

(No Model.)

7 Sheets—Sheet 1.

C. H. & R. H. SOUTHALL.

MACHINE FOR PARING EDGES OF BOOT OR SHOE SOLES OR HEELS.

No. 532,170.

Patented Jan. 8, 1895.

Fig. 2.

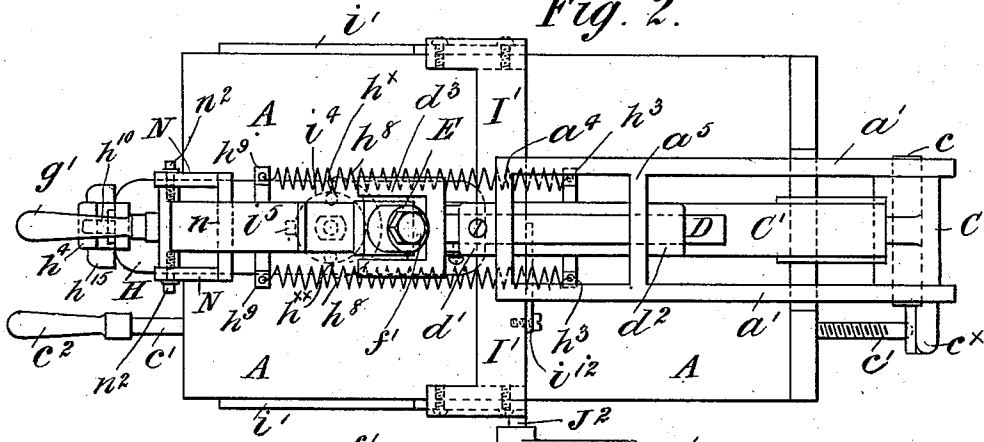
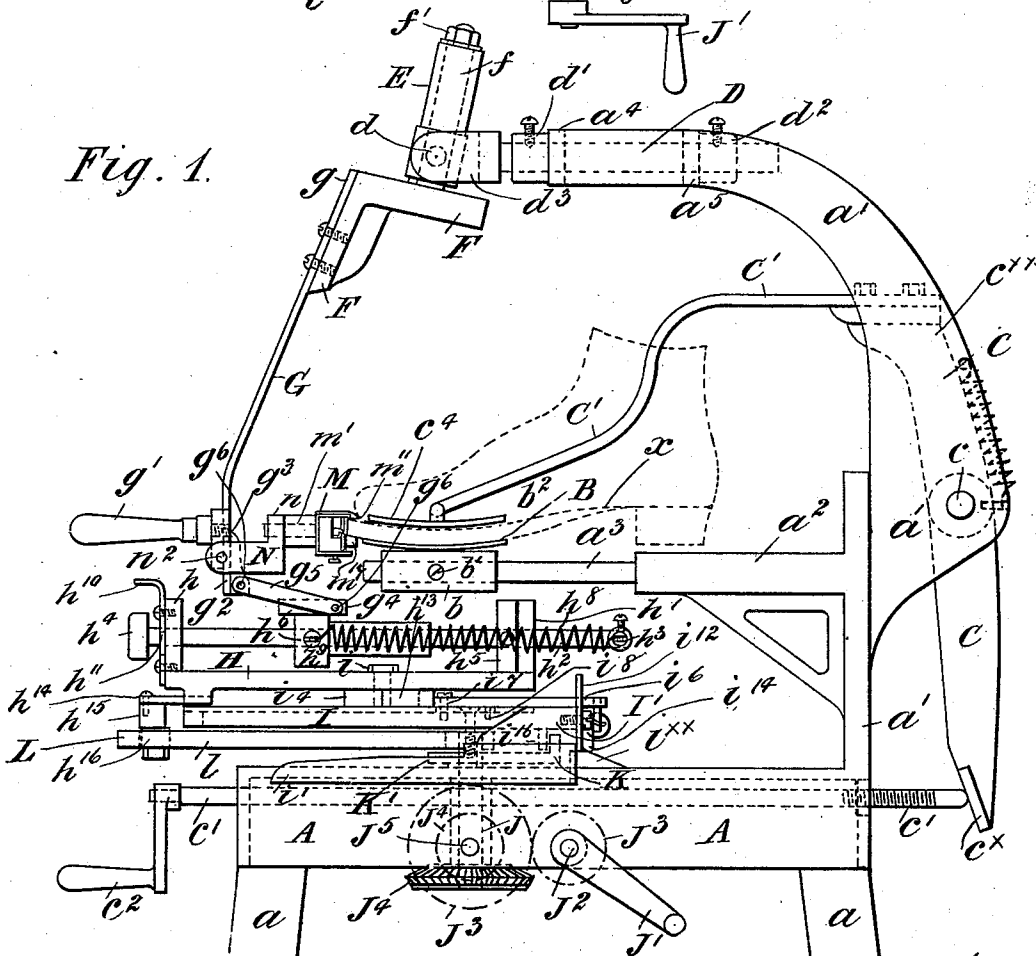


Fig. 1.



Witnesses.

C. W. Brooke.
Baltus D. Long.

Inventors.
Charles Henry Southall,
Robert Heap Southall.
By their attys.

Baldwin Davidson & Wight.

(No Model.)

7 Sheets—Sheet 2.

C. H. & R. H. SOUTHALL.

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No. 532,170.

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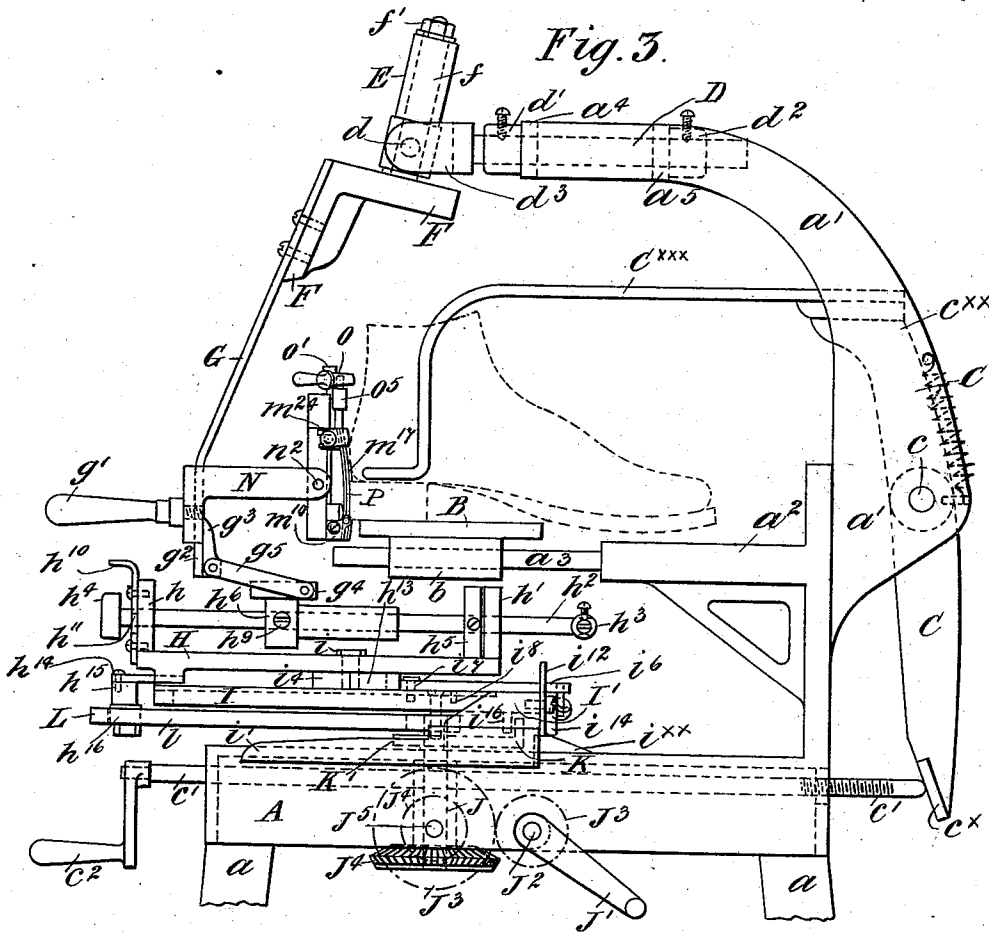


