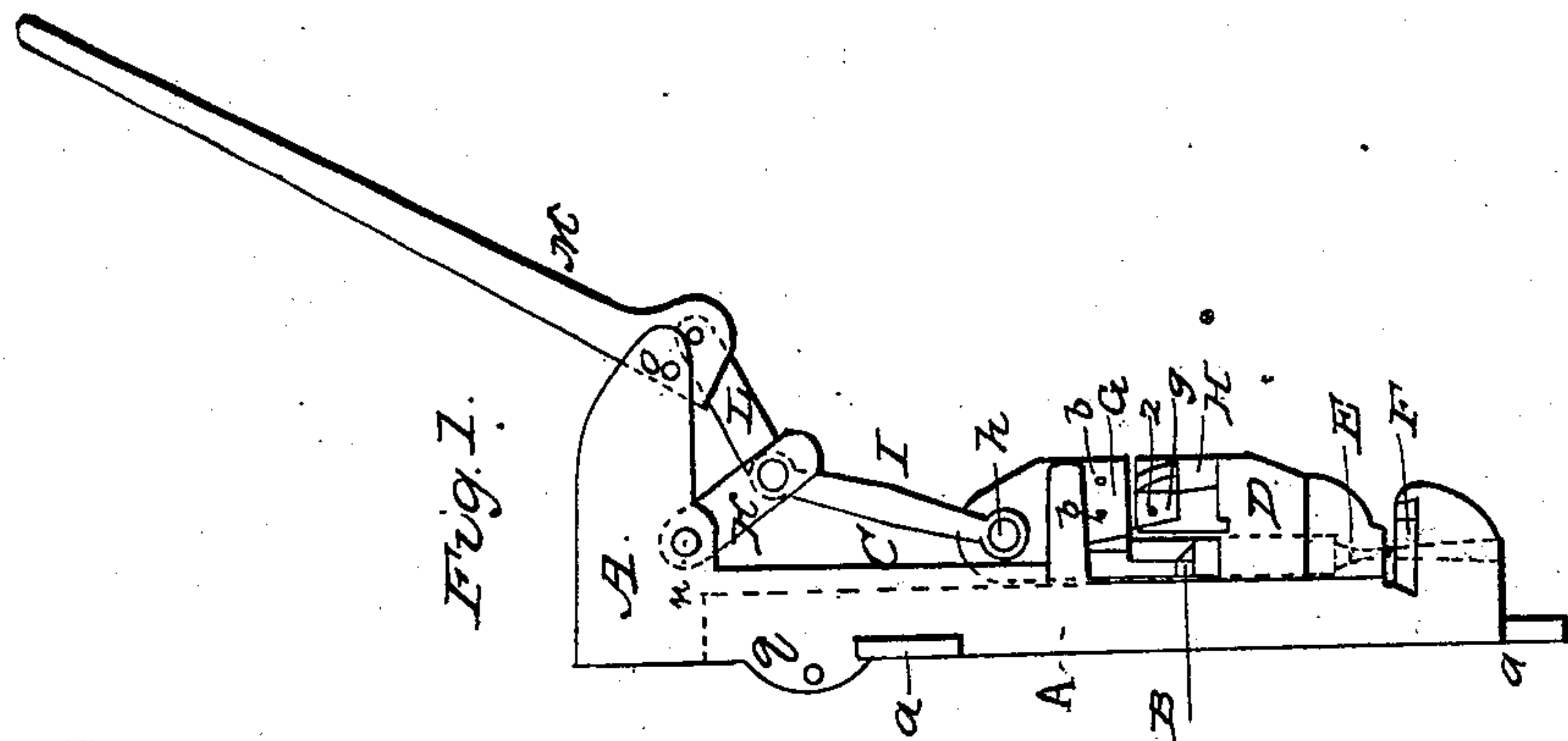
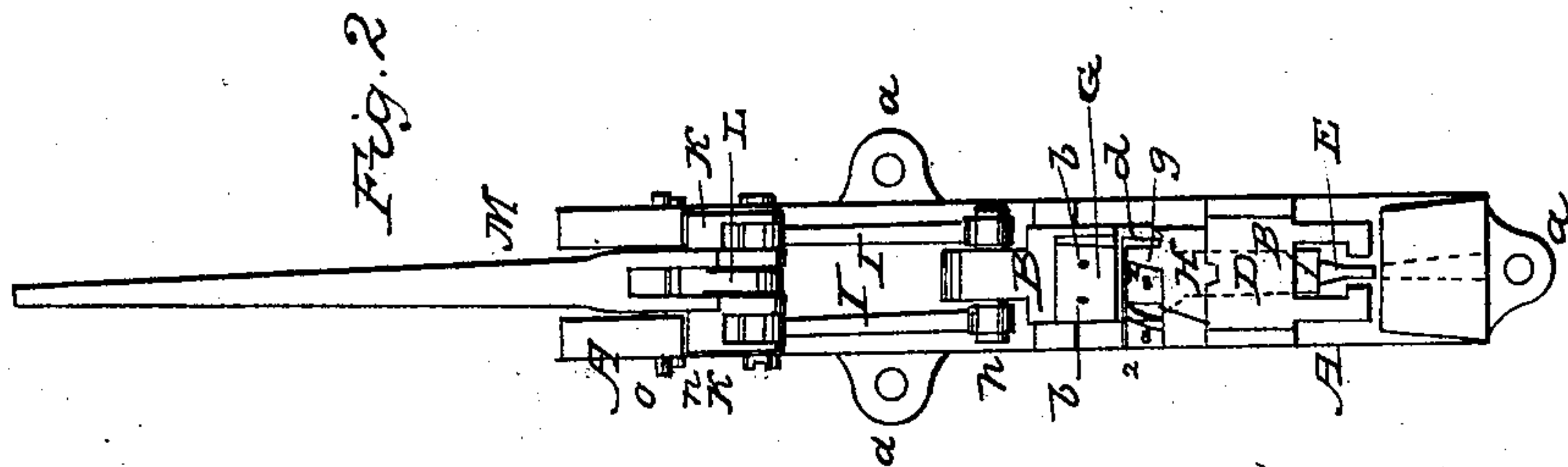
