

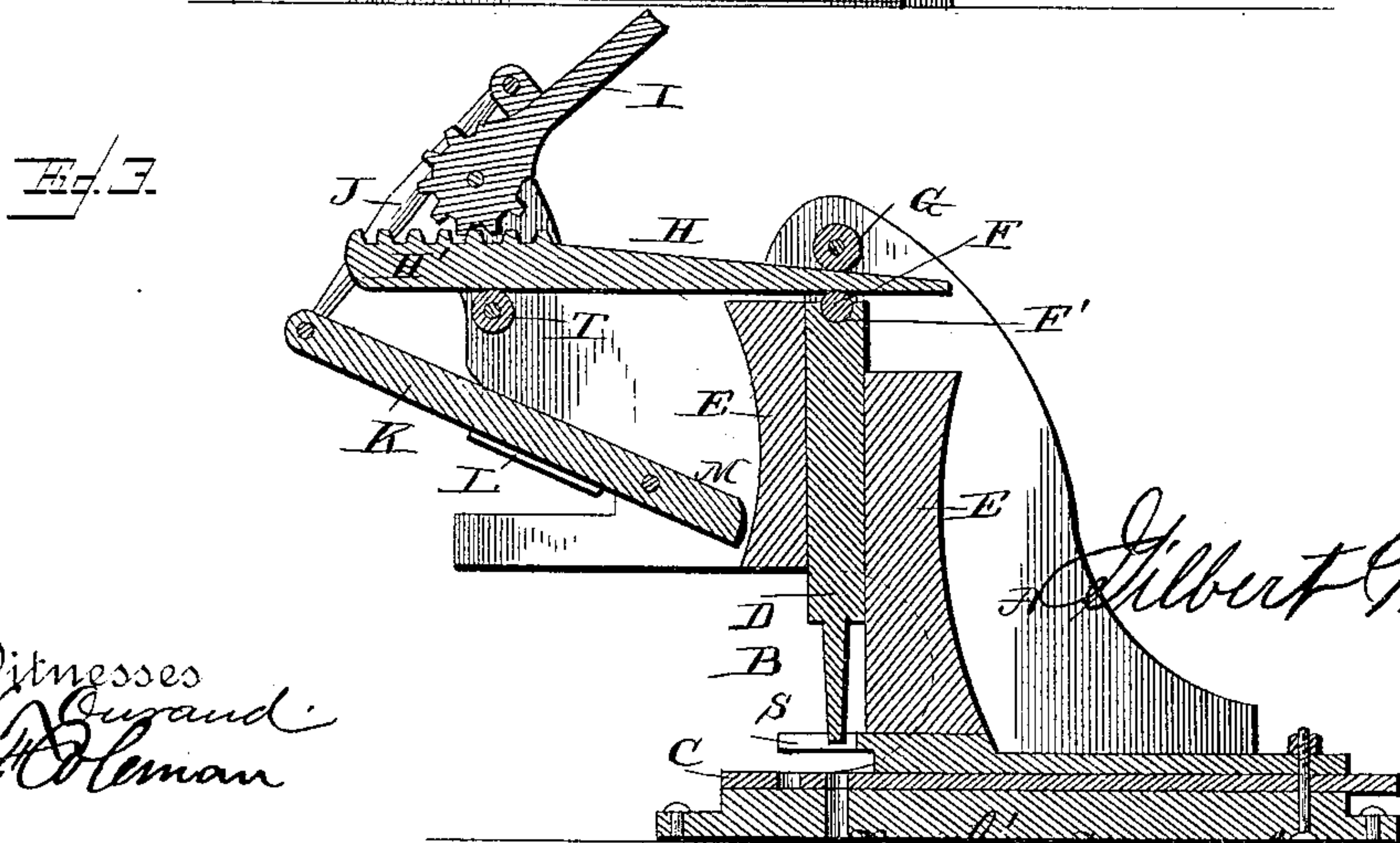
