G. A. Alger,

Metal Punch,

No. 54,997. Patented May 22, 1866.

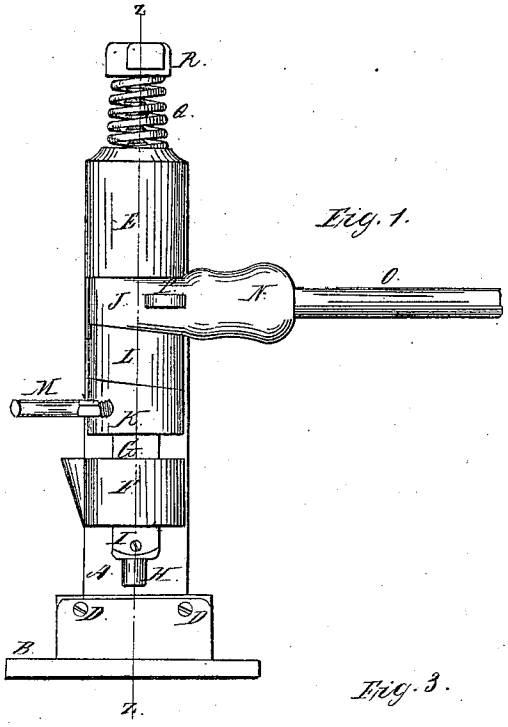


Fig. 1.

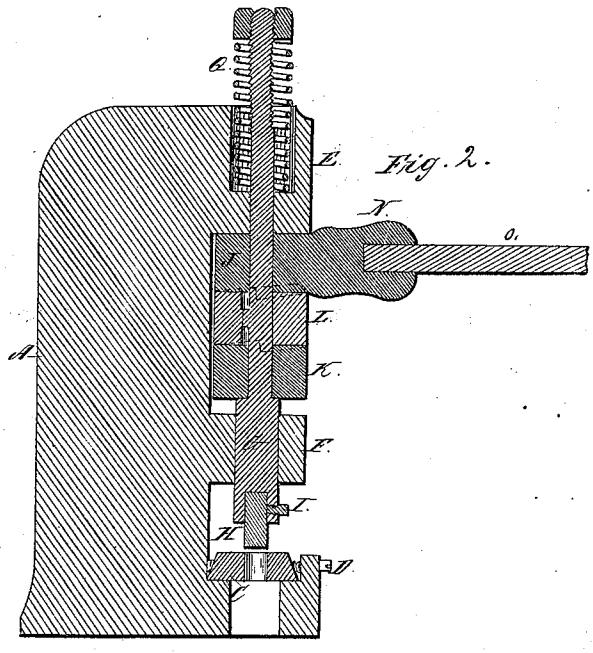
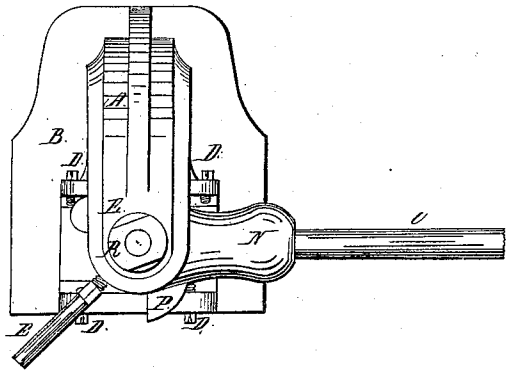


Fig. 2.

Fig. 3.



Witnesses:
J. E. Dennis
Jos. L. Adamson Jr.

Inventor:
George A. Alger
By his Atty J. Dennis Jr.

UNITED STATES PATENT OFFICE.

GEORGE A. ALGER, OF MANCHESTER, NEW HAMPSHIRE, ASSIGNOR TO HIMSELF AND WALDO WHITNEY, OF SAME PLACE.

IMPROVED PUNCHING-MACHINE.

Specification forming part of Letters Patent No. **54,997**, dated May 22, 1866.

To all whom it may concern:

Be it known that I, GEORGE A. ALGER, of Manchester, Hillsborough county, State of New Hampshire, have invented certain new and useful Improvements in Punching-Machines; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

The nature of my invention and improvements consists in making two revolving cams and collar or double cam to operate the punch-bar and punch, one cam to set or adjust the punch to the thickness of the plate metal or other material to be punched, and the other cam to force the punch through the plate metal or other material to be punched, both cams and collar or double cam being arranged to turn or work on the punch-bar.

The object of my invention and improvement in punching-machines is to save both time and labor. This I effect by the use of two cams, used in connection with the collar or double cam on the punch-bar, one of which cams is worked by a short lever to adjust the punch to the thickness of the material to be punched, and the other cam is worked by a long strong lever to force the punch through the material to be punched. By adjusting the punch with the short lever, which may be done quickly, the long lever need not be moved near as far as it would require to be were there no short lever to adjust the punch. Hence part of the time and labor is saved by the use of the second cam and short lever.

In the accompanying drawings, Figure 1 is a front elevation of my punching-machine. Fig. 2 is a section on the line *z z* of Fig. 1. Fig. 3 is a plan or top view.

In these drawings, A is the standard of the machine, made of cast-iron or other material, in the form shown or in such other form as will answer the purpose, and provided with a base, B, which base is perforated for the bolts which are to fasten it in the position required.

The base B has a wide groove across it for the die C, which is adjusted and fastened in a proper position by the set-screws D D.

There are two projections, E and F, on the stand A, which are perforated for the punch-bar G to traverse in.

The lower end of the punch-bar is made square and provided with a socket for the punch H, which is fastened by the set-screw I The upper part of the punch-bar is made round for the cams J and K to turn on, and upon which the collar or cam L is placed between the cams J and K.

The cam K is made in the form shown in the drawings, and its lower side acts against the shoulder of the square part of the punch-bar to force it down and adjust the punch to the thickness of the plate to be punched. The upper side of this cam K has two inclines on it corresponding with two inclines on the under side of the collar or cam L, which is fitted to traverse freely on the punch-bar G, and has a groove on its inside, in which a pin in the bar G traverses to prevent the collar cr cam L from turning when the cams are turned. The cam K is turned by the short lever M.

The upper side of the collar or cam L has two inclines corresponding with its lower side and with the inclines on the lower side of the cam J. The upper side of the cam J works against the under side of the projection E, and this cam is provided with a large arm or hub, N, which is perforated for the long lever O, by which the cam is turned to force down the bar and punch and perforate the metal plate on the die C. There is a lug, P, on the cam J, which strikes the stand A when the cam has been turned far enough to force the punch through the plate into the die C.

The upper part of the projection E is bored large enough to receive the lower end of the spiral spring Q, which acts against the nut R on the upper end of the bar G to raise the bar and draw the punch out of the plate when the cams are turned back after a hole is punched.

What I claim as my invention and improvement in the above-described punching-machine is—

The use of two revolving cams and collar or double cam on the punch-bar, one cam to set the punch to the thickness of the metal plate or other material and the other cam to force the punch through the metal plate or material to be punched.

GEO. A. ALGER.

Witnesses:
H. P. WILSON,
J. W. FELLOWS.