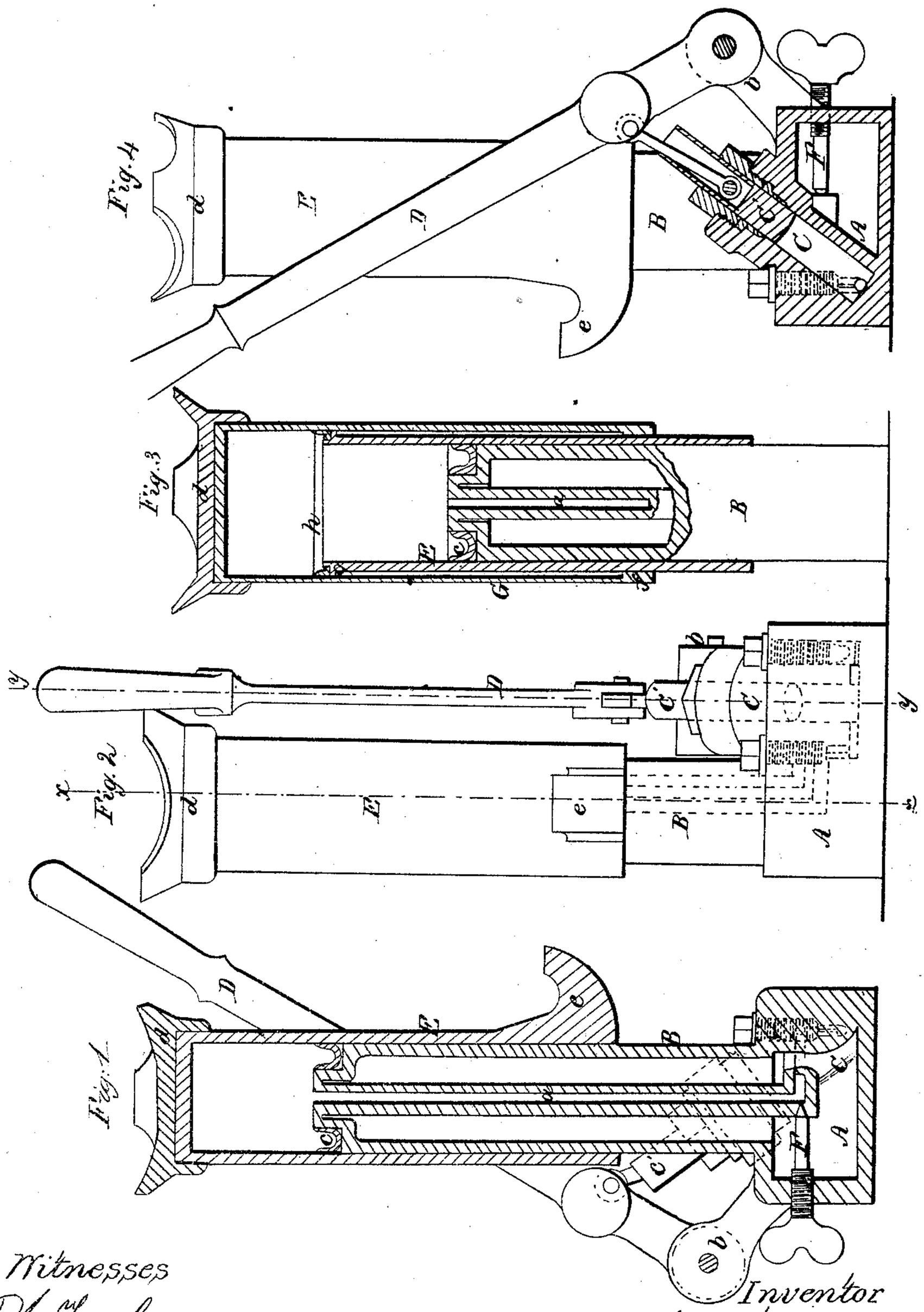
J. Robertson,

Hydrostatic Jack,

No. 24,759, Patented July 12, 1859.



Witnesses
Wm. Finch
& Wolff

Inventor
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UNITED STATES PATENT OFFICE.

