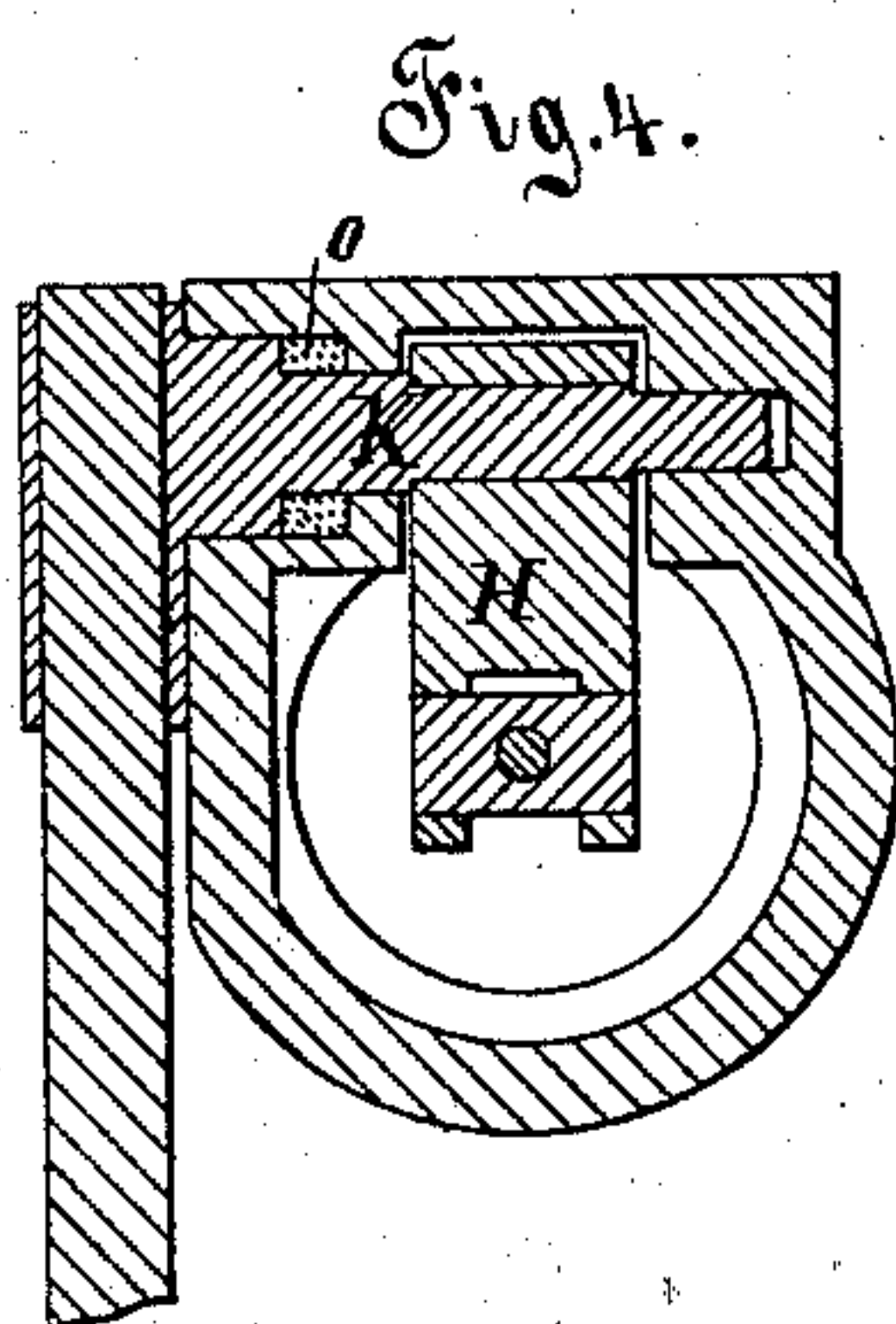
