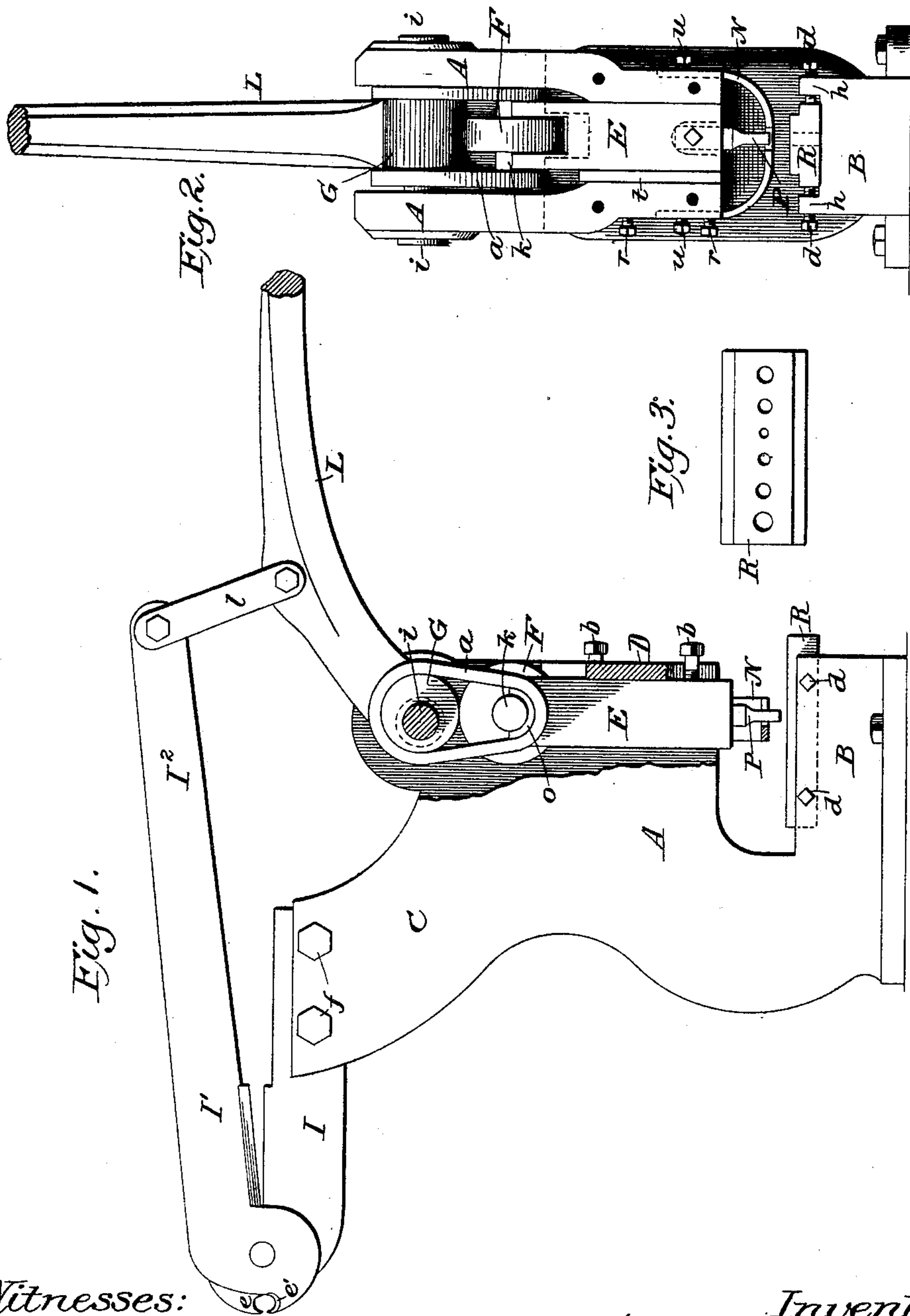


(No Model.)

J. CLARK.  
COMBINED PUNCH AND SHEARS.

No. 407,167.

Patented July 16, 1889.



Witnesses:

James F. Duhamel  
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# UNITED STATES PATENT OFFICE.

JASPER CLARK, OF ELMIRA, NEW YORK, ASSIGNOR TO THEODORE C. NORTH-COTT AND CYNTHIA JANE CLARK, BOTH OF SAME PLACE.

## COMBINED PUNCH AND SHEARS.

SPECIFICATION forming part of Letters Patent No. 407,167, dated July 16, 1889.

Application filed May 9, 1889. Serial No. 310,186. (No model.)

*To all whom it may concern:*

Be it known that I, JASPER CLARK, a citizen of the United States, residing at Elmira, in the county of Chemung and State of New York, have invented certain new and useful Improvements in a Combined Punch and Shears, of which the following is a specification.

My invention relates to combined punching and shearing devices; and the invention consists in certain combinations and details of construction, as hereinafter more specifically set forth.

Figure 1 is a side elevation, partly in section. Fig. 2 is a front elevation with the front plate shown detached, and Fig. 3 is a plan view of the punching die or plate shown detached.

