2 Sheets--Sheet 1.

R. C. LAMBART.

Machines for Trimming the Heels and Soles of Boots and Shoes.

No. 152,388. Patented June 23, 1874.

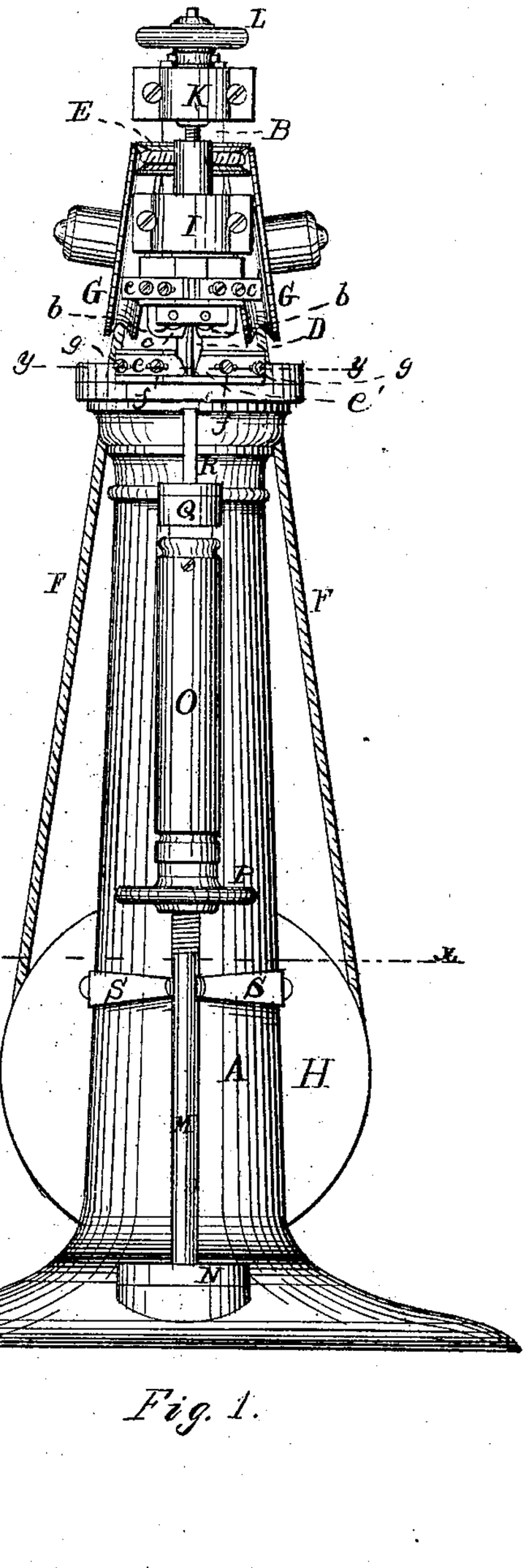

Fig. 1.

