Aug. 8, 1939. P. J. ROBISON 2,168,496

HYDRAULIC IMPLEMENT

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Fig. 1.

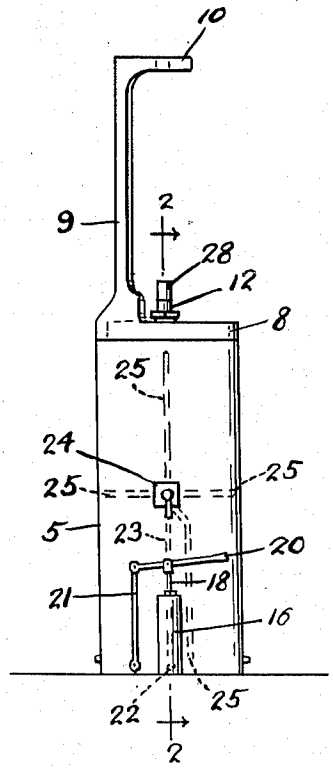


Fig. 2.

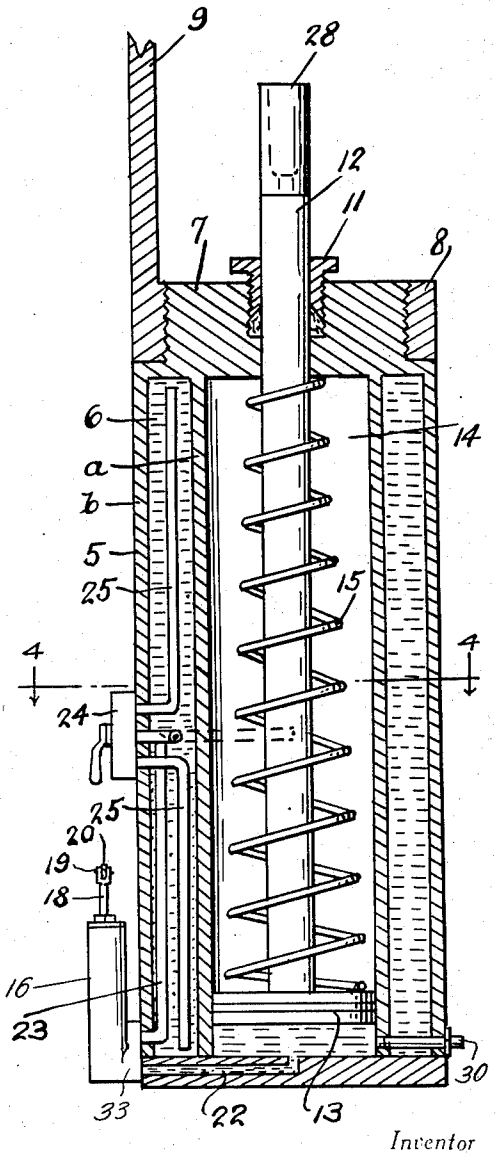
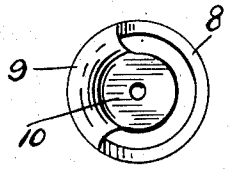


Fig. 3.



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Fig. 4.

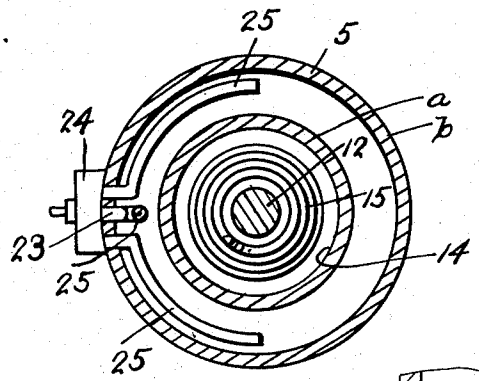


Fig. 6

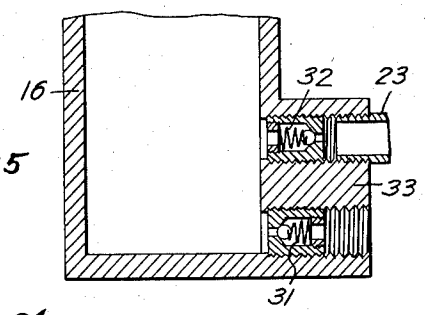
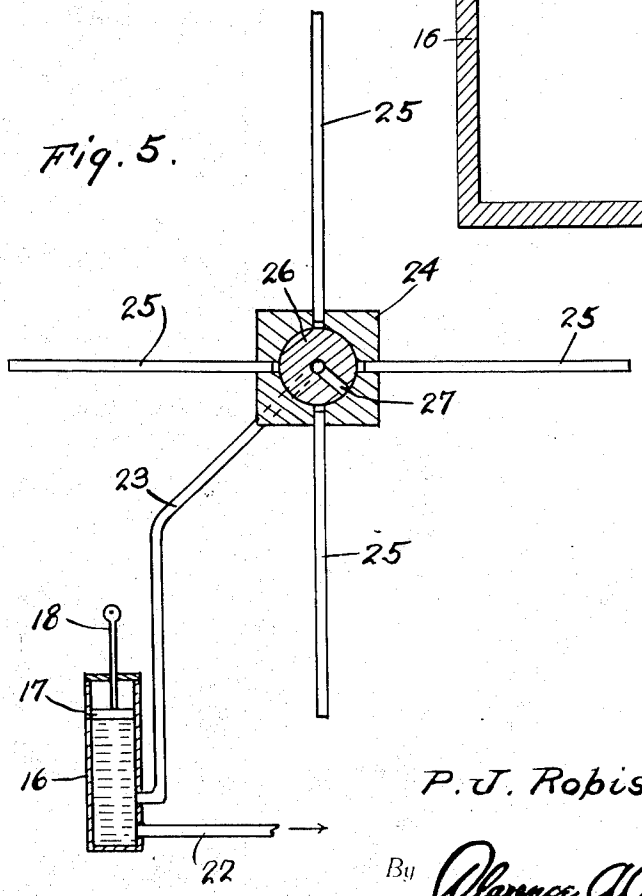


