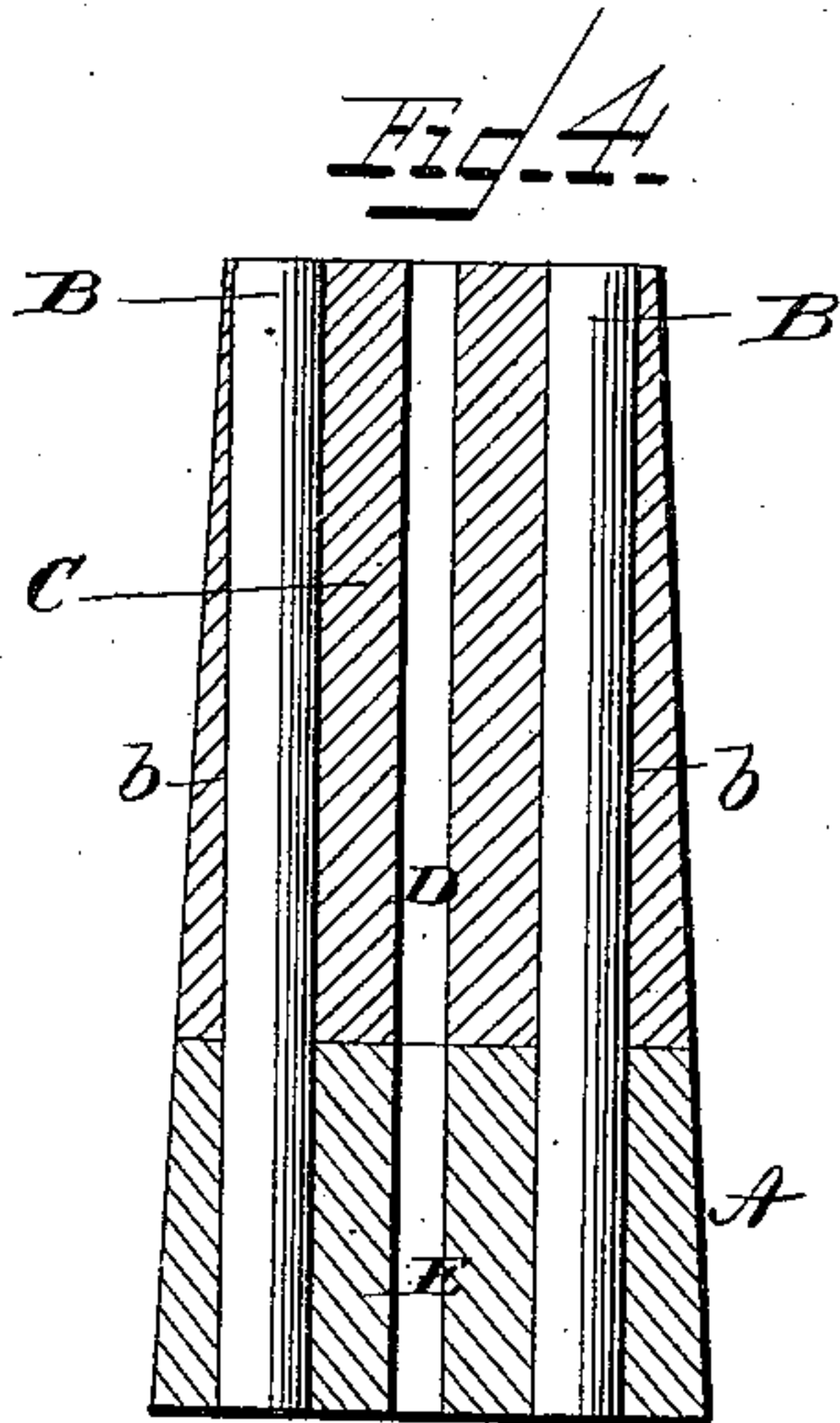
