Bradford & Churchill.

Tack-Leathering Machine.

No. 37,850. Patented Mar. 10, 1863.

Fig. 3.

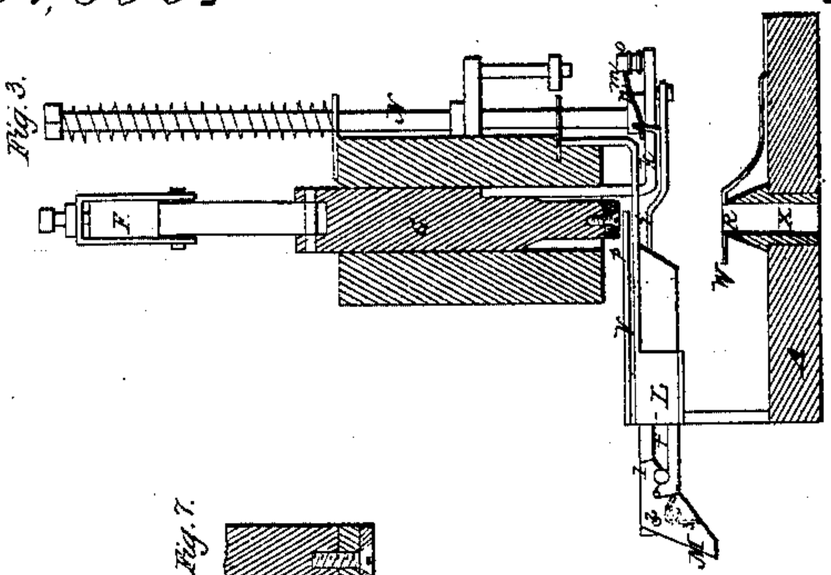


Fig. 7.

Fig. 5.

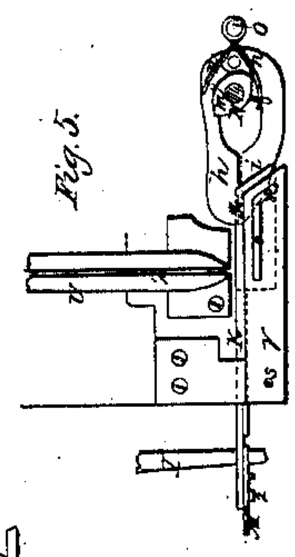


Fig. 8.

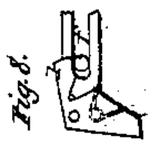


Fig. 6.

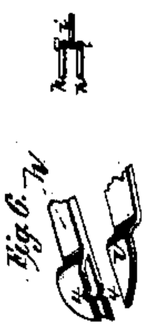


Fig. 2.

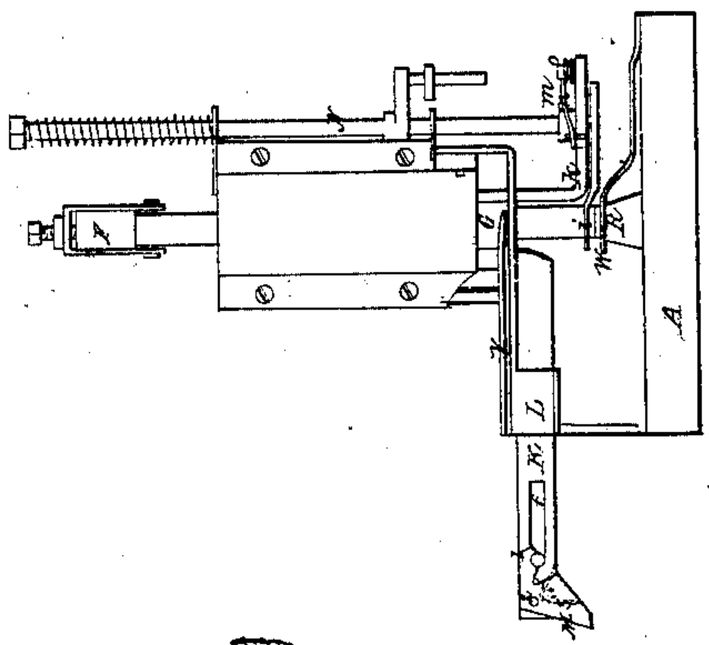


Fig. 4.