JOHN ROBERTSON, OF BROOKLYN, NEW YORK.

HYDROSTATIC LIFTING-JACK.

Specification of Letters Patent No. 24,759, dated July 12, 1859.

To all whom it may concern:

Be it known that I, JOHN ROBERTSON, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Hydrostatic Lifting-Jack; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a vertical section of my invention taken in the line *x*, *x*, Fig. 2. Fig. 2, is a front elevation of ditto. Fig. 3, is a detached sectional view of the telescopic or sliding cylinders. Fig. 4, is a side sectional view of ditto, taken in the line *y*, *y*, Fig. 2.

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

A, represents a chamber or box which forms the base of the implement, and also serves as a reservoir. B, is a column or standard which is attached to the base A, and has a vertical tube or passage *a*, within it, said tube or passage extending entirely through the column or standard and forming the eduction pipe of a force pump C, the lower part of the cylinder of which passes into the base or reservoir A. The force pump C, is of usual construction and therefore does not require a minute description.

D, is the lever or handle of the pump and *b*, is its fulcrum bearing attached to the base A.

The base A, the column or standard B, the pump C, and its valve seats and the fulcrum bearing *b*, may all be cast in one piece.

On the upper end of the column or standard B, a packing *c*, is placed or fitted. This packing is of annular form, transversely of U-shape as shown clearly in Figs. 1 and 3. Standard B, is will be seen presents the triple function of supporter for cylinder E, eduction pipe for the pump and piston.

E, is a metallic lifting cylinder and fitted over the column or standard B, the cylinder E, being allowed to slide freely thereon. The upper end of the cylinder is provided with a suitable head piece *d*, and a toe piece *e*, is attached to the lower part of the cylinder.

F, is a slack-off valve which is simply a screw rod having a conical end which fits within a corresponding shaped seat or opening in the lower part of the tube *a*. The screw rod F, passes horizontally through the side of the box A, the screw working in a thread cut in the side of the box, see Figs. 1 and 4.

The operation is as follows: The reservoir A, is filled with water and the head-piece *d*, of cylinder E, is adjusted underneath the article to be raised, or the toe-piece *e*, may be thus adjusted, the latter being used when articles near the ground or flooring are to be raised. The handle D, is then operated and the water in A, is forced up through the tube *a*, into the upper part of the cylinder E, between its top and the top of the column or standard B, the cylinder E, being raised or forced upward with a power equal to the pressure of the water in *a*, multiplied by the area of the top of the cylinder E, the pressure in *a*, being proportionate of course to the area of the piston C′, of pump C. The packing *c*, is kept water tight against the inner side of the cylinder E, by the pressure of the water in the upper part of the cylinder. When the cylinder E, is raised the extent of its movement and the article that was elevated secured, the clack-off valve F, is gently or gradually unscrewed or relaxed so that the water in the upper part of cylinder E, may escape back into the reservoir A, and allow the cylinder to descend. In case it may be desired to give the cylinder E, a considerable length of movement, a series, two or more, of sliding or telescopic cylinders E, G, may be employed, see Fig. 3, the cylinder G, being fitted over the cylinder E, and provided with an internal flanch *f*, at its lower end, which flanch will catch under a flanch *g*, on the upper end of cylinder E, and raise said cylinder E, that is, when the cylinder G, is fully raised. Packing *h*, similar to the packing *c*, may be attached to the upper end of the cylinder E, which is open at the top, the external cylinder G, being provided with the head piece,—which is designated by *d*′.

One of the prominent advantages of the moving cylinder is that it permits lifting from the bottom of the cylinder, by means of the toe-piece. Toe pieces may be also placed in any convenient position on the sides or exterior of the cylinder. The ordinary jacks are incapable of side and bottom lifting unless a frame is applied to the piston head and made to hang down over the sides of the cylinder but out of contact

therewith. This plan is defective because any weight applied to the frame tends to pull over the jack, and bend the frame; and this tendency augments with the rise of the piston.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is,

The employment of the exterior movable hydraulic cylinder E, with toe piece upon its surface, in combination with the standard B, which serves also as piston and eduction pipe, as and for the purpose herein shown and described.

JOHN ROBERTSON.

Witnesses:
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