Fig. 56.

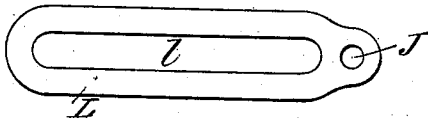


Fig. 55.

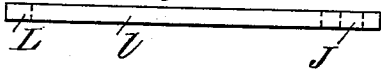


Fig. 58.

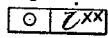


Fig. 57.

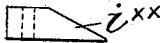


Fig. 60.

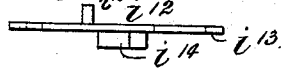
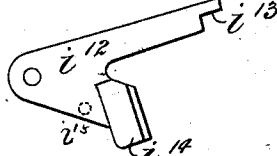


Fig. 59.



Witnesses.
C. M. Brooke
Baltus D. Long.

Inventors,
Charles Henry Southall,
Robert Heath Southall,
By their Attys,
Baldwin Davidson & Wright.

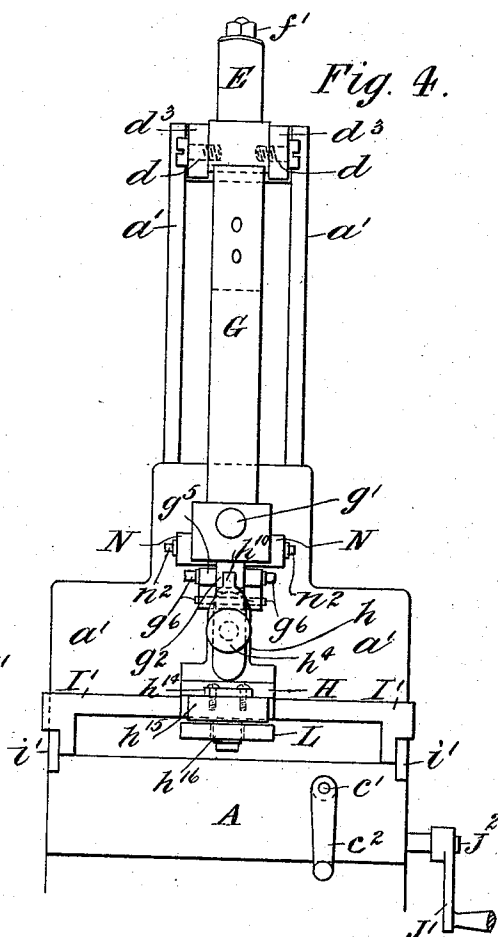
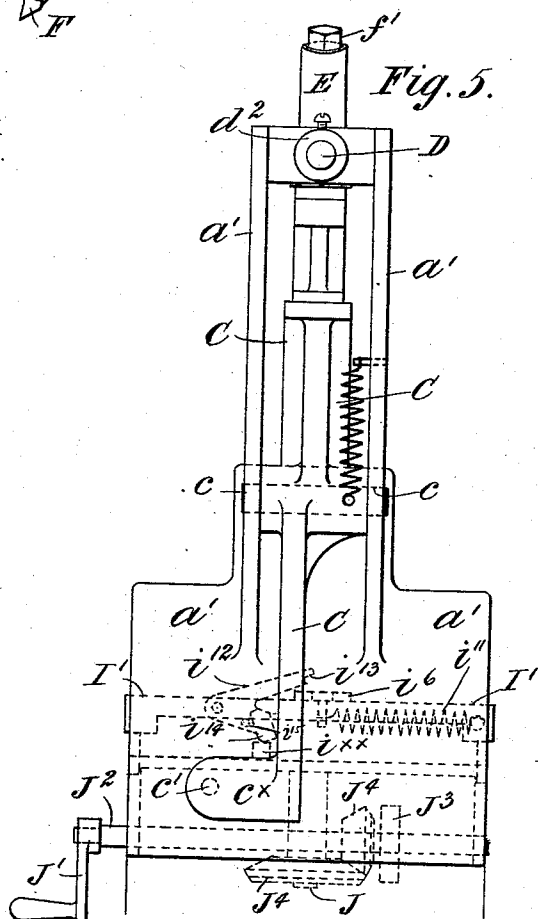
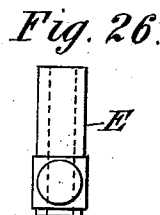
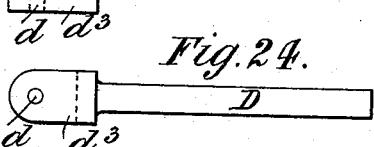
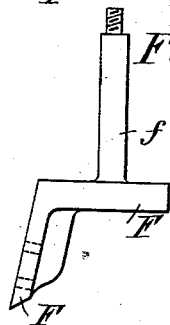
(No Model.)

C. H. & B. H. SOUTHAIR

7 Sheets—Sheet 3.

C. H. & R. H. SOUTHALL. 7 Sheets—Sheet 3
MACHINE FOR PARING EDGES OF BOOT OR SHOE SOLES OR HEELS.
No. 522,170

Patented Jan. 8, 1895.



Witnesses.
E. M. Brooke.
Baltus D^r Long.

Inventors.
Charles Henry Southwell
Robert Heath Southwell
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Paisdon & Paisdon & Night.

(No Model.)

7 Sheets—Sheet 4.

C. H. & R. H. SOUTHALL.

MACHINE FOR PARING EDGES OF BOOT OR SHOE SOLES OR HEELS.

No. 532,170.

Patented Jan. 8, 1895.