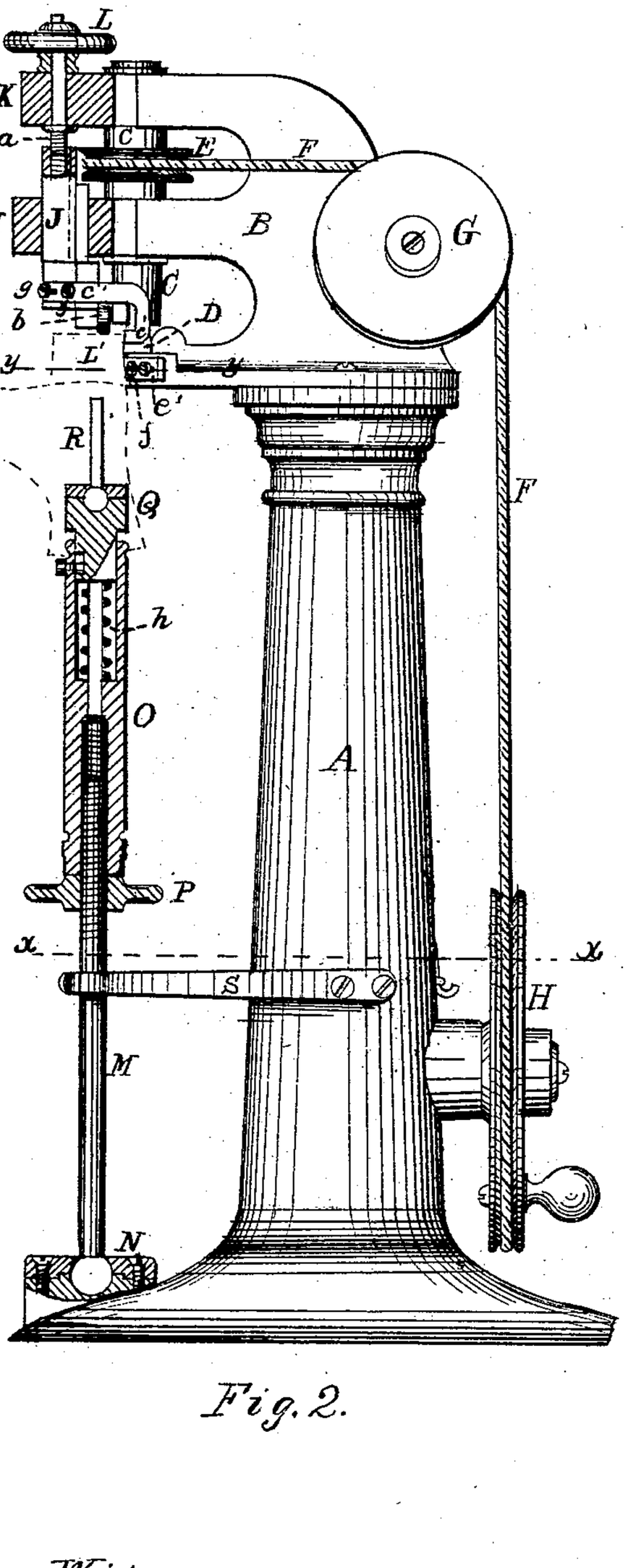

Fig. 2.

Witnesses
Wm. P. Edwards
L. A. Hood

Inventor
Richard C. Lambart.

2 Sheets--Sheet 2.

R. C. LAMBART.

Machines for Trimming the Heels and Soles of Boots and Shoes.

No. 152,388 Patented June 23, 1874.

