(No Model.) 2 Sheets—Sheet 1.

E. S. MANSELL.

SOLE CUTTING MACHINE.

No. 304,210. Patented Aug. 26, 1884.

Fig. 1.

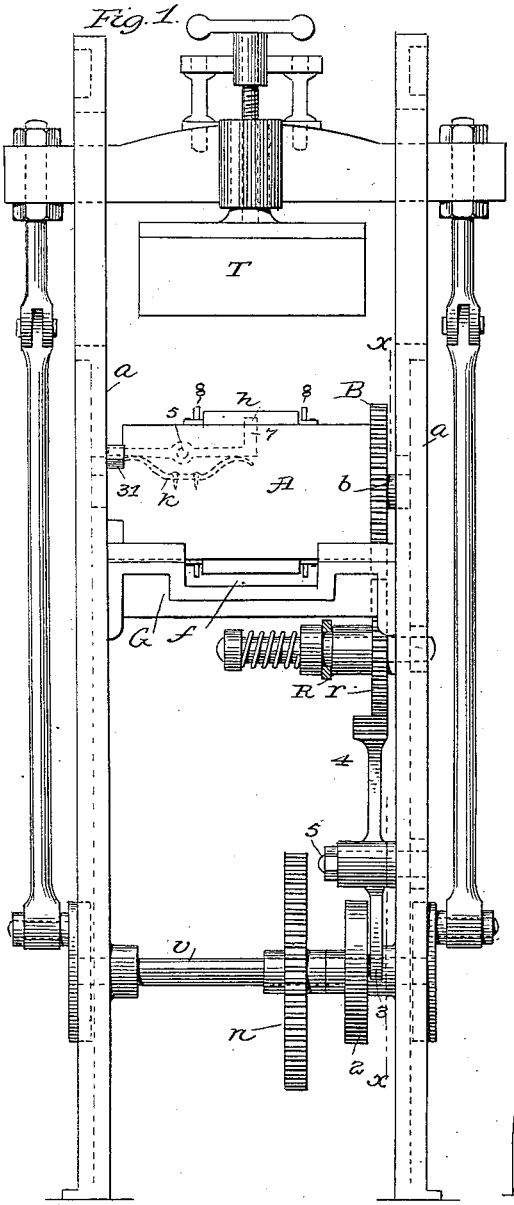
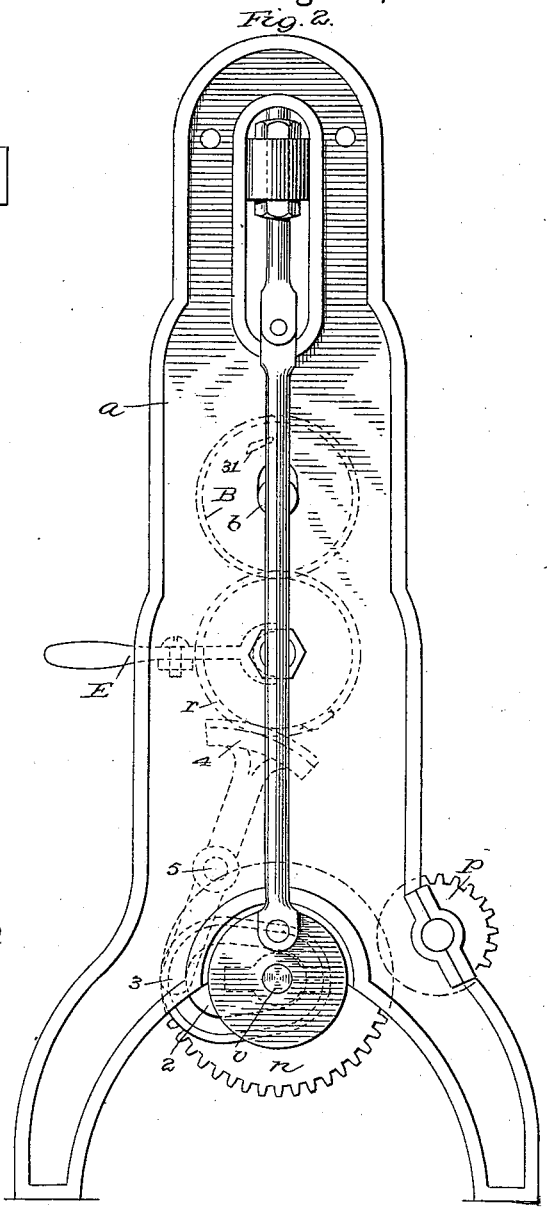


Fig. 2.



Attest:
F. L. Middleton
I. J. Middleton

Inventor
Elbridge S. Mansell
by Joyce & Green
Atty's

(No Model.) 2 Sheets—Sheet 2.

E. S. MANSELL.

SOLE CUTTING MACHINE.