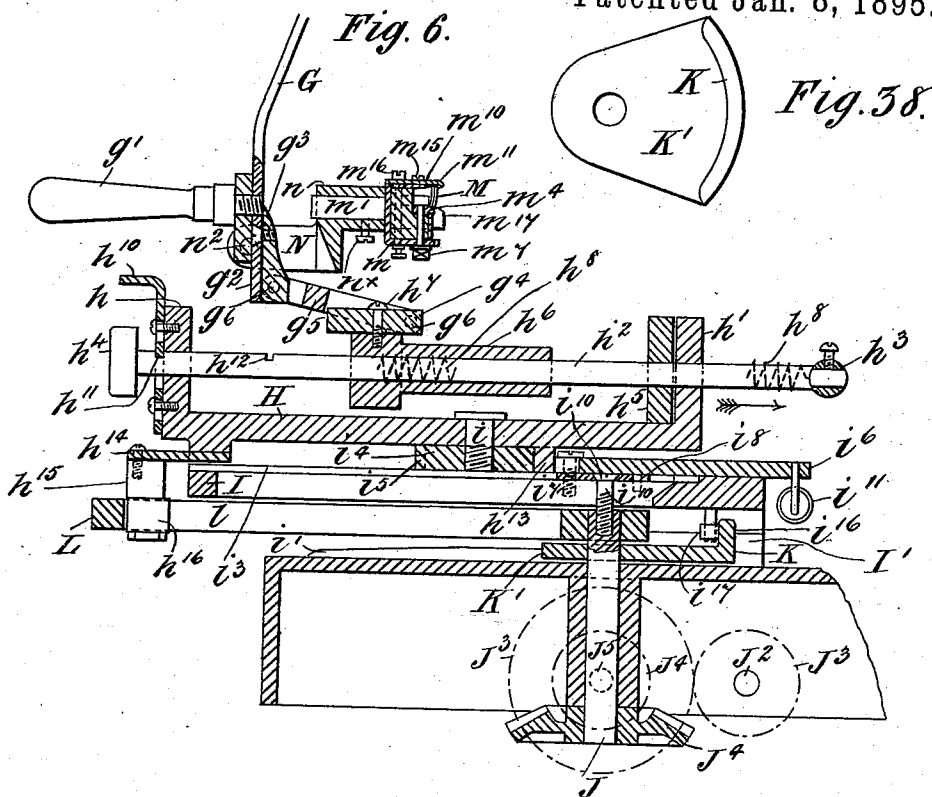


Fig. 44.

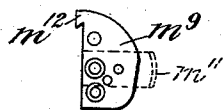


Fig. 43.



Fig. 42.

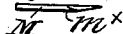


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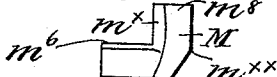


Fig. 46.



Fig. 45.

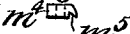


Fig. 40.

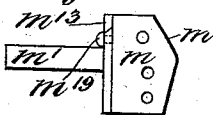


Fig. 39.

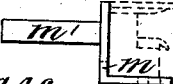


Fig. 50.

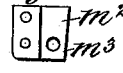


Fig. 49.

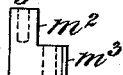


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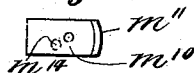


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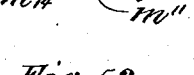


Fig. 52.



Fig. 51.

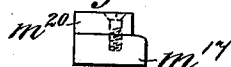


Fig. 48.

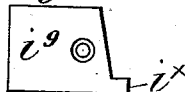


Fig. 47.



Witnesses.
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Charles Henry Southall,
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(No Model.)

7 Sheets—Sheet 5.

C. H. & R. H. SOUTHALL.

MACHINE FOR PARING EDGES OF BOOT OR SHOE SOLES OR HEELS.

No. 532,170.

Patented Jan. 8, 1895.

Fig 6^A

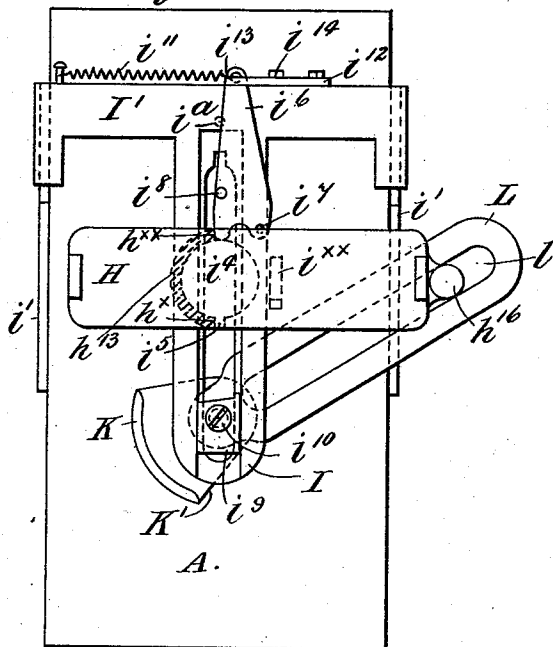


Fig 6^B

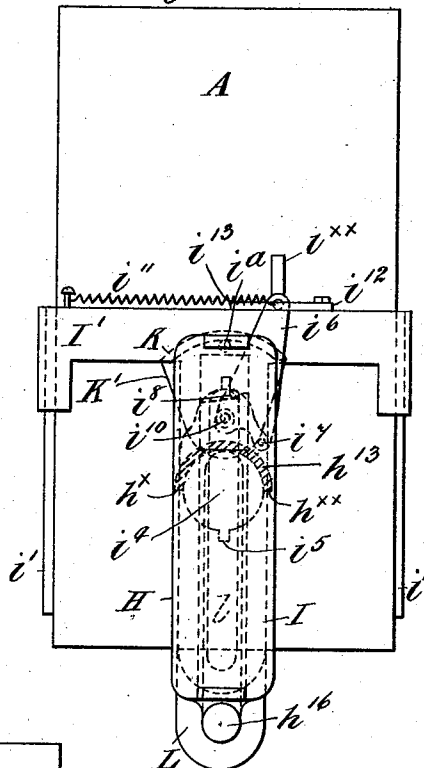
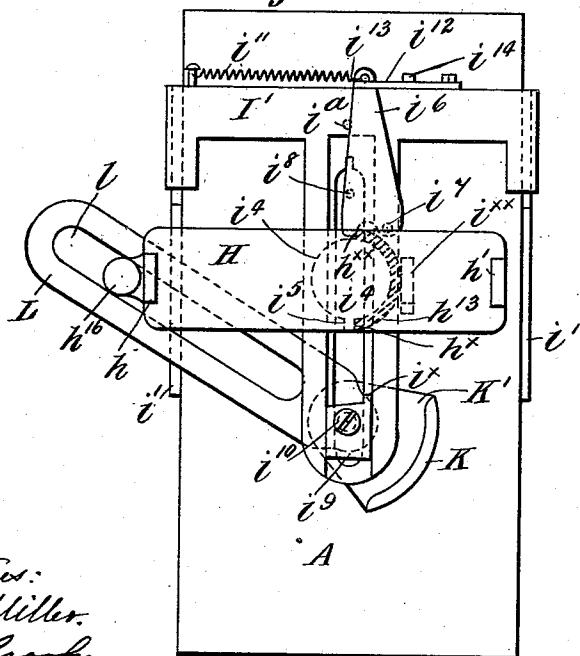


Fig 6^C



Witnesses:
B. W. Miller.
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Charles H. Southall,
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(No Model.)

