

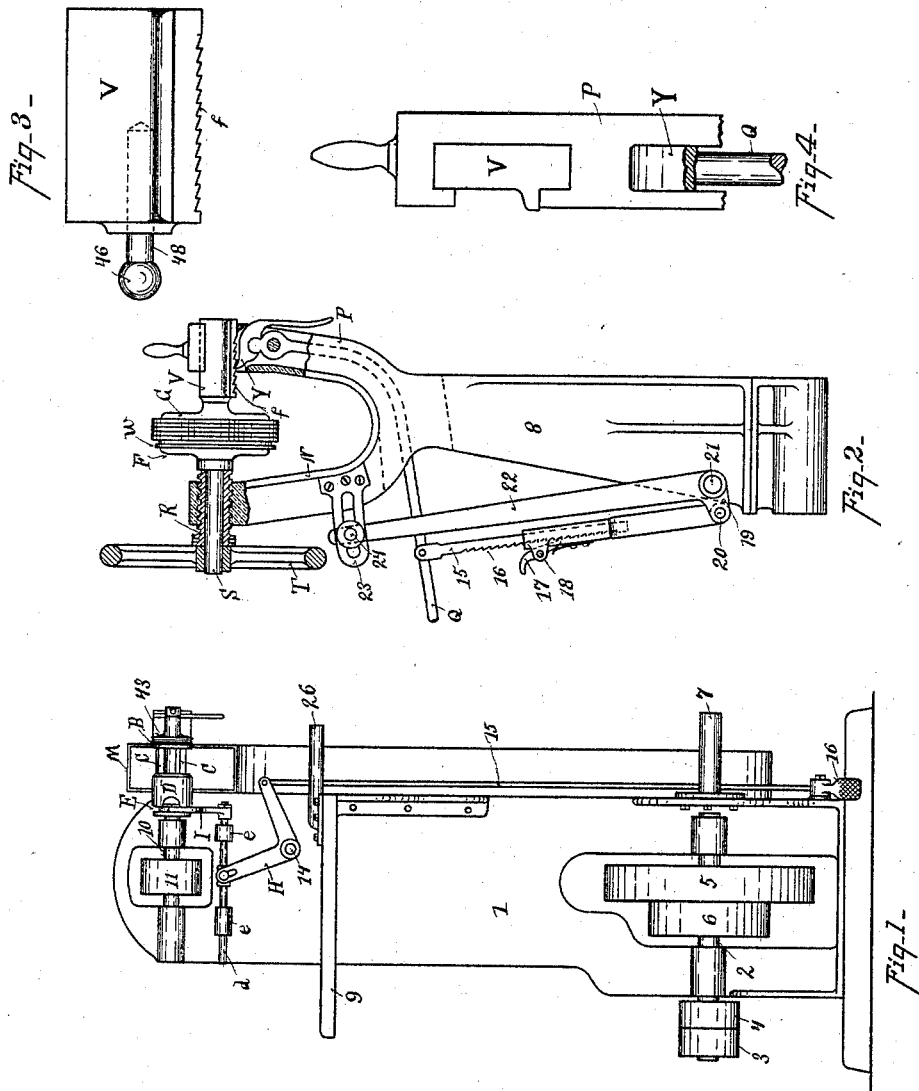
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3 Sheets—Sheet 1.

S. ROSS, Jr.
SOLE TRIMMING MACHINE.

No. 489,876.

Patented Jan. 10, 1893.