No. 304,210. Patented Aug. 26, 1884.

Fig. 3.

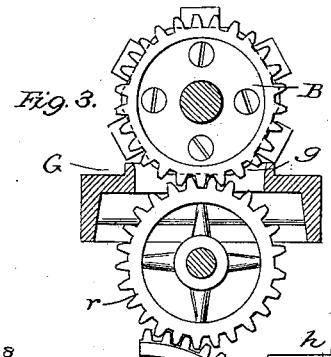


Fig. 4.

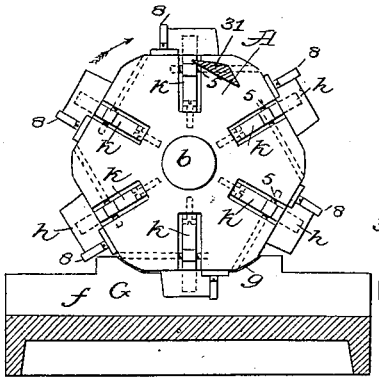


Fig. 5.

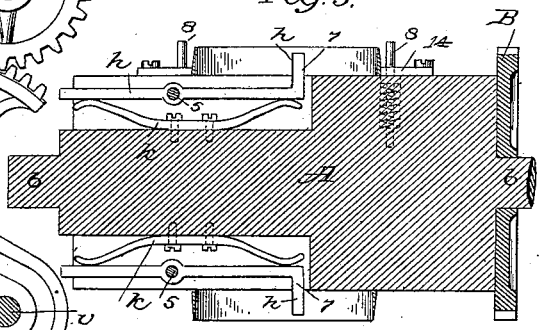


Fig. 6.

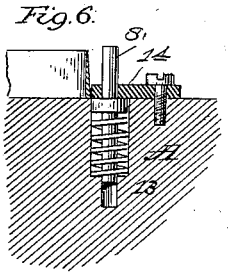


Fig. 7.

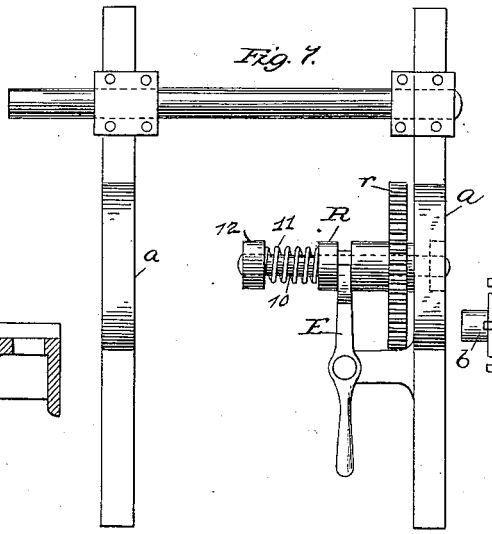


Fig. 8.

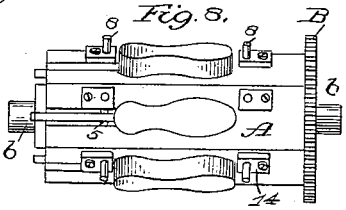


Fig. 9.

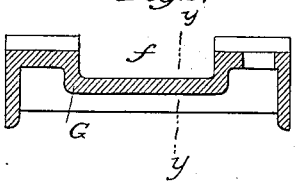
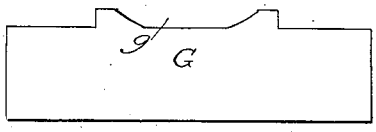


Fig. 10.



Attest:
F. L. Middleton
Walter Donaldson

Inventor
E. S. Mansell
by Joyce & Spear
Attys.

UNITED STATES PATENT OFFICE.

ELBRIDGE S. MANSELL, OF LYNN, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO GEORGE O. TARBOX, OF SAME PLACE.

SOLE-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 304,210, dated August 26, 1884.

Application filed January 21, 1884. (No model.)

To all whom it may concern:

Be it known that I, ELBRIDGE S. MANSELL, of Lynn, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Sole-Cutting Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improved machine for cutting out the soles of boots and shoes. In making this invention I have sought to simplify the mechanism, to cut the soles rapidly and accurately, and to obviate any risk of cutting the hands of the attendant who places the blank upon the die.

In the accompanying drawings, Figure 1 shows a front elevation of the machine. Fig. 2 is a side elevation. Fig. 3 is a detail view on line *x x* of Fig. 1, showing the mechanism for operating the turning bed, the girt in this figure being represented in section. Fig. 4 shows an end view of the turning bed, and also a transverse section of the supporting-girt on line *y y* of Fig. 9, the operating-pin 31 being also shown in this view. Fig. 5 represents the turning bed in longitudinal vertical section. Fig. 6 is a detail view of one of the retaining-pins. Fig. 7 is a detail view showing the side frames in plan view and the device for operating the intermediate gear. Fig. 8 represents in plan the turning bed. Fig. 9 is a section through the supporting-girt taken longitudinally. Fig. 10 is an end view of the same.