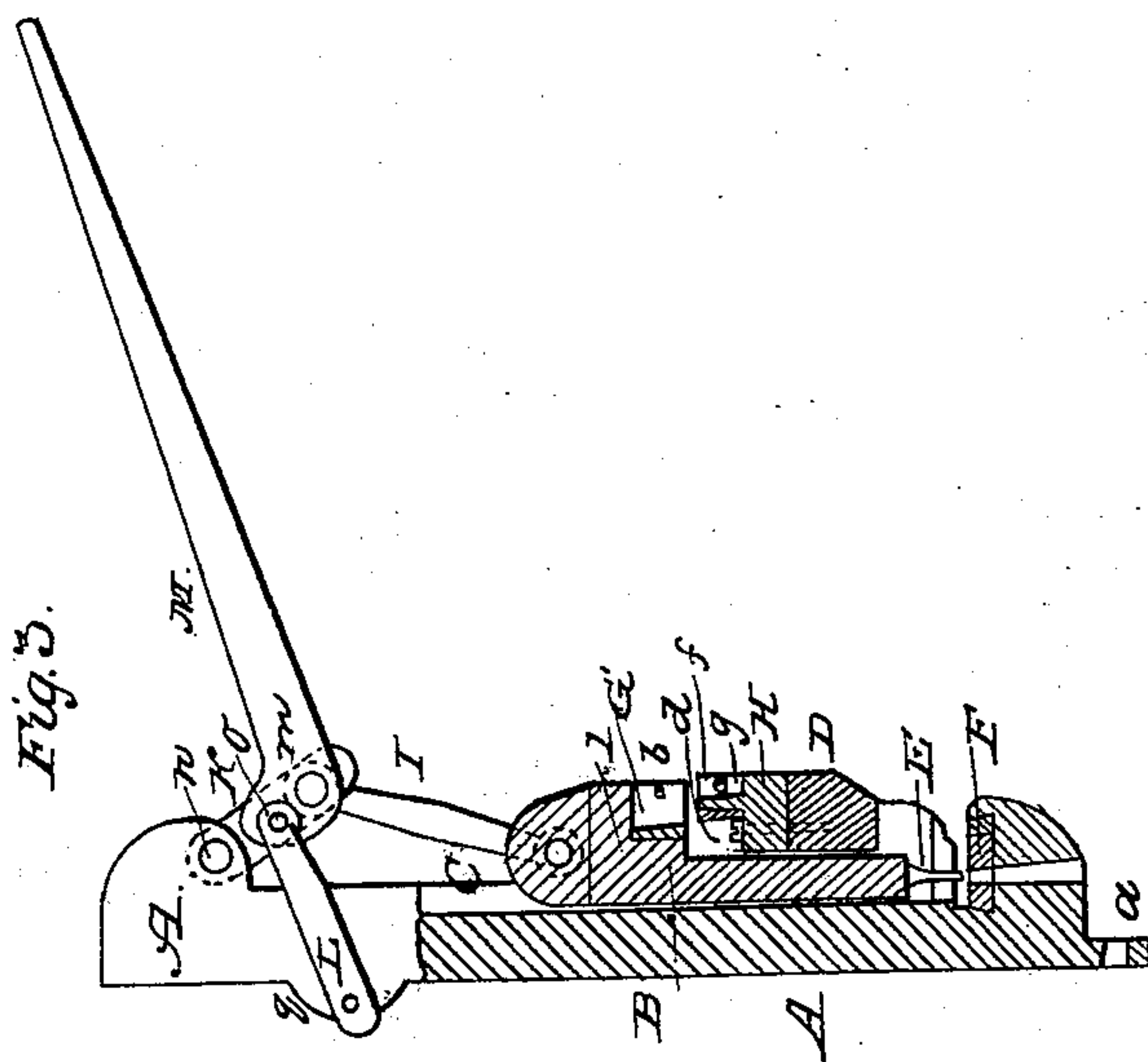


