(No Model.)

E. T. HORNER.

COMBINED METAL PUNCHING AND SHEARING MACHINE.

No. 484,369. Patented Oct. 11, 1892.

Fig. 1.

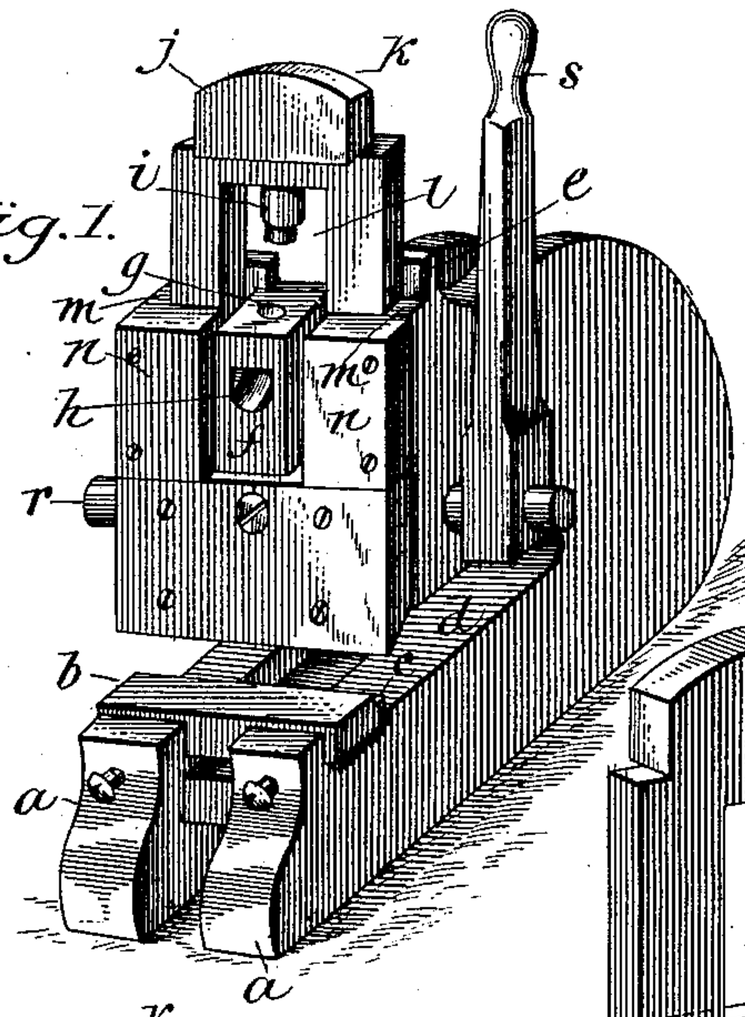


Fig. 3.

