L. Hall,

Heel Machine,

No. 25,605. Patented Sep. 27, 1859.

Fig. 1.

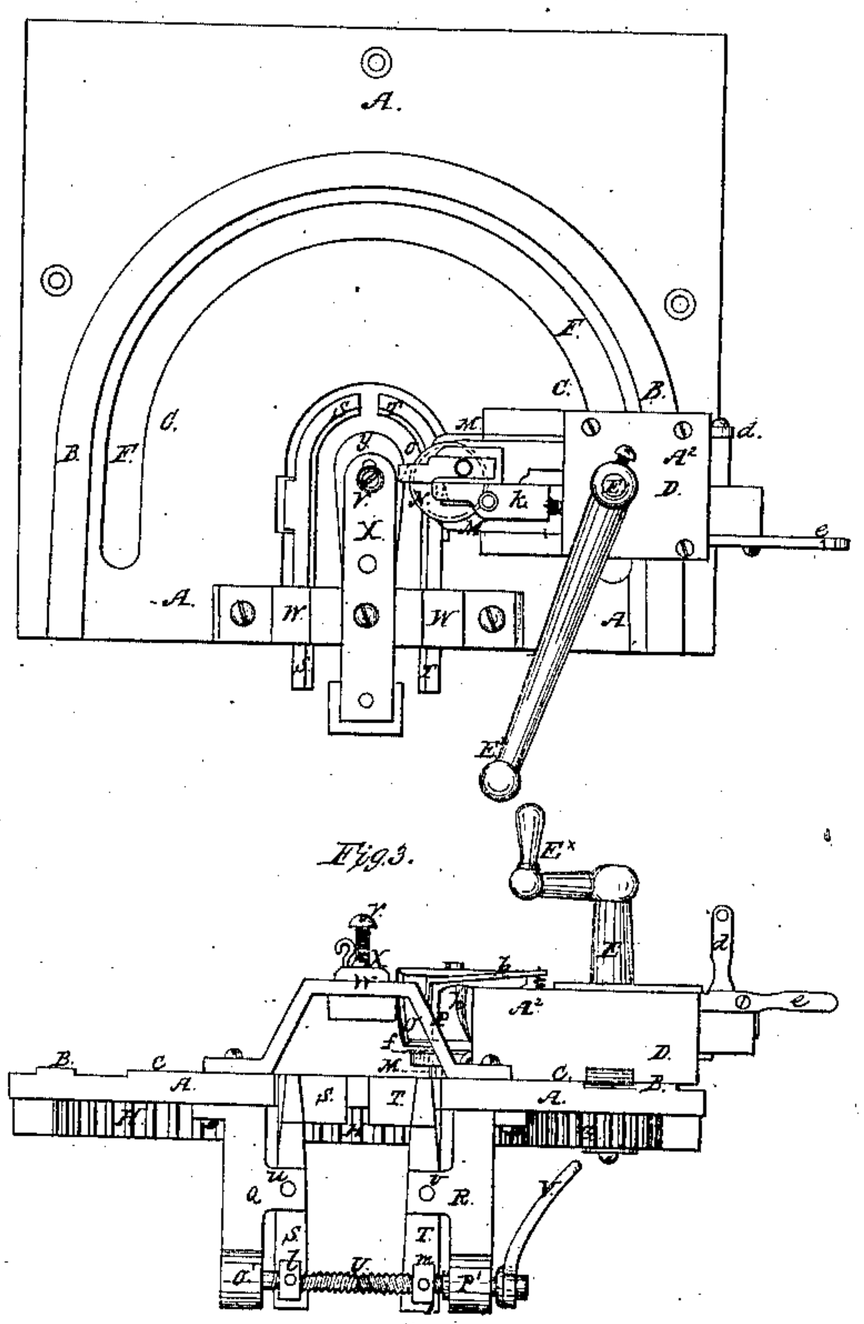

Fig. 2.