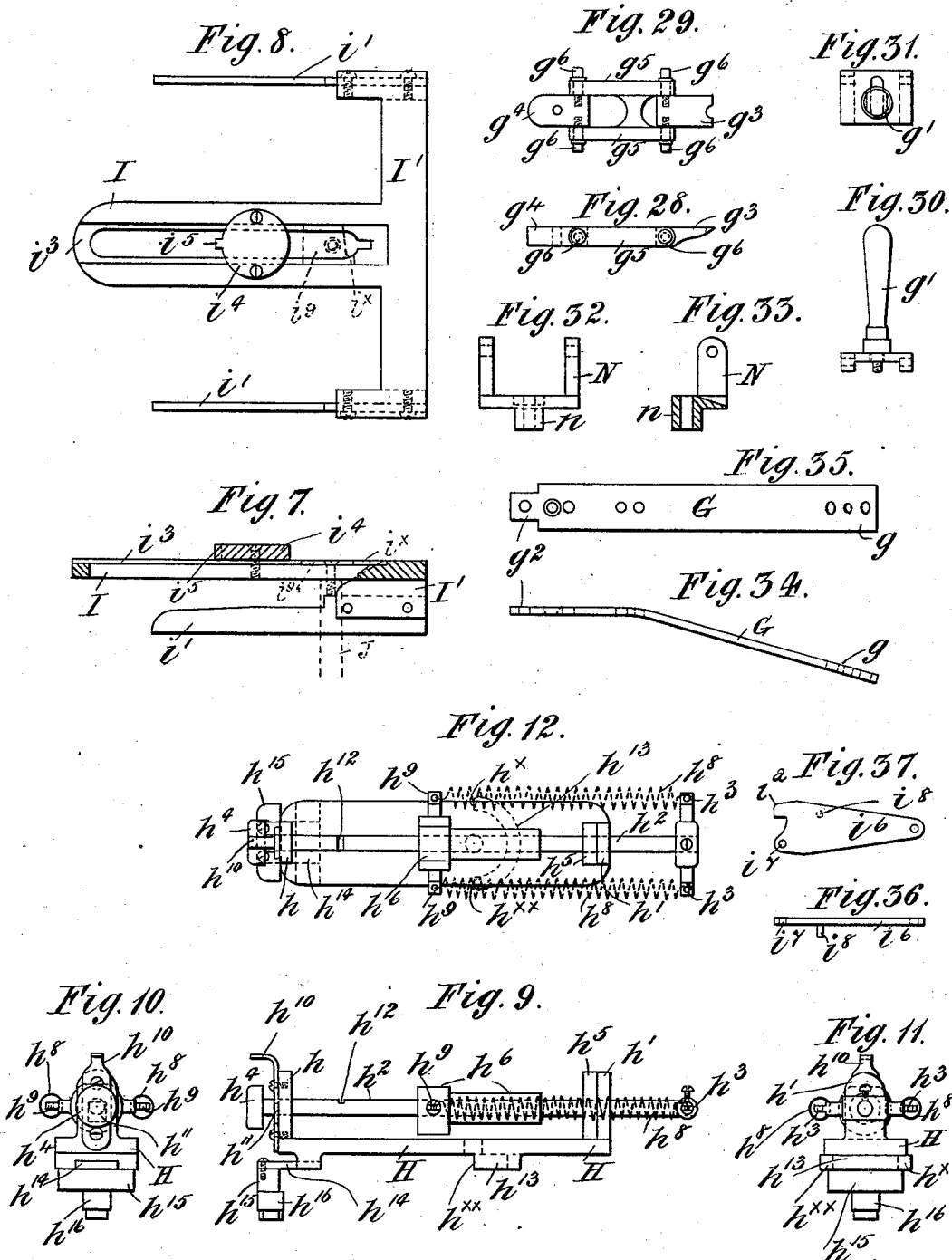
7 Sheets—Sheet 6.

C. H. & R. H. SOUTHALL.

MACHINE FOR PARING EDGES OF BOOT OR SHOE SOLES OR HEELS.

No. 532,170.

Patented Jan. 8, 1895.



Witnesses.

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Baltimore, Md.

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C. H. & R. H. SOUTHALL.

MACHINE FOR PARING EDGES OF BOOT OR SHOE SOLES OR HEELS.

No. 532,170.

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Fig. 15.

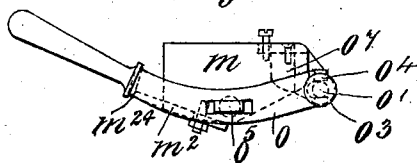


Fig. 14.

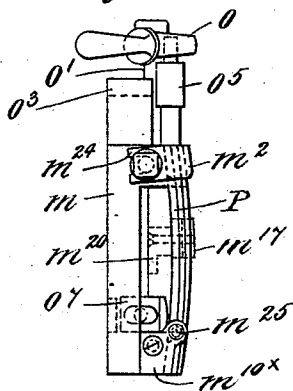


Fig. 13.

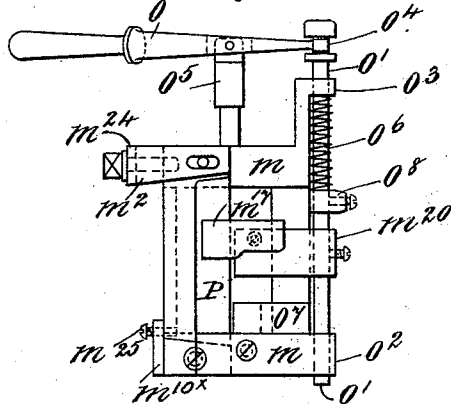


Fig. 19.

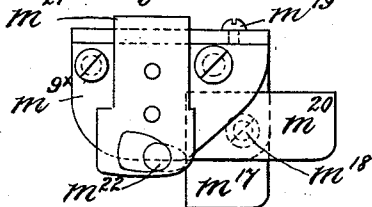


Fig. 16.

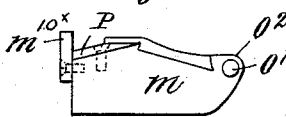


Fig. 20.

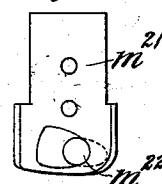


Fig. 17.

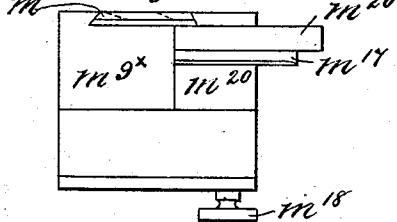


Fig. 18.

