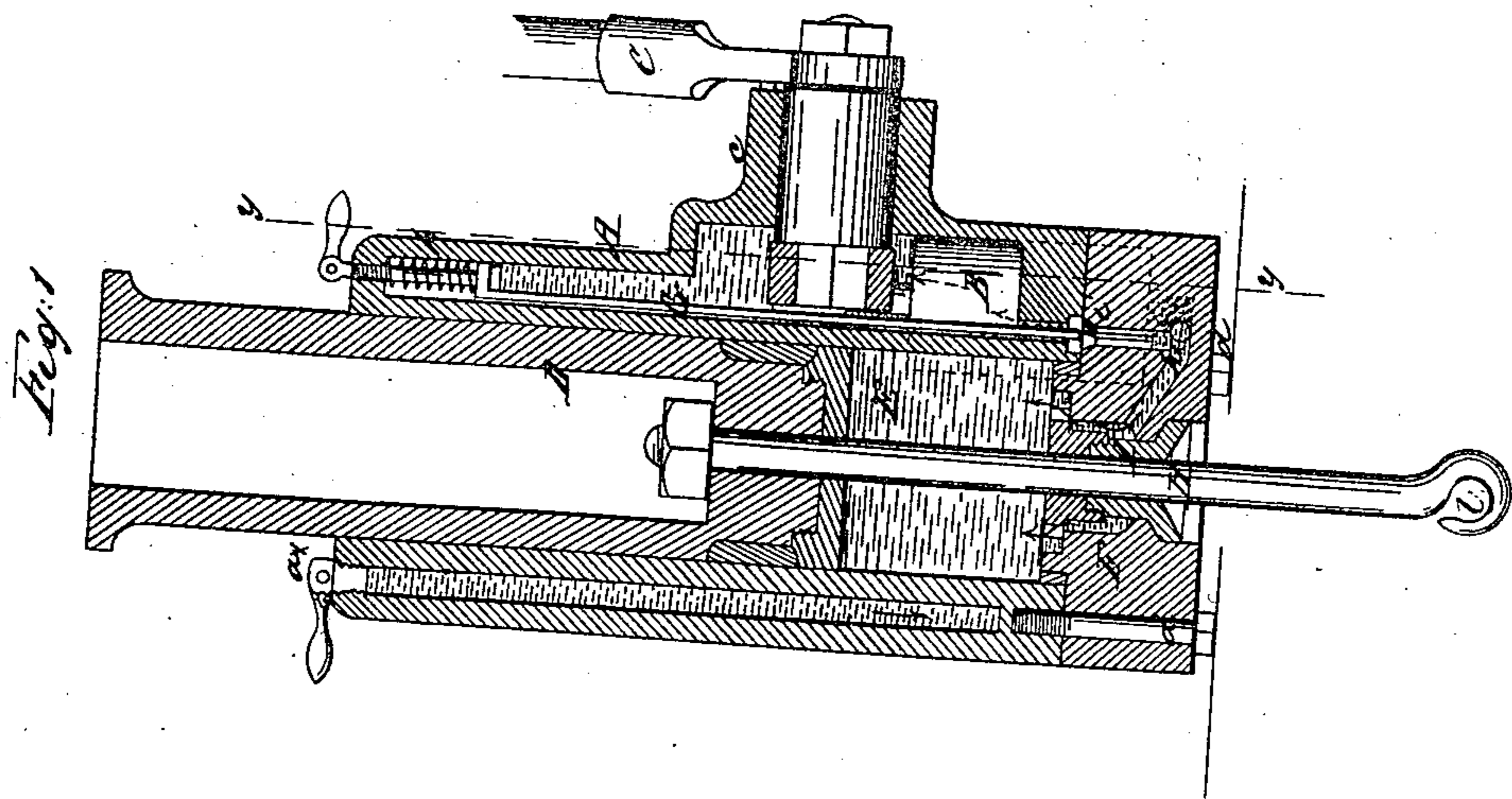
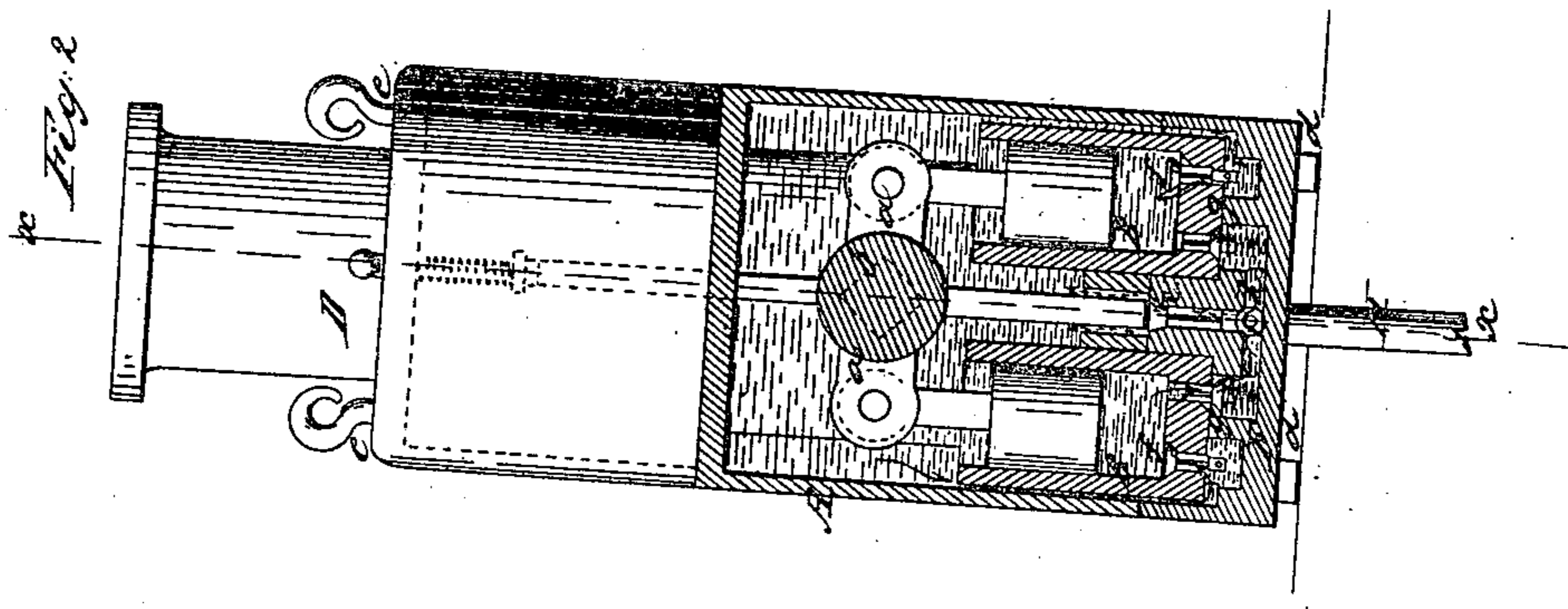