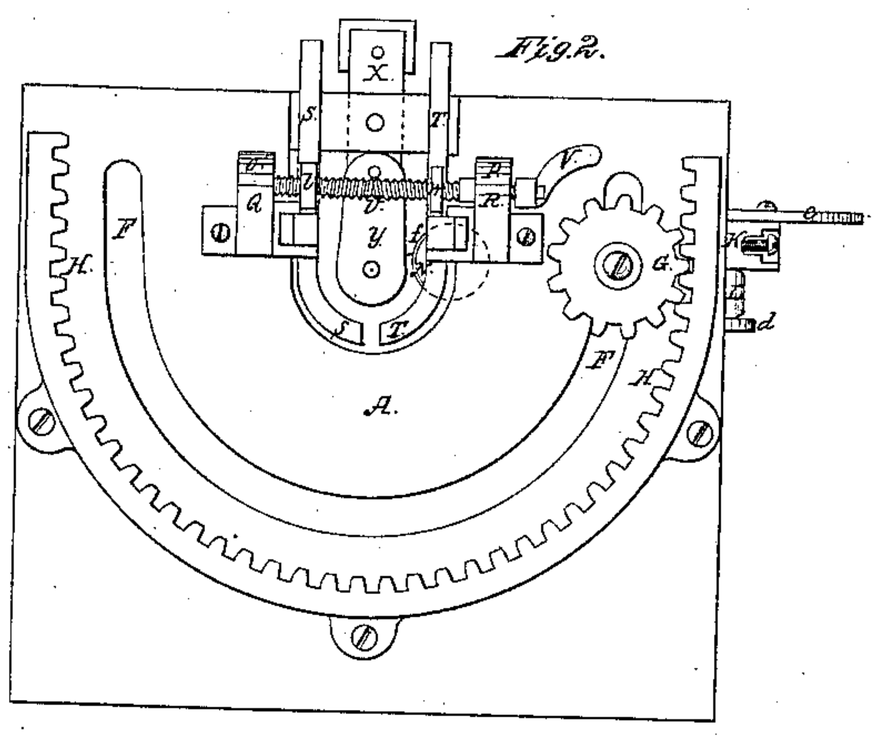

Fig. 3.

Fig. 4.

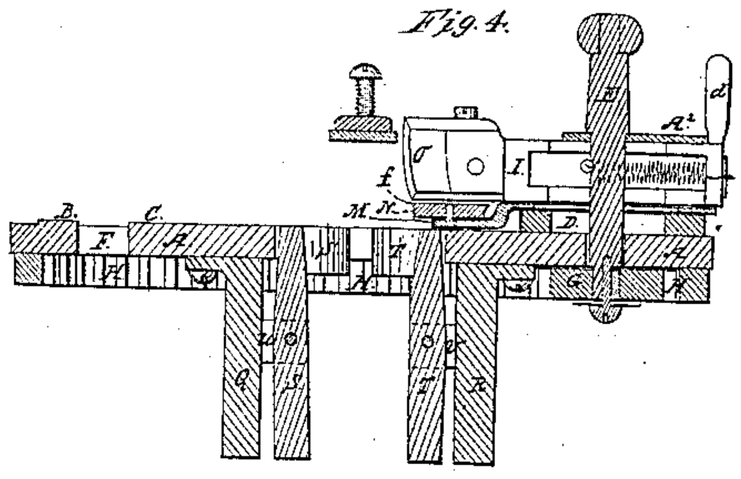

Fig. 5.

Fig. 6.

Fig. 7.

Witnesses:
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UNITED STATES PATENT OFFICE.

LUTHER HALL, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND S. S. HEMENWAY, OF SAME PLACE.

MACHINE FOR SHAPING HEELS FOR BOOTS AND SHOES.

Specification of Letters Patent No. 25,605, dated September 27, 1859.

To all whom it may concern:

Be it known that I, LUTHER HALL, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful or Improved Machine for Dressing or Shaping the Heels of Boots or Shoes; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, of which—

Figure 1, denotes a top view of the said machine, Fig. 2, an underside view, Fig. 3, a front elevation, Fig. 4, a vertical and longitudinal section of it, taken through the cutter carriage and its shaft, Fig. 5, is a side elevation of the primary cutter and its carrier as removed from their carriage, and Fig. 6, is a side elevation of the secondary cutter and its carrier under like circumstances, Fig. 7, is a top view of the guide friction wheel and its carrier to be hereinafter described.