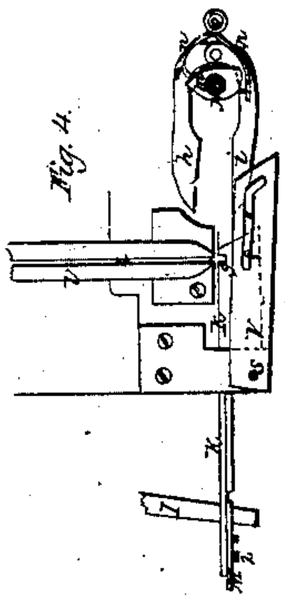
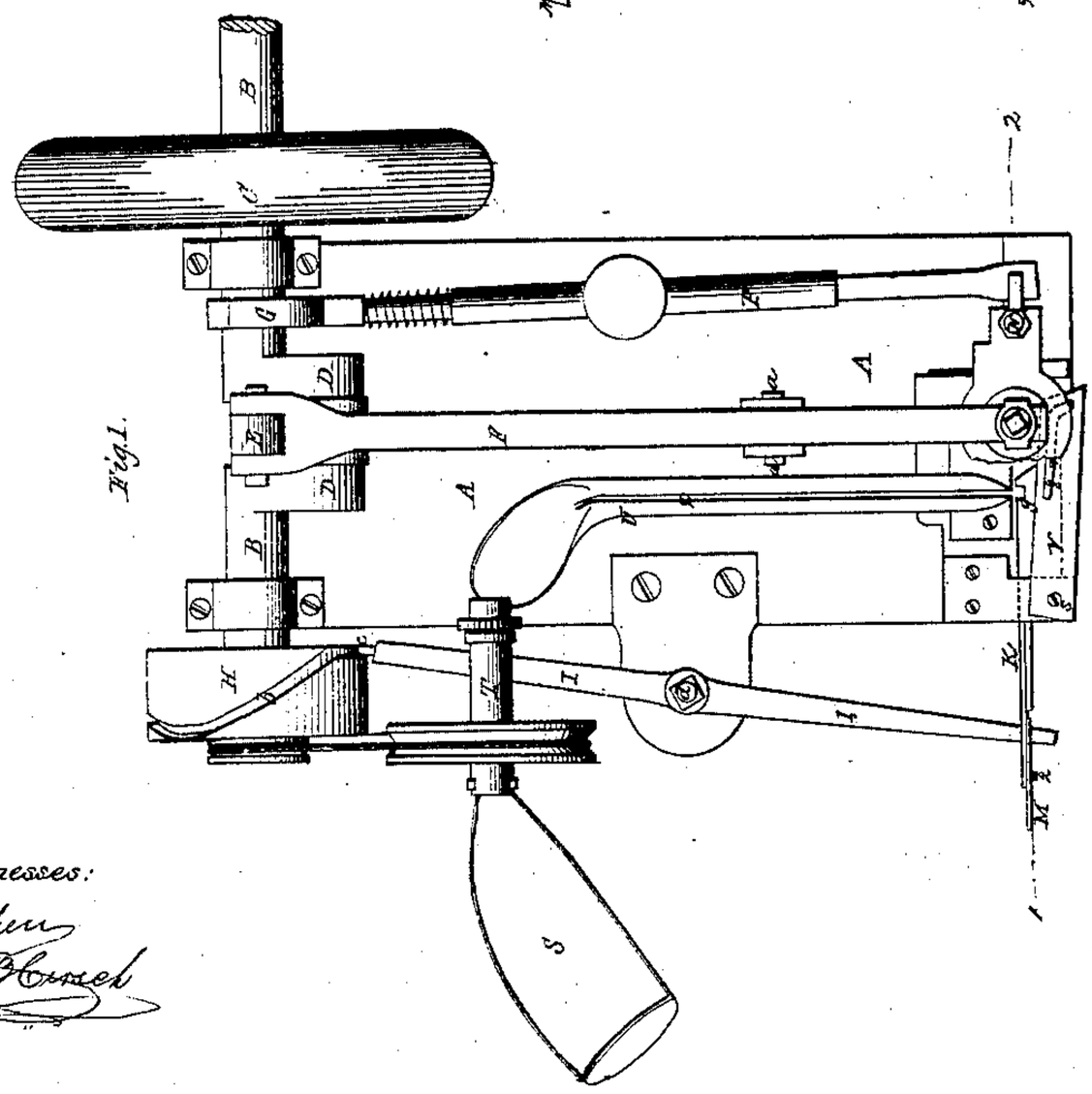


Fig. 1.



Witnesses:

E. Cohen

Julius Bousek

Inventor:

Lewis G. Bradford

C. O. Churchill

By their Attorney

Thos H. Dodge

UNITED STATES PATENT OFFICE.

LEWIS G. BRADFORD AND CHARLES O. CHURCHILL, OF PLYMOUTH, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR LEATHERING TACKS.

Specification forming part of Letters Patent No. **37,850,** dated March 10, 1863.

To all whom it may concern:

Be it known that we, LEWIS G. BRADFORD and CHAS. O. CHURCHILL, of Plymouth, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Machines for Leathering Tacks; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a top view of our machine. Fig. 2 represents a front view of the same. Fig. 3 represents a vertical section through lines 1 2 of Fig. 1. Figs. 4 and 5 represent top views of the mechanism for separating and gripping the tacks. Figs. 6, 7, and 8 are detached views, hereinafter to be referred to.

