A. LEE.

MACHINES FOR PUNCHING AND SHEARING METAL.

No. 190,771. Patented May 15, 1877.

Fig. 1.

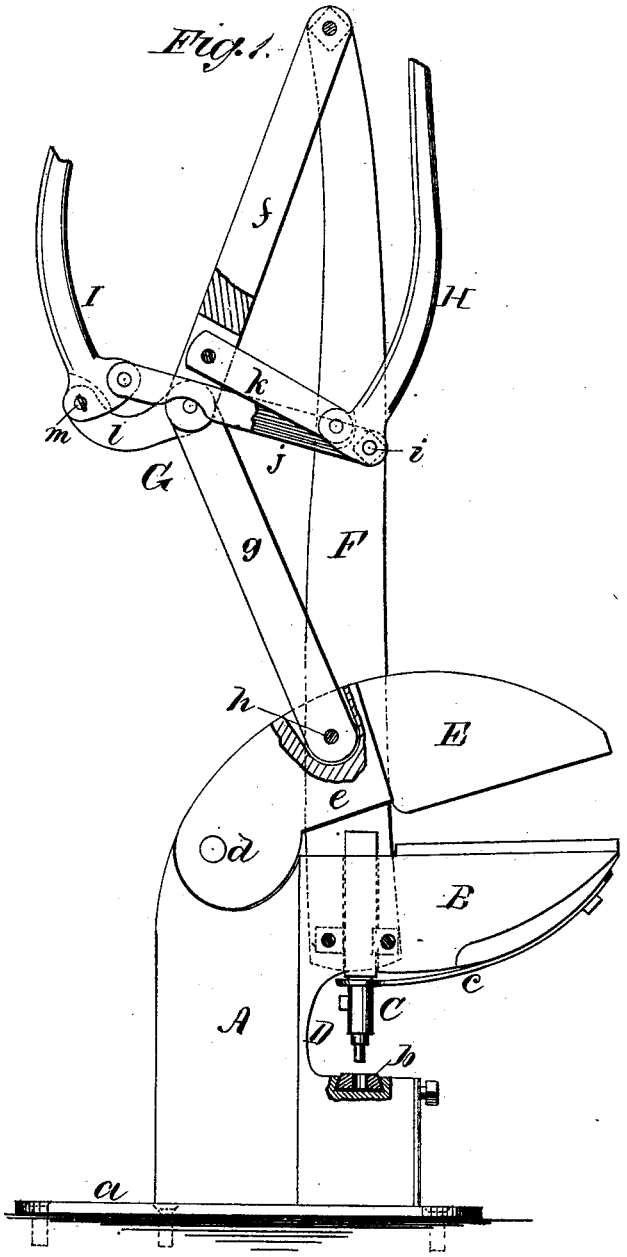
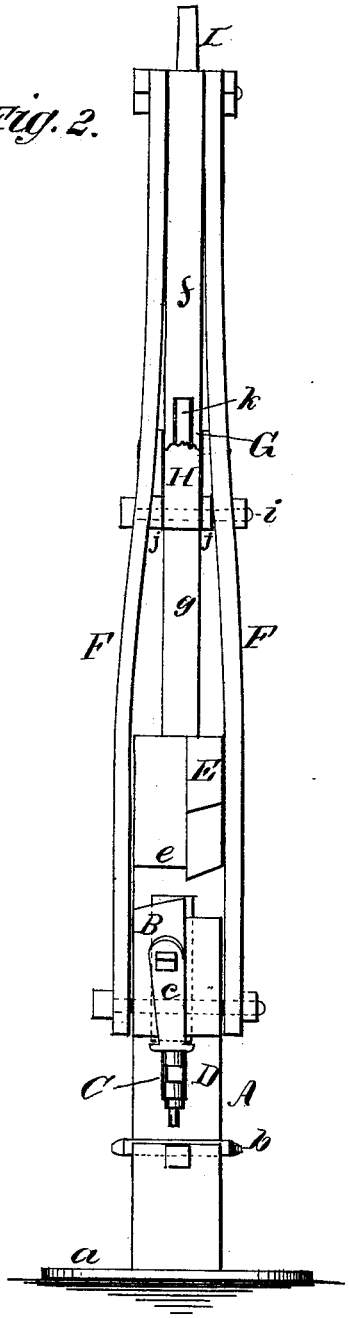


Fig. 2.



WITNESSES:

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ALFRED LEE, OF FOREST GROVE, OREGON.

IMPROVEMENT IN MACHINES FOR PUNCHING AND SHEARING METAL.

Specification forming part of Letters Patent No. **190,771**, dated May 15, 1877; application filed March 19, 1877.

To all whom it may concern:

Be it known that I, ALFRED LEE, of Forest Grove, in the county of Washington and State of Oregon, have invented a new and Improved Punching and Shearing Machine, of which the following is a specification:

Figure 1 is a side elevation of my improved machine, with parts broken away to show the construction more clearly. Fig. 2 is a front elevation.

Similar letters of reference indicate corresponding parts.

My invention consists of a toggle-joint and two hand-levers, and a peculiar arrangement of links for connecting the same, in combination with a punch and shears.

The object of the invention is to provide a machine for punching and shearing metal that shall be compact, strong, and effective.

In the drawing, A is the main standard of the machine, having the flanged base-piece *a*, and from which projects the lower or fixed jaw B of the shears. Through a mortise in this jaw the punch-follower C passes. A recess, D, is made in the standard A, below the jaw B, at the lower side of which the die *b* is secured. A spring, *c*, is attached to the under side of the jaw B, and presses against a shoulder of the follower C, which it forces upward. The upper or movable jaw E is pivoted to the standard A at *d*, and its cutting-edge is capable of moving past the edge of the jaw B. The under surface of the square portion *e* of the jaw E bears upon the upper end of the punch-follower C when the jaw is moved downward. F F are vertical standards attached to the jaw B, in the upper ends of which the upper end of the lever *f* of the toggle G is pivoted. The lever *g* of the toggle is pivoted at *h* in a mortise in the part *e*. A bolt, *i*, which is the fulcrum of the lever H, passes through the standards F, and also through links *j*, that run backward and receive the bolt upon which the lever I is fulcrumed. The short arm of the lever H is connected with the lever *f* of the toggle by a link, *k*, and the short arm of the lever I is connected by a curved link, *l*, with the joint of the toggle. The link *l* is secured in the lever I by the removable pin *m*, which is taken out when it is desired to use but one lever to operate the machine.

By moving either or both of the levers H I, the toggle-joint G is straightened, and the jaw E moved downward with sufficient force to shear metal placed between the jaws E B, or to punch anything placed on the die in the recess in the standard.

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

The combination of the jaws E and B, follower C, standards A and F, toggle G, levers H I, and the connecting-links *j k l*, substantially as herein shown and described.

ALFRED LEE.

Witnesses:
S. HUGHES,
H. BUXTON.