The nature of my invention consists in the combination of a stationary bed plate, a movable cutter carriage, (provided with self adjusting cutters, and carriers,) adjustable clamps, a guide friction wheel, and a curved rack and pinion the same being intended not only for clamping a shoe or boot (while on a last) in position, but for reducing or giving the proper shape to the edge of the heel thereof.

It also consists in combining with adjustable clamps (constructed as hereinafter described,) an adjustable holder, the same being so constructed and arranged as not only to coöperate with the clamps in maintaining the heel firmly in position, but to serve as a pattern to give to the heel any desirable contour on its bearing surface.

It further consists in a peculiar construction of the secondary cutter carrier, and the arrangement of the secondary cutter with respect to the primary cutter, the guide friction wheel, and the heel tread former, whereby the said secondary knife is rendered capable of giving the bearing surface of the heel any desirable form.

In the drawings A, denotes the bed plate or table for supporting the operative parts of the mechanism; B, C are curved ways formed on the top surface of said plate as shown in Fig. 1. On these ways or rails the cutter carriage D, rests and is made to freely slide, the said carriage being confined to the rails by means of an upright shaft E, passing down through it and through a curved slot F formed vertically through the plate A, as seen in the drawings. On the lower end of said shaft, a pinion G, is placed, such pinion being firmly attached thereto and made to bear and freely turn upon the under face of the bed plate, A. The shaft E, carries a handle or crank E*, on its upper end for the purpose of giving motion to the said pinion. Furthermore the said pinion engages with the curved rack H, as seen in Fig. 2, such rack being firmly secured to the underside of the bed plate by means of screws or in any other proper manner. The said cutter carriage consists of a rectangular or other proper shaped box A^2, open at its two ends, and having a cap plate of the form as shown in Fig. 1, upon its top surface. The said carriage, carries the two cutter carriers I, K, and the guide wheel carrier M. The cutter carriers are so arranged within the carriage D, as to slide freely in longitudinal directions and are respectively pressed forward by means of springs *a*, *b*, and drawn backward by the levers *d*, *e*. On the bottom of the carriage, the guide wheel carrier M, is disposed, and not only slides freely in longitudinal directions thereon, but serves as a support for the cutter carriers I, K, to move upon, said carrier M having a friction wheel N, affixed to its inner end as shown in Fig. 7. The said wheel N, is formed with a flange *f*, on its upper edge, the same extending at a right angle to its bearing surface as seen in the drawings. This wheel is intended to bear and run against the upper leather around the heel of the boot or shoe, such constituting a pattern for giving form to the boot heel.

The primary knife O, is constructed of the form and affixed to the front end of the carrier I, as shown in Fig. 5. This knife is intended to do the main cutting or dressing. The secondary knife carrier is composed of two parts *h*, *i*, the part *h*, having the cutter P, affixed to it being hinged to the part *i*, so as to be capable of turning vertically thereon. On the top surface of the part *h*, an adjustable plate or gage *k*, is disposed the same at its outer end, being bent so as to stand parallel, or nearly parallel to the edge of the knife. Furthermore, the edge of the cutter P, stands in a direction the reverse of that of the cutter O, and not in the same

plane, but at an inclination thereto, as seen in Fig. 3. The said gage *k* acts in conjunction with the adjustable holder, to be hereinafter described, in giving the desired contour to the bearing surface of the heel.

From the underside of the bed plate A, two vertical standards Q, R, extend downward in position as shown in Fig. 2, and have projections *u*, *u*, *v*, *v*, extending respectively from each; between such projections, the shanks of the clamps S, T, are hinged (as shown in Fig. 3,) and in such manner as to enable the clamps to be moved either toward or away from each other. From the lower parts of the said shanks, two extensions *l*, *m*, project, and through each of them respectively, a right and left handed female screw is formed, a shaft U, having a right and left handed male screw cut upon it, passes through such female screws, and has its bearings in projections *o'*, *p'*, on the lower part of the vertical standards Q, R, as seen in the drawings. To one end of the shaft U, a lever V, is attached, the same being for the purpose of enabling a person to put the said shaft in rotation and consequently cause the clamps or jaws either simultaneously to approach or recede from one another, as occasion may require. The said clamps are formed as shown in the drawings and have their inner edges sloping upward, their top surfaces being intended to come up flush with the top surface of the bed plate.

