R. Dudgeon,

Hydraulic Press.

No. 22,713. Patented Jan. 25, 1859.

Fig. 2

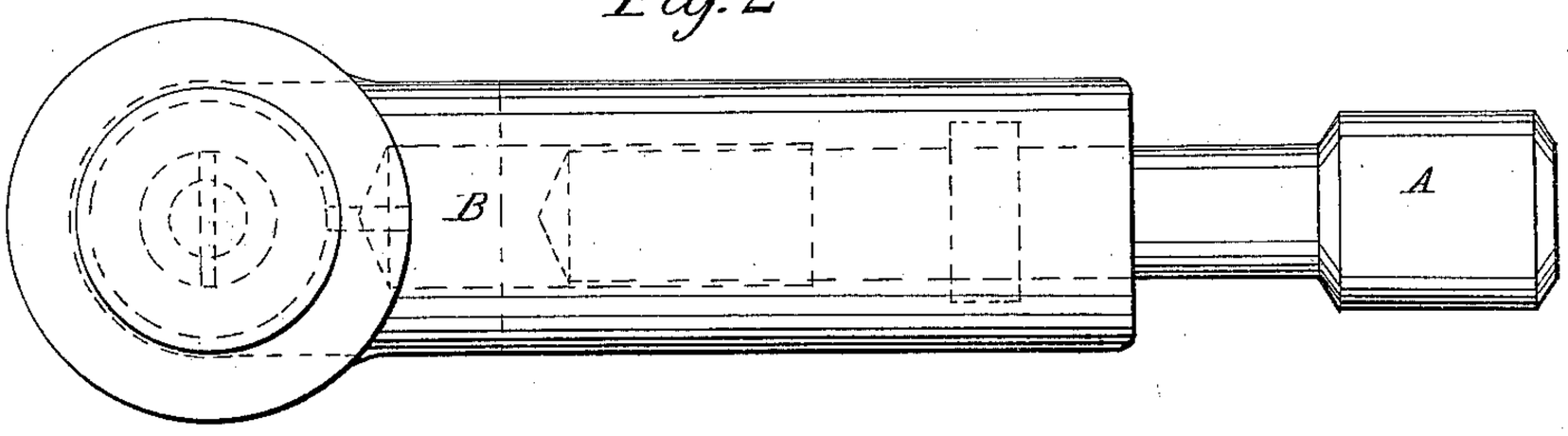
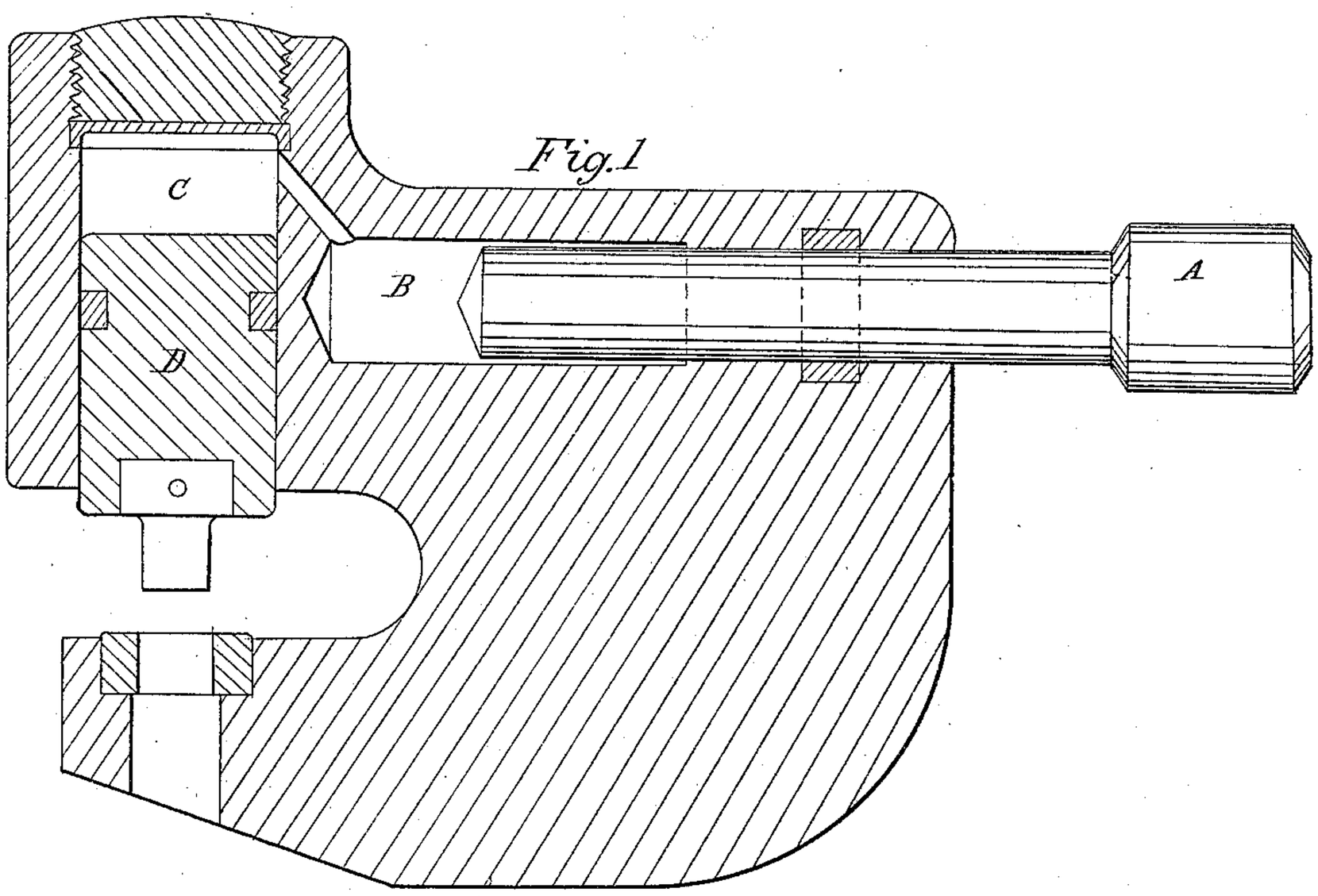


