C. H. Griffin,

Shoe Sole Machine,

No. 26,350. Patented Dec. 6, 1859.

Fig. 2.

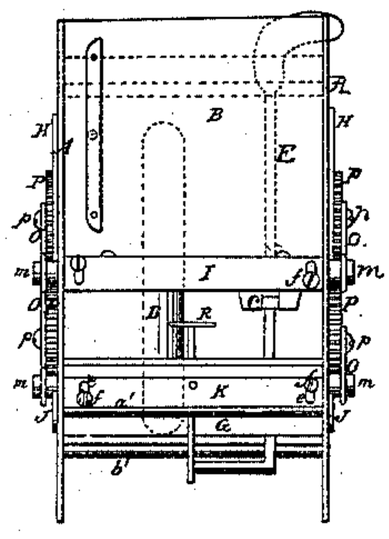


Fig. 3.

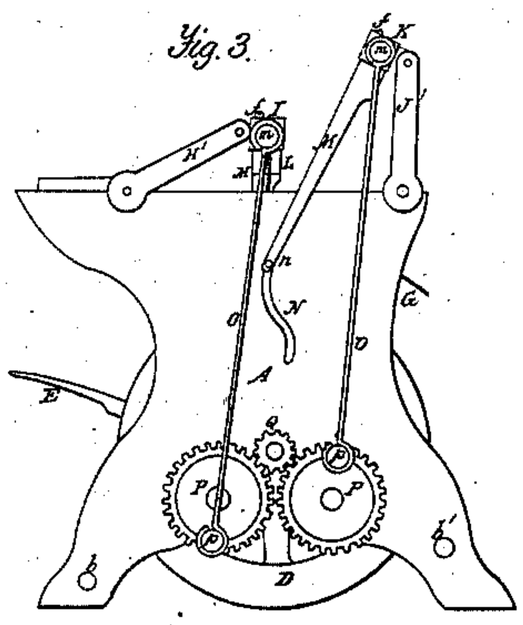


Fig. 4.

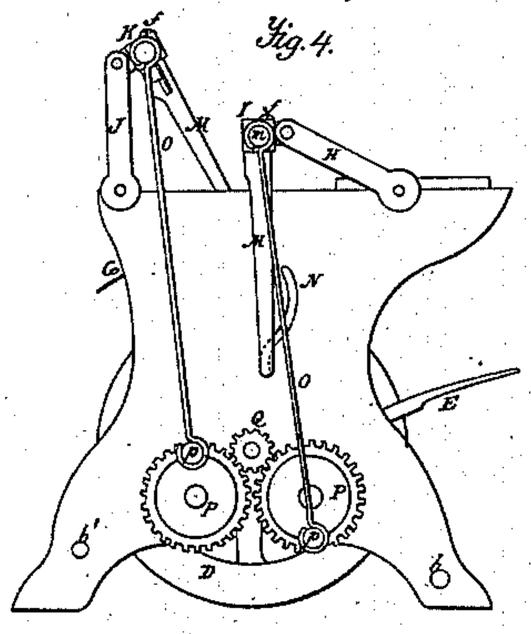


Fig. 5.

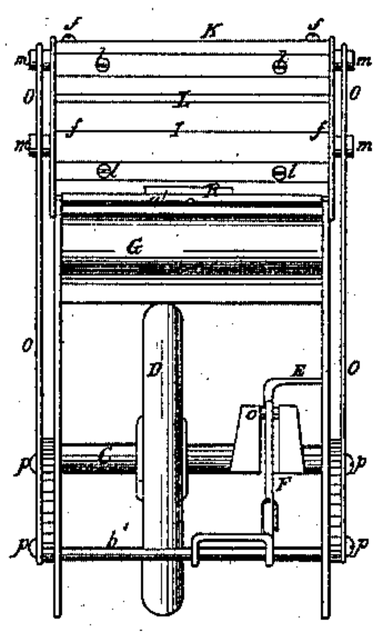


Fig. 7.

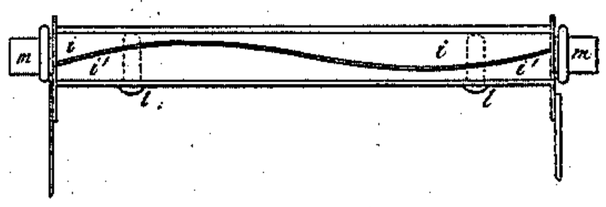


Fig. 6.