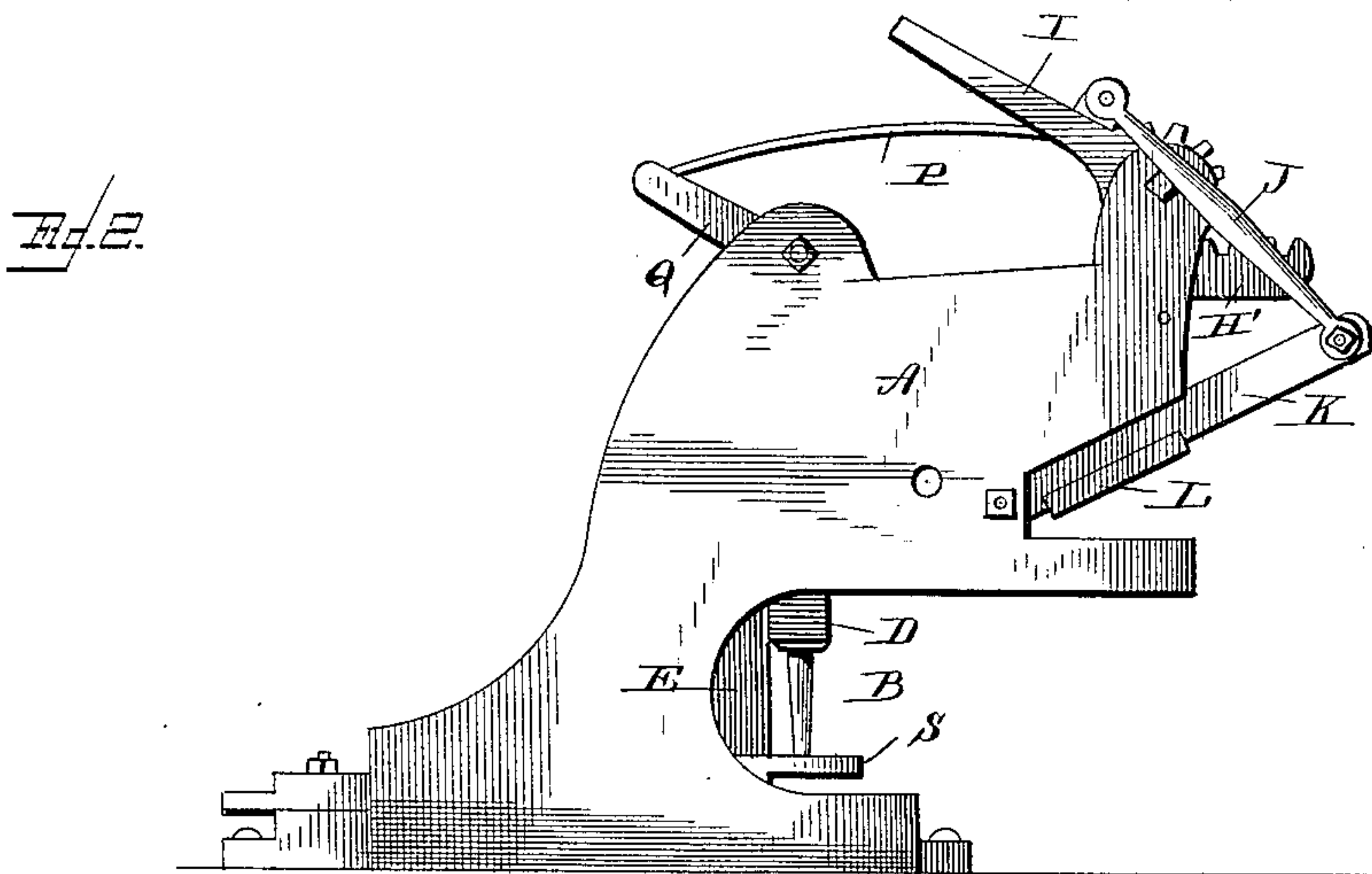
