R. Blackwood,

Hydraulic Jack

No. 32,612. Patented June 25, 1861.

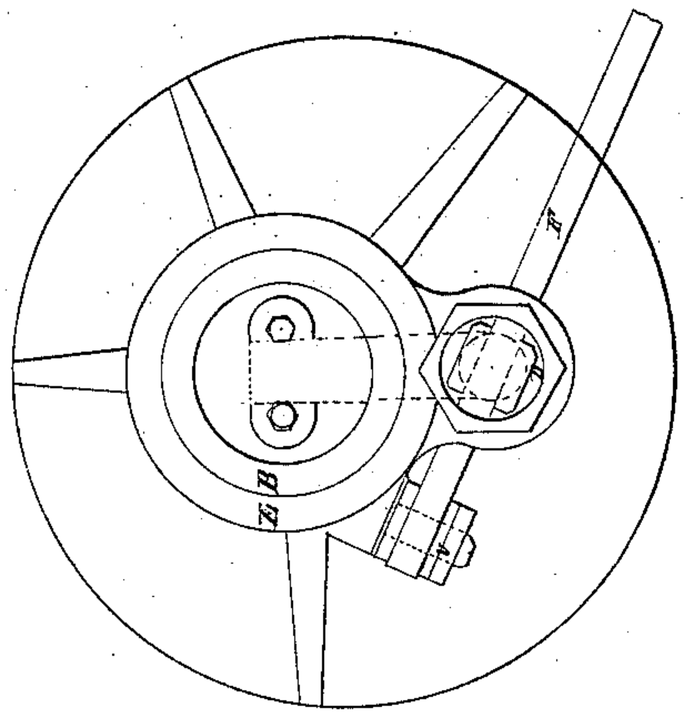

Fig. 3

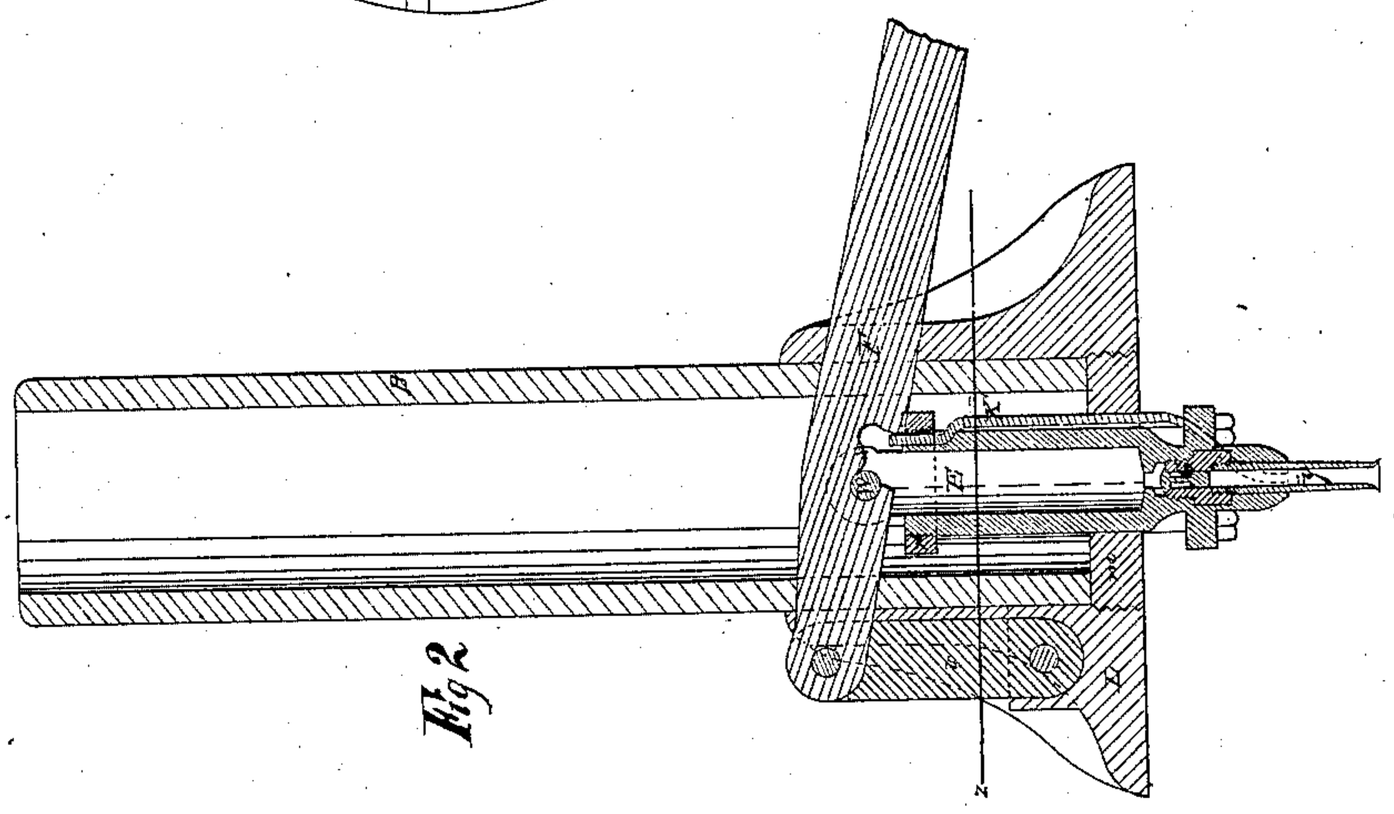

Fig 2

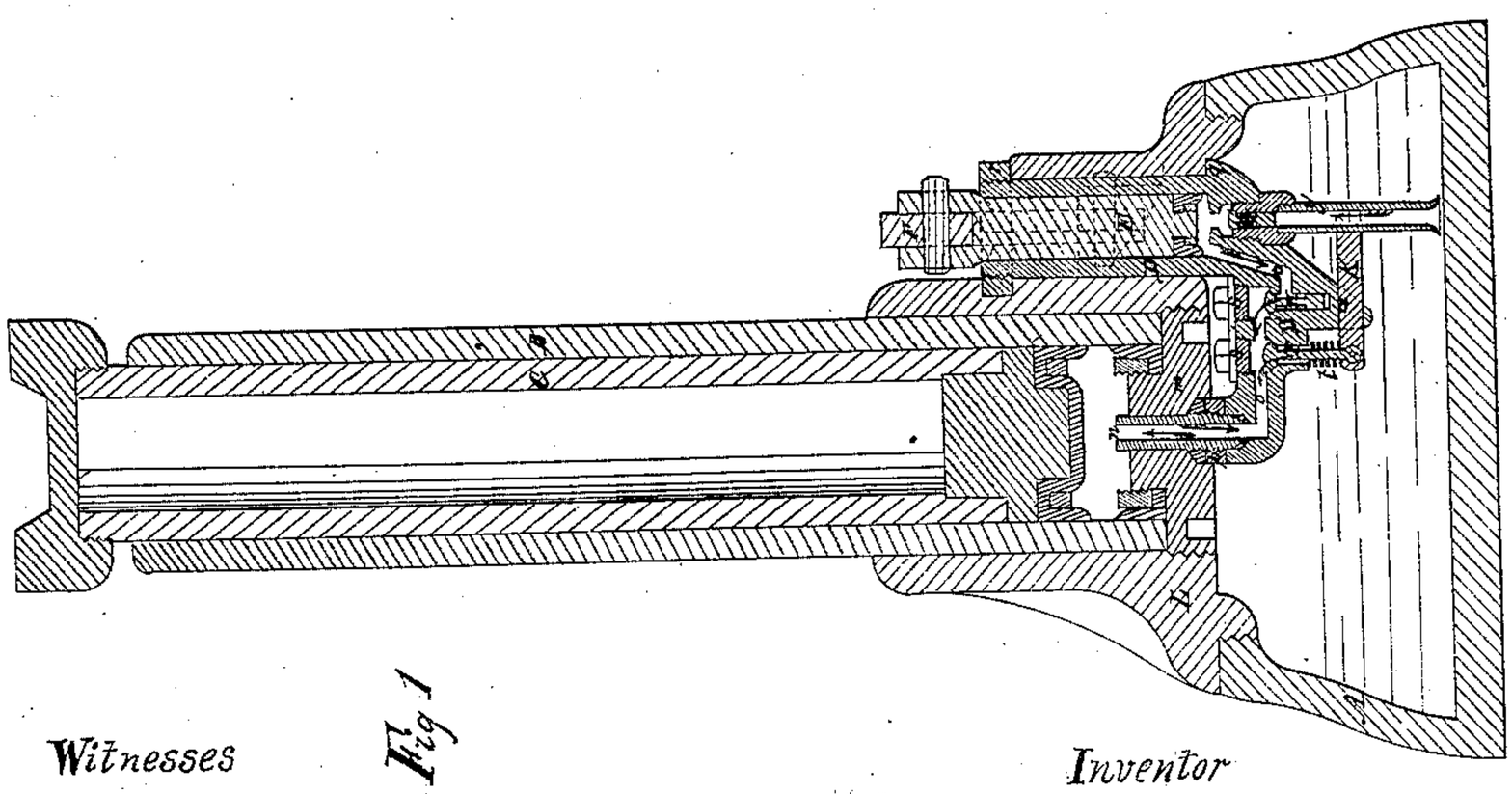

Fig 1

Witnesses

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REUEL BLACKWOOD, OF PHILADELPHIA, PENNSYLVANIA.

HYDRAULIC JACK.

Specification of Letters Patent No. 32,612, dated June 25, 1861.

To all whom it may concern:

Be it known that I, REUEL BLACKWOOD, of the city of Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in Portable Hydraulic Lifting-Jacks; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical longitudinal section of the said jack; Fig. 2, a like section at right angles to the plane of section in Fig. 1; and Fig. 3, a transverse section through the line *z* of Fig. 2: like letters, when on the different figures, indicating the same parts.