Attest—
C. W. Miles
T. Simmons

Inventor—
Simon Ross Jr.
By Wood & Boyd
attys

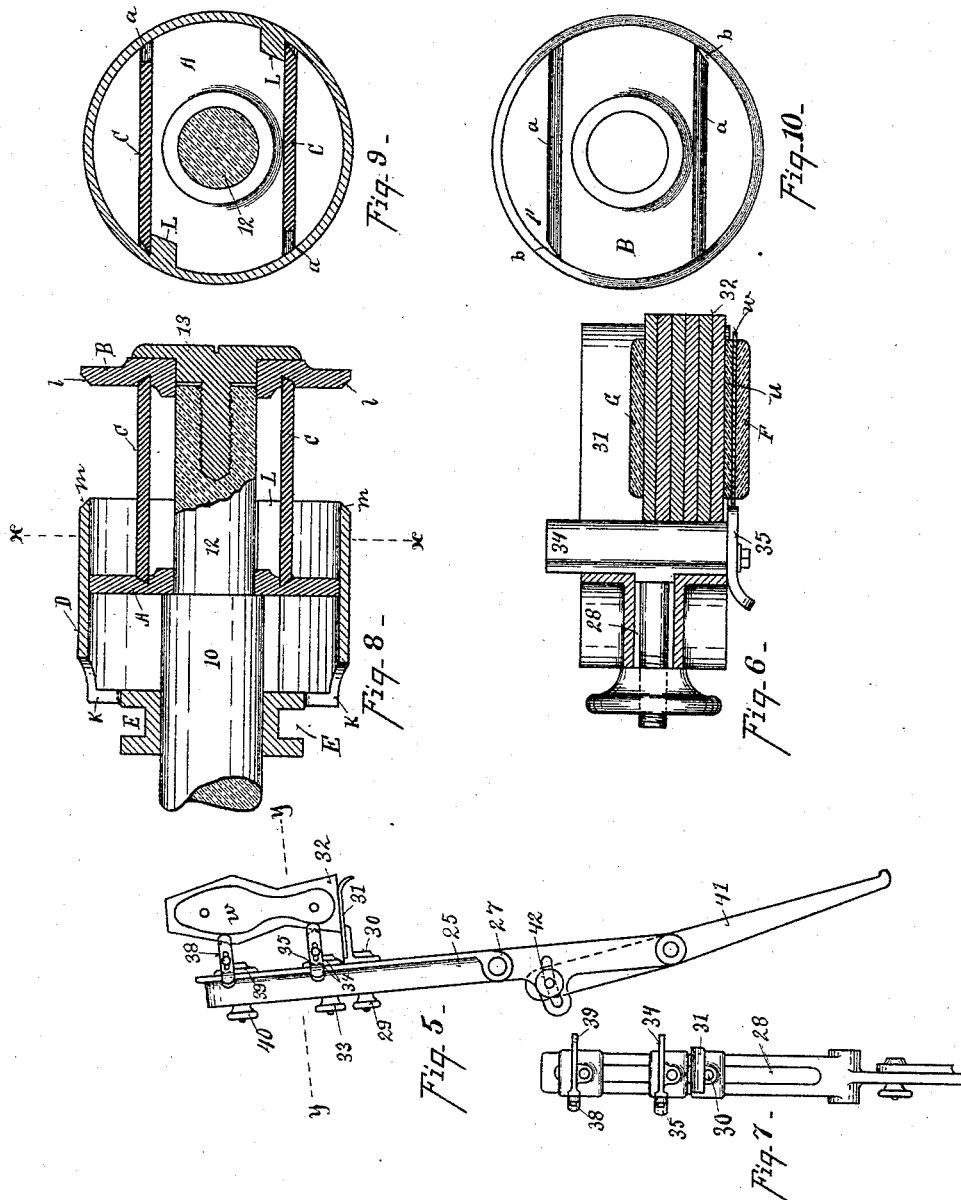
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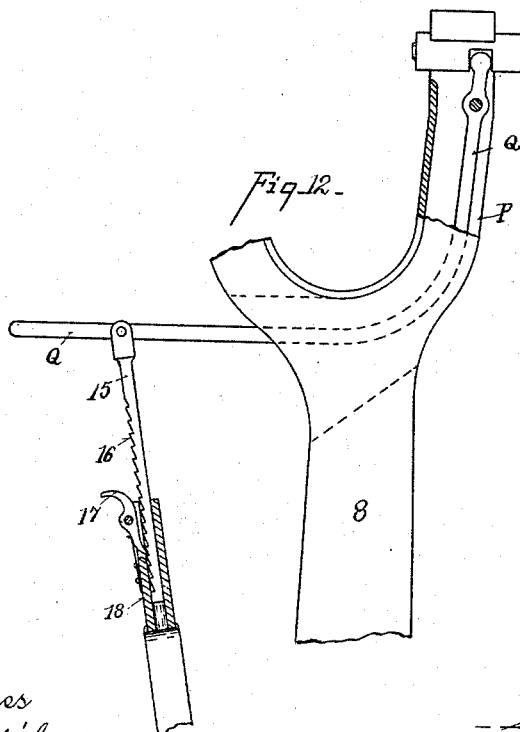
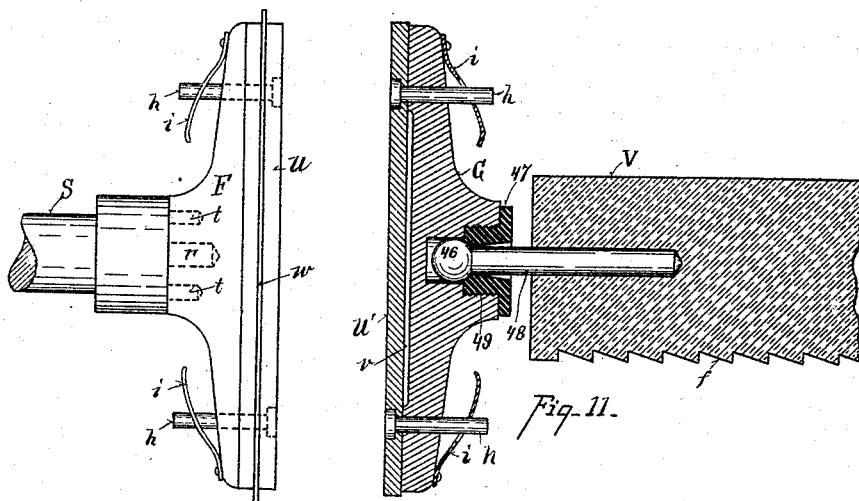
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Witnesses
C. W. Miles
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UNITED STATES PATENT OFFICE.

