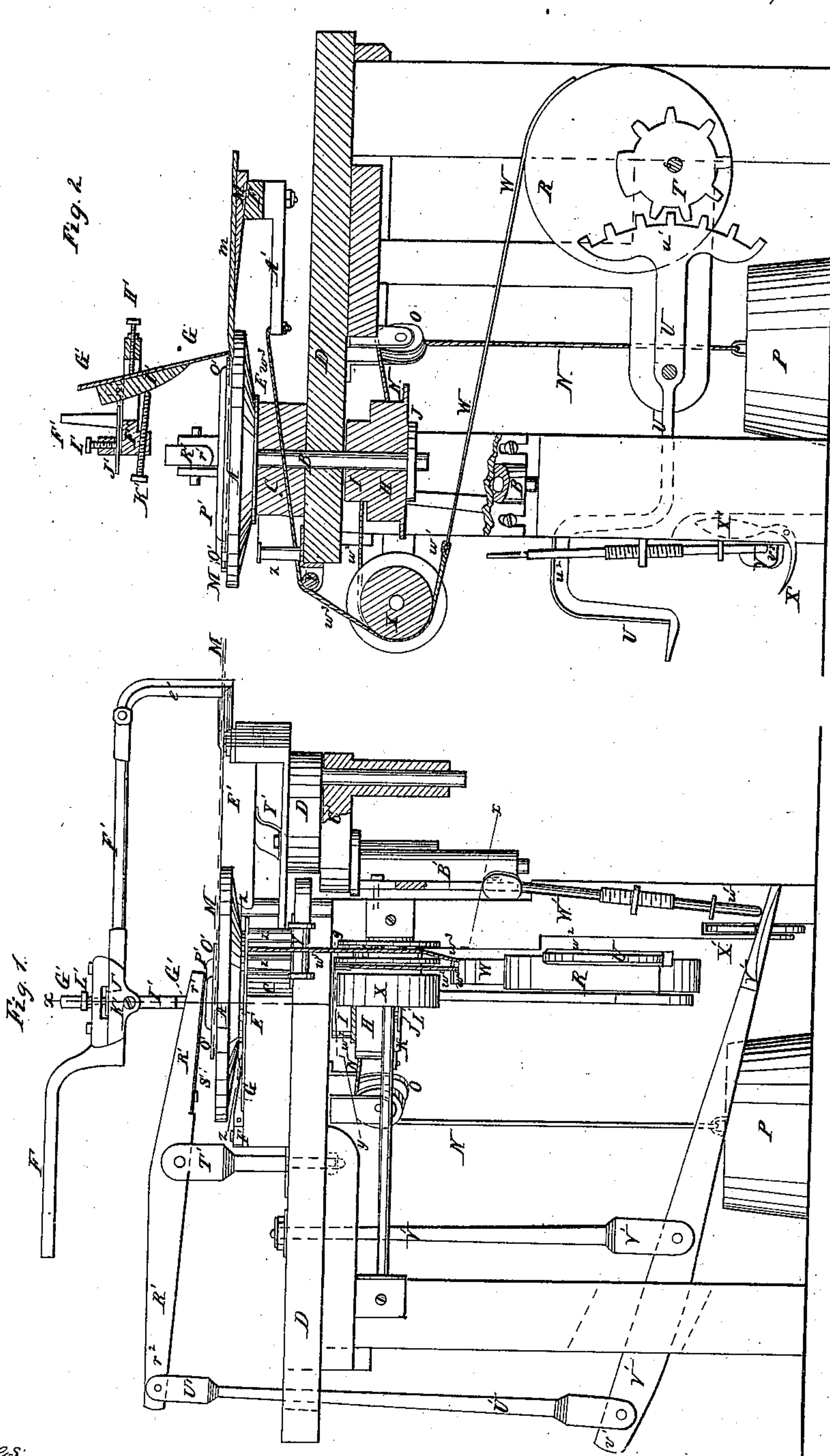


# J. Downing, Shoe-Sole Machine,

N<sup>o</sup> 54131.

Patented Apr. 24, 1866.