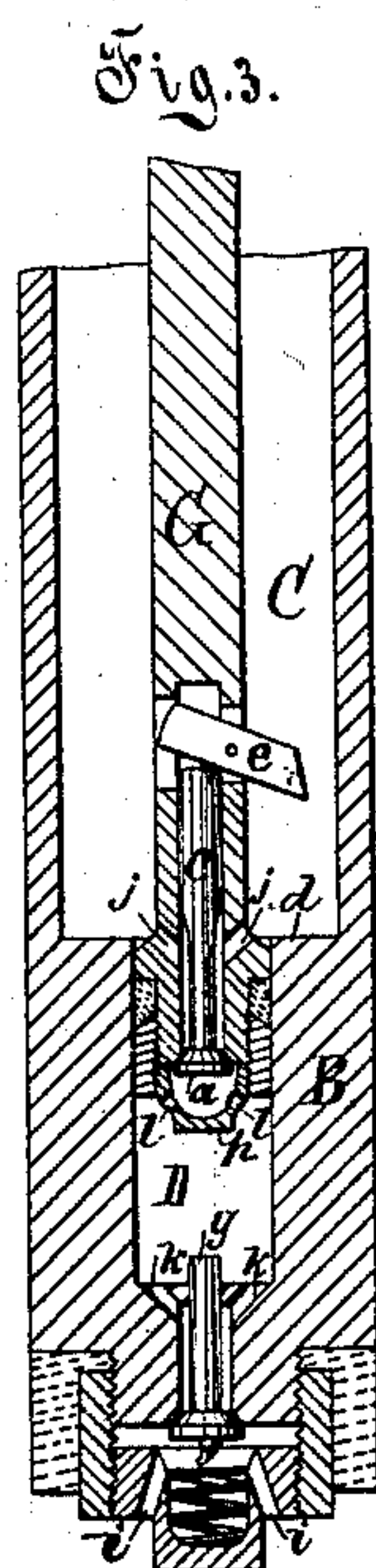
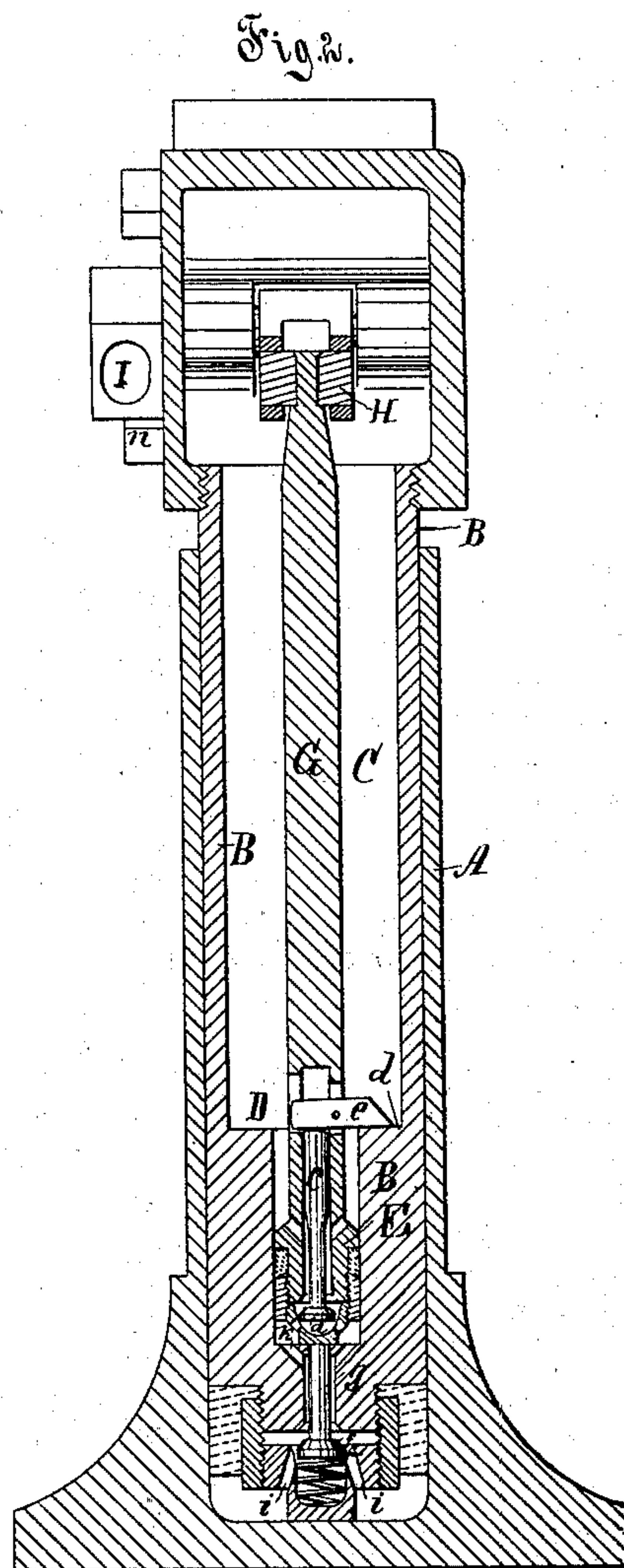
