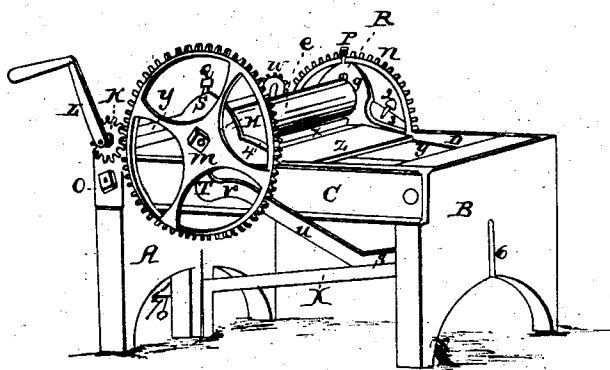
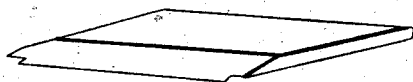


*E. Putnam,*  
*Splitting Leather,*  
*No. 1,010,*                      *Patented Nov. 20, 1838.*

*Fig; 1.*



*Fig; 2.*



*Witnesses;*

*Selmaus Duffell*  
*Joshua H. Ward*

*Inventor;*

*Elias Putnam*

# UNITED STATES PATENT OFFICE.

ELIAS PUTNAM, OF DANVERS, MASSACHUSETTS.

## MACHINE FOR SPLITTING SOLE AND OTHER LEATHER.

Specification of Letters Patent No. 1,010, dated November 20, 1838.

*To all whom it may concern:*

Be it known that I, ELIAS PUTNAM, of Danvers, in the county of Essex and Commonwealth of Massachusetts, esquire, a free citizen of the United States, have invented a new and useful machine called a "Machine for Slitting Sole and other Pieces of Leather," of which the following is a true and exact description.

I take the machine well known among shoemakers as the machine for rolling or pressing leather and add to it a knife so arranged that after the leather has been pressed between the rollers it shall be propelled by them against the edge of the knife and thus split to any desired thickness. The old machine with my knife added so as to make my new splitting machine is shown in the drawing annexed—thus—

A is the front of the frame of the machine and is of wood, two inches thick, sixteen inches wide and thirty inches high.

B is the back end of the machine of the same material and dimensions as the front.

C and D are the two side pieces of the frame of the machine. They are of cast iron and each is 6 inches wide, 40 inches long, and 1 inch thick and they are firmly secured to the front and back pieces of the machine.

E is a cylindrical roller of smooth iron—called the upper roller. It is 16 inches long, 3 inches in diameter and its axes revolve in two semicircular uprights of metal, 1 inch thick, which are to be screwed to the edges of the side pieces C and D so as to form part of the frame work and so that their inside faces may be in the same perpendicular plane with the inside faces of the side pieces C and D. On one of the axes of the roller E, is secured the cog wheel M, which is of cast iron, one foot in diameter. Immediately under this roller and in a perpendicular line with it and parallel to it horizontally, revolves another roller (F) of the same material and dimensions—and the axes of this roller revolve in the side pieces C and D. One of these axes is seen at T. To the other axle is secured the cog wheel N, of the same size and material as the cog-wheel M.

L is an iron crank which propels the machine. To its shaft I, is secured firmly the small cog wheel K, which interlocks with the wheel M. The cog wheel W, is fixed to the end of the shaft I, and these two cog

wheels K, and W, are each of cast iron or other metal and are each  $2\frac{1}{2}$  inches in diameter interlocks with another cog wheel of its own size, attached to the outside of the side piece D, at a point correspondent with the nut O on the side piece C, which nut in fact receives the bolt on which, as an axle, this wheel nut seen in the drawing revolves in the same perpendicular plane with W and N, and interlocks with and gives motion to the wheel N. At R and at S, are two perpendicular slits or openings in the uprights,  $2\frac{1}{2}$  inches wide and four inches long, in each of which slides, on tongues and grooves perpendicularly, a nut  $2\frac{1}{2}$  inches square and one inch thick and through the center of each of these a hole one inch in diameter is drilled in which the axes of the upper roller revolve. Under each of these nuts or boxes and in the perpendicular slits or openings is fixed a spiral spring of steel wire powerful enough to push, by its own elasticity, the nut with its axle inserted to the top of the perpendicular slit or opening and thus to raise the upper roller.