Our invention relates to the application of a regulator or stop motion to the tack-separator, so as to arrest the motion of the latter in case any obstruction should impede the free movement and proper working of the same.

It also relates to the combination and arrangement of grippers or guides which hold the tack firmly in a perpendicular position while being driven through the leather, causing each tack to be centered accurately and insuring a uniform appearance of the washers.

It also relates to a particular combination and arrangement of parts for insuring a perfect cutting of the washers at all points of the circumference thereof.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

A represents the bed-plate of the machine. B represents the driving-shaft; C, the fly-wheel. The crank D on the shaft B is pivoted to the pitman E, which latter is connected with the beam F, which turns on the pivots *a*, and to which the piston G is hung. The cam H is secured to the shaft B, and has a cam-groove, *b*, cut on its circumference, into which the pin *c* of the lever I extends, said lever turning on the pivot *d*. The long end of the lever I passes through a slot, *f*, of the slide-separator K, which rests and reciprocates on a stand, L. The separator K has a notch, *g*, at a proper point, into which the tack slides, and in which it is carried to a certain point under the piston G, to be acted upon by said piston. The long end of the lever I is not directly secured to the slide K, but is held or gripped by projection 1 of the plate M. This plate is pivoted to the slide at 2, but is caused to press on the lever I by means of a spring, 3, and should any obstruction in the machine prevent the free and regular working of the slide, the spring 3 will yield and the end of the lever I will escape from the notch of the plate M, as represented in Fig. 8, and will play in the slot *f*, and thus cease to operate said slide, thereby preventing any breakage in the machine. *h* and *i* represent guides or grippers, which hold the tack firmly while it is carried downward and punched through the leather. These grippers or guides are pivoted to a hanger, *k*, which is secured to the lower end of the spring-shaft N. They are made to open and close on the tack by the action of the cam *m*, which is secured to the shaft N, and by the springs *n*, which are secured to the pivot *o*. One of the grippers *h* has forked ends, as represented in Fig. 6, and is so arranged as to hold the tack at the head and point, while the other guide or gripper *i* holds it in the middle and presses it against the forked ends of the guide *h*, which have notches 4 cut in their inner edges, in which the tack is held in a perpendicular and true position while carried downward to the leather. The cam *m* is operated by the action of the rod P, which is reciprocated by cam Q on the main shaft.

The plate *p*, for pressing the tack through the leather, and for pressing the leather against the circular cutter R to cut the washer, is secured to the lower end of the piston G by means of a screw, or otherwise, so as to make it detachable, as represented in Fig. 7 on an enlarged scale.

Considerable difficulty has been experienced in the operation of these machines, for the reason that the face of the plate does not remain parallel to the circular cutting-edge when the machine has been in use some time, and for that reason the entire circumference of the washer is not always cut out, and to avoid this difficulty we insert an elastic material, *q*—such as india-rubber—which permits the plate to yield, and when pressed against the

cutter it will assume a position parallel to it, and thus cut the washer on all points of the circumference.

The operation of the machine is as follows: The parts being in position represented in Fig. 3, and motion being given to the driving-shaft B, the lever I operates the slide-separator K and the tacks pass from the hopper S, through the tube T, down to the guide U, and slide down singly in the groove *z*. A tack having lodged in the notch *g*, the slide-separator instantly carries it toward the piston G, and when it has arrived under it, as represented in Fig. 5, the action of the cam *m*, in combination with the springs *n*, causes the grips or guides *i h* to close on the tack with considerable velocity, and the tack is sprung in and held by the guides in a perpendicular position. To facilitate this movement the head of the tack may be pushed out of the notch *g* by the action of the plate V, which, turning on pin S, is at a certain point moved inward by the action of the pin 8, which works in the cam-slot 9, as represented in Fig. 5. The piston G and guides move downward toward the circular cutter R, the leather lying on the spring-plate W. When the tack commences to penetrate the leather, the guides *h i* open to the position represented in Fig. 4, and release it, and the piston G drives it home, and on further pressure cuts out the washer, and the tack passes down the tube X.

Having thus described our improvement, what we claim, and desire to secure by Letters Patent, is—

1. The application of the regulator or stop motion M, by the action of which any obstruction to the free movement of the horizontal reciprocating separator K is detected and the motion of the separator stopped.

2. The combination and arrangement of the tack-guide substantially as described, by which the tack is taken from the separator and held in a perpendicular position (causing each tack to be centered alike) while being driven through the leather, and a uniform appearance of the washer insured.

3. The combination, with the bottom of the piston G, of the plate *p* and elastic piece *q*, the whole being arranged to operate in connection with the stationary circular cutter R in a tack-leathering machine, as and for the purposes set forth.

LEWIS G. BRADFORD.
CHAS. O. CHURCHILL.

Witnesses:
LEANDER LOVELL,
J. K. HAYWARD,
EDMUND ROBBINS.