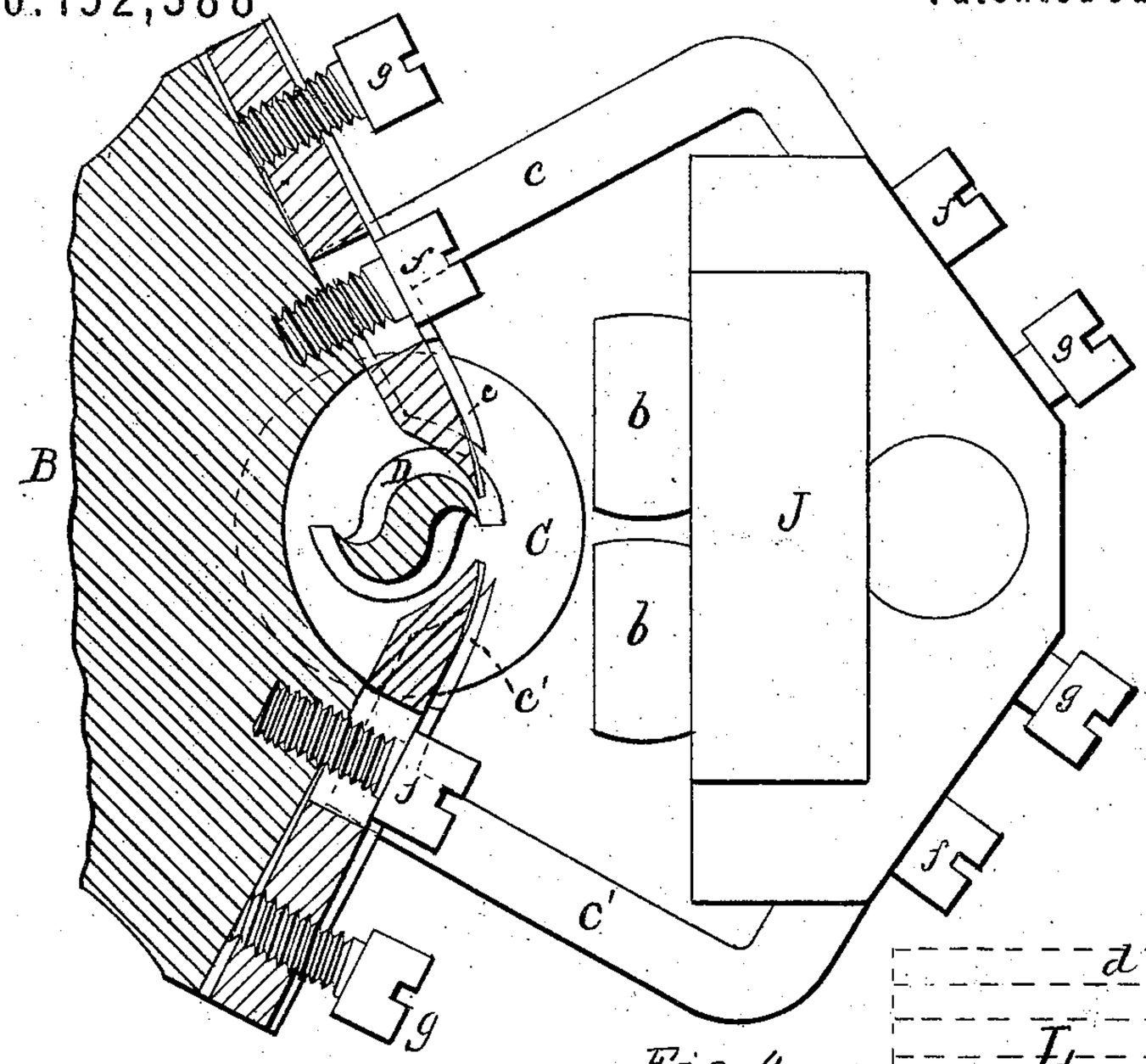

Fig. 4.

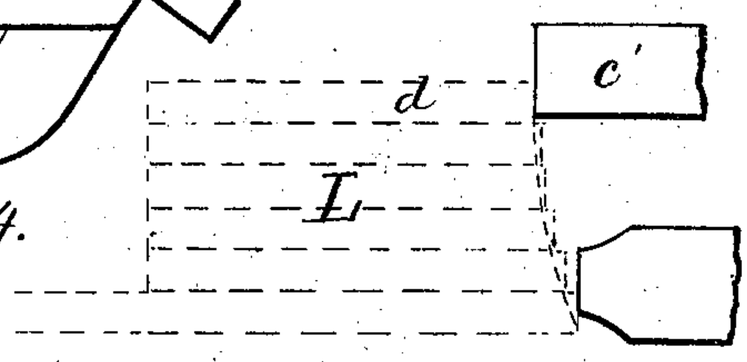

Fig. 5

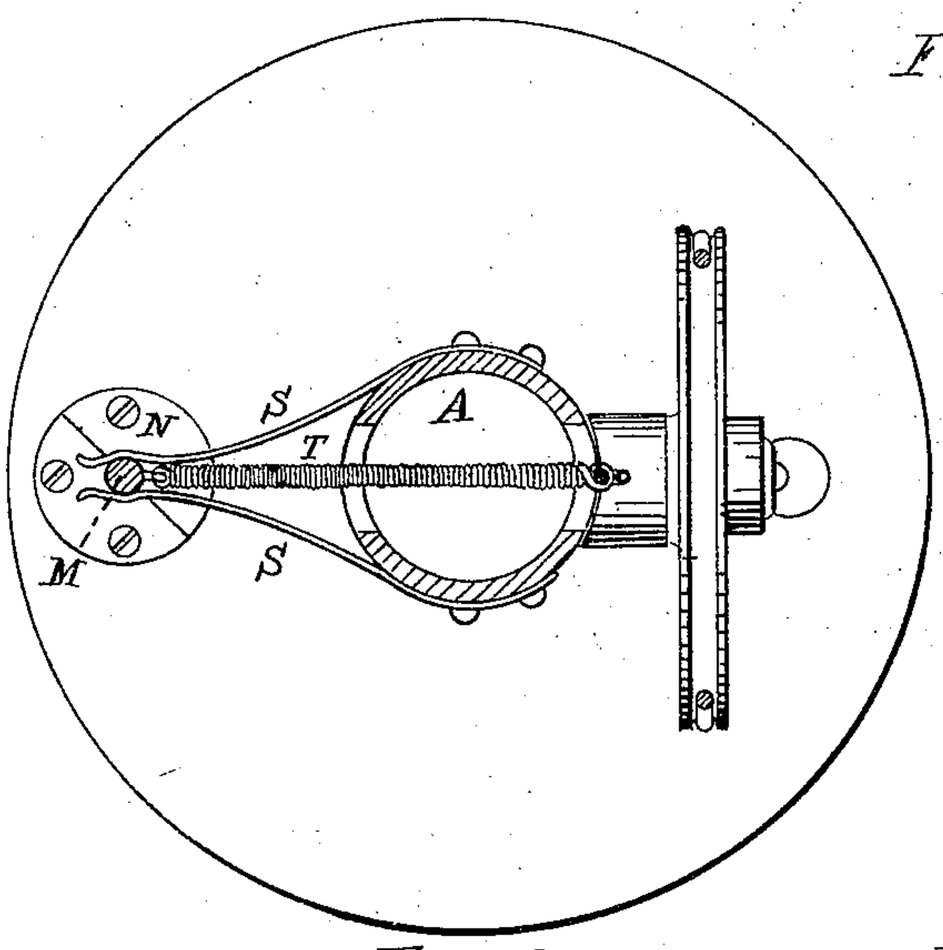

Fig. 3.