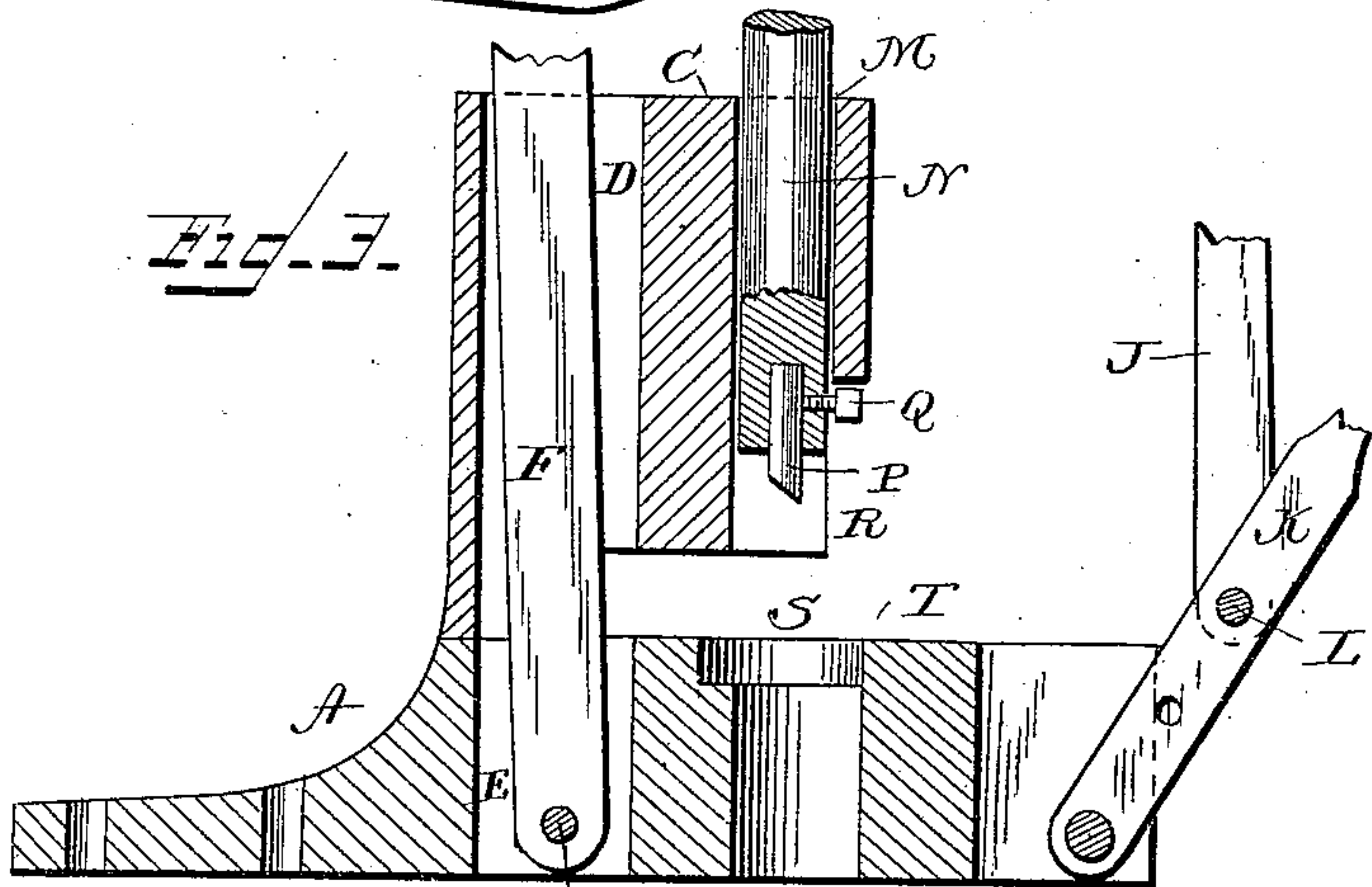
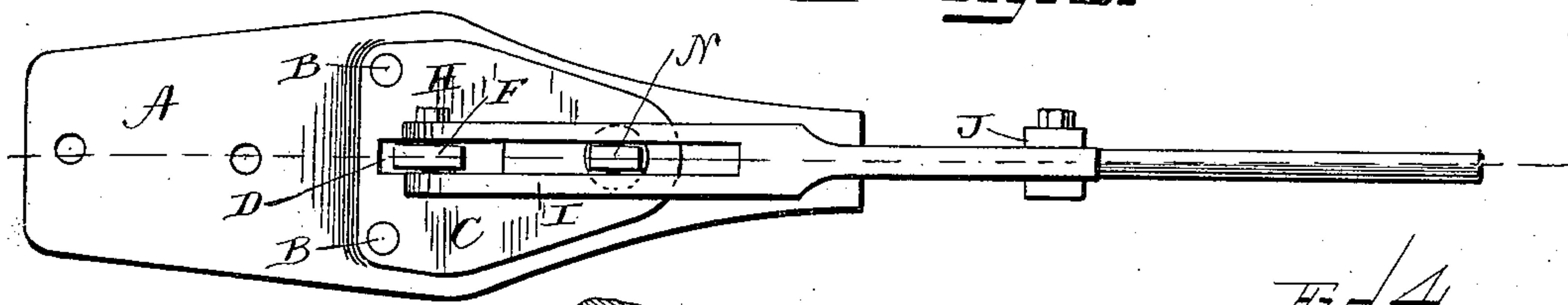