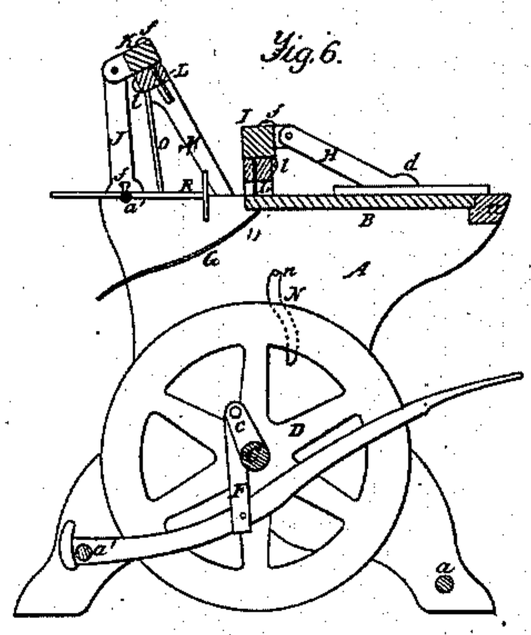
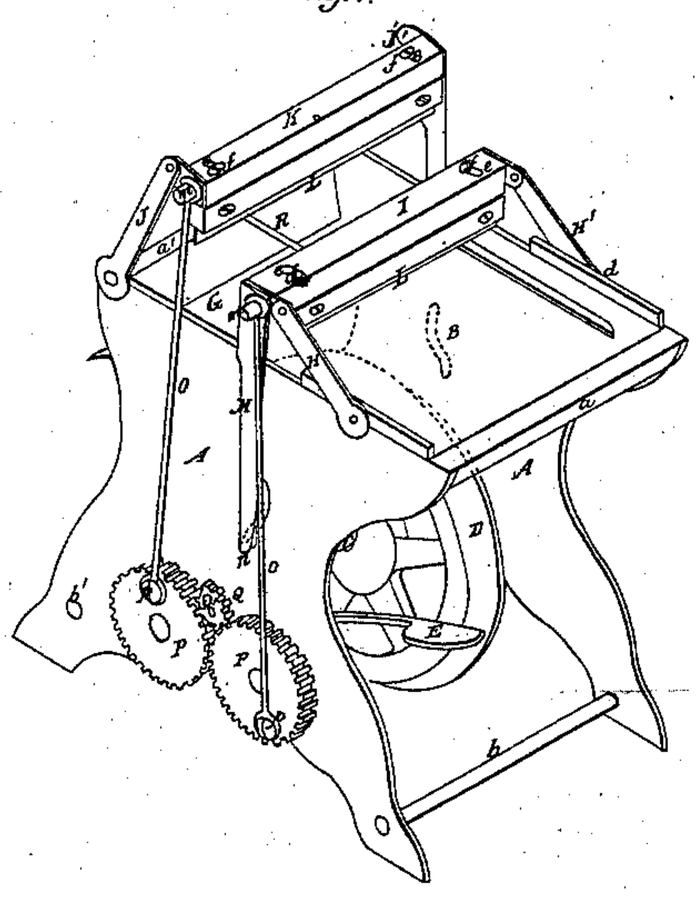


Fig. 1.



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Eben Parsons Jr.

Inventor:
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UNITED STATES PATENT OFFICE.

CALEB H. GRIFFIN, OF LYNN, MASSACHUSETTS, ASSIGNOR TO JOHN WILLIAMS AND WALTER D. RICHARDS, OF LYNN, MASSACHUSETTS.

MACHINERY FOR CUTTING LEATHER INTO SOLES FOR BOOTS AND SHOES.

Specification of Letters Patent No. 26,350, dated December 6, 1859.

To all whom it may concern:

Be it known that I, CALEB H. GRIFFIN, of Lynn, in the county of Essex and State of Massachusetts, have invented a certain new and useful Improvement in Machines for Cutting Leather into Soles for Boots and Shoes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing of the same, forming part of this specification, in which—

Figure 1, represents a view in perspective of a machine embracing my improvement; Fig. 2, a plan; Figs. 3 and 4, side elevations; and Fig. 5 a rear end view of the same; Fig. 6, represents a vertical longitudinal section taken centrally through the machine. Fig. 7, represents an underside or edge view of the knife, together with the frame to which it is secured, detached from the machine.

The object of my invention is to provide a machine at small cost, for cutting leather into soles for boots and shoes, of simple construction and operation and that will not be liable to get out of repair.

My improvement relates more particularly to the operation of the knife, and it consists in communicating to it a vibrating motion in the arc of a circle or in a curve approximating thereto.

My improvement further consists in combining with the knife certain devices by means of which though vibrating in the arc of a circle it is still made to enter or cut the leather at right angles to the plane of the latter as fed up to be cut into soles the same devices materially assisting where two knives are used in causing them to pass clear of each other while traversing in different directions.

To enable others skilled in the art to make construct and use my invention, I will now proceed to describe its parts in detail, omitting a particular description of such parts of the machine as are common to others and non essential to a full understanding of my improvement.

In the drawing accompanying this specification, the main-frame (A) is represented as consisting of two plates of metal of suitable size and shape for the support of the operative parts of the machine, connected respectively above and below by cross-bars (*a* and *b*); two of the upper ones next the forward end of the machine being flattened on their upper sides for the better support and attachment of the platform, or, table (B), which for this purpose may be made of any suitable material.