Witnesses.
Wm S Edwards
L. C. Wood.

Inventor
Richard C. Lambart

UNITED STATES PATENT OFFICE.

RICHARD C. LAMBART, OF QUINCY, ASSIGNOR OF ONE-HALF HIS RIGHT TO FRED S. POTTER, OF NEW BEDFORD, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR TRIMMING THE HEELS AND SOLES OF BOOTS AND SHOES.

Specification forming part of Letters Patent No. **152,388**, dated June 23, 1874; application filed May 6, 1874.

To all whom it may concern:

Be it known that I, RICHARD C. LAMBART, of Quincy, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Trimming the Heels and Soles of Boots and Shoes, of which the following, taken in connection with the accompanying drawings, is a specification:

My invention relates to that class of heel and sole trimming machines in which a rotary cutter is used for reducing the heel or sole edge to the proper form and size, and particularly to the manner of gaging the cutter, and to the construction and arrangement of the jack for supporting the shoe; and it consists, first, in the use, in combination with a rotary cutter, of one or more pairs of gages, so arranged with relation thereto as to partially embrace said cutter and present two points of bearing for the sole or heel to each pair of gages, said gages also being so arranged as to bear against the sole or heel to gage the depth of the cut, the gages upon one side of said cutter being adjusted to bear against the edge of the sole or heel before it reaches the cutter, while the gages upon the other side of said cutter are adjusted to bear against the edge of the sole or heel after it has left the cutter, the variation in the adjustment in the two gages of any pair determining the depth of cut made by the cutter at that point. My invention further consists in so combining a pair of gages arranged to partially embrace or inclose said cutter, and one or more gage-rollers arranged to rest upon the tread-surface of the heel, and thus determine the position of the heel vertically, that said gages and the rolls may be adjusted vertically at one time and by the same operation. My invention further consists in the use of a jack for supporting the boot or shoe, consisting of a rod or standard, having its lower end stepped upon and secured to the base of the frame nearly in a direct line under the outer edge of the cutter by means of a ball-and-socket joint, a sleeve adjustable thereon to vary the length of said jack-rod to adapt it to variations in the depth of the lasts, and a jack-head, having attached thereto by a ball-and-socket joint a pin or stud, to be inserted in a hole in the last, said jack-head being mounted upon a spring in such a manner that it will yield to adapt itself to slight variations in the thicknesses of the heels. My invention further consists in the combination of a jack, constructed and arranged to yield to slight variations or unevenness in heels, and one or more gage-rollers, arranged to bear upon the tread-surface of the heel, and to be adjusted, mechanically, in a vertical direction to adapt the machine to thick or thin heels. My invention further consists in a peculiar arrangement of springs for controlling the position of the jack, as will be further described.

In the drawings, Figure 1 is a front elevation of a machine embodying my invention. Fig. 2 is a side elevation of the same, with a portion of the jack and the upper frame in section. Fig. 3 is a horizontal section on line *x x* on Figs. 1 and 2. Fig. 4 is a horizontal section on line *y y* on Figs. 1 and 2, looking up, and drawn to an enlarged scale, to show more clearly the relative position of the gages to the cutter; and Fig. 5 is a diagram drawn to the same scale, and showing the relative bearings upon the heel-blank of the two pairs of gages.

A is a column, provided with a broad base, and to the top of which is bolted the frame B, in which is mounted, in a vertical position, the shaft or spindle C, to the lower end of which is secured the cutter-head D. The spindle C is provided with the grooved pulley E, by means of which and the belt F, passing over the idle-pulleys G G and around the driving-pulley H, rotary motion is imparted to the cutter in an obvious manner. In the cap I of the lower bearing of the spindle C is mounted the gage-bar J, in such a manner that it may be moved up or down by means of the screw *a*, which is fitted to revolve in a bearing formed in the cap K of the upper bearing of the spindle C, said screw being provided with the hand-wheel L, by which it may be operated. The gage-bar J is so fitted to its bearing that while it may be moved endwise therein it cannot be rotated; and it has mounted upon its lower end, which is enlarged for the purpose, the gage-rollers *b b*, one or

more, which rest upon the tread of the heel or sole, and by their location determine the position of said tread relative to the cutter. To the lower end of the gage-bar J are also attached the gages *c* and *c'*, so arranged with relation to the rollers *b b* and the cutter-head D that they shall partially embrace or inclose a portion of the cutter near its upper end and toward the front side thereof, in such a position that when the heel L' is presented to the action of the cutter, as shown in dotted lines in Figs. 2 and 5, said gages will be in position to be pressed against by the edge of the outer or tread lift *d*, and limit the depth of the chip to be cut therefrom by the cutter D.

