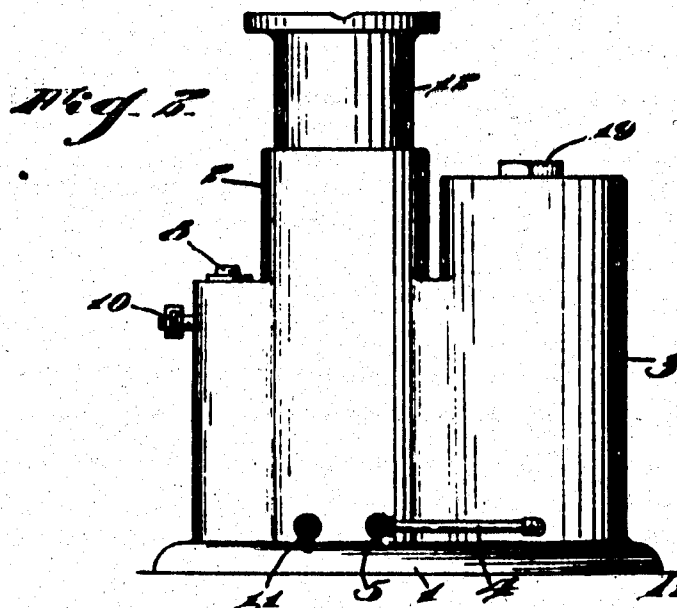
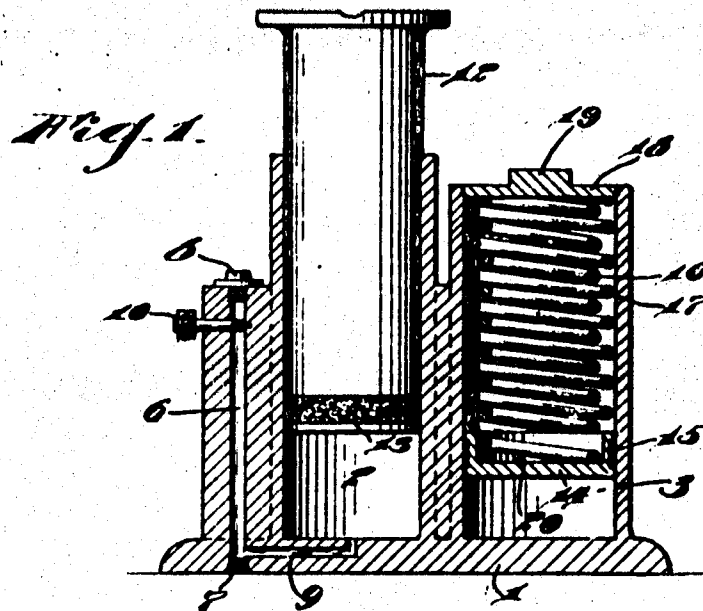


B. WORTHINGTON.
HYDRAULIC JACK.
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971,714.

Patented Oct. 4, 1910.



Witnesses
Thos. Preman.
A. H. Kunkel

Inventor
Blaine Worthington,
By Joshua R. H. Potts
Attorney

UNITED STATES PATENT OFFICE.

BLAINE WORTHINGTON, OF SCOTLAND, PENNSYLVANIA.

HYDRAULIC JACK.

971,714.

Specification of Letters Patent.

Patented Oct. 4, 1910.

Application filed November 29, 1909. Serial No. 530,438.

To all whom it may concern:

Be it known that I, BLAINE WORTHINGTON, a citizen of the United States, residing at Scotland, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Hydraulic Jacks, of which the following is a specification.

My invention relates to improvements in hydraulic jacks, the object of the invention being to provide an improved jack of this type which can be readily and quickly positioned below and against the work, and thus save time and economize labor. Heretofore, in jacks of this type, it has entailed a considerable loss of time, after the jack has been placed in position below the work, to move the plunger up into contact with the work and in a position to lift, and to overcome this defect my invention was devised and will now be described in detail.