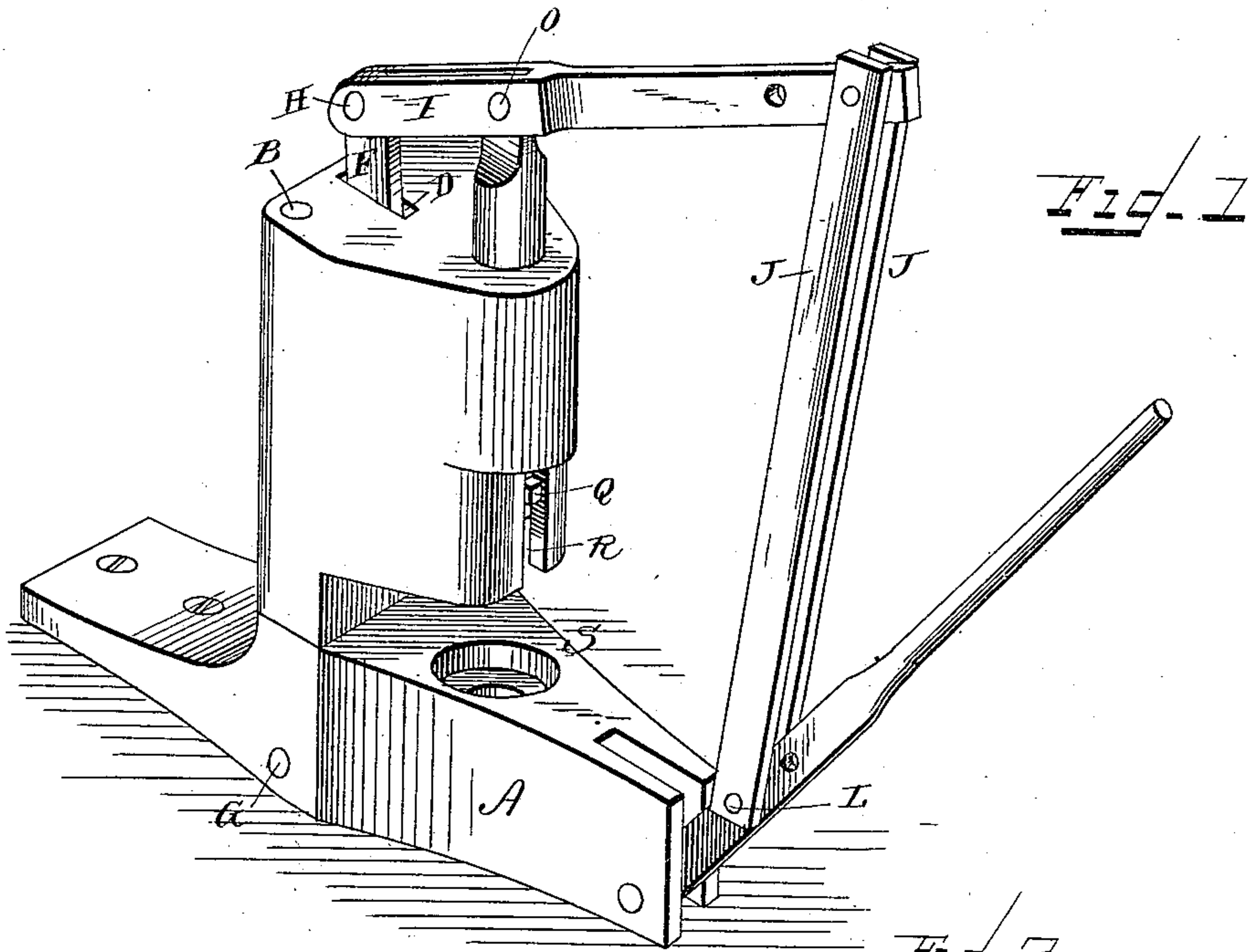