The object of this invention is to produce a combined punching and shearing tool for use in shops that can be operated by hand, and which at the same time shall embody great power.

To construct my improved tool or device, I make a strong cast-iron frame A, of the general form shown in the drawings, it being provided with a base or bed plate B, which has flanges at its sides for bolting it fast to a support. Within the front part of this frame I secure a sliding block E, in the lower end of which is detachably secured the punch P, it being made detachable, so that punches of various sizes may be used. At one side of the slide E, I insert a plate *t*, as shown in Fig. 2, against which set-screws *r* bear, so that said plate can be set up to compensate for any wear of the parts and cause the punch to move with accuracy in a direct line and register with the hole in the die-plate R, which, as shown in Figs. 1 and 2, is held in place on the bed B by means of screws *d*, which pass through flanges Z on opposite sides of the bed, and which permits this die-plate R to be adjusted laterally to bring the hole or holes therein directly in line with the punch, and also to be adjusted longitudinally on the bed to permit any one of the series of holes of varying size to be brought under the punch, the die-plate R, with its series of holes, being shown detached in Fig. 3.

In order to operate the punch and also the shears hereinafter described, I provide a hand-lever L, which is pivoted between ears at the top of the front part of the frame A, as shown in Figs. 1 and 2, the center of its pivot *i* being slightly in rear of vertical line drawn through the center of slide E, as shown in Fig. 1. On the pivoted end of this lever I form a circular head G, the hole for the pivot-bolt *i* being bored eccentrically through the same, as shown, by which means this circular head G is made to operate as an eccentric or cam when the lever is moved.

To avoid the friction that would otherwise be caused, I mount in the upper end of the slide E a large friction-roller F, which is preferably made with its journals in a single solid piece and set loosely in suitable bearings in the top of the slide, as shown in Fig. 2, though it may be otherwise secured to the slide, if desired.

It will readily be seen that when the lever is depressed this eccentric G will operate to depress the punch with great power and that the movement will be exceedingly uniform and smooth.

In order to avoid the use of springs and raise the punch after it has been forced through the metal, I connect the slide E to the eccentric G by means of two small metal loops or links *a*, one at each side, there being semi-circular recesses or grooves cut in the sides of the slide at its upper end, thus leaving ears *o* for the links *a* to engage with, as shown in Fig. 1. As thus arranged, it will be seen that the eccentric and the roller are held in contact at all times, thus preventing any lost motion between the lever and the punch, while the parts are free to move together.

A stripper-plate I is adjustably secured to the frame by means of screws *u*, and has a hole in it through which the punch works, and which operates in the usual manner to hold the piece being punched, and thus strip it from the punch as the latter is raised.

As shown in Fig. 1, the rear portion of the frame A has an extension or vertical projection C, to the upper end of which I secure a shear-blade I by means of bolts *f f*. To this is pivoted a corresponding blade I', which has



a prolongation or arm  $I^2$ , which terminates at a point directly over the hand-lever  $L$  a short distance in front of its pivot, and to which it is connected by a link or bar  $l$ , as shown clearly in Fig. 1. It will thus be seen that this shear-blade is operated by the same lever that operates the punch, and that thus either the punch or the shears can be used whenever desired without any change whatever, though it is obvious that when the punch alone is to be used for a considerable period the shear-arm can be readily disconnected from the lever  $L$ , in which case the punch only will be operated.

In order to enable round iron to be readily cut by the shears, and thus more perfectly adapt the device to the varying needs of the ordinary workshop, I form at the ends of the blades projecting points, on which are formed curved blades  $e$  and  $e'$ , adapted to grasp, hold, and cut rods of metal, as shown clearly in Fig. 1.

The slide  $E$  is preferably made rectangular in cross-section and is held in its seat by a front plate  $D$ , which is removable. This enables the slide  $E$  and its seat in the frame to be planed off true, and thereby secure accurate fit and movement. By this construction I am enabled to produce a compact and powerful tool, by which metal can be punched or cut by hand-power with great facility, and which will be of great use in workshops wherever metal is used.

I am aware that a punch and shears have before been combined in one machine, and that it is not new to use a cam or a friction roller for similar purposes, and therefore I do not claim either of these, broadly; but

What I do claim is—

1. The frame  $A$ , provided with the bed or base plate  $B$ , and having the slide  $E$ , provided with the friction-roller  $F$ , mounted in said frame, in combination with the hand-lever  $L$ , having the eccentric  $G$  formed thereon, and the connecting loops or links  $a$ , all constructed and arranged to operate substantially as shown and described.

2. In combination with the frame  $A$ , having the pivoted lever  $L$  arranged to operate a punch, the fixed shear-blade  $I$ , and the movable blade  $I'$ , having its arm connected to said lever  $L$ , substantially as shown and described.

3. The curved cutting-blades  $e$  and  $e'$ , formed on the projecting ends of the shear-blades, for cutting round or other shaped rods, substantially as shown and described.

In witness whereof I hereunto set my hand in the presence of two witnesses.

JASPER CLARK.

Witnesses:

CHARLES E. KERR,  
L. D. SHOEMAKER.