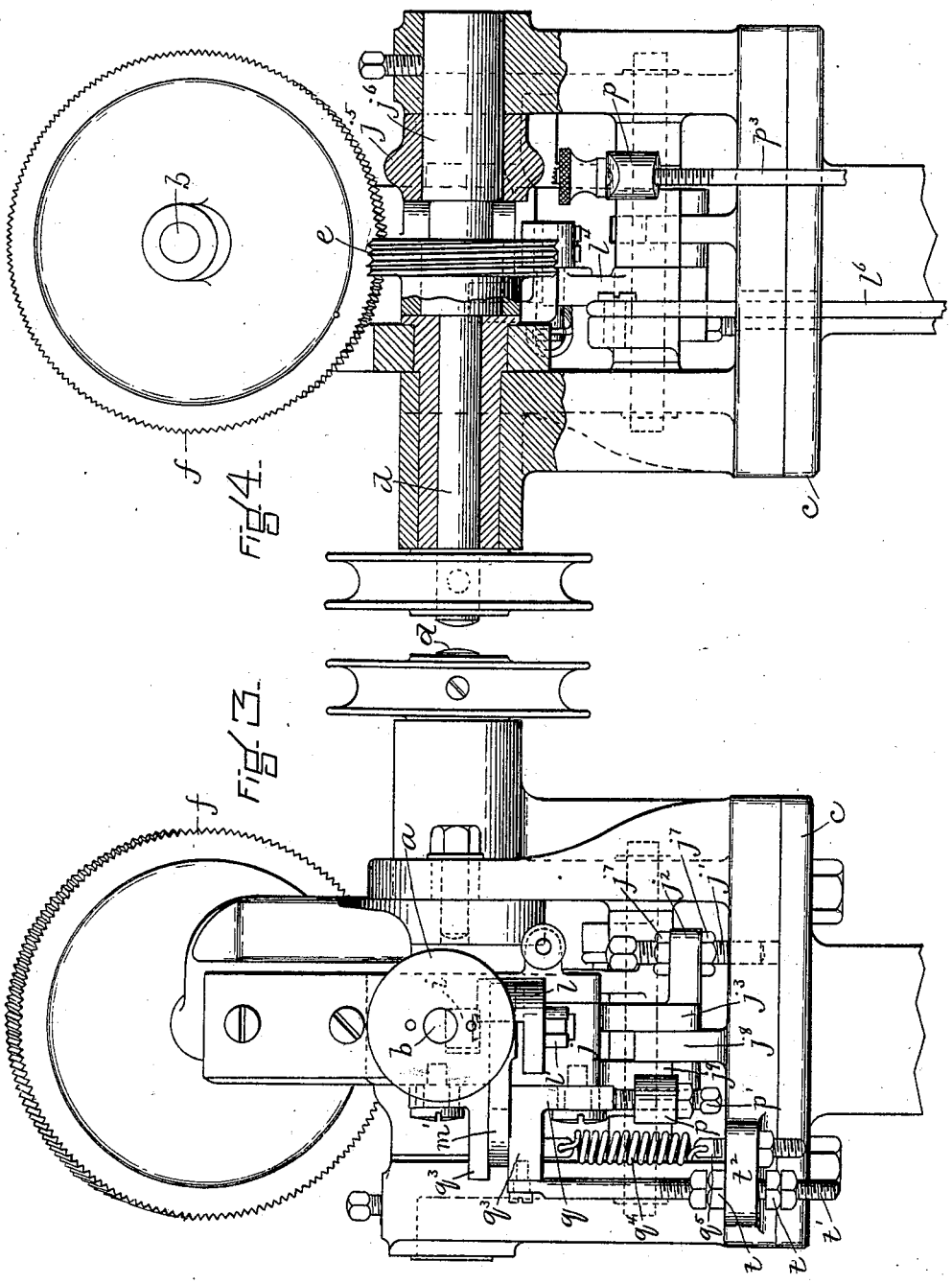

Fig. 4.

Fig. 3.