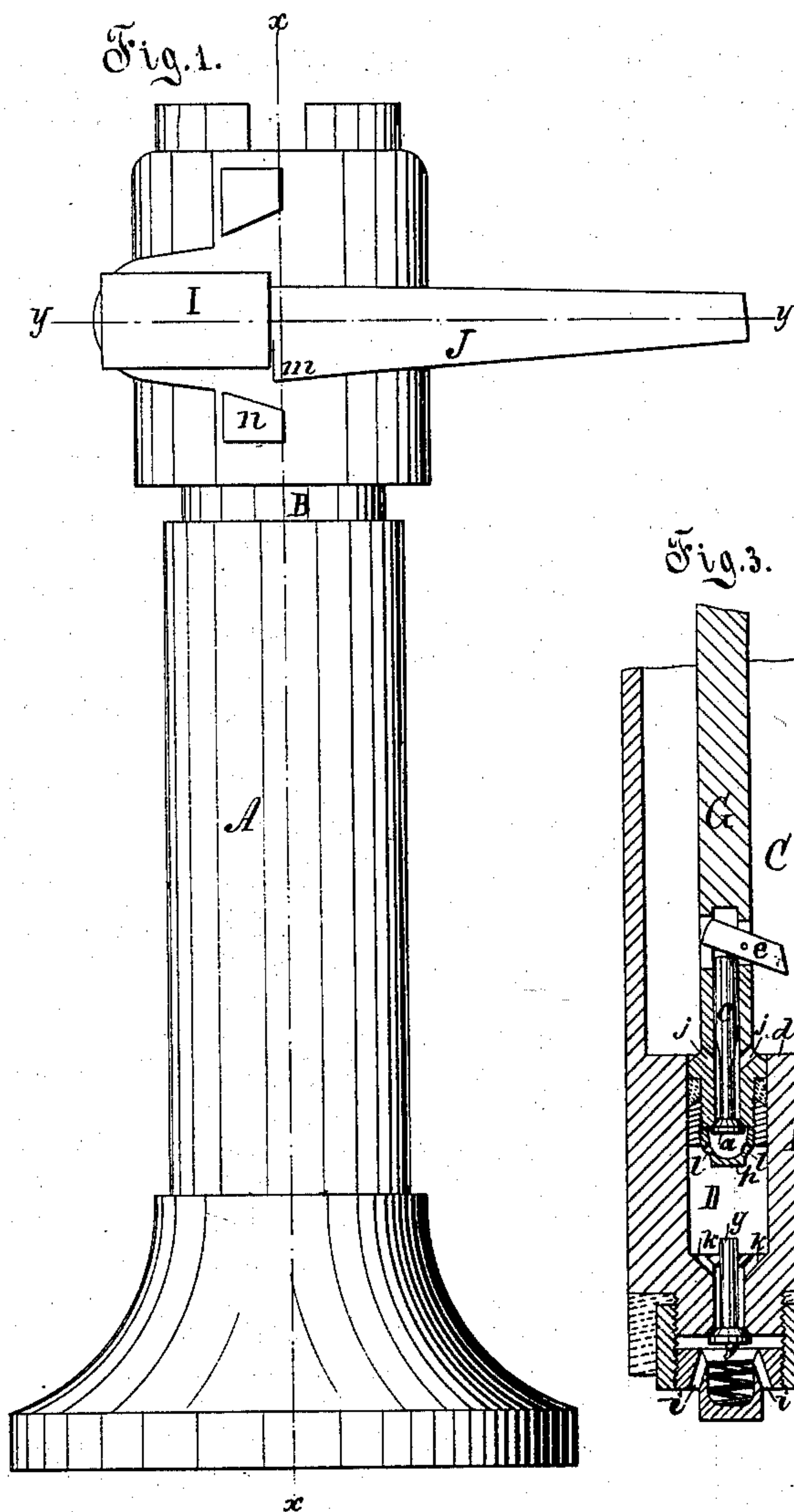


