

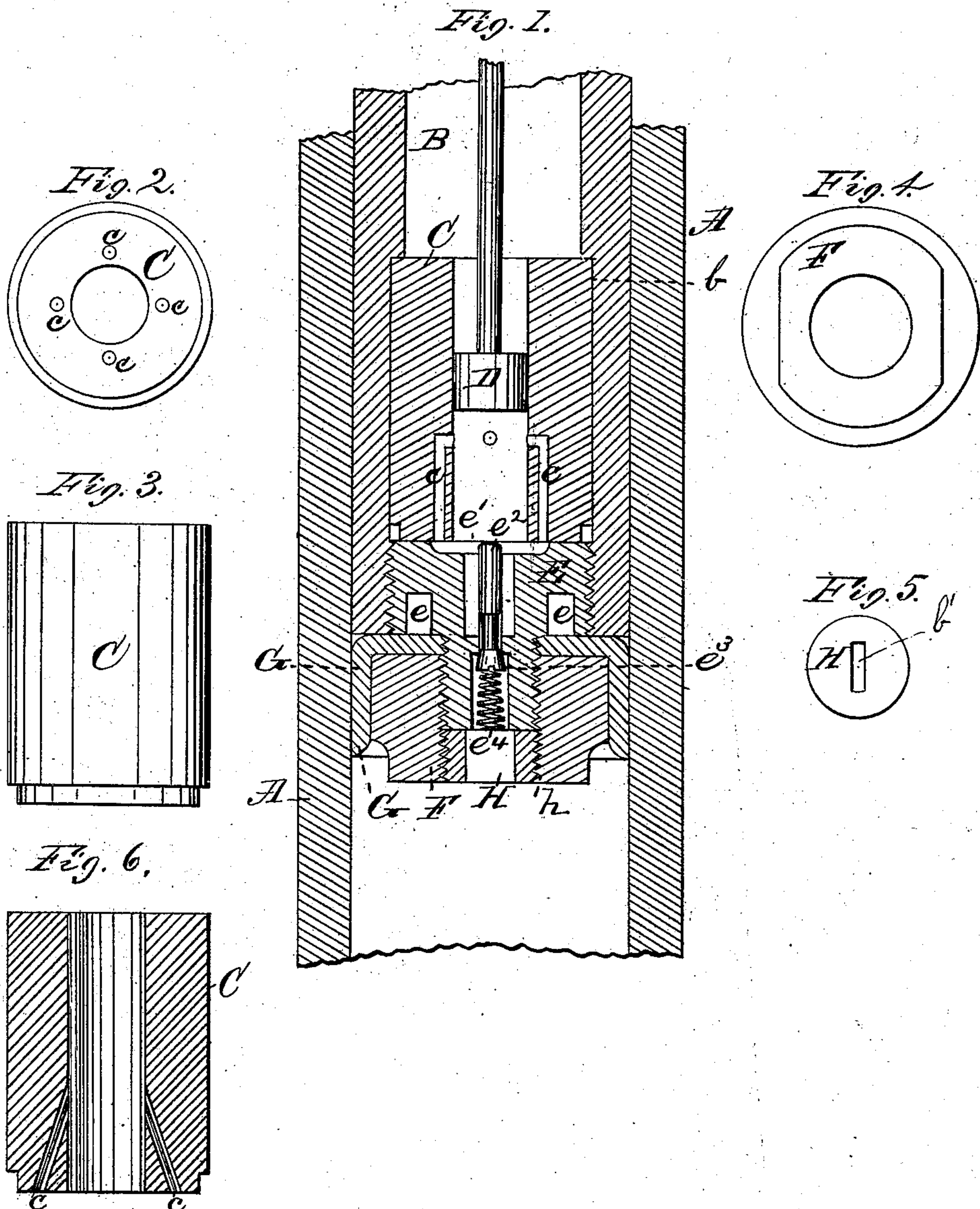
(No Model.)

R. H. DUDGEON.

HYDRAULIC JACK.

No. 297,975.

Patented May 6, 1884.



WITNESSES:

*Edw. H. Brewster*  
*J. E. Warner*

INVENTOR

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ATTORNEY



# UNITED STATES PATENT OFFICE.

RICHARD H. DUDGEON, OF NEW YORK, N. Y., ASSIGNOR TO RICHARD DUDGEON, OF SAME PLACE.

## HYDRAULIC JACK.

SPECIFICATION forming part of Letters Patent No. 297,975, dated May 6, 1884.