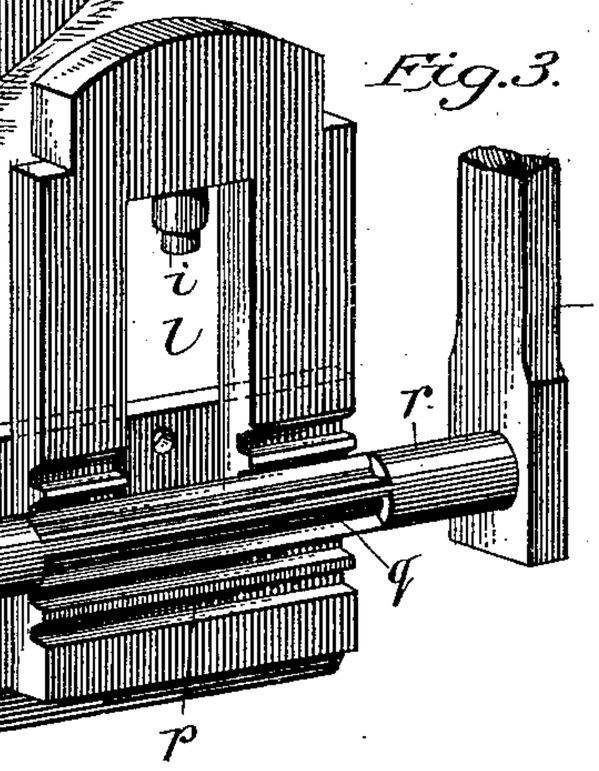
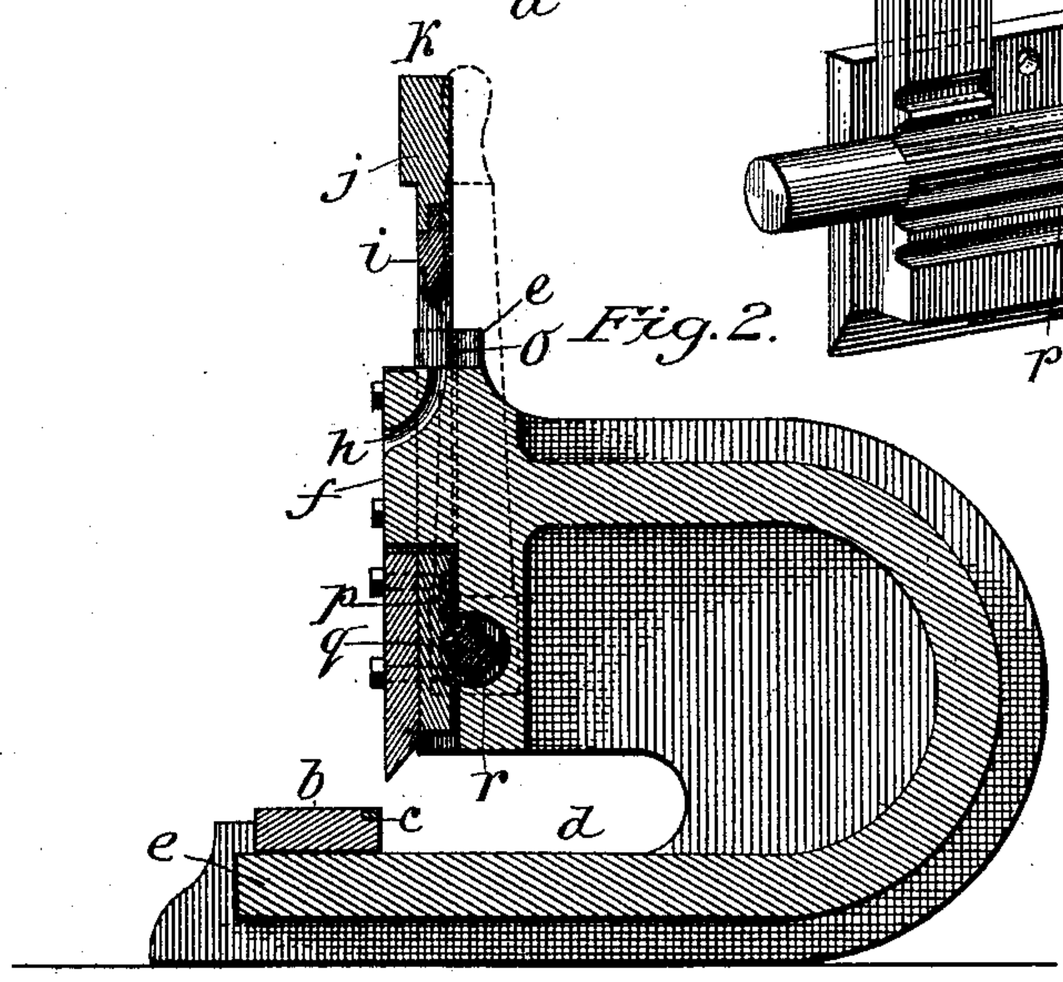


Fig. 2.



Witnesses:

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By Taylor & Hayes Attys

UNITED STATES PATENT OFFICE.

ELWOOD T. HORNER, OF CAMBRIDGE CITY, INDIANA, ASSIGNOR OF ONE-HALF TO JOHN A. SPENCE, OF SAME PLACE.

COMBINED METAL PUNCHING AND SHEARING MACHINE.

SPECIFICATION forming part of Letters Patent No. 484,369, dated October 11, 1892.

Application filed February 15, 1892. Serial No. 421,585. (No model.)