Attached to the top part of a pyramidal frame W, which is affixed to the upper surface of the bed plate A, is a plate or bar X, such bar having an adjustable holder and frame Y, disposed on its under side and near its outer end, such holder being capable of moving vertically by means of projections or pins extending from it and working through corresponding holes formed in the said bar X, the same being as shown in Fig. 1, a set screw *r*, serving to fasten the holder firmly against the tread or bearing surface of the heel of a boot when placed within the clamps, the said device X not only coöperating with the clamps, in maintaining the boot in its proper position, but serving as a pattern to give to the heel any desirable contour on its bearing surface.

Having thus described the construction of my improved machine, I will now describe its operation. In the first place, the clamps S, T, are to be opened a sufficient distance apart, to receive a boot or shoe whose heel is to be dressed or shaped: next, we place such boot or shoe between the clamps, with its sole and heel upward and bring the heel up so that the flange of the wheel N, shall come between the upper and sole of the boot or shoe—the holder and former Y, is next to be depressed until it comes in contact with the tread or bearing surface of the heel and firmly secured; the clamps or jaws S, T, are next caused to approach each other until the said boot or shoe is firmly fixed in its proper position. This having been accomplished we draw back, the secondary cutter P, by means of the lever *e*, and allow the primary cutter O, to be forced forward to its proper position over the wheel N. Under this state of things if we turn the crank E*, so as to put the shaft E, in revolution, the pinion G, affixed to its lower end, and engaging with the rack H, will cause the cutter carriage to be set in motion and the cutting edge of the primary cutter to be brought in contact with the leather composing the heel, the friction wheel traveling around the contour of the heel of the upper, guides the edge of the cutter and enables it to give to the heel, to be dressed or trimmed, a shape in conformity with the heel of the last. And moreover, the said wheel being so connected to the primary cutter (which by means of its spring allows the cutter to adapt itself to the movement of the guide wheel,) as to be able to readily adjust itself to the contour of the upper. After the primary cutter has passed around the heel of the boot and has trimmed or pared down the same, we draw backward the said cutter and allow the secondary cutter to move forward for the purpose of trimming or giving to the tread or bearing surface, its desirable contour. It will be seen that by the arrangement of such cutter, its lower edge will not be brought into operation at all on the heel of the boot, but that its top part, or that of its parallel guard, will be forced by the spring *s*, against the holder and former Y, if now we turn the handle or crank E* backward, the said secondary cutter will be moved around in contact with, and will finish the edge of the boot heel, or give its bearing surface, its desired contour.

From the above it will be perceived, that with a machine so constructed, we not only have the means of readily clamping the heel of any ordinary boot or shoe firmly in position, preparatory to its being reduced or dressed, but by its peculiar arrangement, we are not only enabled to give the boot heel a form, corresponding with that of the last or the upper, on the same, but to give its tread or bearing surface any desirable form.

I claim—

1. The combination of the stationary bed plate A, the movable cutter carriage D, (provided with self adjusting cutters O, P, and carriers I, K,) adjustable clamps S, T, a guide friction wheel N, and a curved rack and pinion, the whole being arranged and made to operate together substantially in manner, and for the purpose set forth.

2. I also claim combining with the adjustable clamps S, T, (constructed as herein-

before described) an adjustable holder and former Y, so constructed and arranged as not only to coöperate with the clamp in maintaining the heel of the boot or shoe firmly in position, but to serve as a pattern to give to the heel any desirable contour on its bearing surface.

3. I also claim the peculiar construction of the secondary cutter carrier, herein set forth, and the arrangement of the secondary cutter with respect to the primary cutter, the guide friction wheel and the heel tread former Y, whereby the secondary cutter is rendered capable of giving to the lower or bearing surface of the heel, any form that may be desired.

In testimony whereof, I have hereunto set my signature.

LUTHER HALL.

Witnesses:
F. P. HALE, Jr.,
S. S. HEMENWAY.