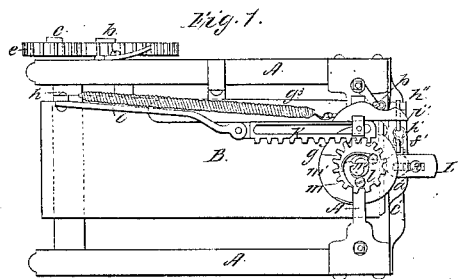


# *E. D. Johnson Jr.*

## *Shoe-Sole Cutter,*

*N<sup>o</sup> 45,046.*

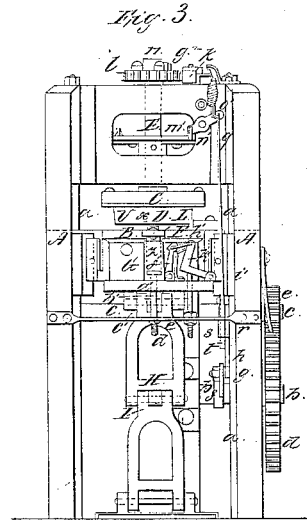
*Patented Nov. 15, 1864.*



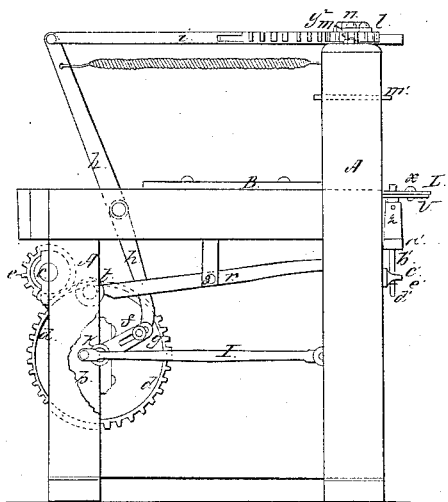
*Fig. 5.*



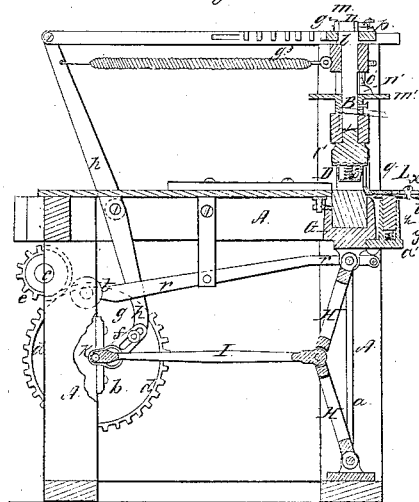
*Fig. 6.*



*Fig. 2.*



*Fig. 4.*



*Witnesses:*

*Frederick Curtis*  
*A. P. Hale Jr.*

*Inventor:*

*Elyah D. Johnson*  
*by his attorney*  
*R. H. Eddy*

# UNITED STATES PATENT OFFICE.

ELIJAH D. JOHNSON, JR., OF AUGUSTA, MAINE.

## MACHINE FOR CUTTING SOLES FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. 45,016, dated November 15, 1864.

*To all whom it may concern :*

Be it known that I, ELIJAH D. JOHNSON, JR., of Augusta, in the county of Kennebec and State of Maine, have invented an Improved Machine for Cutting Soles from Sheets of Leather; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a side elevation, Fig. 3 an end elevation, and Fig. 4 a longitudinal and vertical section, of the said machine.

The nature of my invention consists in a combination for intermittently revolving the sole-cutter, and the arrangement of the same, and certain mechanism for estopping the said sole-cutter after each of its semi-revolutions; also, in a combination for operating the gage, by which the position of a sheet of leather to be reduced to soles is determined on the bed preparatory to each upward movement of the latter toward the sole-cutter.

In the drawings, A denotes the frame of the machine, B being the movable platform thereof, on which the leather is supported, and from which it is to be moved toward and underneath the knife or sole-cutter in order to be cut thereby.

C is a cutter-stock which carries a knife or cutter, D, the said stock being affixed at its middle to a vertical shaft, E, for revolving such stock. Under the cutter is a bed or block, F, of wood, supported in a movable carrier or frame, G, which is so applied to vertical guides *a a* as to be capable of being moved thereon or either toward or away from the knife, such movements being effected by a set of toggles, H, a pitman, I, and a crank, K, the said crank being fixed on the inner end of a shaft, *b*, which receives its motion from a driving-shaft, *c*, by means of gears *d e* applied to them respectively.

The shaft *b* has an arm or cam, *f*, projecting from it, and having a roller, *g*, applied to one side of it. This roller is to act against the lower arm of a lever, *h*, which is arranged as shown in the drawings, and at its top is jointed to the connection-bar *i* of a toothed rack, *k*. The said rack engages with a pinion, *l*, which fits loosely, and so as to be able to be turned freely on the sole-cutter shaft E, and carries a

spring draw-pawl, *m*, which engages with a ratchet, *n*, fixed on the head of the shaft E. By means of the lever *h* and the roller *g* of the cam *f* the rack *k* will be retracted during each revolution of the shaft *b*, the forward movement of the said rack being produced by a spring, *g*<sup>3</sup>, extending from the frame A to the upper arm of the lever *h*. The reciprocating rectilinear movements of the rack *k* produce a reciprocating semi-rotary movement of the pinion *l* which, by means of the draw-pawl and ratchet, produces the intermittent semi-rotative movements of the cutter-shaft.