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(No Model.) (Application filed Oct. 20, 1899.) 4 Sheets—Sheet 4.

Fig. 5.

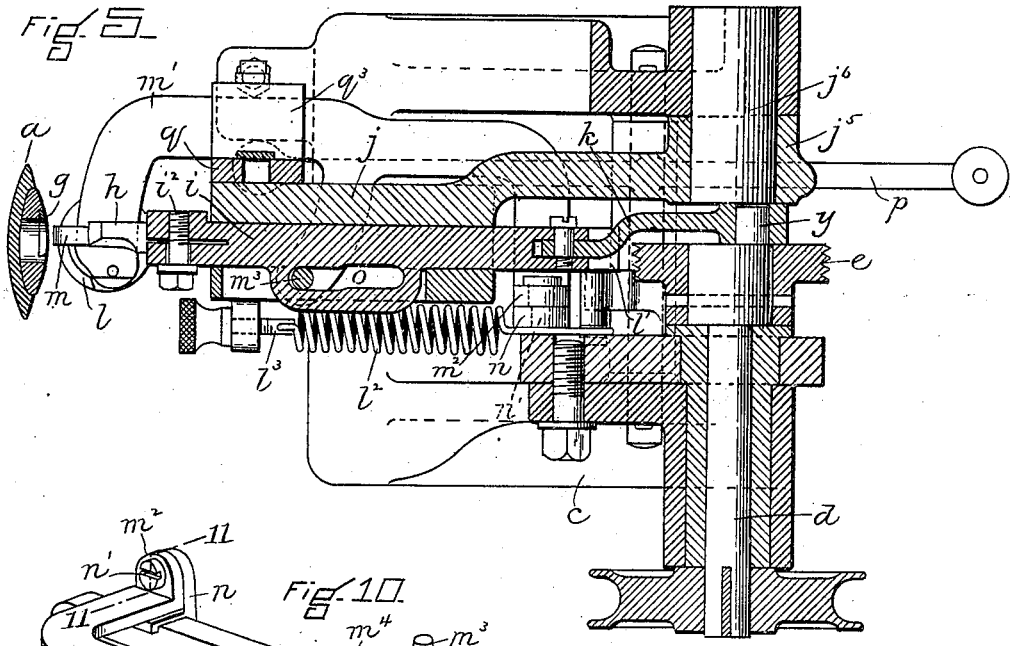


Fig. 10.

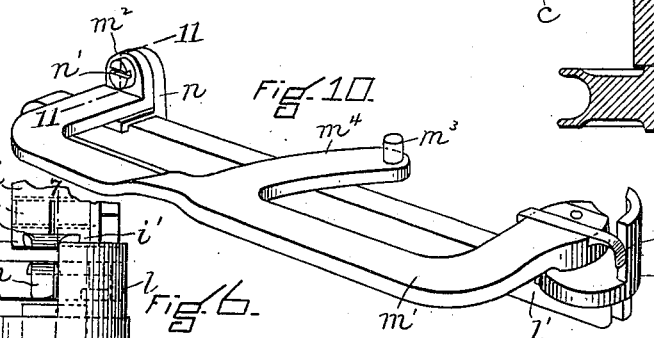


Fig. 6.

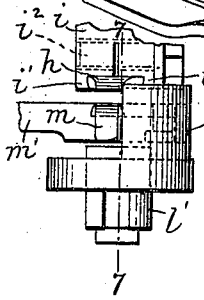


Fig. 7.

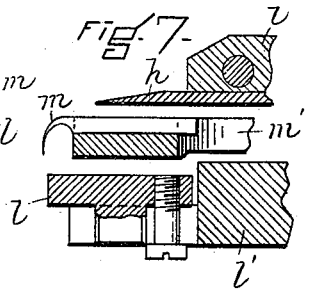


Fig. 12.