Witnesses:

*J. W. B. Formington*  
Gas. & Service

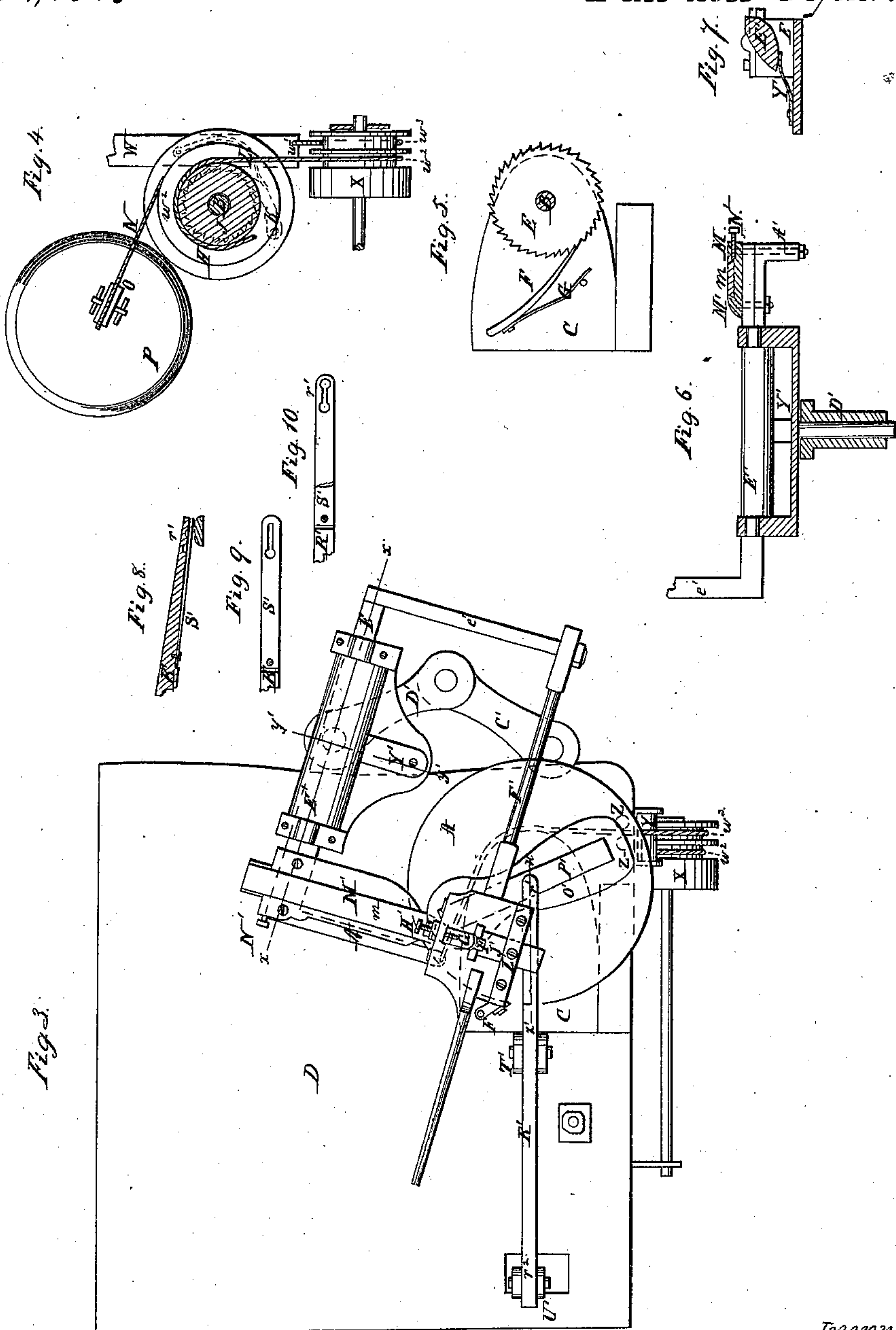
Inventor:

*James Downing*  
Per *Munroe*  
*Atty*

J. Downing,  
Shoe-Sole Machine,

N<sup>o</sup> 54,131.

Patented Apr. 24, 1866.



