

J. E. PLUMMER.
MACHINES FOR CUTTING STRAPS.

No. 176,046.

Patented April 11, 1876.

Fig. 1.

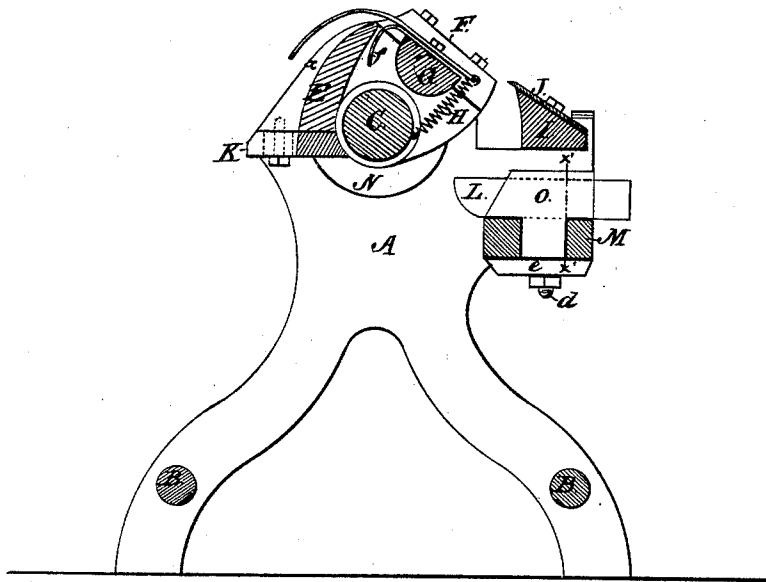


Fig. 3.

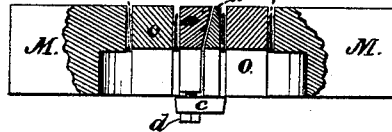
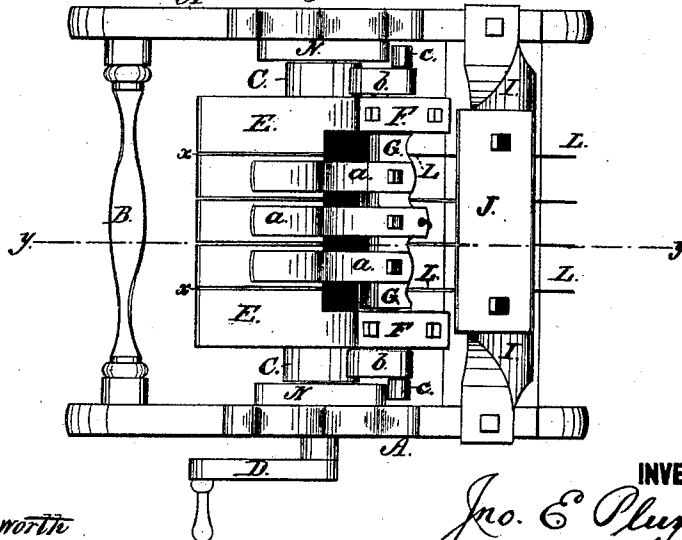


Fig. 2.



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IMPROVEMENT IN MACHINES FOR CUTTING STRAPS.

Specification forming part of Letters Patent No. **176,046**, dated April 11, 1876; application filed March 13, 1876.

To all whom it may concern:

Be it known that I, JOHN E. PLUMMER, of Hornellsville, in the county of Steuben and State of New York, have invented a new and Improved Machine for Cutting Boot-Straps; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a vertical transverse section through line *yy* of Fig. 2; Fig. 2, a plan view; Fig. 3, a sectional detail through line *x'x'* of Fig. 1, showing arrangement for securing the knives in lower knife-bar.

My invention relates to a novel construction of machine especially adapted for cutting boot-straps, but applicable also for cutting straps used in harness, trunk, and saddle making. It consists in a frame-work carrying a revolving shaft, having a leather carrier provided with a set of automatically-operated clamping fingers or springs, which clasp the leather to the leather-carrier, in combination with a stationary knife, which cuts off the length of the strap, and a series of stationary knives, which sever the cut section of leather into a series of straps, as hereinafter more particularly described.