The main frame of the machine consists of side pieces, *a a*, which are suitably connected and braced. In slots in these pieces slides a cross-head carrying a block, T, with adjusting-screws, as in patent granted me on the 22d day of August, and numbered 263,293. The cross-head is connected to wrist-pins in face-plates by cranks, said face-plates being on shaft *v*, said shaft being driven through gears *n* and *p* by any suitable power. On this shaft *v* is also a cam, 2, in the groove of which works a pin on the end 3 of a segment, 4, pivoted at 5. This segment is in gear with a pinion, *r*, which is loosely mounted on a pin, 10, set in the side frame, *a*. This pinion has a long hub, R, as shown in Figs. 1 and 7, against the end of which bears a spring, 11, the spring being held on the pin by a collar, 12, at the end thereof. The pinion *r* meshes with pinion B, secured to the end of the turning bed A, and is operated by means of a lever, E, pivoted as shown, and having a forked end adapted to enter a groove in the hub R of the pinion, whereby the pinion *r* may be moved laterally out of gear with pinion B, but not out of gear with the wider length of the segment. The bed A is six sided, and the cam and segment are adapted to turn it one-sixth of a revolution and back at each revolution of the shaft *v*. At the start a face of the bed is opposite to and parallel with the face of the block T. It turns away from this, where it remains for about a half-rovolution of said shaft, and then turns back to its original position, facing the block. The six equal faces of the block are provided each with a cutting-die, the dies varying in size. The bed-piece rests on a girt, G, formed, as shown in Figs. 4 and 10, at *g*, to receive the bed and present a flat bearing for any one of the sides thereof. It is cut away, as shown in Figs. 3 and 9, to give space for the pinions and for the movement of pinion *r*. It is also recessed, as shown at *f*, Fig. 1, to admit the plain faces and dies on the bed.

To hold the bed in place, it has journals *b*, which extend into slots in side frames long enough to allow the necessary rise and fall of the bed as it turns on the girt. By throwing the pinion *r* out of gear with B, the bed may be turned to bring any required die to the block, the spring returning to and holding the pinion in connection with B.

The bed and dies are shown in end view in Fig. 4.

The parts are so constructed and timed that the cam turns the face and die away from the block as the latter rises. It is held away long enough for the attendant to place a blank on the die. It then turns into place, reaching it just before the block comes down and receives the impression therefrom, which cuts out the sole. Each face is provided with an ejector, *h*, pivoted at 5, and provided with spring *k*, adapted to hold it in proper position by bearing on each end. The tail of the ejector projects into line with a stud, 31, on the side of the frame, and is so shaped that when the bed turns back from the inclined position the tail rides over the stud and it is not moved; but when the bed turns outward the tail passes under the

stud and the end 7 is thrown outwardly and pushes out the sole. At each end of the dies are provided retaining-pins S S, which are set in cavities formed in the turning bed. Springs 13, set in the cavities, and bearing upon collars on the pins, serve to force the pins outward, and plates 14, fixed to the faces of the bed, serve to limit the outward movement of the pins, keeping them normally slightly above the edges of the dies. The sole-blanks are held between these pins, and when the block comes down the pins recede before it, the springs allowing the pins to yield. Pins and ejectors are provided for each die.

The apparatus may be used by change of dies to cut heel-blanks.

I am aware that it is not new to provide a revolving bed with cutting-dies upon its plane sides adapted to act successively, and, further, that two cutting-dies upon an oscillating or rocking bed, adapted to operate alternately to cut the blank, have long been known.

I claim as my invention—

1. In combination with the reciprocating block, the polygonal bed having dies on its faces, gearing for automatically turning a given face and die away from the block to receive the blank, and toward the same, to cut the blank, and means, substantially as described, for throwing said gearing into and out of connection with the bed, whereby the bed may be shifted to bring up any required face and its die, substantially as described.

2. In combination, the shaft *v*, the cam 2, segment 4, laterally-movable pinion *r*, pinion B, bed A, and reciprocating block, and mechanism for operating these parts, substantially as described.

3. In combination with the faces and dies of the described machine, the spring-pins arranged upon the outside of the said cutting-dies, and adapted to hold the leather while the blanks are being cut, as set forth.

4. In combination with the bed and devices for turning and retaining it, the ejector *h*, its spring, and operating-stud, substantially as set forth.

5. The combination of the block, the turning polygonal bed, mechanism for operating it, and the girt G, adapted to support said bed, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ELBRIDGE S. MANSELL.

Witnesses:

WM. O'SHEA,

JOSEPH F. HANNAN.