

(No Model.)

J. A. NICHOLS.
PUNCHING MACHINE.

No. 584,236.

Patented June 8, 1897.

Fig. 1.

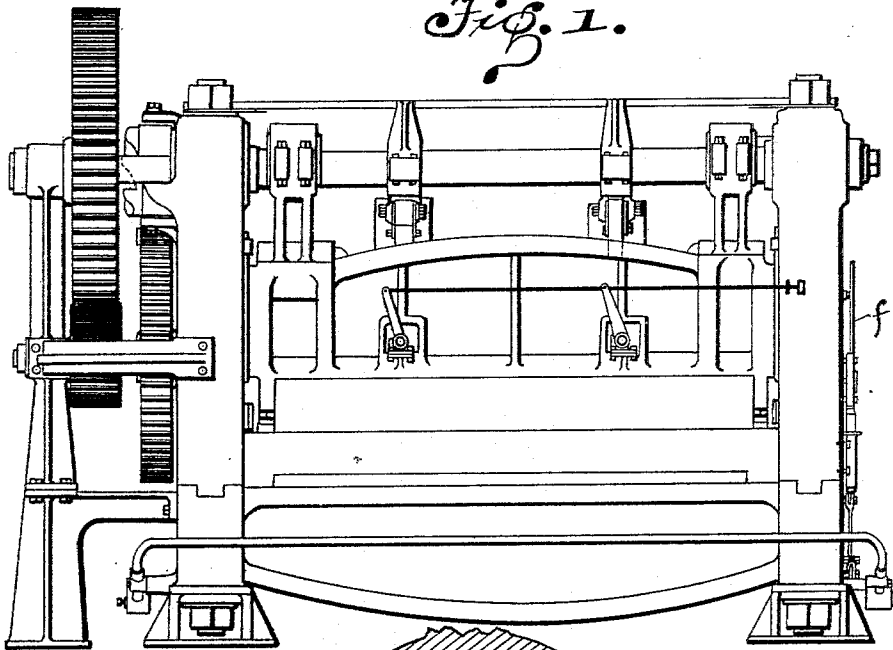


Fig. 4.

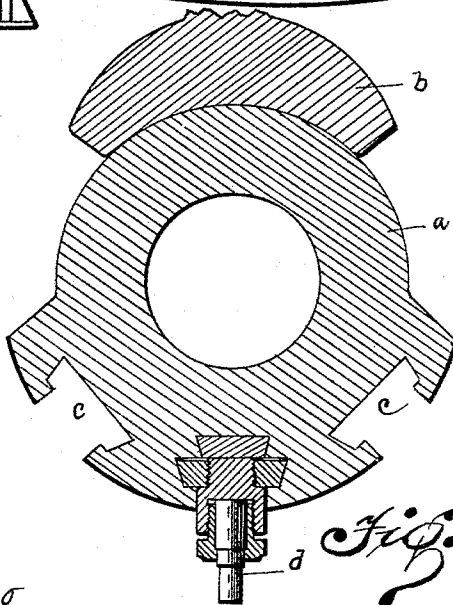
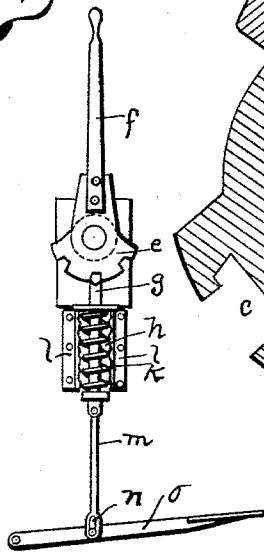
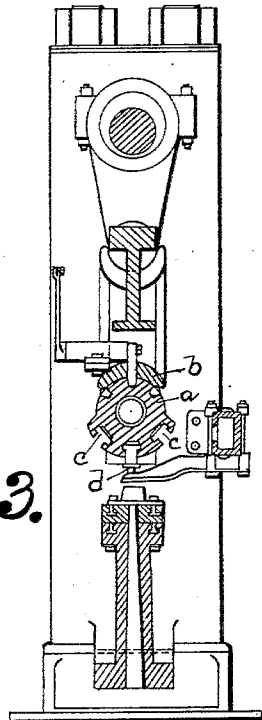


Fig. 3.

Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN A. NICHOLS, OF PITTSBURG, PENNSYLVANIA.

PUNCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 584,236, dated June 8, 1897.

Application filed October 5, 1896. Serial No. 607,846. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. NICHOLS, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Punching-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in punching-machines, and relates more particularly to that class that are designed to be employed on plates and girders employed in the construction of structural and bridge work.