Near the lower end of the cutter-head D are located the gages *e* and *e'*, arranged to partially embrace the cutter-head, and secured to the frame B in such a position that when the heel L' is presented to the action of the cutter the edge of the heel portion of the outer sole shall bear against the gages *e* and *e'*, as shown in Figs. 2 and 5, and in trimming the edge of the sole said gages will bear against the edge of the sole, one upon the untrimmed portion, and the other upon the trimmed or finished portion, the gages *c*, *c'*, *e*, and *e'* being so secured to their supports by the holding-bolts *f f*, and controlled by the set-screws *g*, that either of said gages may be adjusted toward or from the cutters independently of the others. M is a rod, provided with a ball upon its lower end, fitted to and inclosed in the socket N, formed upon the base of the column A, in a well-known manner, and provided with a screw-thread at its upper end, upon which is screwed the extension-sleeve O and the check-nut wheel P, in such a manner that the sleeve may be adjusted upon the rod M, and secured in the desired position by said nut. Q is the jack-head, fitted to a suitable bearing in the upper end of the sleeve O, and resting upon the spring *h*, inclosed within said sleeve, in such a manner that it may yield slightly to pressure applied thereto from above, and having fitted to its upper end, by a ball-and-socket joint, the pin R, which is designed to enter a hole in the last provided for the purpose. S S are two leaf-springs attached to the columns A, the outer ends of which rest against the rod M, upon opposite sides thereof, as shown in Fig. 3, and tend to hold the jack in a perpendicular position in one direction. T is a spiral spring connected at one end to the column A, and at the other to the rod M, the tension of which serves to hold the shoe mounted upon the pin R in contact with the gages *c*, *c'*, *e*, and *e'* while the shoe is being turned or fed forward by the hand of the operator, to bring the various parts of the edge of the heel or sole to the action of the cutter.

By the use of my improved machine, all necessity of a pattern to determine the shape of the tread of the heel is done away with, and all contact of the gages with the upper of the boot or shoe is avoided, the outer or tread lift of the heel and the edge of the outer sole being the patterns which determine the shape of the heel and sole, it being, of course, essential to the proper working of my machine that said lifts and soles should be cut by dies of the desired shape in outline that the sole and tread of the heel are to have when finished, but slightly larger, to allow for trimming.

The form or style of the heel may be varied by changing the relative size of outer or tread lift, as compared to the size of the heel-seat, and by varying the form of the cutters.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In combination with a rotary cutter for trimming the edges of boot and shoe soles or heels, the gages *e* and *e'*, one or both arranged with relation to the cutter as set forth, and to gage the cut of the cutter by bearing against the edge of the sole or the inner lift of the heel, substantially as described.

2. In combination with a rotary cutter for trimming boot and shoe heels, the two pairs of gages *c* and *c'* and *e* and *e'*, arranged to partially embrace or surround the cutter and gage the depth of its cut by bearing upon the outer and inner lifts of the heel, substantially as described.

3. The adjustable gage-bar J, in combination with one or more rollers, *b*, to rest upon the tread-surface of the heel, all as shown and described.

4. The adjustable gage-bar J and rollers *b*, in combination with gages *c* and *c'*, all as and for the purpose set forth.

5. The jack-rod M, connected at its lower end by means of a ball-and-socket or universal joint to any suitable fixed support, and provided with the extension-sleeve O and check-nut P, in combination with the last-pin R, attached to the upper end of the sleeve O by means of a ball-and-socket or universal joint, substantially as described.

6. In combination with the vertically-adjustable gage-rolls *b*, the jack-head Q and the pin R, mounted upon a spring, substantially as described, for the purpose specified.

7. The springs S S and T, in combination with the jack for holding the boot or shoe, all constructed and arranged substantially as described.

Executed at Boston this 30th day of April, 1874.

RICHARD C. LAMBART.

Witnesses:
WM. P. EDWARDS,
S. A. WOOD.