SIMON ROSS, JR., OF CINCINNATI, OHIO.

SOLE-TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 489,876, dated January 10, 1893.

Application filed August 13, 1892. Serial No. 443,034. (No model.)

To all whom it may concern:

Be it known that I, SIMON ROSS, JR., a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Sole-Trimming Machines, of which the following is a specification.

My invention relates to a sole trimming machine, and is an improvement upon the apparatus shown and described in Letters Patent No. 472,399, granted me April 5, 1892.

One of the objects of this invention is to improve the cutting mechanism whereby the sole is trimmed more neatly, and a feather or rough edge on the sole is avoided.

Another object of my invention is to simplify the clamping mechanism thereby quickening the speed of taking out and putting in stock.

Another object of my invention is to improve the straining or clamping devices.

Another object is to improve the fence mechanism, whereby the stock is more readily adjusted in position.

The various features of my invention are fully set forth in the description of the accompanying drawings making a part of this specification, in which—

Figure 1 is a front elevation of the machine with the jack removed. Fig. 2 is an inside elevation of the jack frame and clamping mechanism partly in section. Fig. 3 is a detail view of the ratchet bar. Fig. 4 is a detail view of the jaw holding the ratchet bar. Fig. 5 is a side elevation of the fence frame and fence. Fig. 6 is a section on line *y, y*, Fig. 5. Fig. 7 is a front elevation of the fence. Fig. 8 is a central longitudinal section of the cutting bit and shield. Fig. 9 is a section on line *x, x*, Fig. 8. Fig. 10 is a plan view of the end bit clamping disks. Fig. 11 is an enlarged detail view of the sole clamping heads. Fig. 12 is a modification of parts shown in Figs. 2 and 3.

1 represents the frame of the machine. 2 the driving shaft. 3, 4, the loose and tight pulleys keyed on the same. 5, 6, driving pulleys. 7 a stud on which the jack frame 8 journals.

9 represents a table. 10 the cutter shaft driven by pulley 11 and a belt from pulley 5.

A, B, represent clamping disks of the cut-

ter head. The shaft 10 is reduced at 12 so that the inner disk A slides thereon and rests against the shoulder which serves as an abutment.