Fig. 1



Inventor
Richard Dudgeon,

UNITED STATES PATENT OFFICE.

RICHARD DUDGEON, OF NEW YORK, N. Y.

HYDRAULIC PRESS.

Specification of Letters Patent No. 22,713, dated January 25, 1859.

To all whom it may concern:

Be it known that I, RICHARD DUDGEON, of New York, of the county and State of New York, have invented a new and Improved Kind of Hydraulic Press; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The drawings represent my improved press as applied to the punching of metallic plates, and especially adapted to the kind of punching now performed by what is called a screw punch.

Figure 1 is a sectional elevation, and Fig. 2 a plan of the press.

A is the injection piston to which the force is applied; D the ram or piston upon which the pressure is exerted; B and C the corresponding chambers; the packings to prevent leakage are colored yellow.

In all hydraulic presses as heretofore constructed, the injection piston and chamber correspond to the common force pump, and are fitted with the usual valves; the water or liquid is drawn from an outer reservoir, and by repeated strokes of the piston the water is forced into the chamber beneath the ram, and the requisite pressure is thus accumulated. In my improved press there is no exterior reservoir; in fact the chambers once filled, having but a connection with each other, are to all outer communications hermetrically sealed. There are no valves, and no repeated strokes of the pump piston are required—a single depression or movement inward of the piston raises or forces outward the ram, and conversely the drawing out of the piston withdraws the ram. The whole machine is complete in itself.

The value of my press in its application to the work of a screw punch has been repeatedly and successfully tested. In the screw punch, as used by boiler makers, the jaws are similar to those represented in my drawing, a screw being substituted in place of the ram D, and worked by means of levers. The punch is attached to the screw and revolves with it; in this way the sides and end of the punch are apt to wear, and great force is required to overcome the friction. The machine requires two men to hold and work it, and the progress is slow. By my improvement the machine is made much more portable, and requires but a single man to perform more than double that of two men upon the screw press.

In the presses as at present constructed, the injection piston A, is made with a screw, and is advanced or withdrawn by its revolution; but the same effect might be obtained by means of the lever, extensor screws and nut, rack and pinion, cam, and many other mechanical expedients, but I prefer the present arrangement as the more compact.

Besides the particular application to the work of the screw punch, there are many other punches, shears, and presses, requiring compactness, unity, and simplicity of parts, to which might be applied with advantage the hydraulic press, as constructed by me—a press in which a single motion of the injection piston transfers in any required direction the necessary pressure to the ram. The diameter of the piston and ram being proportioned to the power to be applied, and the pressure to be exerted, the extent of the movement of the one being to the requisite movement of the other, inversely as their diameters.

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

The within described hydraulic press—consisting of the injection piston A, chambers B and C, and ram D—the whole constructed and operating substantially as, and for the purposes set forth.

RICHARD DUDGEON.

Witnesses:

ERASTUS F. BROWN,

ELIPHALET LYON.