Application filed May 10, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD H. DUDGEON, a citizen of the United States, residing in the city, county, and State of New York, have  
5 invented certain new and useful Improvements in Hydraulic Jacks, of which the following is a specification.

My invention relates to improvements in hydraulic jacks; and it relates particularly to  
10 the arrangement and construction of the hollow piston and the passages therein; and the object of my invention is to construct hydraulic jacks having great durability, combined with rapidity of action.

15 The nature of my invention will be fully explained by reference to the accompanying specification and the drawings annexed, which form part of the same.

Referring to the drawings, Figure 1 is a  
20 central vertical section of so much of a hydraulic jack as is necessary to illustrate my invention. Figs. 2, 3, 4, and 5 are detail views of the parts separately, and Fig. 6 represents a modification of the internal cylinder.

25 In each of the views similar letters of reference indicate corresponding parts wherever they occur.

A represents a portion of the piston-cylinder, and B the hollow piston, which is bored  
30 out at *b* to receive an independent internal cylinder, C, in which the plunger D operates. The internal independent cylinder, C, is provided with a series of liquid-passages, *c*, bored or otherwise formed in the body of the annular metallic casting of which it is composed.  
35 The internal cylinder, C, is held in place in the hollow piston B by means of a valve block or plug, E, screwed into the hollow piston by means of a key or driver adapted to be received into the recesses *e* *e*, or by other suitable means. On its under side the block or  
40 plug E is formed with a circular extension, which is tapped to receive a nut or binding-piece, F, for the purpose of supporting and holding the packing G properly in position.  
45 In the center of the block or plug E, I form an aperture, *e'*, in which is arranged a valve-shaft, *e<sup>2</sup>*, formed on its lower end with a conical valve, *e<sup>3</sup>*. The valve *e<sup>3</sup>* and its stem *e<sup>2</sup>* are

held in position by means of a coiled or other  
50 suitable spring, *e<sup>4</sup>*, which is held in position by means of a bearing plate or plug, H, which is tapped with a screw-thread, *h*, adapted to be received into a corresponding thread in the under side of the nut or binding-piece F.  
55 In the center of the plate or plug H, I form a slot or opening, *b'*, for the passage to and fro of the liquid, as regulated by the valve *e<sup>3</sup>*.

In the upper side of the valve block or plug E, I form a dish-shaped cavity, which not only  
60 serves as a means of communication to the passages *c* of the cylinder C, but also allows of the valve stem or shaft *e<sup>2</sup>* protruding above the surface of the block or plug E in position to be depressed by the plunger when it is de-  
65 sired to allow the fluid to flow back after the jack has been used, or when it is from any cause desired to lower the piston and parts connected therewith. In the block or plug E is formed a passage or passages, by means of  
70 which the liquid is conducted to and from the upper and lower portions of the cylinder as regulated or controlled by valve *e<sup>3</sup>*.

The operation of the device is as follows: When it is desired to operate the jack for the  
75 purpose of raising a body or superincumbent weight, the plunger D may be operated to and fro in a vertical direction by a lever and crank-arm (not shown) in the usual manner, the stroke imparted to the plunger D being regu-  
80 lated in extent, so that the plunger D shall not touch the upper end of the valve shaft or stem *e<sup>2</sup>*. At each descent of the plunger D the fluid will be forced through the passages *c* and *e'* in position to operate and depress the  
85 valve *e<sup>3</sup>*, thereby allowing the said fluid to enter the chamber beneath the piston B, and consequently proportionately raise the same. When the jack has been raised to the desired  
90 height, a greater extent of stroke is imparted to the plunger D, such that it shall at each downward motion depress the shaft or stem *e<sup>2</sup>* of the valve *e<sup>3</sup>*, and thereby allow of the liquid returning through the passages *c* to the  
95 upper cavity of the cylinder C, thereby causing the lowering of the piston B and its superincumbent load.

In Fig. 6 I have shown the passages *c* in

the internal cylinder, C, formed at an angle, in place of in a vertical and horizontal direction, as shown in Fig. 1.

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

1. The combination, with a hollow piston, of a removable internal plunger-cylinder provided with internal fluid-passages and held in position by a valve block or plug formed with an extension adapted to hold and support a nut or binding-piece and packing in position, substantially as shown and described.

2. The combination, with the hollow piston B and independent cylinder C, provided with internal fluid-passages, *c*, of the valve block or plug E, valve *e*<sup>3</sup>, and a packing, G, and nut or binding-piece F, substantially as shown and described.

Witness my hand this 3d day of April, A. D. 1883.

RICHARD H. DUDGEON.

Witnesses:

WILLIS McDONALD,  
J. E. WARNER.