The invention has for its object to construct a punching-machine of the above-described class whereby the cylinder carrying the punches may be revolved in either direction and punching the holes either in a straight row or in a zigzag position, as may be desired.

A still further object of the invention is to construct a punching-machine carrying three or more rows or sets of punches whereby a row of holes may be made throughout the plates or girders to receive the cord and stiffening-angles, as may be required or necessary, the punches for this operation being in the same cylinder as the ones used for punching the rows of straight or zigzag holes; furthermore, a punching-machine that will be extremely simple in its construction, strong, durable, effectual in its operation, and comparatively inexpensive to manufacture.

With the above and other objects in view the invention finally consists in the novel construction, combination, and arrangement to be hereinafter more specifically described, and particularly pointed out in the claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like letters and numerals of reference indicate similar parts throughout the several views, in which—

Figure 1 is a side elevation of my improved punching-machine. Fig. 2 is a transverse vertical sectional view of the cylinder, showing one row of punches in position. Fig. 3 is an end view, partly in section. Fig. 4 is a side

view of the lock to hold the cylinder in the desired position and the operating-lever for the same.

In order to clearly illustrate my invention, I have shown in side elevation, Fig. 1, an entire punching-machine, and I do not wish to be understood as claiming as new the frame and general construction of the machine, my invention being limited to the cylinder carrying the punches and to the manner of operating and securing the same. For the purpose of illustrating this I have shown in Fig. 2 the cylinder *a*, which is secured to the ram-head *b*, said ram-head and cylinder being supported in the machine proper in any desired manner. The cylinder is provided with grooves *c c*, in which the punches *d* are dovetailed, and instead of the one row of punches, as in the ordinary construction, I have provided three or more rows to be used as occasion may require and as will be more fully stated.

In order to bring the row of punches desired into use and hold the same, I have provided a lock consisting of the segment-plate *e*, carrying the hand-lever *f*, and notches around the segment to receive the bar *g*, operating through the casing *h* and provided with a coil-spring *k*, encircling same between the collars *l l*. This bar *g* is pivotally attached to a lever *m*, provided with a slot *n* at its lower end, said slot engaging on a pin in the foot-treadle *o*, which is pivotally secured at its inner end to any suitable place on the machine.

In the operation where it is desired to punch a single row of holes on each edge of the plate, which is handled in the machine in any of the well-known manners, the cylinder is not rotated, but remains in the same position and punches the holes at each stroke of the machine.

When it is desired to punch two rows of holes in the zigzag manner, the cylinder is partly revolved by using the hand-lever, its lock on the same being released by pressure on the foot-lever, thus employing two rows of punches, and as the cylinder is revolved each punch will be brought into a vertical line with the punch-die. To more fully illustrate

this, I will designate the slots as 1 2 3. Then slot 1, carrying the punches, will punch the two outer holes, and 2 the two inner holes, while 3 will punch the holes required for the cord or stiffening-angles. By the lever *f*, attached to the cylinder, the same can be changed upon the ram-head, releasing the end of the upward stroke to bring either one of the three sets of punches in position to punch the next hole required. It will therefore be observed that to punch one row of holes along the edge of the plate the cylinder remains in the same position, while to punch two rows or zigzag the positions are changed from 1 to 2 and then back to 1, and when the slots for stiffening-rods are required slot 3 is brought into use.

It will be observed that as the cylinder is revolved and the bar *g* engages in the notch in the segment corresponding to the groove in the cylinder it will hold this groove in position during the downward stroke of the punch, and the cylinder is released by the foot-treadle, as heretofore described.

It will be observed that this construction of the cylinder will not be limited to the three slots, but that one or as many more may be employed as may be desired, and it will also be observed that various changes may be made in the details of construction without

departing from the general spirit of my invention.

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

1. In combination, a ram-head, a cylinder secured thereto, said cylinder being provided with grooves, punches dovetailed in the grooves and arranged in a series of rows, a segment-plate notched and pivoted to the frame of the machine, a hand-lever connected with the plate, a suitable connection between the plate and cylinder, a spring-pressed bar engaging the notches of the plate, and connections for operating the bar, substantially as described.

2. In combination, a ram-head, a cylinder secured thereto, punches dovetailed in recesses of the cylinder, said punches being arranged in rows, means for changing the position of the punches and detents for holding the cylinder in its adjusted position, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN A. NICHOLS.

Witnesses:

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H. E. SEIBERT.