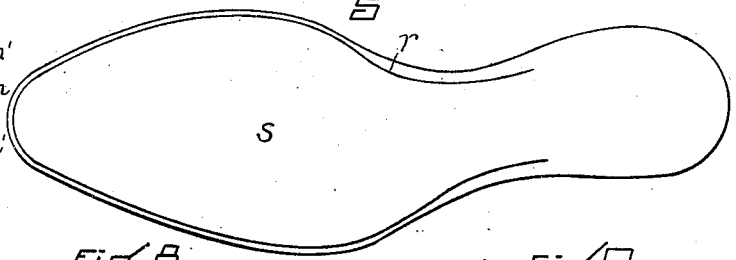


Fig. 11.

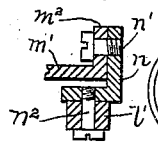


Fig. 8.

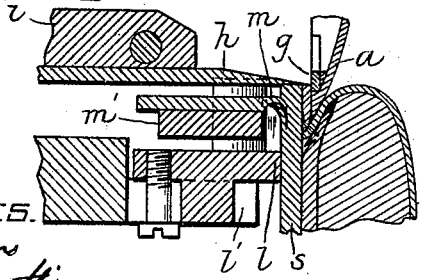
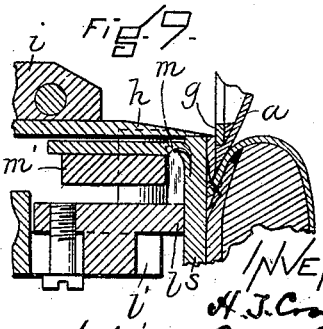


Fig. 9.



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UNITED STATES PATENT OFFICE.

HANFORD T. CROSBY, OF BOSTON, MASSACHUSETTS.

SOLE ROUNDING AND CHANNELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 649,125, dated May 8, 1900.

Application filed October 20, 1899. Serial No. 734,213. (No model.)

To all whom it may concern:

Be it known that I, HANFORD T. CROSBY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sole Rounding and Channeling Machines, of which the following is a specification.

This invention relates to machines for rough rounding and channeling the soles of boots and shoes while on the last; and it has for its object to provide a machine of this character with improved means for operating and adjusting the principal working parts.

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

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of a sole rounding and channeling machine embodying my invention. Fig. 2 represents an elevation taken from the opposite side. Fig. 3 represents a front view. Fig. 4 represents a rear view, partly in section. Fig. 5 represents a section on line 5 5 of Fig. 1. Fig. 6 represents a front view of portions of the machine. Fig. 7 represents a section on line 7 7 of Fig. 6. Figs. 8 and 9 are sectional views showing different adjustments of the channeling-knife. Fig. 10 represents a perspective view of the work-rest, the channeling-knife, and the channeling-knife holder. Fig. 11 represents a section on line 11 11, Fig. 10. Fig. 12 represents a bottom view of a channeled sole.

The same letters of reference indicate the same parts in all the figures.

In the drawings, a represents a work supporting and guiding wheel, which is formed to enter the crease between the welt and upper, said wheel being preferably serrated on its face, which bears on the welt. The wheel a is affixed to a shaft b, which is journaled in a fixed bearing on the supporting-frame c and is connected with the driving-shaft d by a worm e on said driving-shaft and a worm-gear f on the shaft b.

Adjacent to the inner side of the wheel a is a fixed cutting bed or block g, which cooperates with a reciprocating rough-rounding knife or chisel h. Said knife is affixed to a slide or carrier i, which is movable in a guide j, hereinafter referred to. The carrier i is connected by a rod k with an eccentric wrist-pin y on the driving-shaft d. The knife h is detachably secured to the outer end of the carrier i, which is split and provided with dovetail shoulders i' i', Fig. 6, between which the knife is clamped by means of a clamping-bolt i^2 in the split end of the carrier. The guide j has a sleeve j^5, Fig. 5, which is fitted to turn on a stud j^6, affixed to the frame c, the guide being thus made vertically adjustable to vary the distance between the lowest portion of the wheel a and the cutting edge of the knife, and therefore the width of the projecting portion of the sole outside the bottom of the welt-crease. The guide is held at the desired vertical adjustment by means of a screw j', Figs. 1 and 3, engaged with a tapped socket in the frame and passing through a slotted ear j^2 on an arm j^3, formed on the guide j, and nuts j^7 j^7, engaged with said screw and bearing on opposite sides of the ear j^2.