P and Q are male screws which pass perpendicularly through female screws in the top of the uprights H and G and press upon the upper edge of the nuts in which the roller revolves, so that by turning down these screws the nuts are pressed down upon the spiral springs which yield and let down the nuts and with them the upper roller and by turning up these screws, the nuts, relieved from their pressure, are forced up by the elasticity of the spiral springs beneath them.

U is a lever of metal 1 inch square and about thirty inches long suspended on a pivot V, which is its fulcrum and is fixed to the side piece C. One end of it rests under the axle T, which turns and revolves in a slit or perpendicular opening in the side piece C, of the same width as the diameter of the axle—i. e. about 1 inch—and which is about two inches long so that this lower roller also as well as the upper may have a perpendicular motion and be made to approach or recede from the upper roller. A corresponding lever is applied in precisely the same manner to a corresponding point on the outside of the side-piece D, and rests in the same manner under the other axle of the roller (F), which axle also revolves in a similar opening in the

side piece D. These two levers thus arranged are fastened and connected together by a cross bar (5), and this bar (5) is hooked at its middle point by two small links to another lever X, at a point about 6 inches from the back end B of the frame work—and its back end is secured to a pivot in the slit (6). To its other end (7) is attached a weight of such a size as may be found desirable.

I have thus far described the rolling machine nearly the same as is already known among the shoe-makers. To this machine I add a knife Z, which is 5 inches wide, 1½ or 2 inches thick, beveled down to an edge.

Figure II is an enlarged drawing of the knife. I also apply to the insides of the side pieces two corresponding slides or projections of metal one of which is shown at Y and extends from near the interstice between the rollers diagonally, or at an angle of about 10 degrees with the horizon, along the side piece to the back piece. On these slides the knife is laid with its beveled edge up. When it is wished to use the machine for rolling alone, the knife is permitted to slide down on the slides so that its back edge rests against the back of the machine. When the machine is to be used for splitting as well as rolling, I slide the knife up to the interstice between the rollers and then secure it for the time, by means of two corresponding screws one of which is shown at (2) which passes through a female screw in a shoulder, which I have for this purpose attached to the side piece D. There is of course a similar and corresponding shoulder and screw attached to the side piece C at a corresponding point. These screws detain the knife in its place at any desired distance from the rollers by simply pressing against its blade.

The operation of the whole machine with my knife attached is as follows: The operator stands in front facing the rollers, with his right hand on the crank L. With the other hand he applies the leather to be split to the interstice between the rollers. By turning the crank he turns all the cog wheels, and the cylinders revolve, each in opposite directions, and both toward the edge of the knife, and drawing the leather between them by their revolution, they press it against the edge of the knife, and splitting it the upper portion split off passes above, and the lower part below the knife.

The part which passes above the knife will be of such thickness as the interstice between the edge of the knife and the face of the upper roller will allow, and this interstice can be increased or diminished by means of the screws P and Q. The weight suspended from the point (7) on the end of the lever X will tend to draw down the bar (5) and thus to depress the long arms of the side levers attached to it, and the short arms of these side levers will thus be made to elevate the axes of the lower roller and press it against the upper roller and against any piece of leather, which may be inserted between them, and this pressure, being only made by the suspended weight (7) will be the same or nearly so upon each piece of leather and upon every part of the same piece however thick it may be. This pressure may of course be increased or diminished by the application of a greater or a less weight.

The whole machine and all or any of its parts may be made of greater or smaller dimensions as may be found to suit the convenience of the employer of it. The knife may be made smaller and thinner and may then be stiffened by the application of a plate of cast iron screwed to its flat surface. The axes of the upper roller may be made to revolve in stationary holes instead of sliding nuts and the thickness of the upper portion of the leather split off may be regulated and graduated by screws which shall elevate or depress the knife. The uprights, which I have described as screwed to the edges of the side pieces, may be cast of metal with the side pieces and inseparable from them.

What I claim as new and my invention is—

The application of a knife to the interstice between two rollers in such a manner that pieces of leather may be propelled against the knife by the revolution and pressure of the rollers and may be thus pressed and split at the same time.

In testimony whereof I hereto subscribe my name at said Danvers in the presence of the witnesses whose names are subscribed on the eighth of August A. D. 1838.

ELIAS PUTNAM.

Witnesses:

SYLVANUS DODGE,  
JOSHUA N. WARD.