*G. Lindsay,
Hydraulic Jack.*

N^o 16,801.

Patented Mar. 10, 1857.



UNITED STATES PATENT OFFICE.

GEORGE LINDSAY, OF NEW YORK, N. Y.

HYDRAULIC JACK.

Specification of Letters Patent No. 16,801, dated March 10, 1857.

To all whom it may concern:

Be it known that I, GEORGE LINDSAY, of the city, county, and State of New York, have invented a new and Improved Hydraulic Jack for Lifting and Hoisting; 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 improvement, the plane of section being through the center, as indicated by the line *x, x*, Fig. 2. Fig. 2, is also a vertical section of ditto, *y, y*, Fig. 1, showing the plane of section.

Similar letters of reference indicate corresponding parts in both figures.

My invention consists in the peculiar arrangement of the device, the arrangement of its parts, &c., whereby the device may be employed either as a lifter or as a hoister.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A, represents a cylindrical case or jacket which forms the water chamber, and B, B, represent two pumps which are placed therein, the upper ends of the piston rods of said pumps being attached to arms *a, a*, on a rockshaft *b*, which is operated by a lever C, the rock shaft extending through a collar *c*, at one side of the case or jacket A.

D, represents a plunger which is fitted within the chamber E, within the case or jacket, the water chamber of the case or jacket being of annular form and closed at the top. The lower end of the case or jacket and chamber E, is closed or covered by a plate F, which is secured to the case or jacket by screws *d*, and by bolts *e*, which pass entirely through the case or jacket, as shown in Fig. 2.

In the bottom of each pump cylinder there is placed a puppet valve *f*, opening upward and there is also placed in each pump bottom, a puppet valve *g*. The valves *g*, open downward and, when open, allow the pump cylinders to communicate with a passage *h*, in the plate F, said passage leading into the lower part of the chamber E, as shown in Fig. 1. A puppet valve I, is also placed in

the plate F, said valve opening upward and, when open, allowing the chamber E, to communicate directly with the passage *h*.

G, is a rod, the upper end of which is attached to a screw *j*, which passes through the upper end of the case or jacket. The rod G, has a spiral spring *k*, around it. The lower end of the rod G bears upon the valve *i*, the spring *k*, pressing the rod G, upon the valve.

H, is a rod which is attached to the lower end of the plunger D, by means of a collar on said rod in contact with a shoulder in chamber of plunger, when used as a hoister, a stuffing box in the lower end of plunger D being used to keep the pressure off the rod H when used as a jack, the rod and plunger being then disengaged. This rod works through a stuffing box I, in the plate F, and the rod has a hook *l*, on its lower end.

The operation will be readily understood. By operating the lever C, the plungers of the two pumps B, B, will be operated alternately up and down, one plunger moving upward while the other is moving downward, and the water in the case or jacket A, enters the suction end of the pumps through the valves *f*, and when the plungers descend, the water is forced through the valves *g* and space *h*, into the chamber E, and the plunger D, will be forced upward, raising, of course, the weight placed upon it. In this way, the implement, it will be seen is used as a jack, the rod H, being shoved upward within the plunger D. When the machine is used as a hoisting device, the case or jacket A, is suspended by the hooks on the upper ends of the bolts *e*, and the article to be hoisted is attached to the hook *l*, at the lower end of the rod H.

The plunger D, is lowered by raising the rod G, so that its lower end will be free from the valve *i*, so that said valve will open as the plunger is depressed, and the water allowed to escape from the chamber E, through the passage *h* and through the valve *i*, into the case or jacket A.

The solid arrows show the direction of the water when acted upon by the pumps and the dotted arrows show the direction of the water when the plunger D, is depressed.

The case or jacket is filled with water through a faucet or cock a^x , in the top of the jacket.

5 The above implement is extremely portable and simple and operates well. It may be constructed at a moderate cost and may be easily repaired when necessary as all its parts may be readily disconnected or detached from each other.

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

I do not claim the device or arrangements

of the pumps or working parts, or the safety and lowering valve, nor do I claim the device or arrangements of the piston rod H, or of the ram D, but

I claim—

The arrangement of them all combined, as constituting the specific whole machine as shown and set forth. 15 20

GEORGE LINDSAY.

Witnesses:

WM. TUSCH,
S. H. WALES.