j^8 is a fixed vertical ear or guide, which has a sliding fit between the arm j^3 and a corresponding ear j^9, Fig. 3, formed on the guide j, the said ear j^8 steadying the guide j and preventing crosswise movement thereof.

l represents a rest or support for the face of the sole, which is adjustable horizontally toward and from the wheel a to accommodate any desired thickness of sole. The rest l is attached to a slide l', which is movable horizontally toward and from the wheel a in the guide i and is normally projected and held yieldingly with the rest l at the minimum distance from the wheel a by means of a spring l^2, attached at one end to a stud l^3 on the frame of the machine and at its other end to a stud on the slide l'. The rest l may be retracted against the stress of the spring l^2 by a bell-crank lever l^4, pivoted at l^5 to the frame, and a rod l^6, connecting one arm of the lever l^4 to a treadle, (not shown,) the other arm of the lever l^4 being engaged with the slide l'.

The channeling-knife m is affixed to an arm or carrier m', which has a compound connection with the rest-carrying slide l', so that the channeling-knife moves horizontally with the rest l toward and from the wheel a and is adapted to reciprocate horizontally in a di-

rection parallel with the feed movement of the sole to cut the channel therein and to move vertically toward and from the rough-rounding knife h while reciprocating horizontally to vary the distance between the channel and the edge of the sole, as shown in Fig. 12, where the mouth r of the channel is shown farther from the edge of the sole s at the shank than at the fore part. The said compound connection, as here shown, comprises an angular block n, to which an ear m^2 on the rear end of the knife-carrying arm m' is connected by a horizontal pivot n', which permits the arm m' and channeling-knife m to be adjusted vertically toward and from the rounding-knife h. The base of the block n is connected by a vertical pivot n^2 with the rest-carrying slide l', said pivot permitting the block n and the arm m', with the channeling-knife, to oscillate horizontally, the pivot n^2 also causing the block n, arm m', and channeling-knife m to move, with the slide l', toward and from the wheel a.

The means employed to reciprocate the arm m' and knife m horizontally comprise a cam-slot o in the rounding-knife slide i and a stud m^3 on an arm m^4, formed on the arm m', said stud entering the cam-slot o, which is formed to impart a short reciprocating movement to the arm m' and knife m in a direction substantially at right angles to the movement of the slide i and rounding-knife h.

Means are employed to raise and lower the channeling-knife while the machine is in operation, the reciprocating movement of the knife being unaffected by the vertical adjustments thereof. Said means comprise a lever p, pivoted at l^5 to the frame and having at one end a bearing-screw p', and a rod p^3, connecting the other end with a treadle. (Not shown.) The screw p' bears against the lower end of a plate or slide q, which has a limited vertical movement on a vertical face on the frame c and is secured to said face by screws q' q', passing through vertical slots q^2 q^2 in the plate q, said slots being shown by dotted lines in Fig. 2. The plate q has horizontal ears q^3 q^3, between which the channeling-knife arm m' has a sliding fit and is adapted to oscillate horizontally. The plate q is normally held at its lowest position by a spring q^4, connecting one of the ears q^3 with a stud q^5 on the frame c, the channeling-knife being thus held at the maximum distance from the rounding-knife, Fig. 8. When the lever p is moved by the depression of the treadle connected therewith, the plate q is raised and its ears q^3 cause the arm m' to swing upwardly on the pivot n', thus adjusting the channeling-knife toward the rounding-knife, Fig. 9, the horizontal reciprocating movement of the channeling-knife arm m' continuing between the ears q^3 q^3. The extremes of the vertical movements of the channeling-knife may be determined by adjustable stop-nuts t t on a screw-threaded rod t', which is connected with one of the ears q^3. The rod t' passes through a fixed ear t^2 on the frame c, one of the nuts t being above and the other below said ear.