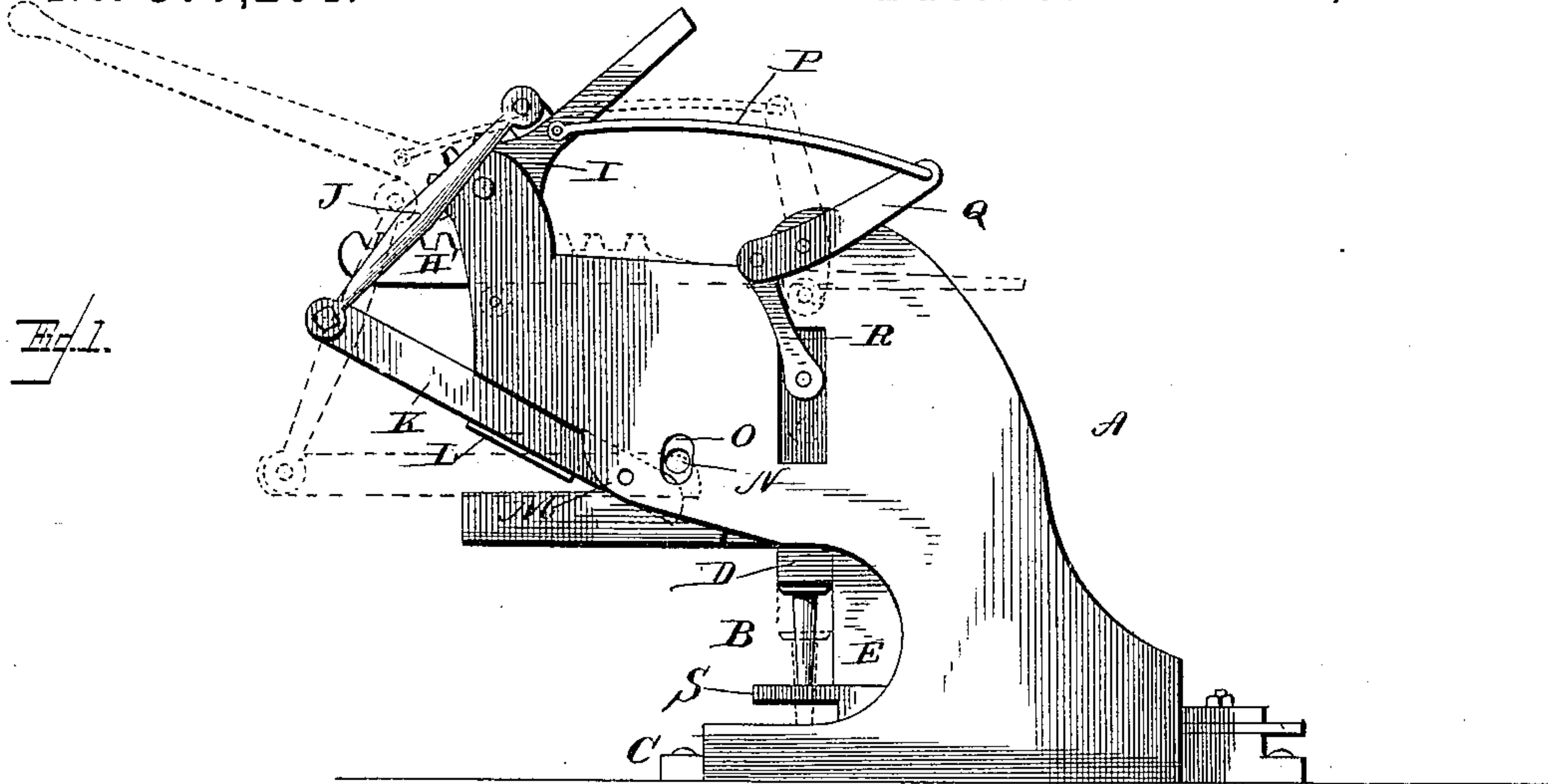
(No Model.)

