J. Thompson,

Shoe-Sole Machine,

No. 24,165. Patented May 24, 1859.

Fig. 1.

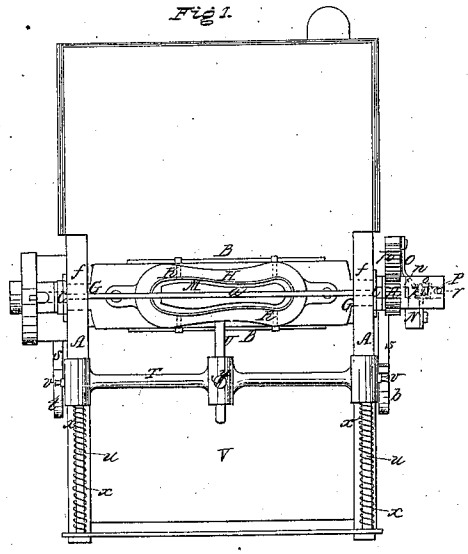


Fig. 4.

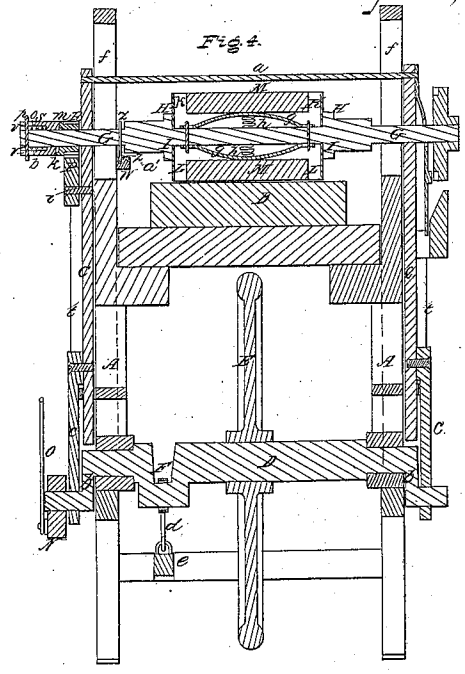


Fig. 2.

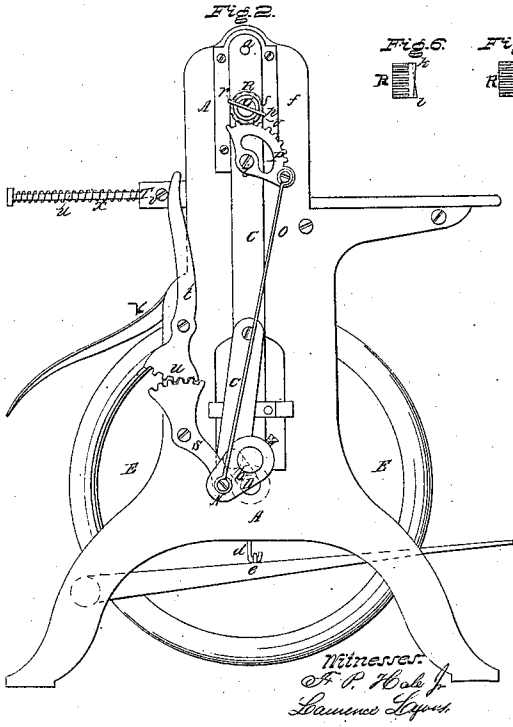


Fig. 6.

Fig. 5.

Fig. 7.



Fig. 3.

Witnesses:
F. P. Hale Jr.
Laurence Lyons.

Inventor:
John Thompson

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN THOMPSON, OF MARBLEHEAD, MASSACHUSETTS.

MACHINE FOR CUTTING SOLES.

Specification of Letters Patent No. 24,165, dated May 24, 1859.

To all whom it may concern:

Be it known that I, JOHN THOMPSON, of Marblehead, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Machinery for Cutting Leather into Soles; 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, is a top view, Fig. 2, a side elevation, Fig. 3, a longitudinal section, and Fig. 4, a transverse section of a machine provided with my improvements.

In such drawings, A, denotes the frame of the machine, B being the knife block or rest for supporting the piece of leather while being separated into soles. Bars C, C, connected by a rod, *a*, are applied to the opposite sides of the frame, A, so as to be capable of being moved vertically both upward and downward, such movements being effected by cranks, *b*, *b*, and connecting bars *c*, *c*, applied to a driving shaft, D, and to the bars, C, C. The said shaft, D, carries a fly wheel E, and a bell crank, F. From such crank a connecting rod *d*, depends and is jointed to a treadle, *e*.

Near their upper ends, the bars C, C, support the journals of a rotary shaft, G, which between two side standards, *f*, *f*, of the frame, A, is made flat for holding or carrying the import pieces or carriers, H, I, of two entire sole cutters K, L, each of which is formed as shown in Fig. 1, and so as to be capable, when its sharp edge is pressed upon a piece of leather or cutting therefrom an entire sole finished not only on its two opposite sides, but at its toe and heel. These cutters are so arranged on opposite sides of the shaft that the toe of one shall be directly opposite the heel of the other, there being a spring sole discharger, M, applied within each of the said cutters, the said discharger consisting of a plate *g*, and a supporting spring, *h*, arranged as shown in the drawings.

