

J. F. MILLIGAN.
Punching-Machine.

No. 215,651.

Patented May 20, 1879.

Fig 1

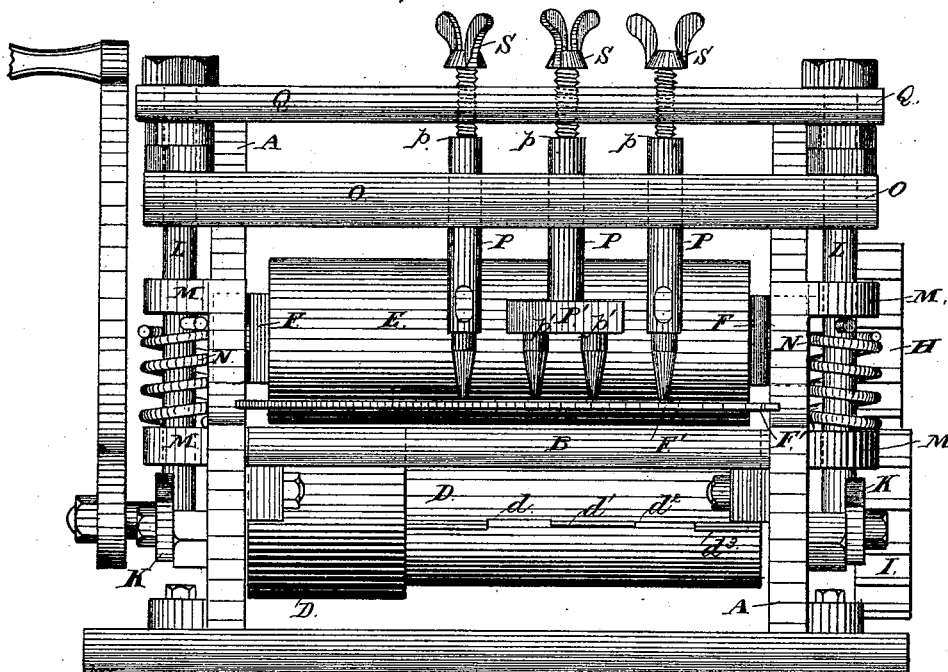
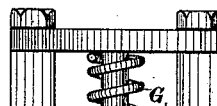


Fig 2



UNITED STATES PATENT OFFICE.

JOHN F. MILLIGAN, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF HIS
RIGHT TO JOSEPH W. BRANCH, OF SAME PLACE.

IMPROVEMENT IN PUNCHING-MACHINES.

Specification forming part of Letters Patent No. **215,651**, dated May 20, 1879; application filed
December 19, 1878.

To all whom it may concern:

Be it known that I, JOHN F. MILLIGAN, of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Punching-Machines, of which the following is a specification.

My invention is intended, primarily, for punching leather straps, but may be used for punching other articles and materials.

The invention consists, first, in providing a punching-machine with a pair of feeding-rollers, one or both of which is recessed in such a manner as to cause the material to be fed intermittently, the material being left at rest while the recesses are passing, and being gripped and moved when the full portions of the rollers come in contact with it. I am thus enabled by elevating any full portion of the circumference of the rollers to feed the straps or other articles to any desired distance at each revolution, and by varying the extent of the recesses in different parts of the roller or rollers I am enabled to feed different straps different distances at each stroke.

The punches are operated at each revolution of the rollers, and by regulating the feed, as above stated, I effect the punching of the holes at any desired distance apart.

The invention further consists in mounting the punches in a cross-head consisting of two bars, in the upper one of which are vertical setting-screws bearing on the ends of the punch-stocks, and in the lower one horizontal clamp-screws, to fix the punches in any position to which they may be set.

In order that the invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a front elevation, and Fig. 2 a longitudinal section, of a machine constructed according to my present invention.

A A are different parts of the frame of the machine. B is a bed-plate, having guides C, which may be made adjustable, if desired, to suit different widths of straps to be punched. D and E are the feed-rollers. The roller D turns in fixed bearings in the frame, and is recessed, as shown at d d^1 d^2 d^3 , the recesses extending around its periphery to any desired

extent, so as to leave as much of the circumference of the roller as will correspond with the length desired between the holes in the strap. The pressure-roller E is journaled in boxes F F, held down by springs G. The two rollers are geared together by pinions H I, so as to cause them to rotate in unison. J J are cams or tappets geared on each end of the shaft of the bed-roller D, and depressing at each revolution levers K K, which are fulcrumed at k , and have attached to them vertical rods L L, which work in guides M M in the frame, and are pressed upward by springs N N. The vertical rods L L carry a cross-head consisting of two horizontal bars, O Q. The punch-stocks P P are mounted in the lower bar, O, and fixed in position by clamp-screws R after they have been accurately adjusted by vertical setting-screws S, which are tapped into the upper bar, Q, and bear on the ends of the punch-stocks. p p represent the punches.

At p' p' , I have shown a double punch of peculiar construction, the two punches being screwed into a head, P', prepared to receive them, as shown, so that the punches will work together. This device is employed for punching double holes in straps for leather fly-nets and for other purposes. F' represents a cross-bar perforated for the punches to work through, and employed to hold the straps down to the bed or strip them from the punches as the latter ascend.

In practice, I employ in each machine as many different punches as are required for the manufacture of the work. These may be ten in number, and opposite each punch.

The roller D is recessed to any extent required around its periphery, so as to leave the requisite length in circumference to feed the strap forward a suitable distance, and by the use of gages or guides I adapt the machine for various sizes of straps from one-quarter of an inch to one inch and a half in width, if necessary.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. A punching-machine constructed with a pair of feeding-rollers, one or both of them re-

cessed at intervals around the periphery, said recesses also extending in a longitudinal direction, substantially as shown, to effect, by means of the projecting parts of the rolls, the intermittent feeding of the straps to any desired extent, and thus determine the distance between the holes, as described.

2. The combination of the irregularly-recessed feed-rollers, one or both of them recessed at intervals around the periphery, and also in a longitudinal direction to form projections therein, the guides C, and punches *p*

p', substantially as and for the purposes set forth.

3. The single and double punches *p p'*, mounted in a cross-head, O Q, and adapted to be vertically adjusted by the vertical setting-screws S, and clamped to the bar O by clamp-screws R, substantially as set forth.

JOHN F. MILLIGAN.

Witnesses:

SAML. KNIGHT,
GEO. H. KNIGHT.