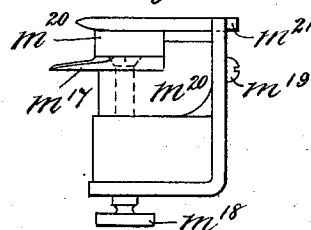
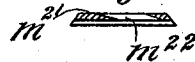


Fig. 21.



Witnesses.

C. M. Brooke
Baltus D. Long.

Inventors.
Charles Henry Southall
Robert Henry Southall
By their Attys.

Palmon Davidson Wright.

UNITED STATES PATENT OFFICE,

CHARLES HENRY SOUTHALL AND ROBERT HEAP SOUTHALL, OF LEEDS,
ENGLAND.

MACHINE FOR PARING EDGES OF BOOT OR SHOE SOLES OR HEELS.

SPECIFICATION forming part of Letters Patent No. 532,170, dated January 8, 1895.

Application filed August 11, 1893. Serial No. 482,885. (No model.) Patented in England March 20, 1888, No. 4,253, and March 13, 1890, No. 9,149.

To all whom it may concern:

Be it known that we, CHARLES HENRY SOUTHALL and ROBERT HEAP SOUTHALL, subjects of the Queen of Great Britain, residing at Leeds, in the county of York, England, have invented new and useful Improvements in Machines for Paring the Edges of Boot or Shoe Soles or Heels, (for which patents have been granted in Great Britain March 20, 1888, No. 4,253, and March 13, 1890, No. 9,149, and provisional protection March 8, 1893, No. 5,077,) of which the following is a specification.

This invention relates to improvements in machines for paring the edges of the soles and heels of boots and shoes in which a paring tool, consisting of a flat blade provided with a cutting edge, capable of adjustment to the various thicknesses of the soles and heels, is mounted so as to travel round and adapt itself to the edges of the same.

The objects of this invention are, first, to adapt one machine to pare both the foreparts and the heels of boots and shoes; second, to readily adjust the paring tool and other parts of the machine to any required angle and curve; and third, to provide means for enabling the tool and other parts to work with accuracy by locking them in position and automatically releasing them at a predetermined point. These objects are attained by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a part side elevation of the machine showing the paring tool in position for paring the edge of the toe of the sole. Fig. 2 is a plan looking at the top of the machine. Fig. 3 is a part side elevation of the machine showing the paring tool in position for paring the rear of the heel. Figs. 4 and 5 are respectively a front and back elevation of the machine with the legs of the framework removed; Fig. 6, a part sectional elevation showing the mechanism for actuating and retaining the paring tool to its work, drawn to a larger scale than Figs. 1 to 5. Figs. 6^A, 6^B, and 6^C are respectively plans drawn to the same scale as Figs. 1 to 5, showing three positions of the carriage H, slide I, locking lever ⁱ and cam K, that is to say, when the paring tool is commencing to pare the edge at the waist of the

boot; when it has pared about half of the toe; and when it has completed the paring operation. Figs. 7 and 8 are respectively a sectional elevation and a plan of the slide of the machine. Figs. 9, 10, 11 and 12 are respectively an elevation, front and back elevations, and a plan looking at the top of the carriage of the machine. Figs. 13, 14, 15, and 16 are respectively a front elevation, an end elevation, and plans looking at the top and bottom of the tool for paring the heels. Figs. 17, 18, and 19 are respectively part elevations and a plan of the edge forepart paring tool with a cutter applied for chamfering the top or welt portion of the sole. Figs. 20 and 21 are a plan and sectional elevation of the cutter for chamfering the welt portion of the sole. Figs. 22 to 60 are respectively elevations and plans of various portions of the machine drawn to a larger scale than Figs. 1 to 5; and reference is hereinafter made to these detailed views by inclosing such figures in brackets immediately following the letter of reference.

Similar letters refer to similar parts throughout the several views.

The table or plate A, its legs *a a* and its standards or uprights *a' a'*, cast or otherwise secured to the upper side of the table, constitute the framework of the machine. To the uprights *a'* is cast or otherwise fixed a long horizontal boss or projection *a²* in which is mounted and fixed a bar *a³* so as to project therefrom parallel, or nearly so, with the table. The bar *a³* is preferably made circular in cross section, and on it is mounted by means of the boss *b* a curved plate B. The plate B may be adjusted by means of the set screw *b'* in any desired position upon the bar *a³*. Between the uprights *a' a'* is also mounted on the shaft *c* the double ended lever C. The lower end of the lever C is provided with a lug *c^x* against which the end of screw-shaft *c'*, mounted in bearings provided for its reception within the table A, is made to work for adjusting purposes. The opposite end of the screw-shaft *c'* is armed with a handle *c²*. To the top *c^{xx}* of the lever C is fixed the curved lever or bar C' armed at its free end with a bedding piece *c⁴*, which is jointed thereto to hang over the plate B. The plate B and bedding piece *c⁴* are

curved to correspond with the contour of the boot or shoe sole as shown; the center of the radius of the plates being at d of the adjusting bar D.

- 5 The bar D is mounted horizontally, above the table, in the bearings $a^4 a^5$ provided for its reception in the upper part of the uprights a' so as to be adjusted laterally according to the size of the boot or shoe operated upon, to permit of the center d being immediately, or nearly so, over the center of the curvature of the boot or shoe toe. The adjustment of the bar D is regulated by the collars $d' d^2$ which are retained in position by set screws. The end d^3 of bar D is bifurcated, see Fig. 25, to receive the block or axial bearing E (Figs. 26 and 27) which is mounted therein by means of studs or trunnions at d .

- In the axial bearing E is mounted by means of the spindle f and nut f' the inverted L shaped pendent bracket F. By mounting the bracket F (Figs. 22 and 23) by the spindle f in the axial bearing E, which in turn is jointed to the bar D a universal joint is provided whereby the paring tool, to be hereinafter described, may be moved in any required direction.

- To the bracket F is fixed the end g of the lever or bar G (Figs. 34 and 35), said lever being armed with a handle g' (Figs. 30 and 31) for directing and controlling the course or angle of the paring tool. The opposite end g^2 of lever G is connected to a sliding part of the carriage H, of the machine, by means of the fixings $g^3 g^4$ and link g^5 (Figs. 28 and 29) to which the said fixings are jointed by the studs g^6 .

- The carriage H (Figs. 9 to 12) of the machine is provided with two uprights $h h'$ in which the rod h^2 slides. The rod is armed at one end with a crosshead h^3 and at the other end with a knob h^4 for bringing it in and out of action. The rod may be kept from revolving by means of the piece h^5 mounted thereon so that its lower surface will slide upon the top of the carriage. On the rod is also mounted and fixed the sleeve h^6 to which is pivotally attached, by the screw h^7 , the fixing g^4 . At Figs. 1, 2, 6, 9, and 12 the rod is shown in position for the paring tool to be in action, and it is kept to its work by the springs $h^8 h^9$, the ends of which are respectively attached to the crosshead h^3 and to the trunnions h^9 of the sleeve h^6 . The rod h^2 is held in its outward position, as shown, by a slotted catch h^{10} arranged to slide vertically on the upright h , and to pass into the notch h^{11} provided for its reception in the rod. A second notch h^{12} may also be provided in the rod for retaining it in its normal position, that is, when the paring tool is out of action.