The nature of my invention consists in the construction and arrangement of certain parts of the machine, substantially in the manner hereinafter described, whereby greater facility is afforded for putting the necessary parts together and separating them again, in the original constructing of the machine and in afterward cleaning, adjusting, and repairing the same: and also consists in the construction and arrangement of the operating or hand-lever in its relation to the device for opening the discharge valve thereby, substantially as hereinafter described.

In the drawings, A, is the base and reservoir for holding the fluid which is to be used; B, the main cylinder; C, the plunger or ram; D, the injecting cylinder, and E, its piston; F, the hand-lever whereby the piston (E) is to be operated; G, the supply and containing valve of the injecting cylinder; H, the supply and containing valve of the main cylinder; I, the outlet valve; and K and K′ the lever and stem, respectively, whereby the outlet valve (I) is to be operated.

The hollow cylinders, B and D, are fitted so as to be held securely, and in vertical positions, in a cast-iron support L which screws into the mouth of the reservoir (A)—their respective plungers or pistons, C and E, being fitted to slide up and down therein, in the usual well known manner. The bottom of the cylinder B, consists of a disk, *m*, which screws into it and has a tube *n*, fixed perpendicularly through its center, which has a screw-thread around its projecting lower end whereby the part in which exist the ways *o*—*o*, and the seats of the valves I and H, can be attached or detached by means of a screw nut *p*. The cylinder D, and the part D′ containing the ways (*o*—*o*) and valves (G, H, I), are cast in one piece—in this instance—the cylinder portion being securely held within the support (L) by means of the shoulder, *q*, which abuts against the lower side of the support (L) as seen in Fig. 1. Two openings, fitted with screw-plugs, *s*—*s*, are provided in the part (D′) so as to be directly above the valves I and H, and through which the latter can be inserted or taken out as occasion may require. The stem of the outlet valve (I) projects loosely through the seat thereof into the reservoir, and has around it a spiral spring, *t*, which tends to keep the valve shut. The lever K, is jointed to the lower end of the stem of the valve (I) and has its fulcrum at *u*, while its power-end extends horizontally along and under the end of the stem K′, which stem rests upon it and is supported so as to slide up and down from the alternate action of the spring (*t*) and hand-lever (F). The hand-lever (F) is connected by its fulcrum to the support (L) by means of a link *v*, and also with the piston (E) by means of a cross pin *w* in the latter and the recess *x* in the lever, and therefore, can be disconnected with facility. The supply valve (G) is secured by the supply-tube *y* which screws into the valve piece (D′) and projects downward nearly to the bottom of the reservoir (A), substantially as seen in Fig. 1.

Operation: On working the hand-lever (F) up and down, with its recess (*x*) connected with the pin (*w*) as seen in Fig. 2, the stem (K′) will not be touched thereby, and the fluid in the reservoir (A) will gradually and periodically be drawn upward through the valve G and subsequently forced, through the ways *o*—*o* and valve H, into the cylinder B—thus forcing the plunger or ram (C) upward, and lifting and sustaining thereby the object required to be raised. And, for the purpose of lowering the plunger at any time, the operator has only to shift forward the lever (F), on the pin *w*, until the latter comes against the rear end of the recess (*x*)—thus bringing the lower edge of the lever (F) directly over the projecting upper end of the stem (K′)—and depressing the latter by means of the former, raise the valve I and allow the fluid to return throughout it from the cylinder B into the reservoir A.

It will be seen, therefore, that the two distinct operations—the raising and lowering of the plunger or ram C—can be effected with the greatest facility, by the operator, with the same lever (F), and that he can instantly change the direction of motion of the said ram without changing his hold, or position; and also that all the different parts of the machine can be either put together accurately, or taken apart, on the spot, with perfect facility, by the operator; a matter of advantage in constructing, and of great importance in the subsequent cleaning and repairing of portable hydraulic jacks.

Having thus fully described my improved, portable, hydraulic, lifting jack, and pointed out its utility, what I claim as new therein and desire to secure by Letters Patent is,

1. The construction and arrangement of the cylinder D and the valve-seat part D′ together, in the manner described, and in adjustable combination with the disk (*m*) which forms the removable bottom of the cylinder B, as specified; the said part (D′), containing the valves G, H, I, and the ways *o*—*o*, all constructed and arranged together so as to be readily connected or disconnected, as specified, and to operate substantially in the manner described.

2. Making the open recess (*x*), in the hand-lever (F), so as to operate in combination with the pin (*w*) in the manner described, for the purpose of allowing greater facility in connecting and disconnecting the said parts, and also for the purpose of enabling the operator either to avoid, or operate, the stem K′ by means of the said lever, as described, as occasion may require.

REUEL BLACKWOOD.

Witnesses:
BENJ. MORISON,
JAMES MCCAHEN.