Each of the cutters, instead of forming but one side of a sole, cuts the two sides and the toe and heel at one operation, such cutters being made to act alternately on the strip of leather when placed on the bed and properly moved thereon. While the shaft, G, is being elevated it is to be turned a semi-revolution, such being effected by machinery as follows. A crank, N, is fixed on the wrist of one of the cranks *b*, and has a connecting rod, O, leading from its own wrist to a toothed sector in manner as shown in Figs. 1, and 2, the said sector being made to turn on a pin or fulcrum, *i*, extending from one of the bars, C. The connecting rod, O, is jointed to the sector, P, in such manner as while the crank, N, is in revolution to impart to the toothed sector, a reciprocating movement on its fulcrum, *i*. A pinion R, turns loosely on the shaft, G, and engages with the said sector. Furthermore, the said pinion has two catch cams, *k*, *l*, formed upon one side of it as shown in Figs. 5, 6, and, 7, which are side, top and edge views of the pinion. These catch cams operate in conjunction with two other catch cams, *m*, *n*, formed on the inner end of a cylindrical box, or slider S, so applied to the shaft, G, as to be capable of being moved longitudinally thereon in a direction away from the pinion, a spring, *o*, serving to force the box, S, toward the pinion. Furthermore, a pin, *p*, extending through the shaft and two notches, *r*, *r*, formed in the box, S, as shown in the drawings prevents the said box from rotating independently of the shaft, G. While the pinion is being moved in one direction on its shaft, the catch cams *k*, *l*, will interlock with those of the box, S, in such manner as to cause the pinion to produce by its continued rotary movement, a semi rotation of the shaft G.

The catch cams and box as applied to the shaft, G, and its pinion as above described are an improvement on the cylinder and spring represented in the United States Patent No. 11500, and therein claimed in combination with the sector and pinion. The said cylinder and spring are very uncertain in their action, whereas, the devices herein before described, and termed the catch cams and spring box or slider are perfectly certain or do not fail to effect the proper semi-rotations of the shaft, G.

The main part of each crank, *b*, answers as a cam to operate a sectoral lever, *s*, which engages with another sectoral lever, *t*, arranged on the side of the frame, A, as shown in the drawings. The two levers, *s*, *t*, of each set are furnished with teeth as shown at *u*, in Fig. 2. Furthermore, the upper arms of the superior levers rest against studs *v*, *v*, projecting from a gage slide, T, that carries a gage, U, and is supported on two parallel rods, *w*, *w*, extended horizontally

from the framework. Springs *x*, *x*, envelop the said rods respectively and press the slider, T, toward the framework. The gage, U, extends through the middle of the slider, T, and is confined in place by a clamp screw, *y*. When the slider abuts against the framework, the inner end of the gage comes close up to the lowermost knife or cutter, K, or, L, in order that the said gage may serve as a stop to the strip of leather or as a means of properly arresting it while being moved forward preparatory to the next descent of a cutter upon it. While the shaft, G, is being raised upward and turned about, the gage will be moved outward away from the bed, B, sufficiently to enable the sole that may have been last cut to drop from the bed and fall upon the discharging chute, V, arranged as shown in the drawings. Conical pointed pins, *z*, *z*, project in opposite directions from the shaft, G, as shown in Fig. 4, and during each descent of the said shaft, one of these pins enters a corresponding hole, *a'*, formed vertically in an ear, W, that projects from the frame, A, as shown in Fig. 4, such devices serving not only to prevent the shaft from turning while a cutter is close to the leather but to guide the cutter properly upon and off the leather.

I am aware that two side cutters have been applied to opposite sides of a shaft and the whole operated with a reciprocating, vertical and intermittent rotary motion so as to cut a sole from a piece of leather by two downward movements of such shaft: I am also aware that a knife or cutter has been applied to an import piece or carrier, and so made as to cut from a piece of leather an entire or perfect sole by one downward movement of the cutter upon the said piece of leather. Therefore, I do not claim such as my invention, but

What I do claim is—

1. The arrangement and application of entire sole cutters, K, L, (viz. such as are capable of cutting out an entire sole finished on its sides, toe and heel) on opposite sides of a rotary shaft, G, so that after each semi-rotation of such shaft, and during each descent of it, an entire sole with heel and toe complete may be cut from the piece of leather by one of such sole cutters acting thereon and while the piece of leather is supported on the bed or block under such shaft.

2. I do not herein claim the combination of a geared sector and pinion with a cylinder and clamp spring as claimed in the United States Patent No. 11,500 granted to me and another, but I claim the application of the catch cams to the pinion and a spring slider applied to the shaft, G, and so as to operate therewith substantially as specified.

3. I do not claim a turning guide applied and operated as shown in the United States Patents numbered 3,857 and 11,500, but I claim in connection with the entire sole cutters K, L, applied to opposite sides of the shaft, G, and operated as described, a gage, U, and mechanism to operate it in such manner as first to move it up to the path of the cutter and carry it away therefrom sufficiently to enable the sole that may have been cut to be discharged from the supporting bed as described.

JOHN THOMPSON.

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