A catch-wheel, *m*, is fixed on the shaft E, and operates with a lever-catch, *n'*, which is supported on a fulcrum, *o'*, and has an elevating-spring, *p*, applied to it and the frame A, the same being as seen in Fig. 3. There is a rod, *q*, jointed to the outer arm of the lever-catch *n'*, and also to one end of a lever, *r*, such lever, *r*, being supported by a fulcrum, *s*, and furnished with a friction-roller, *t*, at its opposite end. During its revolution the cam *f* will strike against the periphery of the roller *t*, and move the lever in such manner as to cause the lever-catch *n'* to be thrown out of action on the catch-wheel *m'*, so as to enable the cutter-shaft E to be revolved. The said catch-wheel is shown in top view in Fig. 5 and in side view in Fig. 6, it being provided on each of two opposite sides of it with a stop, *u*, and an inclined plane, *v*, they being formed and arranged as shown in the said Figs. 5 and 6. The catch, in order to estop the cutter-shaft E, should enter the notch or space *w*, which is between the stop *u* and the inclined plane *v*.

A gage, *L*, is fixed on the top of a T-piece or supporter, *U*, in such a manner as to be adjustable with respect to the knife or cutter, or, in other words, so as to be capable of being moved either toward or away from such cutter and afterward being fixed in position, this latter being determined by a set-screw, *x*. This T-piece is supported on a helical spring, *y*, placed within a tubular post, *z*, which projects upward from a shelf, *a'*, projecting from the bed-carrier G. A rod, *b'*, extends downward from the supporter *U* and goes through a stationary cross-bar, *c'*, and has a screw, *d'*, cut on it. A nut, *e'*, is screwed on the screw

and against the under side of the bar  $c'$ , the screw and nut serving to regulate the height of the gage with respect to the upper surface of the bed-block F.

A spring-catch,  $f'$ , is arranged by the side of the post  $z$ , and so as to operate with a catch upon a stud projecting from the supporter U. A link,  $h'$ , joins the catch  $f'$  to the upper end of a right-angular lever,  $h''$ , whose opposite end turns on a fulcrum,  $i'$ , supported by the shelf  $a'$ . There is a stationary post or tripper,  $k'$ , projecting upward from the bar  $c'$  and through a hole in the shelf  $a'$  and against the lever  $h''$ , the whole being as seen in Fig. 3.

The tripper or post  $k'$  is provided with an adjusting-screw,  $l'$ , and two nuts,  $m'$   $n'$ , by means of which the degree of its projection above the bar  $c'$  can be adjusted as circumstances may require. While the block is in the act of being elevated or moved toward the cutter, the spring-catch  $f'$  will be caused to catch upon the stud of the supporter  $u$ , and it will hold the gage or prevent it from rising above the upper surface of the bed-block long enough for the sole that may be cut by the cutter to be passed from underneath it and discharged over the gage, which having taken place, the catch will be thrown off the stud, so as to allow the spring of the gage to elevate the gage a short distance above the top of the bed-block in order that the leather from which the next sole is to be cut may be pressed up to the gage. It is by the pressure of the lever  $h''$  against the top of the post  $k'$  during a descent of the bed-block that the catch  $f'$  will be forced off the stud.

Within the cutter there is a spring dis-

charger or plunger,  $o''$ , which expels the sole from the cutter.

I do not claim as my invention a sole-cutting machine having its cutter-stock and bed operated, as herein described; but

What in the above specified machine I do claim as my invention or improvements is as follows:

1. The combination for intermittently revolving the sole-cutter, the said combination consisting of the wiper or arm  $f$ , projecting from a shaft,  $b$ , and provided with a roller,  $g$ , the lever  $h$ , the rack  $k$ , the pinion  $l$ , the ratchet  $n$ , the pawl  $m$ , and the spring  $g^2$ , the whole being arranged and applied together and to the frame A and the shaft of the cutter-stock, in manner and so as to operate substantially as hereinbefore described.

2. The arrangement of the lever  $r$ , the rod  $q$ , the lever-catch  $n$ , the spring  $p$ , and the catch-wheel  $m$  with the cutter-shaft E and the mechanism, as described, for rotating such shaft, substantially as specified.

3. The combination for operating the gage L, the same consisting not only of the adjustable gage-supporter U and its elevating-spring  $y$ , but of the spring-catch  $f$ , its lever  $b'$ , and the tripper or post  $k'$ , the whole being applied together and to the gage, the bed-block carrier, and a stationary cross-bar,  $c'$ , substantially in manner and so as to operate as specified.

ELIJAH D. JOHNSON, JR.

Witnesses:

R. H. EDDY,

F. P. HALE, JR.