With these and other objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings: Figure 1 is a view in vertical, longitudinal section illustrating my improvements, and Fig. 2 is a view in side elevation.

1 represents a base upon which two vertical, parallel cylinders 2 and 3 are made integral, the cylinder 2 constituting the working cylinder, and the cylinder 3 my improved storage cylinder. Said cylinders at their lower ends being connected by a pipe 4, in which a valve or cock 5 is provided to open and close communication between the cylinders.

6 represents the inlet duct, which may be formed in the casting in various ways, but preferably bored, said bore being closed at its lower end by means of a screw plug 7, and screw threaded at its upper end for the reception of a coupling 8 to connect duct 6 with a source of liquid supply. This duct 6 communicates at its lower end with a duct 9 in base 1, said duct 9 communicating with the center of cylinder 2 at the bottom thereof and a cock or valve 10 is provided in duct 6 to control the flow of liquid therethrough, while a cock or valve 11 in the lower end of cylinder 2 is provided to permit a reduction of pressure in the cylinder whenever desired. A plunger or ram 12 is mounted to move

vertically in cylinder 2, and is suitably packed as at 13.

In the storage cylinder 3, a piston 14 is mounted, and is suitably packed as shown at 15. This piston 14 is normally pressed downward by means of two nested springs 16 and 17, both of them bearing against a cap plate 18, screwed into the threaded open upper end of cylinder 3, and having an angular enlargement 19 thereon for the reception of a wrench to turn the same. The smaller and inner spring 16 bears within the recessed upper end 20 of piston 15, while the larger spring 17 bears against the upper face of said piston outside of recess 20.

The operation is as follows: Assuming that the plunger or ram 12 is being elevated by means of the pressure of liquid below in cylinder 2, supplied through ducts 6 and 9, valve 10 being open, if valve 5 is opened at the same time, this liquid will also flow through pipe 4 into the lower end of cylinder 3, below piston 14. Hence, as the plunger or ram 12 is moved upward, the pressure in cylinder 3 will also move piston 14 upward against the pressure of springs 16 and 17. When the piston or ram 12 is moved upward as far as desired, the first thing the operator does is to close valve 5, as well as valve 10. Then by opening valve 11, the liquid below piston or ram 12 is forced out by the weight of the ram, when the latter lowers. However, this does not affect the pressure in cylinder 3, and when the jack is placed below the work the operator opens valve 5. The liquid in cylinder 3 is then forced through the pipe 4 into cylinder 2 and quickly elevates the ram or plunger into engagement with the work. The operator then opens valve 10 and the pressure of liquid from its source is supplied through the ducts 6 and 9 and the operation is repeated as above explained.

Various slight changes might be made in the general form and arrangement of parts described without departing from my invention and hence I do not restrict myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

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

1. A hydraulic jack, comprising two parallel cylinders, one constituting a working

cylinder, and the other a storage cylinder, a piston or ram in the working cylinder, a piston in the storage cylinder, a screw threaded cap plate in the upper end of the storage cylinder, elastic devices between the cap plate and the piston in the storage cylinder exerting downward pressure on said piston, a pipe connecting the lower ends of said cylinders, a valve in said pipe, said 10 working cylinder having an inlet passage communicating with its lower end, a valve in said passage, and a valved outlet in the lower end of said working cylinders, substantially as described.

11 2. A hydraulic jack, comprising a casting forming parallel cylinders, one constituting a working cylinder, and the other a storage cylinder, a piston or ram in the working cylinder, a piston in the storage cylinder, a

screw threaded cap plate in the upper end 20 of the storage cylinder, nested springs bearing at one end against said cap plate, and at their other ends against piston in the storage cylinder, a pipe connecting the lower ends of said cylinders, a valve in said pipe, said 25 working cylinder having an inlet passage communicating with its lower end, a valve in said passage, and a valve normally closing an outlet in the lower end of said working cylinder.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 30

BLAINE WORTHINGTON.

Witnesses:

C. A. BRECHTEL,
ALICE P. BIETSCH.