S. RENFREW.

Metal Punch and Shears.

No. 41,861.

Patented March 8, 1864.



Witnesses.  
John H. Smith  
R. M. G. & Co.

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# UNITED STATES PATENT OFFICE.

SYLVESTER RENFREW, OF MARSEILLES, ILLINOIS.

## IMPROVEMENT IN APPARATUS FOR PUNCHING AND SHEARING.

Specification forming part of Letters Patent No. 41,861, dated March 8, 1864.

*To all whom it may concern:*

Be it known that I, SYLVESTER RENFREW, of Marseilles, in the county of La Salle and State of Illinois, have invented certain new and useful Improvements in Combined Shears and Metal Punch; and I do declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a vertical side view of the implement. Fig. 2 represents a front view of the same. Fig. 3 represents a side view and partial section through the same, showing a modification of the lever arrangement for operating the machine.

My invention relates to the combination, with a metal punch which slides within a vertical frame, of a pair of metal shears or blades, one of which is secured to the shank of the punch, and which operates against the stationary blade secured to the frame of the machine, to be operated by power or by a hand-lever, and the whole forming a highly-useful and convenient tool to be used as punch and metal cutter or shear.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents the frame of the machine, which is secured to a vertical post by means of bolts, which pass through the holes in the flanges *a*.

B represents the movable shank of the implement, which slides within the ways C of the frame A, and which is further guided in its rectilinear motion by passing through the block D of the frame A. The punch E is secured to the lower end of the movable shank B, and it operates in the usual manner on a steel-punch anvil, F.

G represents a metal-cutter or shear-plate, which is secured to the shank B by means of the screws *b*. It rests against a suitable bearing-surface, 1, in the head of the shank.

*d* represents the stationary shear-plate. It is secured to the ledge *g* by means of the screws 2, the ledge *g* forming part of the

shear-block H, which is secured to the block D of the frame A by means of the screw *f*.

In the machine represented I have secured the shear-blades in an oblique position, as that position affords facilities in the construction of the machine.

I operate the shank B by means of toggle-links I K, as thus a powerful pressure can be exerted by hand. The link I is pivoted to the shank B by means of pivot *h*, and is connected with the link K by pin *m*, while the link K is pivoted at *n* to the frame A. The connecting-rod L is also pivoted to *m*, and its end is secured to the short arm of the hand-lever M, which turns on pivot *o* in the frame A. Thus I gain a heavy leverage, and obtain powerful pressure, by which I am enabled to operate on proportionate heavy plates.

For smaller machines, which are intended for light work only, I use the arrangement of levers represented in Fig. 3. The toggle-links I and K are the same as those represented in Figs. 1 and 2; but the short arm of the hand-lever M is pivoted directly to the pin *m*, and the fulcrum *o* of said lever is supported by the links L, which are pivoted at *p* to the lugs *q* of the frame.

This combined metal punch and cutter may be used in the various branches of manufacture of metal, and has the advantages of cheap construction and great convenience in use.

Having thus fully described the nature of my invention, what I claim herein as new, and desire to secure by Letters Patent, is—

1. The cutter-plate G, secured to the shank of the metal punch, in combination with the stationary cutter-plate *d*, secured to the frame of the punch, to form a combined metal cutter and punch, substantially in the manner and for the purposes herein described.

2. In combination with the combined metal cutter and punch, the toggle-links I K, link L, and hand-lever M, substantially in the manner and for the purposes described.

SYLVESTER RENFREW.

Witnesses:

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