(No Model.)

R. H. DOWELL.
PUNCHING MACHINE.

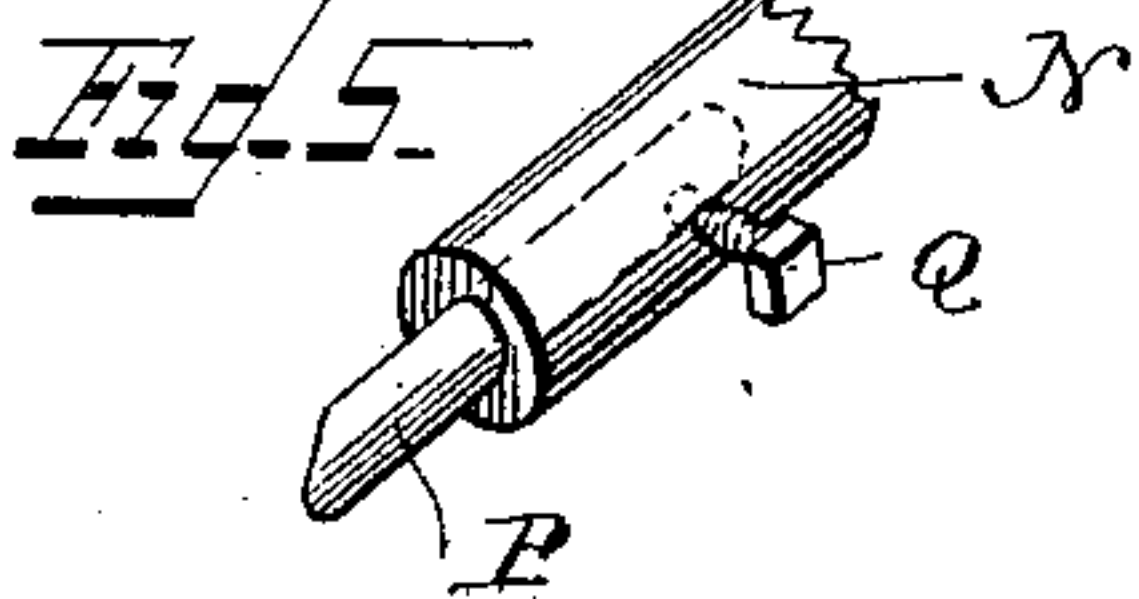
No. 337,139.

Patented Mar. 2, 1886.



WITNESSES G

F. L. Oursand.
Edward Stanton



INVENTOR

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UNITED STATES PATENT OFFICE.

REUBEN HENRY DOWELL, OF WAVERLY, NEBRASKA.

PUNCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 337,139, dated March 2, 1886.

Application filed January 4, 1886. Serial No. 187,521. (No model.)

