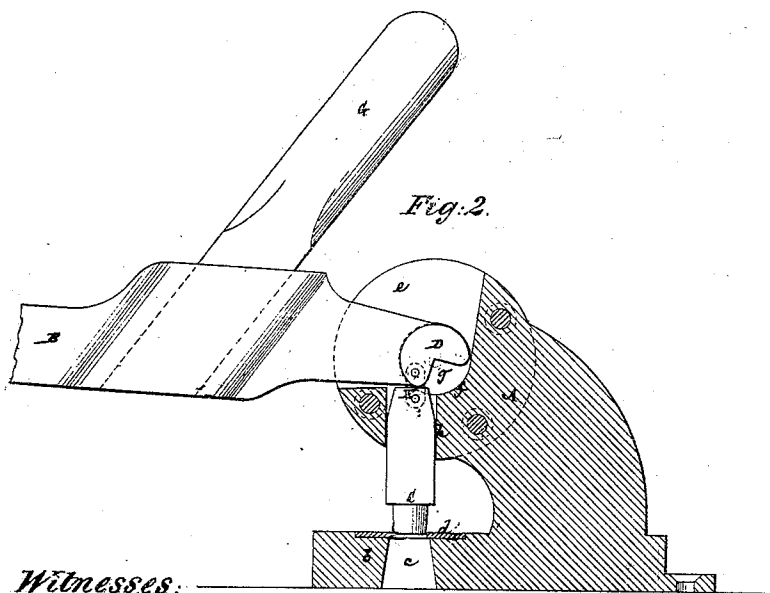
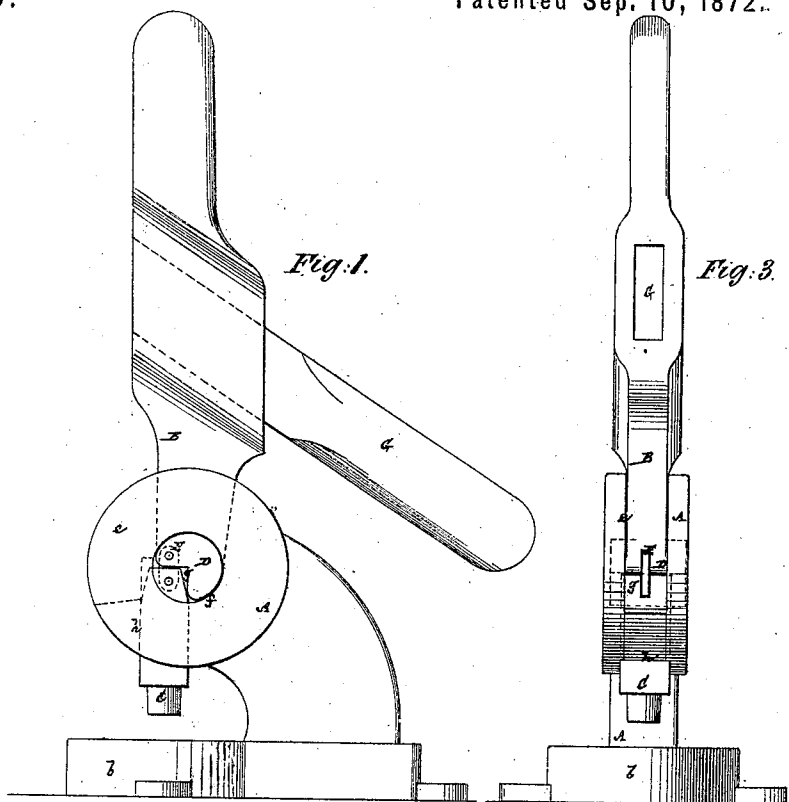


N. THOMPSON.
Improvement in Machines for Punching Metal.
No. 131,193. Patented Sep. 10, 1872..



Witnesses:

Thos. Harnes
Benj. S. Sharp.

N. Thompson

UNITED STATES PATENT OFFICE.

NATHAN THOMPSON, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN MACHINES FOR PUNCHING METALS.

Specification forming part of Letters Patent No. **131,193**, dated September 10, 1872; antedated September 5, 1872.

Specification describing an Improvement in Lever-Punches; applicable also to Die-Presses and Stamps; the invention of NATHAN THOMPSON, of the city of Brooklyn, in the county of Kings and State of New York.

This invention consists in a connection of the operating-lever with the tool or punch proper by means of a link pivoted to the lever within its fulcrum or bearing, whereby a very powerful or effective action is obtained; and by a recessed construction of the fulcrum or bearing of the operating-lever, serving to receive the upper end of the punch or tool when the latter is removed from its work and to arrest its upward movement, as hereinafter specified.

In the accompanying drawing, which forms part of this specification, Figure 1 represents a side elevation of a lever-punch constructed in accordance with the invention, showing the lever that carries the tool or punch proper in an elevated position; Fig. 2, a central vertical section, transversely to the fulcrum, of the frame of the punch as a whole, with the lever that carries the tool or punch proper in its depressed position; and Fig. 3, a front view of the entire punch.

Similar letters of reference indicate corresponding parts throughout the several figures of the drawing.

A is the frame of the punch as a whole, formed with a bed portion, *b*, which is perforated at *c* to provide for clearance of the waste or punch blanks, and is fitted with a cutting or punch-plate, *d*. B is the lever, which carries the tool or punch proper C, and which, fitting with freedom to move throughout its stroke within an opening, *e*, in the front upper portion of the frame, has its fulcrum or bearing D arranged to turn in a transverse hole or seat, *f*, within the frame. Said bearing D is cut away or formed with a recess, *g*, in it, the same extending one-fourth the circumference of the bearing, more or less, and into the bearing as far as, or nearly as far as, its center. This recess *g* serves to admit of the upper end of the punch or tool proper within the bearing D during the elevation of said tool, and while being depressed, as clear-

ly represented in Fig. 1, so that the punch proper C may be attached to the lever B for the purpose of operating the former by an extremely short link, E, which is pivoted to the lever within the periphery of the fulcrum or bearing D thereof, whereby a much slower and more powerful motion is communicated to the punch C than if the latter were linked to the radial portion of the lever. The shortness of the link adds materially to the strength of the connection between the lever and tool or punch proper. Also, the lever or its bearing may be used to act as a stop to relieve the link of strain when the tool is completing its punching stroke, and the final pinch or pressure be borne directly by the lever. The tool or punch proper C may be guided in its travel by a way or passage, *h*, through the head portion of the frame. To facilitate the working of the implement as a whole the primary or punch-operating lever B, which may have its motion restricted from a vertical to a horizontal position, or thereabout, has fitted to or socketed within it an arm or secondary lever, G, arranged to occupy a position which approximates a right angle relatively to the lever B, and so that the lever G projects in rear of the lever B when the latter is raised. By this arrangement of duplicate levers increased facility is afforded for working the punch by both hands; or by two operatives; or by treadle; or by hand and treadle combined; or the one lever may be used for raising the punch, and the other for bringing it down to its work by means of a weight or otherwise.

What is here claimed, and desired to be secured by Letters Patent, is—

The journal D, constructed with the recess *g*, in combination with the punch-stock E in the manner described and shown, the walls of said recess serving, the one as an eccentric or cam to bear upon and depress the punch-stock, and the other to arrest the upward movement of said stock, as set forth.

NATHAN THOMPSON.

Witnesses:

FRED. HAYNES,
FERD. TUSCH.