On the lower part of the machine and in suitable bearings formed in the side plates (A) is mounted the crank shaft (C) of a fly wheel (D) to the crank (*c*) of which is connected a treadle (E) in any suitable manner, by means of the pitman (F,) the rear end of the treadle being pivoted on one of the lower cross-bars (*b*). Immediately at the rear end of the table (B) a curved or other suitably shaped slide or chute (G) is secured to the two side plates of the machine, down which the soles slide as cut by the knives, they being precipitated on the chute by the advance of the leather as it is fed up to be cut. On the upper edges of the side plates (A) are formed lugs (*d*) to which are pivoted arms (H and H′) whose other ends are pivoted respectively to either end of the cutter head (I). Where but one knife is intended to be used, but two arms are required one at each end of the knife head, but where two knives are intended to be used on the machine, two other arms (J and J′) similarly arranged and attached will be used, one on either side of the other knife head (K) as in the other case and as represented in the drawings.

In the bars (I and K) forming the cutter heads (I and K) two slots (*e*) are formed one at either end, by means of which and screws (*f*) passing through into the knife-holder the knives, when adjusted, are attached securely to it, the slots allowing the knives to be adjusted to cut either a large or small sole, according as they are adjusted farther from or nearer to their center of motion. Or the size of either the heel or toe may be increased or diminished by the same means and in the same way without increasing or diminishing the size of the other, or if it is required to diminish the toe and increase the heel and vice versa, it may be effected by passing again through the center of the knife head and holder and turning the latter horizontally. The knife (L) may either be made directly in the proper shape to cut out the side of a sole or it may, as represented on the drawings, be made out of a thin sheet of steel and bent and held in from between two clamps (*i* and *i′*) of the proper shape for that purpose by means of screens (*l*) passing through the clamps (*i* and *i′*), that

form the knife holder and knife, which is deemed the best and most practical form or mode of making the knife; for, by adopting the latter plan, as soon as the clamps are removed, the steel blade, by virtue of its elasticity straightens itself, thereby enabling the operator readily to sharpen its edge when dulled by use.

On one end of the cutter heads (I and K) and for which a journal (*m*) is formed, is mounted and depends an arm (M) on the lower extremity and inner side of which is formed or otherwise secured a pin or stud (*n*) which takes into a slot (N) of peculiar form made in the side of the plates (A). This slot, as the knife is made to vibrate, is so arranged and shaped that during the first part of the descent of the knife, the latter by means of the arm (M) is turned in toward the center of the arc, in which the knife vibrates, while during the latter part, it is made to enter the leather at right angles to its upper side. This peculiar motion being alone as a whole communicated to each knife, when two are used in order to prevent them or their heads being brought in contact with each other while vibrating in different directions, as it is necessary for the proper and efficient working of the machine that the one knife should be ascending while the other is descending and vice versa. That is to say where the knives are so made and arranged as to cut but one sole at a time, and each sole of equal width, or nearly so. But where but one knife is used in the machine or two knives so arranged as to cut out two soles at a time then a slot of sufficient size and shape alone need be formed and arranged as will cause the knife to enter the leather at right angles to its surface, but as the machine as a rule will be made with two knives the slots will be arranged and formed substantially as represented in the drawings. Here it may be remarked that various other devices could be described for effecting the same purpose but as they would not, in any degree, alter the character of the invention, it is not deemed necessary to specify them.

Motion is communicated to the knives respectively through crank rods (O) mounted on the journal (*m*) at either end of the cutter heads (I and K) and connecting at their other ends with a crank pin (*p*). Secured to gear wheels (P) meshing into a driving wheel (Q) mounted on either end of the crank shaft (C) that carries the fly wheel (D). This arrangement of crank gears, it may be remarked, is only necessary where two knives are intended to be used; as where but one is employed, all that is necessary to do to impart the necessary motion to the knife, is to attach a crank at either end of the driving shaft (C) and mount the pitman rods (O) on them.

Immediately at the rear of the bed or table (B) is arranged a gage (R) which can be adjusted so as to cause the knife or knives to cut a wide or narrow sole as required, by simply forcing the leather up against the gage after every stroke of the knife or knives, when the gage has been adjusted. This adjustment is effected by so securing the gage to the cross bar (*a'*) that it may be slid toward or from the rear end of the table as required and held in that position by means of a set screw (*s*) passing through the upper side of the bar (*u'*) to press against the shank of the gage.

The operation of my machine, as represented in the drawings, is simple and is effected as follows: The leather cut to a proper width is placed upon the table (B) and the gage (R,) and the knife or knives (L) adjusted to the width of sole required; the leather is there forced up against the gage and a vibrating motion in the arc of a circle or a curve approximating thereto around the axis, toward and from the table, imparted to each knife frame, by means of the gears (P) and connecting rods (O) through the driving wheel (Q) and shaft (C) and treadle (F) or equivalent device in such manner that when one knife is at its lowest position, the other shall be at its highest as shown in Figs. 1, 3, 4, 5 and 6, and so that each knife will be brought in succession upon the cutting block or table and sever a sole and again raised during the descending movement of the other.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is—

1. Vibrating the knife or knives (L) in the arc of a circle or a curve approximating thereto in the manner substantially as set forth.

2. I claim the arm (M), stud (*n*,) and slot (N) or their equivalent, as combined with the knife or knives (L) for the purpose substantially as described.

In testimony whereof, I have hereunto set my hand to this specification.

C. H. GRIFFIN.

Witnesses:
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EBEN PARSONS, Jr.