In the drawing, A represents the side frames of the machine, which are preferably made of cast-iron, and are connected by stay-rods or cross-braces B. In bearings in the upper part of the frame is journaled the revolving shaft C, which is provided with a crank, D, in the place of which a pulley or a fly-wheel may be employed. To this shaft C, upon one side, is attached a leather-carrier, E, which is slitted transversely with grooves *x*, the distance between which is equal to the width of the strap. F F are ears attached to the shaft C and its leather-carrier, and forming journals for a rack-bar, G. This bar G is arranged in said journals parallel with shaft C, and carries a set of spring-fingers, *a*, which are so arranged as to clasp the leather between the grooves in the leather-carrier, and, for holding the leather while the knives are operating, they are withdrawn from the leather-carrier during the remainder of the revolution of shaft C, so that the straps may fall out and a new piece

of leather be readily inserted. This automatic operation of the spring-fingers is effected as follows: The ends of bar G are extended through the bearings F, and to the same are attached arms *b*. These arms carry upon their extremities friction-rollers *c*, which move upon stationary cams N, rigidly affixed to the upper inside parts of the end frames A around the ends of shaft C. These cams are so arranged with respect to the other parts that, when the offset has reached the knives and the pressure of the fingers is required to hold the leather firmly, the friction-rollers of the arms are at that moment upon the most eccentric part of the cams, which, as shown, is upon the opposite side of shaft C from the knives.

H is a spiral spring, connecting the rack-bar G with the main shaft C. The object of this spring is to withdraw the spring-fingers from the leather-carrier after the rollers have left the most eccentric portion of the cams, so as to release the cut straps and permit the insertion of a new piece of leather.

I is the upper knife-bar, which rests upon and connects the upper ends of the side frames A. This bar carries a single long knife, J, parallel with the shaft C and its leather carrier, which latter, in its revolution, passes close enough to the knife to cause the latter to cut off the leather evenly with the edge of the leather-carrier. To compensate for the wear of the leather-carrier the leather-carrier is made with an adjustable portion, K, which is slotted, and attached to the other portion of the leather-carrier by means of binding-screws. This arrangement permits the edge of the leather-carrier (which is made of wood to prevent dulling the knife) to be projected farther out toward the knife, so as to insure a clean cut and prevent the partial cutting and splitting of the leather. After the section of leather is cut off the right length for the straps it is carried below to a series of knives, L, which are arranged in a lower knife-bar, M, the same distance apart as the grooves in the leather-carrier, and registering therewith, so that the knives L enter these grooves between the spring-fingers, and slit the interposed clamped section of leather into a series of straps. These knives L are arranged in the bar M so as to be readily detached and inserted, as they will,

from time to time, require sharpening, and for this purpose the knives are placed loosely in position between the interposed T-shaped blocks O, the lower portions or shanks of which blocks enter a longitudinal slot in the said knife-bar. To tighten these blocks and the interposed knives in position, one of the blocks is made of two beveled sections, $a^1 a^2$, of which a^1 is the larger. This section operates as a wedge, and is drawn down to tighten the others by means of a set-screw, d , which passes through a cross-block, e , arranged transversely upon the under side of the slotted bar M.

The operation of the machine is as follows: The piece of leather being placed upon the leather-carrier and beneath the spring-fingers, a revolution of the shaft C brings the arms of the rack-bar onto the eccentric portion of the cams, which presses the fingers upon the leather and clamps it firmly while it is being cut. In its revolution, then, the upper single knife first severs the section of leather at the edge of the leather-carrier with a beveled or inclined cut, producing thereby the necessary scarf for the boot-strap. The lower series of knives then pass between the spring-fingers, and enter the grooves of the leather-carrier, thereby cutting the interposed leather into a series of straps. The spring-fingers now release the straps, and a new piece of leather may be inserted.

In constructing my machines I may use any number of knives and length of leather-carrier, and, instead of having the knives all the same distance apart, may make a portion of them closer together or wider apart, so as to produce different-sized straps upon the same machine without adjustment.

To regulate the length of the strap, adjustable stops f are inserted beneath the spring-fingers, which govern the distance the leather is to be inserted.

Having thus described my invention, what I claim as new is—

1. The revolving shaft carrying a leather-carrier, provided with devices for holding the leather, in combination with a stationary knife, which cuts off a section of leather, and a series of stationary knives, which slit the cut section of leather into straps, substantially as described.

2. The rack-bar G, carrying spring-fingers a , and having arms upon its extremities, in combination with the cams N and the revolving shaft C, having a leather-carrier or wiper-section, substantially as and for the purpose described.

3. The combination, with the series of splitting-knives, of the spring-fingers a and leather-carrier, attached to the shaft and grooved transversely at x , as and for the purpose described.

4. The combination, with knife I, of the leather-carrier, having an adjustable portion, K, as and for the purpose described.

5. The combination, with the slotted bar M, the knives L, and the T-shaped blocks O, of the beveled or wedge-shaped block a^1 and the set-screw d , as and for the purpose described.

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Witnesses:

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