13 represents a clamping screw which swivels in the disk B and taps into the shaft 10, so that when the bits are inserted and it is screwed up the disks A, B, are firmly clamped in position. These disks A, B, are each provided with the longitudinal grooves *a*. *b* represents a stop formed at the front end of each of said grooves on disk B by not cutting away the metal. C represents knives or bits which are slid into said grooves up against the stop *b*, so that the outer edges of said cutting knives are set exactly in the same peripheral plane at all times. Said cutter head is surrounded by sleeve D; it is provided with a groove E in the hub which hub journals on the shaft 10, and slides longitudinally thereon. This sleeve is made to slide laterally so as to expose more or less of the cutting surface of the knives C according to the thickness of stock to be reduced. It is moved by the following mechanism: *d* represents a sliding shaft journaled in the ears *e, e*; on the inner end of said shaft is a forked arm I, the forks of which engage with the groove E on the hub of sleeve D. H represents a bell crank lever journaled on the stud 14. 15 represents a connecting rod. 16 represents a treadle which may be weighted if desired; when said treadle is lifted up the sleeve is carried back to expose more or less of the surface of the cutters C. In Fig. 1 the entire length of the cutters is exposed because the sleeve is thrown clear back. In Fig. 8 the sleeve is shown as moved forward partially inclosing a part of the surface of the cutters. This is done by depressing the treadle. The disk B is beveled at *l*, and the sleeve is beveled at *m* so as to guide the stock readily to the knives.

In order to prevent the forming of a feather edge on the last sole trimmed I provide in the sleeve D guard bars L, L; these serve two purposes: they are placed under the knives C and abut the same, thereby causing the sleeve to revolve with the cutter head; and the ends of these guards bear against the inside edge of the sole next to the sleeve, hold the leather to the knife, thereby preventing the forming

of a rough or feather edge. Said sleeve is provided with openings K on the inner edge for the escape of dirt which is thrown out by centrifugal force, and is carried off by a suction fan.

The jack arm 8 is bifurcated and has two limbs, N, P; on the limb N is provided a screwsleeve R. S represents a shaft journaling in said sleeve and to which the stock is detachably secured. The sleeve is adjusted in or out in the limb N in order to adjust its clamp F and the pattern *w* laterally to the grooved guide.

T represents a hand wheel for turning the revoluble shaft to present the stock to the action of the cutters.

F represents one of the stock clamps which is secured to the shaft S by means of the center pin *r* and dowel pins *t*. It is necessary to have the face of the clamps compare relatively to the size of the stock for the different sizes of shoes; in order that the size of these clamps may be readily changed the clamp F is provided with the face plates U; these face plates are of different sizes and readily taken off of the stock F and replaced by another.

W represents the pattern plate held between head F and spacing plate U. They are secured in position by means of pins *h*, the heads of which are countersunk in the face of plate U.

i represents springs pierced with holes through which the keeper pins pass when the springs are pressed in; when they move out and the strain of the spring bears one side of the pin holds it in place and prevents it coming out.

G represents the head of the opposite clamp; it is provided with a similar facing plate U'.

When it is desired to change the pattern and the facing plates they are readily removed and replaced by others. Thus, the size of the patterns and the size of the clamping plates are readily changed to accommodate different sizes of stock to be trimmed.

In order to quickly adjust the clamp to the stock, and to support and move the clamp, I provide the following instrumentalities: V represents a clamping slide; it is provided with a series of ratchet teeth *f* on its lower face. Ways are formed in the limb P in which this clamping block slides. Y represents a pawl engaging with the ratchet teeth *f* which is provided with a stem that projects outside of the limb P, so that the operator can disengage the pawl from the ratchet slide V and adjust the ratchet block to any desired position, and then re-engage the pawl. The clamping slide is driven forward by means of lever Q which is depressed in moving the said slide inward to clamp the stock. In order to hold it in position I provide a locking arm 15 with ratchet teeth 16, to engage with the pawl 17 hinged to the socket arm 18. This socket is pivoted to the crank arm 19 by a stud pin 20. 21 represents a journal on which the lever 22 of crank arm

19 is pivoted. 23 represents a bracket on the face of one of the forks of the jack frame, and is provided with a groove in which moves a set screw 24 that taps crank arm 22, so as to clamp this arm in any desired position. When the lever Q is depressed and locked in position the strain is compounded by moving the arm 22 out and securing it in position by the set screw. By this means a very heavy strain can be applied through the clamping block V and the clamp head G. In order to secure a compression upon the ends of the soles I make a recess *v* between the facing plate U' and the head G, whereby greater pressure is applied to the ends of the clamps, and consequently to the ends of the soles. If the outer edges and ends of the soles are firmly clamped there will be no danger of the stock slipping between the clamping jaws and it is securely held to the action of the knives. It is essential that the stock be centered in the clamping plates U U'.