Fig. 5.



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UNITED STATES PATENT OFFICE

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HYDRAULIC IMPLEMENT

Paul James Robison, Thompson, Ohio

Application September 14, 1937, Serial No. 163,853

1 Claim. (Cl. 60—52)

This invention appertains to new and useful improvements in hydraulically operated tools and more particularly to a tool in the nature of a jack which can be used in various positions.

The principal object of the present invention is to provide a hydraulic tool of the character stated which can be used in upright, inverted or horizontal positions without affecting the use of its hydraulic medium.

Still another important object of the invention is to provide a tool of simple construction and of low cost of manufacture.

These and various other important objects and advantages of the invention will become apparent to the reader of the following specification.

In the drawings:—

Figure 1 represents a side elevational view of the tool.

Figure 2 is a fragmentary enlarged longitudinal sectional view through the tool.

Figure 3 is a top plan view of the tool attachable bracket.

Figure 4 is a cross sectional view taken substantially on the line 4—4 of Figure 2.

Figure 5 is a diagrammatic view showing the valve and pump in section.

Figure 6 is a detail sectional view showing the check valves.

Referring to the drawings wherein like numerals designate like parts, it can be seen that numeral 5 represents the case of the jack including the spaced walls *a*—*b* defining a compartment in which the hydraulic medium 6 is located. One end of this case 5 is reduced and threaded as at 7 for engagement into the internally threaded annulus 8 of the bracket 9 which is provided with an apertured foot portion 10 at one end for attachment to any desired structure.

Slidable through the end portion 7 of the case 5 and through the packing gland 11 therein, is the piston rod 12 projecting from the piston 13 operative in the bore 14. A coiled compressible spring 15 is located in the bore 14 and is interposed between the piston 13 and the end portion 7 of the case.

Suitably secured to the case 5 is the pump barrel 16 in which the plunger 17 is operative. Extending from the plunger 17 through one end of the barrel 16 is the rod 18 which is connected as at 19 to an intermediate portion of the hand bar 20, which hand bar is, in turn, supported by the post 21.

A duct 22 extends from the pump barrel 16 to open into the bore 14, while a tube 23 extends from the barrel 16 to the central portion of the valve shell 24.

From a radial position about the central portion of the shell extend the tube sections 25, one extending toward each end of the hydraulic fluid chamber and a pair of these tubes 25 extending in a circumferential direction about the cylinder 14. Thus, regardless of the position of the jack, fluid in the spaced wall construction can be drawn into the pump. The valve includes the rotor 26 having a bore 27 therein which can by rotation connect up the tube 23 with any one of the tubes 25. A release valve 30, of any suitable type, is provided for connecting the lower end of the bore 14 with the chamber 6 so that when this valve is open the spring 15 will cause the piston 13 to return the oil from the bore 14 into the chamber 6. A spring-pressed check valve 31 prevents the oil from flowing from the bore 14 through duct 22 into the pump 16 when the piston 17 is moved upwardly and a spring-pressed check valve 32 prevents the oil from discharging through the pipe or tube 23 when the pump piston 17 is moved downwardly, these valves being of conventional form but being shown as arranged in the enlargement 33 at the lower part of the pump cylinder. The valves 30, 31 and 32 can be of any suitable construction and they form no part of my invention.

The other end of the rod 12 is provided with a suitable adapter 28 whereby it can be connected to any desired structure.

While the foregoing specification sets forth the invention in specific terms, it is to be understood that numerous changes in the shape, size and materials may be resorted to without departing from the spirit and scope of the invention as claimed hereinafter.

Having described the invention what is claimed as new is:

In a hydraulic jack including a case having a cylinder therein and a fluid reservoir surrounding the cylinder, a spring-pressed piston operating in the cylinder and a pump having a duct connecting the pump with the lower end of the cylinder; a valve casing connected to a portion of the exterior wall of the case intermediate the ends thereof, an inlet pipe connecting the pump with the central portion of the valve casing, a pipe connecting the valve casing with the lower end of the reservoir, a second pipe connecting the valve casing with the other end of the reservoir, a pair of pipes connecting intermediate portions of the reservoir with the valve casing, said pair of pipes extending to points at opposite sides of the cylinder and a manually operated valve body in the valve casing for connecting the inlet pipe with any one of the four pipes in communication with the reservoir, all of said four pipes being of rigid construction.

PAUL JAMES ROBISON.