- The slide I, (Figs. 7 and 8) is provided with a cross-piece I' of the shape shown at Fig. 8, which is made to extend across the table A. To the cross-piece I' are fixed, at a right angle therewith, the guides $i' i''$ arranged to slide longitudinally on each side of the table,

as shown at Figs. 2, 4 and 5. In the slotted slide I is a longitudinal recess i^3 for the purposes to be hereinafter described. To the face of the slide I is fixed a circular piece i^4 , around the periphery of which the semi-circular piece h^{13} , (cast or otherwise fixed to the under side of the carriage H, and which is turned to fit the circular piece i^4) works when the carriage has been traversed forward so as to bring the center of piece i^4 , under (or nearly so) the center of the toe of the boot or shoe. The circular piece i^4 is provided with a stop i^5 against which the ends h^x and h^{xx} of the semi-circular piece h^{13} are made to work for retaining the carriage H at or about a right angle with the recess i^3 as shown at Figs. 6^A and 6^C while the tool is paring the edge of the sole, say from the breast of the heel to the commencement of the radius of the toe and vice-versa. In order to retain the carriage H in the said position and thereby secure greater accuracy for the working of the paring tool, the end h^x or h^{xx} of the semi-circular piece h^{13} is held against the stop i^5 by a catch portion i^a of the lever i^6 , (Figs. 36 and 37) said catch portion being adjacent to the point at which the lever i^6 is pivoted (at i^7) to the slide I. The lever i^6 is armed on its under side with a pin i^8 which when the carriage H and slide I have traveled to nearly the position shown at Fig. 6^B engages with a notch in the form of an incline cam i^x formed in the plate i^9 (Figs. 47 and 48). The plate i^9 is arranged to slide within a recess i^3 , formed in the central arm of the slide I. The plate i^9 is fixed to the short vertical shaft J (Fig. 6) by a set screw i^{10} . The lever i^6 is locked in the position shown at Fig. 6^A, by the notched end i^{13} of a tappet lever i^{12} (Figs. 59 and 60) pivoted to the end of the cross-piece I' , at or about a right angle to the lever i^6 . When the lever i^6 is locked by the notched end of the tappet lever i^{12} , as shown at Fig. 6^A, the outer portion of the catch portion i^a of lever i^6 will be in contact with the end h^{xx} of the semi-circular piece h^{13} thereby holding the carriage H at or about a right angle to the central arm of the slide I. The paring tool to be hereinafter described is then in a position to commence paring at the waist of the boot near the breast of the heel, the catch end i^a of lever i^6 being retained against the end h^{xx} by the spring i^{11} . The lever i^6 remains locked, as described, during the outward traverse of the slide I until the commencement of the radius of the toe is reached when the enlarged weighted end i^{14} of lever i^{12} comes in contact with the incline i^{xx} (Figs. 37 and 58) fixed to the table A for raising the notched end i^{13} from its contact with the lever i^6 . Instead of allowing the weighted end i^{14} of lever i^{12} to mount the incline when it is desired to unlock the lever i^6 , the weighted end i^{14} may be arranged to travel upon the top of a bar with an inclined end, and descend the incline for releasing purposes. In either case the weighted end i^{14} may be kept in contact with the table A, or bar by a spring attached to

pin i^{15} . Simultaneously with the raising of the notched end of lever i^{12} the cam plate i^9 comes in contact with the pin i^8 on the under side of the lever i^6 , and by the continued outward movement of the slide the lever i^6 is caused by the plate i^9 to turn on its pivot i^7 and thereby move the end i^a away from the end h^{xx} and clear of the semi-circular piece h^{13} as shown at Fig. 6^B. As soon as the end i^a is clear of the semi-circular piece, the carriage H and paring tool are free to revolve around the circular piece i^4 and toe of the boot or shoe until the end h^{xx} comes in contact with the stop i^5 , when the spring i^{11} will have returned the lever i^6 to the position shown at Fig. 6^C to permit of the inner side, that is, the side nearest to the pivot i^7 , engaging with the end h^x of the semi-circular piece h^{13} for locking the carriage H again at a right angle to the central arm of the slide I, as shown at Fig. 6^C, for paring the opposite edge of the sole from the toe to the waist. Simultaneously with the releasing of the pin i^8 the runner i^{16} , mounted on pendent pin i^{17} which is screwed or otherwise fixed to the under side of carriage H, comes in contact with the inner periphery of the concentric cam K (Fig. 38) projecting from the plate K' mounted on shaft J below the slotted lever L.

The slotted lever L (Figs. 55 and 56) forms a cam for reciprocating the slide I and rotating the carriage H. To the under side of the carriage H is fixed a plate h^{14} from which projects a pendent stud h^{15} armed with a runner h^{16} arranged to work in the slot l of lever L. When the runner h^{16} has been traversed in the slot l to the position shown at Figs. 1 and 6 of the accompanying drawings the paring tool is prevented from moving out of the desired radius by the runners h^{16} and i^{16} being respectively in position by the end of lever L and cam K.

Motion for traversing the paring tool from the breast of the heel to and round the toe and back to the breast of the heel on the opposite side of the boot or shoe is imparted from the winch or other handle J' mounted on horizontal shaft J² through spur gearing J³, mounted on the horizontal shafts J² J⁵, and bevel gearing J⁴ mounted on shafts J⁵ and J.

The paring tool, previously referred to and shown in detail at Figs. 40 to 54, is provided with a knife M consisting of a flat blade shaped as shown at Figs. 41 and 42 and provided with a cutting edge m^{xx} . The knife is fixed to the face m^3 of the block m^2 (Figs. 49 and 50). The block m^2 is mounted in a carrier (Figs. 39 and 40) consisting of an angle piece m fixed to a pivot pin m' . On the block m^2 is also mounted a second block m^4 (Figs. 45 and 46) provided with a notch m^5 which passes over the edge m^6 —which is at a right angle to the back m^x —of the knife M for securing the lower portion of the knife to the block m^2 . The front of the blade is chamfered to form a cutting edge m^{xx} . The two blocks m^2 and m^4 are secured in position on the angle piece m by a single bolt m^7 . The

upper edge m^8 of the knife M is secured between the plate m^9 (Figs. 43 and 44) and welt protector m^{10} (Figs. 53 and 54) armed with a projecting lip m^{11} arranged to pass over the outer edge of the knife as shown at Fig. 6. The plates m^9 and m^{10} are held together by pin m^{14} and set screw m^{15} and fixed to the top of block m^2 by a set screw m^{16} , the notch m^{12} on plate m^9 being arranged to fit into the recess m^{13} formed for its reception in the upper part of the angle plate m for more securely fixing the knife M in position. In front of the cutting edge m^{xx} is mounted a sole guide m^{17} (Figs. 51 and 52) capable of adjustment vertically to the varying thicknesses of the soles by means of the set screw m^{18} ; and it may also be adjusted, if required, laterally by a second set screw m^{19} , shown in dotted lines at Fig. 19, working in a slot provided for its reception in the vertical portion of the angle plate m . Attached to or forming part of the sole guide m^{17} is a paring regulator m^{20} . This is placed slightly in the rear of the knife so that the latter will cut a shaving off the sole. The thickness of the piece m^{20} may vary from about three-sixteenths of an inch to any required thickness.