Witnesses:

J. M. B. Livingston  
Jas. A. Service

Inventor:

James Downing  
Per. Munn & Co.  
Attys



# UNITED STATES PATENT OFFICE.

JAMES DOWNING, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVED MACHINE FOR CUTTING SHOE-SOLES.

Specification forming part of Letters Patent No. 54,131, dated April 24, 1866.

*To all whom it may concern:*

Be it known that I, JAMES DOWNING, of Philadelphia, Philadelphia county, State of Pennsylvania, have invented a new and useful Improvement in Machines for Cutting Shoe-Soles; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front view of my improved machine, partly broken out. Fig. 2 is a detail section of the same, taken through the line  $x x$ , Fig. 1. Fig. 3 is a top view of the same. Fig. 4 is a detail sectional view taken through the line  $y y$ , Fig. 1, looking down. Fig. 5 is a detail sectional view taken through the line  $z z$ , Fig. 1, looking down. Fig. 6 is a detail sectional view taken through the line  $x x$ , Fig. 3. Fig. 7 is a detail sectional view taken through the line  $y y$ , Fig. 3. Fig. 8 is a detail sectional view taken through the line  $z z$ , Fig. 3. Fig. 9 is an under-side view of the part represented in section in Fig. 8. Fig. 10 is the same view as Fig. 9, with the spring broken off.

Similar letters of reference indicate like parts.

My invention has for its object to furnish a machine by means of which shoe-soles may be cut out quickly and accurately; and it consists of a machine constructed as hereinafter more fully described.

A is a circular turning table attached to the end of a vertical shaft, B, which shaft revolves in bearings C, secured to the main table or bed-plate D.

To the lower side of the table A or to the shaft B is firmly attached a ratchet-wheel, E.

F is a pawl pivoted to the bearings C or bed-plate D, which takes hold of the teeth of the ratchet-wheel E, and is held up to its place against said teeth by the spring G, as shown in Figs 1 and 5.

H I is a double pulley, the two parts of which are of unequal diameter, or two pulleys of unequal diameter firmly attached to each other, which revolve loosely upon the shaft B. J is a ratchet securely attached to the lower end of the vertical shaft B and revolving with it. The pawl K is pivoted to the pulley H I, and is held up to its place against the teeth of the

ratchet-wheel J by the spring L, as shown in Fig. 1, and in dotted lines in Fig. 4. As the pulley H I is revolved in one direction it revolves freely upon the shaft B, the shaft B and table A being kept from revolving by the pawl F and ratchet-wheel E. As the pulley H I is revolved in the other direction the pawl K takes hold of the ratchet-wheel J and revolves the shaft B, the table A, and the leather M, which is being cut and which is attached to the table A in the manner hereinafter described.

To the larger part H of the pulley H I is attached one end of a band, N. This band passes around the pulley in such a direction that when drawn upon it will revolve the pulley in the proper direction to revolve the shaft B and table A. The band N then passes over a stationary pulley, O, and to its end is attached a weight, P, heavy enough to draw back the pulley H I and revolve the table A when said weight has been raised in making a cut, as hereinafter described.

R is an eccentric roller or pulley attached to or revolving upon a shaft, S. Upon the shaft S, and firmly attached to the pulley R, is a cog-wheel, T, into the teeth of which mesh the teeth formed on the end  $w'$  of the lever U. This lever is pivoted to the frame of the machine, and its end  $w^2$  is bent, as shown in Fig. 2, so that it may be operated without coming in contact with the lever V.

To the face of the pulley or roller R is attached a strap or band, W, in such a way that when the pulley R is revolved by depressing the end  $w^2$  of the lever U the said strap shall be wound up upon said pulley. At the pivot  $w'$  the strap W is divided into two parts, or two cords,  $w^2$  and  $w^3$ , may be attached to the end of the strap W at that point. The cords or straps  $w^2$   $w^3$  pass over the pulley X in separate grooves. The cord or strap  $w^2$  passes thence around the pulley I, and its end is attached to said pulley, as shown in Fig. 4. The cord or strap  $w^3$  passes from the pulley X over the horizontal roller Y, between the vertical roller Z, and its end is attached to the end of the arm A' of the knife-frame, as shown in Fig. 2.