I claim—

1. In a machine of the character specified, the combination of a work guiding and feeding wheel, a rounding-knife, a carrier therefor movable toward and from said wheel, means for reciprocating the rounding-knife carrier, a guide for said carrier adjustable in a direction substantially at right angles to the reciprocating movement of the knife, and means for positively securing the guide in any position to which it may be adjusted.

2. In a machine of the character specified, the combination of a work guiding and feeding wheel, a rounding-knife, a carrier therefor movable toward and from said wheel, means for reciprocating the rounding-knife carrier, a guide for said carrier mounted to swing vertically on a fixed stud or center on the frame, and an adjustable connection between said guide and the frame, said connection having provisions securing the guide at different heights.

3. In a machine of the character specified, the combination of a work guiding and feeding wheel, a rounding-knife, a carrier therefor movable toward and from said wheel, means for reciprocating the rounding-knife carrier, a guide for said carrier mounted to swing vertically on a fixed stud or center on the frame, and a screw-threaded stem mounted on the frame and passing through an ear on said guide, said stem having nuts adapted to bear on opposite sides of said ear.

4. In a machine of the character specified, the combination of a work guiding and feeding wheel, a work rest or support adjacent to the feed-wheel and pressed yieldingly toward the wheel, means controlled by the operator for retracting the rest, a knife-carrier having a channeling-knife projecting from the face of the work-rest, a compound connection between the work-rest and knife-carrier, whereby the knife-carrier is caused to move with the work-rest toward and from the wheel, and is permitted to have a horizontal movement causing the cutting action of the knife, and a vertical adjusting movement to vary the distance between the channel and the edge of the sole, means for reciprocating the knife-carrier horizontally, and means for swinging the knife-carrier vertically during its horizontal movement.

5. In a machine of the character specified, the combination of a work guiding and feeding wheel, a work rest or support adjacent to the feed-wheel and pressed yieldingly toward the same, means controlled by the operator for retracting the work-rest, a knife-carrier having a channeling-knife projecting from the face of the work-rest, a compound connection between the work-rest and knife-carrier, whereby the carrier and knife are caused to move with the rest toward and from the wheel and are also permitted to move both horizontally and vertically, a rounding-knife

carrier having a reciprocating movement at right angles with the feed movement, connections between the rounding-knife carrier and the channeling-knife carrier, whereby the latter is reciprocated horizontally in a direction parallel with the feed movement, and means for swinging the channeling-knife carrier vertically while it is reciprocating horizontally.

6. In a machine of the character specified, the combination of a work guiding and feeding wheel, a work rest or support adjacent to the feed-wheel and pressed yieldingly toward the same, means controlled by the operator for retracting the work-rest, a knife-carrier having a channeling-knife projecting from the face of the work-rest, a compound connection between the work-rest and knife-carrier, whereby the carrier and knife are caused to move with the rest toward and from the wheel, and are also permitted to move both horizontally and vertically, means for reciprocating the knife-carrier horizontally, a vertically-movable slide *q* having horizontal faces between which the knife-carrier is movable horizontally, and means for raising and depressing the said slide to adjust the height of the channeling-knife.

7. In a machine of the character specified, the combination of a work guiding and feeding wheel, a work rest or support adjacent to the feed-wheel and pressed yieldingly toward the same, means controlled by the operator for retracting the work rest, a knife-carrier having a channeling-knife projecting from the face of the work-rest, a compound connection between the work-rest and knife-carrier, whereby the carrier and knife are caused to move with the rest toward and from the wheel, and are also permitted to move both horizontally and vertically, means for reciprocating the knife-carrier horizontally, a vertically-movable slide *q* having horizontal faces between which the knife-carrier is movable horizontally, a spring which normally depresses said slide and holds the channeling-knife in its lowest position, and a treadle-operated lever adapted to raise the slide.

In testimony whereof I have affixed my signature in presence of two witnesses.

HANFORD T. CROSBY.

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