To all whom it may concern:

Be it known that I, REUBEN HENRY DOWELL, a citizen of the United States, and a resident of Waverly, in the county of Lancaster and State of Nebraska, have invented certain new and useful Improvements in Punching-Machines; 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 perspective view of my improved punch. Fig. 2 is a plan or top view of the same. Fig. 3 is a longitudinal vertical sectional view through the plane indicated by the broken line *x x*. Fig. 4 is a transverse vertical section on the line denoted by *y y*; and Fig. 5 is a detail view of the lower part of the removable plunger and bit.

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

My invention has relation to punches operated by hand, for punching plates of iron and other metals, and is particularly adapted for punching cold iron in the work-shops of metal-workers of all kinds where it is desirable to have an implement of this kind which can be easily operated by hand-power.

In the accompanying drawings, A denotes the base or body of the machine, which is provided with two parallel posts or uprights, B B.

C is a metal block, which is bored through vertically, as shown at *b b*, so as to fit upon the standards or uprights B B, as will be seen more clearly by reference to Fig. 4 of the drawings. Between the bores or apertures *b b* is an oblong slot, D, registering with the corresponding slot, E, in the bed or base A, and through this slot is inserted a bar, F, the lower end of which has its fulcrum upon the pin or bolt G, inserted transversely through the base A, so as to cross the slot E at right angles.

The upper end of bar F projects some distance above the block C and has a cross-head, H, which forms a fulcrum for the bifurcated lever I. The other end of said lever I is pivoted between a pair of arms, J J, the lower ends of which are in turn pivoted adjustably

in the long lever K, the inner end of which has its fulcrum upon the bolt L in the base A.

The block C is bored through vertically, as shown at M, for the insertion of the plunger N, the upper end of which is pivoted upon a pin, O, inserted transversely through the bifurcated lever I. The lower end of the plunger is recessed for the insertion of the bit or cutter P, which is held in place by means of a binding-screw, Q, provided with a forwardly-projecting square head, so that the screw may be worked by means of a key or wrench. The forward part of the block C, in front of the vertical bore M, is cut out, as shown at R, so as to form an open recess, the parallel sides of which form guides for the projecting head of the screw Q, which is turned square, so as to slide easily up and down without binding against the sides of this recess.

The bed or base A, underneath the overhanging part of the block or bearing C, is recessed, as shown at S, to receive a die-plate, T, through the center of which the punch or bit works. By changing this die-plate and the bit, holes of various sizes may be punched without changing the other parts of the machine.

From the foregoing description, taken in connection with the drawings, the operation of this device will be readily understood without requiring extended explanation.

By the arrangement of the compound lever, consisting of the parts F, I, J J, and K, I get great power or purchase upon the plunger, and this power or purchase may be regulated by adjusting the parallel arms J J in relation to the upper lever, I, and the lower lever, K, by changing the pivot-bolts at the upper and lower ends of said arms J J to any one of the several apertures in the levers I and K. The square head of the binding-screw serves as a guide when the plunger is worked up and down, preventing the lower end of the plunger and bit from turning, so that they will always strike squarely upon the plate of metal which is to be punched. Again, by constructing the base plate with the posts or uprights B B the several parts of the machine may be readily taken apart and others substituted therefor in case of breakage, it being my intention to so manufacture the machines that all the sev-

eral parts shall be interchangeable, so that when any one part breaks or becomes useless from constant use another one may be readily substituted therefor.

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

1. In a machine for punching metal, the combination of the base provided with a parallel pair of posts or uprights, the block or bearing placed upon the said posts or uprights and supported by its lower end upon the base, the arm or bar inserted vertically through a slot in said block and pivoted at its lower end in
10 the base, the compound lever constructed as described, and the plunger provided at its lower end with the removable bit or punch, the whole constructed and combined to operate substantially as and for the purpose shown
15 and set forth.
20

2. In a machine for punching metal, the vertically-reciprocating plunger having at its lower end a binding-screw for the attachment of the removable punch, which said screw is provided with a square head, in combination
25 with the block or bearing through which the plunger works, said block or bearing having a recess in its front part with parallel sides facing the square sides of the nut and operating as a guide therefor, substantially as and
30 for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

REUBEN HENRY DOWELL.

Witnesses:

H. ATKINSON,
A. HELMER.