To all whom it may concern:

Be it known that I, ELWOOD T. HORNER, a citizen of the United States, residing at Cambridge City, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in a Combined Metal Punching and Shearing Machine; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention is a combined metal cutting and punching machine; and it consists in certain novel features, which will be hereinafter first fully described, and then particularly pointed out in the claim.

My improved machine is fully illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the complete machine. Fig. 2 is a longitudinal vertical section of the same; and Fig. 3 is a view in detail, showing the rear side of the reciprocating jaw and the shaft for imparting motion to the said jaw.

In carrying out my invention I employ a pair of standards *a a*, having the lower portions somewhat longer than the upper portions, thereby providing a seat for the lower stationary jaw *b*, as shown. This stationary jaw *b* is provided in its rear edge with a rabbet *c*, in which the lower knife is secured. The supporting-standards *a* are so shaped as to provide the recesses *d* in rear of the stationary jaw, in which the metal rests while being operated upon. The standards are secured together and reinforced by a central supporting-bar *e*, of substantially the same form as the standards, the upper end of said bar projecting slightly in advance of the upper ends of the standards, so as to form a support for the die-block *f*, as clearly shown. The said die-block is provided in its upper end with an opening *g* to receive the die, and in its front side it is provided with an escape-opening *h*, which leads from the lower end of the die-opening, so as to permit the escape of the small pieces of metal which are removed by the punch. The punch *i* is formed on the under side of a punch-block *j*, which is secured on the upper end of the reciprocating jaw *k*, the punch extending through the ends of the said jaw into the central slot of the same, so as to register with the die-opening *f*. The said reciprocating jaw is provided with a central slot *l*, through which the die-block projects, and its side arms move vertically between the said die-block and the flanges or ribs *m* on the front sides of the upper ends of the standards. In order to maintain the said jaw in a true vertical position, a cap *n* is secured to the ribs or flanges *m* and extends over the front side of the jaw, while the spaces between the standards and the upper end of the supporting-bar *e* are filled by bearing-plates *o*, which bear upon the rear side of the jaw. The upper knife, it will be readily understood, is secured to the lower end of the reciprocating jaw, and near the lower end of the jaw, on the rear side of the same, I form the rack-teeth *p*, which are engaged by gear-teeth *q*, formed on a driving-shaft *r*, which is journaled in the upper ends of the standards, in rear of the said jaw, and is provided at one end with a crank-arm or operating-lever *s*, whereby it may be rocked or rotated at will.

The construction and arrangement of the several parts of my device will be readily understood from the foregoing description and the operation of the same is thought to be obvious. When it is desired to cut a piece of metal, the sheet is placed on the lower jaw, with its edge extending into the recesses *d* of the standards. The lever is then swung forward and downward, consequently rotating the driving-shaft, and thereby depressing the reciprocating jaw. The upper knife will thus be brought down onto the metal, and the continued movement of the lever and rock-shaft will cause the said knife to act against the lower knife with a shearing movement, and thereby cut the metal.

When it is desired to use the punch, the metal to be operated upon is placed on the die-block and the lever then manipulated as before, thus bringing the punch down upon the metal and removing a small portion of the same.

It will be seen from the foregoing description, taken in connection with the accompany-

ing drawings, that I have provided a very compactly-arranged machine for punching and cutting metal which can be easily operated and which is very efficient. It will be readily understood, of course, that the size of the punch and the die-block may be varied indefinitely at will and that I do not confine myself to the exact details of construction shown and described, as minor changes may be made in them without affecting the principles of my invention.

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

The combination of the supporting-standards, a die-block at the upper ends thereof, provided with a die-opening in its top and an escape-opening in its front side, connected with said die-opening by a downwardly and forwardly curved passage, a stationary jaw secured on the lower ends of the standards, a reciprocating jaw having a central opening into which the die-block projects and provided on its rear side at its lower end with a series of rack-teeth, a punch secured in the upper end of the central opening of the reciprocating jaw, a knife secured to the lower end of said jaw, and a driving-shaft mounted in the standards in the rear of the reciprocating jaw and provided with gear-teeth meshing with the rack-teeth on said jaw.

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

ELWOOD T. HORNER.

Witnesses:
H. B. BUYD,
C. H. TABKE.