The fence frame 25 is provided with the sleeve 27, and it swivels upon shaft 26 of the main frame, so as to come opposite the cutting knives C. The upper part of this frame is provided with a slot 28; in the slot is supported a shelf 31 by means of the bolt 30 and nut 29.

34, 39, represent the gage plates held in position by bolts and clamping nuts, so that said parts may be adjusted vertically in the slot of the fence frame. Upon one side of the gage plates are attached fingers 35, 38, which are slotted and held in position by a set screw. These fingers are adjusted laterally to the pattern *w*, see Fig. 5, thereby centering the stock vertically; the stock is placed upon the shelf and the pattern *w* carried by the jack frame rests against the fingers 35, 38, and the stock rests against the front face of the gage plates 34, 39.

The fence frame may be further adjusted by means of the swiveling arm 41, the lower end of which bears against the jack frame; this frame is set relatively to the clamping head F which is adjusted by means of the screw R; the clamping head G is adjusted by the ratchet slide V to increase and decrease the space between the clamping plates for a greater or less amount of stock.

42 represents an adjusting nut for moving the arm 41 to adjust the fence frame radially to the pattern.

43 represents a groove guide in which the pattern *w* centers to hold the stock in proper relation to the cutter.

The following is the mode of operation: The fence being in position to receive the desired amount of stock, which is placed between the clamping plates and then strain is applied through the lever Q and the compounding lever 22; the operator then moves the jack up against the knife, the bevel *l* of disk B guiding the stock to the knives; the sleeve D is opened by lifting the treadle 16, and when the stock is in position for the knife the

operator drops the treadle and the weight of the treadle and the connecting rod brings the sleeve up against face of the stock to be trimmed; the wheel T is turned and the pattern *w* gives the desired configuration to the finished stock. An important result is obtained by means of the stops *b* adjusting the knife to a fixed peripheral plane. As one knife cannot be set in advance of the other both must do their relative share of the work. By having the stock revolved at the will of the operator to the action of the knives it is presented at a greater or less speed, and the operator will readily avoid overfeeding, and he will naturally move the stock at a greater speed when less stock is being removed than when a greater amount is being cut away by the knives. In order to allow the clamping head G to have sufficient lateral motion to adjust itself automatically parallel with the stock I connect it to the clamping block V by means of the ball 46 journaling in the concave bearing in the shank of the head, forming an adjustable bearing. 47 represents a conical sleeve surrounding the neck of the bearing and holding it in position. Said sleeve is made conical on its inside so as to allow play of said sleeve over the stud or arm 48, thereby allowing the head G to rock slightly on its bearing. This equalizes the pressure applied by the clamping devices to the stock between the clamps F, G. 49 represents screw threads for securing said sleeve 47 in place. The stud arm 48 is shown detachably connected to the clamping block V. This is the preferred form of journaling clamping head G on the clamping block. The clamp slide V is preferably driven by the pawl and ratchet connecting mechanism operated by lever Q; this is preferred because operators desire to vary the amount of stock trimmed, and the rapid adjustment of the slide V facilitates the setting of the parts for clamping greater or less amount of stock.

In Fig. 12 I have shown a modification of mechanism for driving said clamp, which consists of a slot gained in slide V, the lever Q, engaging in said gain of the clamp slide V, and this will answer the same purpose as the ratchet and pawl where a comparatively uniform amount of stock is to be trimmed. It will be observed that as the knives C are ground away they are both adjusted forward to exactly the same plane by resting against the peripheral stop *b*, and this is essential as both knives must be in the same plane in order that each may do its requisite amount of work. The knives are held in the grooves by the clamping mechanism alone; no back stop is employed as it would be useless after the first grinding; the front peripheral stop is for adjusting purposes only, and is an important feature of the invention herein.