The pivot pin m' is mounted and secured by set screw n^x in the boss, which forms an axial bearing n , of the carrier N. The carrier N is jointed at n^3 to the lever G as shown, so as to readily adapt itself to the varying curves of the boot or shoe.

It will be readily seen on reference to Figs. 1 and 3 of the drawings that the centers of the block E, the circular piece i^4 when the tool is paring the toe, and that of the toe, or heel, of the boot or shoe are arranged almost in a line with each other, while as long a leverage as possible is obtained between the centers d and n^3 . Also by mounting the paring tool as described provision is made for adapting it to the varying contours and curves of the sole.

When it is desired to take out "the bit," that is to chamfer the top of the sole from the "upper" to its front edge, on the plate m^9 , either in addition to or in place of the welt protector m^{10} , is mounted a "bit" knife m^{21} (Figs. 20 and 21) provided with a circular hole m^{22} arranged so that its edge m^{23} not only tapers away as shown, but also forms the cutting edge for taking the "bit" out at the same time that the edge of the sole is being pared. At Figs. 17 to 19 the "bit" knife m^{21} is shown applied to the plate m^9 , and arranged to take the place of the welt protector m^{10} ; that is, to perform the functions of both welt protector and "bit" knife.

The action of the machine for paring the edge of the forepart of the sole is as follows:—The bedding piece c^4 is placed within the boot or shoe so that its lower surface will rest upon the inner sole, while the outside of the sole rests upon the plate B. By mounting the latter plate on the round pin a^3 its position will be readily adapted to the sole.

The boot, shown in dotted lines at Fig. 1, is clamped in position on the machine, with the center of the toe over the center of the circular plate i^4 , by the curved plate B and bedding piece c^4 , the requisite pressure being imparted thereto by handle c^2 through screw shaft c' which forces the end c^x of lever C outward, and the end c^{xx} inward carrying with it the bar C' for pressing the bedding piece c^4 tightly onto the inner sole of the boot. The center d is then adjusted by means of the bar D and collars d' d^2 so that the center d shall be approximately over the center of the toe. The carriage H having been previously moved to its extreme inner position, as at Fig. 6^A—that is, near the uprights a' , in which position the carriage H will be at or about a right angle to the longitudinal axis of the bar D, and to the slide I and the cam lever L at or about an angle say of twenty-eight or thirty degrees (more or less) to the said slide. The paring tool is then placed in position, after the rod h^2 has been pressed inward until the catch h^{10} is fixed in notch h^{11} , with the welt protector m^{10} (or "bit" knife m^{21}) resting upon the top of the sole, to prevent the "upper" coming in contact with the edge m^{xx} of the knife M, and the bottom of the sole resting upon the sole guide m^{17} which has been adjusted to the thickness of the sole by screw m^{18} . The knife M commences paring at or near the breast of the heel, say at x Fig. 1, at which point the lever G will have raised the knife owing to its radial connection with bar D and axial bearing E up to its work, and it is held thereto by means of the rod h^2 , sleeve h^6 , springs h^8 , fixings g^3 g^4 and link g^5 . By mounting the bar D and spindles f , m' in axial bearings, and also pivoting or jointing the bearing E, the carrier N, and fixing g^4 as described the knife M will adapt itself to the varying curvatures of the sole. The carriage H when in this position is locked by the end h^x of semi-circular piece h^{13} being held against the stop i^5 by the lever i^6 as described. By connecting the carriage H with the cam lever L, by means of runner h^{16} , pin h^{15} and plate h^{14} it is caused to slide in a longitudinal direction until the commencement of the radius of the toe is reached whenever the handle J' is rotated thereby imparting a rotary motion to the cam lever L through shafts J J^2 J^5 and gearing J^3 J^4 . The carriage H remains in a locked position until the cutting edge m^{xx} of the knife has been brought in a line with or opposite to the center of the toe, that is, at the commencement of the radius of the toe. When this point has been reached the end i^{14} of lever i^{12} will have traveled up the incline i^{xx} and raised the notched end i^{13} of lever i^{12} clear of lever i^6 , and at the same time the inclined plate i^9 will have acted upon pin i^8 , as previously described, for unlocking the carriage H and moving the lever i^6 to the position shown at Fig. 6^B, thus permitting the carriage H to revolve on its axis i around the center plate i^4 fixed to slide I. At the same

time the runner i^{16} will have been brought in contact with cam K thereby retaining the knife in position while the toe is being pared. 70 When the carriage H is released from its connection with lever i^6 the cam lever L causes it to revolve round the center plate i^4 until the end h^{xx} of the semi-circular piece h^{13} comes in contact with the stop i^5 ; during 75 which rotation the knife will have pared the toe. As soon as the end h^{xx} is against the stop i^5 the inner side of end i^a of lever i^6 then engages with the end h^x of the semi-circular piece for holding the carriage H at a right 80 angle to the slide I as shown at Fig. 6^C while the opposite edge of the sole from the toe to the breast of the heel is being pared. It will thus be seen that while the shaft J and cam lever L are making half a revolution the knife M is carried 85 completely round the edge of the forepart of the sole, that is from waist to waist, by first causing the slide I and carriage H to travel together until the knife reaches the commencement of the radius of the toe, when the carriage 90 H is released and travels alone round the toe, after which the carriage is again locked when the slide I, carriage H, and knife M are simultaneously traversed to a position near the uprights a' as at Fig. 6^C. During the traverse 95 of the knife round the edge of the sole its angle is regulated and controlled by the operator by means of the handle g' . When the knife has reached a point on the opposite edge of the sole to x the catch h^{10} is raised 100 from notch h^{11} which releases the bar h^2 and permits the springs h^8 to return the bar to its normal position for the catch to enter notch h^{12} thereby withdrawing the knife from its contact with the edge of the sole. 105