The support B', to which the swivel-arms C' and D' are pivoted is attached to the frame of the machine by screws, as shown in Figs. 1 and 2. These screws pass through slots in said



support B' for convenience in adjusting the position of the knife-frame with reference to the face of the table A. The knife-frame E' is pivoted to the swivel-arm D', as shown in Figs. 1, 3, and 6.

The arm F', which carries the knife, is attached to the curved arm e', as shown in Figs. 1 and 3. The knife G passes through a vertical slot made in an enlarged part of the arm F', as shown in the drawings, and is held in place by a set-screw, H', which holds it firmly against the stay I'. This stay is pivoted at its upper end to the horizontal sliding bar J', and its lower end is supported by the set-screw K'. The sliding bar J' is held in position by the set-screw L. By these adjustments I am able to set the knife G vertical, so as to cut the sole with a square edge, or to set it inclined at any angle, so as to cut the sole with an edge of any desired bevel.

The lower end of the knife G is supported and held in place by resting in a groove formed in the central part, m, of the guide M'. This central part, m, is made adjustable to accommodate it to the various positions of the lower end of the knife by being made to slide in a dovetail groove formed in the main part of the groove, as shown in Figs. 2, 3, and 6, and it is held in the required position by the set-screw N'.

In using the machine the feathered edge of the guide M' passes under the leather, holding it up closely against the metallic pattern O', along the edge of which the knife passes in cutting out the sole. The metallic pattern O' is held in position upon the leather M, and both are clamped to the table A by the rib P'. This rib is pivoted to the end r' of the lever R' by a button attached to the center of the rib. This button fits into cavities formed on the under side of the end r' of the lever R', and connected by a shallow groove, as shown in Figs. 8 and 10. This part of the under side of the lever is covered with a spring, S', having a slot cut in its forward part which will fit the neck, but will not allow the head of the button to pass through, the rear end being enlarged sufficiently to receive the said button-head, as shown in Fig. 9. By passing the button through the enlarged part of the slot and moving it forward the rib is pivoted to the end r' of the lever, as shown in Fig. 8.

The lever R' is pivoted to a support, T', and to its end r<sup>2</sup> is pivoted a bar, U'. To the lower end of this bar is pivoted the end v' of the lever V which has its fulcrum in the support V'. Thus by pressing with the foot upon

the free end v<sup>2</sup> of the lever V the pattern and leather are clamped to the table A and held there securely as long as the said pressure is continued.

W' is a stop having a screw-thread cut upon its middle part, as shown in Fig. 1. This stop works in a nut attached to the side of the frame of the machine. By passing the end v<sup>2</sup> of the lever V beneath the lower end of this stop the leather and pattern are held clamped to the table A.

X is a bent lever pivoted to the side of the frame or in a recess formed in said side, and so arranged that by pressing with the foot upon its projecting end the end of the lever V will be freed from the stop W' and the leather unclamped from the table.

In using the machine a rib corresponding to the length of the soles to be cut is pivoted to the end of the lever R', and the leather and pattern arranged upon and clamped to the table A. The knife-frame and knife are then brought to the position shown in Figs. 1 and 2. Then, by pressing with the foot upon the end of the lever U, the knife is drawn through the leather, being guided in making the cut by taking hold of the handles on the bar F'. The same operation also raises the weight P, which, as soon as the cut is completed, or whenever desired, upon the pressure being removed from the lever U, revolves the table back to its former position. This backward revolution of the table may, however, be stopped at any desired point by renewing the pressure upon the end of the lever U.

The edge or forward end of the guide M' is raised from the surface of the table while said table is being drawn back by the weight P by the action of the spring Y', attached to the plate or bottom of the knife-frame, by means of which plate the said knife-frame is pivoted to the swivel-arm D', the free end of said spring pressing against the forward edge of the horizontal bar of the said frame, as shown in Figs. 1 and 3.

I claim as new and desire to secure by Letters Patent—

A machine for cutting shoe-soles constructed and operated substantially as herein described, and for the purpose set forth.

The above specification of my invention signed by me this 12th day of January, 1866.

JAMES DOWNING.

Witnesses:

M. M. LIVINGSTON,  
JAMES T. GRAHAM.