Having described my invention what I claim is—

1. In a sole-trimming machine, the combination with a shaft, of cutter-heads provided

with grooves in their inner faces and peripheral stops formed at the ends of said grooves, cutters resting in said grooves their cutting edges resting against the said peripheral stops, whereby the cutting edges of both cutters are adjusted in the same peripheral plane, and means for clamping said cutter heads upon the shaft to secure the cutters in the adjusted position, substantially as described.

2. In a sole-trimming machine, the combination with a shaft, of cutter-heads B and C provided with grooves in their inner faces and peripheral stops formed at the ends of said grooves, cutters resting in said grooves, their cutting edges resting against said peripheral stops, means for clamping said cutter-heads upon the shaft to secure the cutters in position, a sleeve D, journaled on said shaft, and means for moving the same laterally to and from the disk B, to regulate the exposure of the cutters, substantially as described.

3. In combination with the cutter head composed of the clamping heads A, B, knives C, the sleeve D provided with the bars L abutting the back of the knives and the outer edge of the sleeve for holding the stock to the cutter, whereby a feather edge is avoided, substantially as specified.

4. In combination with the head F, mounted upon revoluble shaft, the head G mounted upon a driving slide V, the lever Q fulcrumed upon the jack frame and engaging with said slide, and pawl and ratchet mechanism for locking said lever in position, substantially as specified.

5. In combination with the head G, supported upon the clamping slide V, the lever Q and pawl Y, engaging with the teeth *f* of said clamping slide, substantially as specified.

6. The clamping mechanism consisting substantially of the stationary head F, the movable head G mounted upon the clamping slide, supported in the limb P of the jack frame, the lever Q, and pawl Y detachably connected to said slide, whereby it is adjusted independently of the lever Q, and driven positively by said lever, substantially as specified.

7. In combination with the lever Q, and the pawl and ratchet mechanism for driving the head G, the crank arm 22, and the locking mechanism connecting crank 19 with the lever Q, whereby the said lever Q may be locked to the lever 22, and the latter moved on its axis to further depress said lever, substantially as specified.

8. In combination with the lever Q, the lever 22, provided with the crank 19, and locking mechanism connecting said lever and said crank and locking mechanism, for holding lever 22 adjusted to any desired position, substantially as specified.

9. In combination with the jack frame 8, of a sole trimming machine, the clamping and driving mechanism consisting of the shaft S, the clamping head F mounted upon one limb of the frame, the head G, the slide V mounted

on the opposite limb P of said fence, and the lever and pawl mechanism for driving said slide V, substantially as specified.

10. In a sole-trimming machine, the combination with a jack-arm and a clamping head F, of a slide V moving in said jack-arm, a stud carried by said slide, a clamping head G, loosely journaled upon said stud, substantially as described.

11. In combination with the clamping head, the detachable plate U secured by the headed pins *h*, countersunk in the face of said plates, and fastened through said plates and head, and spring *i* engaging with said pins *h*, to hold them in position, substantially as specified.

12. In combination with the clamping head G, provided with the central recesses *p*, the detachable plates U' secured thereto by one or more pins *h*, and springs *i*, substantially as specified.

13. In a sole trimming machine, the combination of the slotted fence frame with the adjustable shelf 31, the gages 34, 39, vertically

adjustable on said fence, substantially as specified.

14. In a sole trimming machine, the fence frame swiveled upon the main frame, the vertically adjusting shelf 31, the vertically adjusting gages 34, 39, carrying side gages against which the stock rests, and carrying side gages against which the pattern rests, substantially as specified.

15. In combination with the pattern *w*, the clamping heads G, H, the fence frame carrying adjusting gage plates 34, 39, against which the stock rests, and the adjusting fingers 38 against which the pattern rests for centering the stock to the pattern, substantially as specified.

In testimony whereof I have hereunto set my hand.

SIMON ROSS, JR.

Witnesses:

T. SIMMONS,
C. W. MILES.