To pare the heel which requires a wider knife than is used for the edge of the sole we proceed as follows:—We use a plate B with a flat top as shown at Fig. 3, and a bar or lever C^{xx} provided with a curved end is fixed 110 to the end c^{xx} of lever C in place of the parts shown at Fig. 1. The boot, shown in dotted lines at Fig. 3, is placed with its toe toward the uprights a' , its heel resting on the plate B, and clamped thereon by the curved end of lever C' in a similar way to that described 115 for Fig. 1. The knife holder m , for the heel paring tool, is pivoted to a carrier N which in turn is jointed to the lever G as previously described. The knife P, shown at Figs. 13 120 to 15, is fixed to the holder m by means of wedge shaped plates m^{9x} m^{10x} which take the place of the blocks and plates described for the sole paring tool. The wedge shaped pieces m^{9x} m^{10x} may be adjusted by the screws 125 m^{24} m^{25} . Instead of making the welt protector a fixture and adjusting the paring regulator m^{20} , as previously described, we connect them together and arrange that they shall be capable of adjustment by means of lever O pivoted 130 to carrier m by pin O⁵. The welt protector m^{17} and paring regulator m^{20} are mounted upon the rod O' sliding in the bearings O² O³ and arranged so that the upper

end of the rod shall work between the bifurcated end O^4 of lever O . The protector m^{17} is arranged to work on the seat of the heel, and it is retained in contact therewith by a spring O^6 placed on the rod O' between the bearing O^5 and movable collar O^8 . The protector m^{17} may be raised and lowered to its work by means of the lever O . A second paring regulator O^7 to work against the top "lift" of the heel may also be provided when required. The paring tool is traversed round the heel in a similar manner to that described for paring the toe, but instead of using templets and a roller, the top "lift" or layer of the heel is cut nearly to its finished size before the heel is built and it is made to take the place of a templet, and the knife is guided round the heel by the handle g' .

Having now particularly described the nature of this invention and how the same may be carried into practice, I declare that what I claim is—

1. A machine for paring the edges of the soles and heels of boots and shoes, comprising a main frame, means for holding a boot or shoe in position, a flat cutting blade, a carrier in which it is mounted, a bracket to which the carrier is hinged, a universal joint or connection between the bracket and the frame of the machine, a welt protector, a sole guide secured to the knife carrier, a carriage, flexible connections between the knife-carrier and the carriage, a slide to which the carriage is pivotally connected and mechanism for operating the carriage and slide.

2. In a boot and shoe edge paring machine, the combination of a main frame, a paring knife, a carrier in which it is mounted, a bracket pivotally connected with the knife carrier, a universal joint or connection between the bracket and the frame of the machine, a carriage provided with a spring actuated sleeve connected by links with the knife carrier, a slide pivotally connected with the carriage, and mechanism for operating the carriage and slide.

3. In a boot and shoe edge paring machine, a paring knife mounted in a carrier pivoted to a pendent lever suspended from a laterally adjusted bar capable of turning in its bearings, said lever being coupled to the bar by a universal joint and its motion controlled by a slide and carriage mounted on a table below the work, and mechanism as described for locking the carriage during one portion of its traverse, releasing it during another stage, and again locking during the completion of the same.

4. In a boot and shoe edge-paring machine, the combination of a main frame, a knife, a block to which it is fixed, a carrier in which the block is mounted, an attaching piece in which the carrier has an axial bearing, a pendent lever to which the attaching piece is secured, and an adjustable bar to which the pendent lever is connected.

5. The combination of the knife M , the car-

rier m , the block m^2 mounted therein and to which the knife is secured, the block m^4 in which the edge of the knife is seated, the bolt m^7 for securing the blocks m^2 and m^4 to the carrier m , the plate m^9 between which and the carrier m the knife is secured, the welt protector m^{10} on the upper end of the knife, the sole guide m^{17} near the edge of the knife and the paring regulator m^{20} mounted on the sole guide.

6. The combination in a boot and shoe edge-paring machine of a main frame, an adjustable bar, a knife carrier operatively connected with the adjustable bar, a knife in said carrier, and a combined bit knife and welt protector attached to a blade m^9 of the carrier, substantially as and for the purpose specified.

7. The combination, in a boot and shoe edge paring machine, of a knife fixed in a carrier, a sole guide adjustably mounted in said carrier, a second carrier having an axial bearing in which the spindle of the first named carrier is mounted, a pendent lever to which the second carrier is jointed, a handle fixed to said pendent lever, a universal joint consisting of a fixing to which the pendent lever is attached, and an axial bearing, and a bar adjustably mounted in the framework of the machine, as set forth.

8. The combination in a boot and shoe edge paring machine, of the table A , the slide I mounted to reciprocate thereon, the carriage H , connected with the slide, the cam lever L operatively connected with the carriage, mechanism for actuating the lever L , the bar h^2 mounted on the carriage, the cross-head h^3 on the bar, springs h^5 secured to the cross-head, a sleeve h^6 on the bar h^2 to which the springs h^5 are secured, the pendent bracket G , the knife carrier N , secured thereto, a knife M , connected with the carrier and connections between the knife carrier and the sleeve h^6 of the carriage.

9. In a boot and shoe edge paring machine, the combination of a carriage armed with a semi-circular piece, a slide having a recess in its slotted guide and armed with a stop and circular center piece, the locking and releasing mechanism, a runner mounted on a pendent pin, a slotted cam lever, a cam plate and mechanism as described for intermittently reciprocating the slide and rotating the carriage, for the purposes specified.

10. The combination in a boot and shoe edge paring machine of the carriage H , a slide I pivotally connected with the carriage, a bar h^2 in bearings h h' in the carriage, a catch h^{10} mounted on the carriage and engaging with the bar h^2 , a cross-head h^3 secured to the bar h^2 , a sleeve h^6 carried by the bar, springs h^5 connecting the cross-head with the sleeve, a paring knife, and connections between the sleeve and the paring knife.

11. The combination, in a boot and shoe edge paring machine, of a slide mounted upon the table of the machine and having a slotted center and recessed guide, a locking piece work-

ing in said recessed guide, a lever mounted on the top of said slide, a tappet piece, an incline mounted on said table, a circular center piece armed with a stop, and a carriage armed with a semi-circular piece, for the purposes specified.

12. The combination in a boot and shoe edge paring machine, of the table A, uprights a' , a boss a^2 projecting from the uprights a' , a bar a^3 supported in the boss a^2 , a boss b adjustably secured to the bar a^3 , a plate B mounted on the boss b , a double-ended lever C, a bar C' connected therewith, a bedding piece c^4 jointed to said bar C' , and mechanism substantially as described for adjusting the bedding piece to its work.

13. In a boot and shoe edge-paring machine, the combination of a table, its upright, an ad-

justable bar carried by the upright, the work supporting and clamping devices also carried by the upright, the knife, its carrier, a pendent lever to which the carrier is connected, and which is adapted to adjust itself to the varying curvatures of the sole, the carriage, a slide mounted in the table and mechanism for actuating and locking and releasing the same, substantially as set forth.

In testimony whereof we have hereunto signed our names to this specification, in presence of two subscribing witnesses, the 24th day of June, 1893.

CHARLES HENRY SOUTHALL.

ROBERT HEAP SOUTHALL.

Witnesses:

W. FAIRBURN HART,

ADAM C. HART.