G. McDONALD.

MACHINE FOR PUNCHING AND SHEARING METAL.

No. 377,264.

Patented Jan. 31, 1888.



Witnesses  
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Inventor.

By his attorneys  
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# UNITED STATES PATENT OFFICE.

GILBERT McDONALD, OF DENVER, COLORADO.

## MACHINE FOR PUNCHING AND SHEARING METAL.

SPECIFICATION forming part of Letters Patent No. 377,264, dated January 31, 1888.

Application filed October 11, 1887. Serial No. 252,041. (No model.)

*To all whom it may concern:*

Be it known that I, GILBERT McDONALD, a citizen of the United States, and a resident of Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Machines for Punching and Shearing Metal; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side view of my improved punching and shearing machine. Fig. 2 is a similar view taken from the other side of the machine, and Fig. 3 is a vertical sectional view.

Similar letters of reference denote corresponding parts in all the figures.

My invention has relation to machines for punching and shearing metal; and it consists in certain new and useful improvements on my patent, Nos. 343,917, dated June 15, 1886, as will be hereinafter fully described and claimed.

In the accompanying drawings, the letter A represents the main frame, having forwardly the opening B, provided at its lower side with the perforated plate C. Above this opening within the frame I provide the plunger D, disposed between guides E. The upper end of this plunger D is provided with a friction-roller, F, loosely mounted in a groove, F', and immediately above, journaled within the frame, is a second independent friction-roller, G. Operating between the friction-rollers F and G is a horizontally-projecting wedge, H, formed with a forward racked portion, H'.

At the forward portion of the frame A, above the opening B, is fulcrumed a cogged operating-lever, I, the cogged portion of which meshes with the racked portion of the wedge H; and connected to the forward portion of the operating-lever slightly above its cogged portion, by pitmen J, is a lever, K, pivoted in the main frame, and provided with shears L and M for cutting bars and rods, which are projected through registering apertures N and O in the sides of the frame A. Connected to one of the sides of this operating-lever is a connecting-rod, P, connected in turn to an eccen-

tric, Q, pivoted to the upper rear portion of the main frame. Connected to this eccentric and to the upper portion of the plunger is a link, R, the object of which will be hereinafter fully set forth.

A forwardly-projecting stripper, S, is secured rearwardly within the opening B, so disposed as to embrace the punch at the lower end of the plunger, between which and the perforated plate C the metal to be punched is placed, so that when the plunger D is raised the metal will be held in position and permit the punch to be withdrawn from the opening.

A third friction-roller, T, is journaled in the upper forward end of the main frame below the forward racked end of the wedge, the object of which is to form a bearing for the forward end of the wedge.

As will be noticed, the operation of my invention is very simple, and merely consists in placing the metal plates in the opening B, beneath the stripper S, the operating-lever being vertically above the wedge. The plunger D is then elevated. After the plate is in position the operating-lever is pulled forward and downward, causing the wedge to slide smoothly over the friction-roller T and be inserted between the friction-rollers F and G, and thus forces the plunger and punch downwardly, as seen in dotted lines in Fig. 1. A reverse motion of the operating-lever raises the plunger D by means of the connecting-rod, the eccentric, and the link, as will be seen by referring to the accompanying drawings, and the wedge is at the same time withdrawn from between the friction-rollers F and G. When bars or rods are designed to be cut, the same movement of the operating-lever is made, and it will be noticed that when this lever and the plunger are raised, so as to permit of the plate being inserted in the opening B, it also raises the forward part of the lever K, thus placing this lever in position to sever the said bars or rods.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

The combination, with a main frame having registering apertures in its sides, of a cogged operating-lever, a racked wedge, friction-rollers

arranged substantially as herein described, a  
connecting-rod, an eccentric, a link, a plunger  
provided at its lower end with a punch, a le-  
ver carrying shears, and a pitman connected  
5 to the said operating-lever and the lever carry-  
ing the shears.

In testimony that I claim the foregoing as

my own I have hereunto affixed my signature  
in presence of two witnesses.

GILBERT McDONALD.

Witnesses:

L. F. HARSON,  
JOHN M. KINKEL.