F. G. HUNTER.
Hydraulic Jack and Press.

No. 198,620.

Patented Dec. 25, 1877.



Witnesses:

Frederick G. Hunter.

B. G. Clark.

Inventor:

Frederick G. Hunter.

By *A. J. Hatcher*
his attorney.

UNITED STATES PATENT OFFICE.

FREDERICK G. HUNTER, OF MONCTON, NEW BRUNSWICK, CANADA,
ASSIGNOR OF ONE-HALF HIS RIGHT TO JOHN M. REID, OF SAME
PLACE.

IMPROVEMENT IN HYDRAULIC JACK AND PRESS.

Specification forming part of Letters Patent No. **198,620**, dated December 25, 1877; application filed
November 6, 1877.

To all whom it may concern:

Be it known that I, FREDERICK G. HUNTER, of the town of Moncton, county of Westmoreland, Province of New Brunswick, in the Dominion of Canada, have invented a new and useful Improvement in Hydraulic Jack and Press, of which the following is a specification, reference being had to the accompanying drawings, forming part of the same, of which—

Figure 1 is an elevation of a hydraulic jack. Fig. 2 is a vertical central section of the same on the lines *x x*, Fig. 1. Fig. 3 is a similar view of the lower end of the ram, showing the valves in a position different from that of the same part in Fig. 2; and Fig. 4 is a cross-section on line *y y* of Fig. 1.

My invention relates to the devices for opening the valves in the ram and the pump-plunger contained within it, to permit the passage of the fluid from the cylinder into the chamber in the interior of the ram; and consists of a lever pivoted in the plunger-shaft just above the upper end of the stem of the plunger-valve, which projects upward into a recess in said shaft, and a ledge or stop on the interior face of the ram, the parts being so arranged that when the plunger is thrust downward below a certain point one end of said lever comes in contact with said stop, whereby the opposite end is depressed against the stem of the plunger-valve, forcing the valve open.

A is the cylinder or case, in which moves the ram B. C is a chamber or reservoir for the fluid in the interior of the ram. D is the pump-barrel, and E the pump piston or plunger which works in said barrel, the stem or shaft G of the piston extending to the upper end of the ram, and is there connected to a crank-lever, H, whereby, by means of the socket I and pump-lever J, it is actuated in the usual way. *a* is the ingress-valve of the pump-plunger, and *c* its stem, which extends upward in a recess in the plunger. The pump-barrel being of less diameter than the chamber C, there is formed at its upper end a ledge, *d*.

e is a short lever, pivoted in a mortise or

recess cut transversely into or through the stem G of the plunger. This lever *e* is so arranged with reference to G and the upper end of the valve-stem *c* that when the said valve is closed, as shown in Fig. 3, the inner end of the lever *e* will be thrown up, as seen in said Fig. 3.

f is the egress-valve of the pump, the stem *g* of which extends upward, through an aperture in the lower end of the ram, into the barrel D of the pump when the valve is closed. The two valve-stems are of somewhat less diameter than the apertures in which they work, so that when the valves are open fluid may pass through said apertures.

h is a cap or head screwed to the lower end of the plunger E, so arranged that when the said plunger is forced downward below a certain point it will strike against the upper end of the stem *g* and force the egress-valve *f* open. At the same time that the outer end of the lever *e* strikes against the ledge *d*, thus throwing down the opposite end against the stem *c*, the ingress-valve *a* is also forced open.

i i are apertures in the lower end of the ram, for the passage of the fluid to or from the valves *f*. *j j* are similar apertures through from the recess in the plunger to the chamber C. *k k* are similar apertures, leading from the recess in which the stem *g* works into the barrel D of the pump, and *l l* are apertures through the head or cap *h*.

The operation of the parts described is as follows: The pump is worked for forcing fluid from the reservoir C into the case A by moving the plunger only a certain distance downward at each stroke, stopping short always of bringing the lever *e* into contact with the ledge *d*. This operation may be continued until the ram is raised to the required height. Then, when it is desired to lower the ram by the return of the fluid into the reservoir C, the plunger is thrust farther down below the point where the lever *e* comes in contact with said ledge, when the inner end of said lever will be tilted downward, forcing down and opening the valve *a*. At the same time the head or cap *h* will strike against the stem *g*

of the valve *f*, and open that also, thus opening a passage for the fluid back from the case A into the reservoir C.

The pump-lever J has a spur, *m*, on one side, which, when turned downward, strikes against a lug, *n*, and thus prevents too low a thrust of the pump-plunger during the operation of pumping. Then, by reversing said lever in the socket I, it may be so depressed as to carry down the pump-plunger far enough to open the valves, as above described.

The shaft K, by which the crank-lever H is actuated, works in a recessed bearing in the head of the ram, as seen in Fig. 4. It is provided with a packing, *o o*, as seen in that figure, to prevent the escape of the fluid from the reservoir C.

In place of the ledge *d*, as described, being made to perform the office of a stop to the

lever *e*, a lug or annular or other projection may be formed on the inner face of the chamber C, to perform the said office.

What I claim as new, and desire to secure by Letters Patent, is—

The combination, in a hydraulic jack or press, of a lever pivoted to the pump-plunger or its shaft, and a stop, so arranged that by the downward movement of the plunger beyond a certain point the said lever is made to open the valve of said plunger, substantially as described.

Witness my hand this 30th day of October, 1877.

FREDERICK G. HUNTER.

Witnesses:

J. WORTMAN,
W. B. CLARK.