

(No Model.)

W. J. EGAN.
VALVE.

No. 537,819.

Patented Apr. 23, 1895.

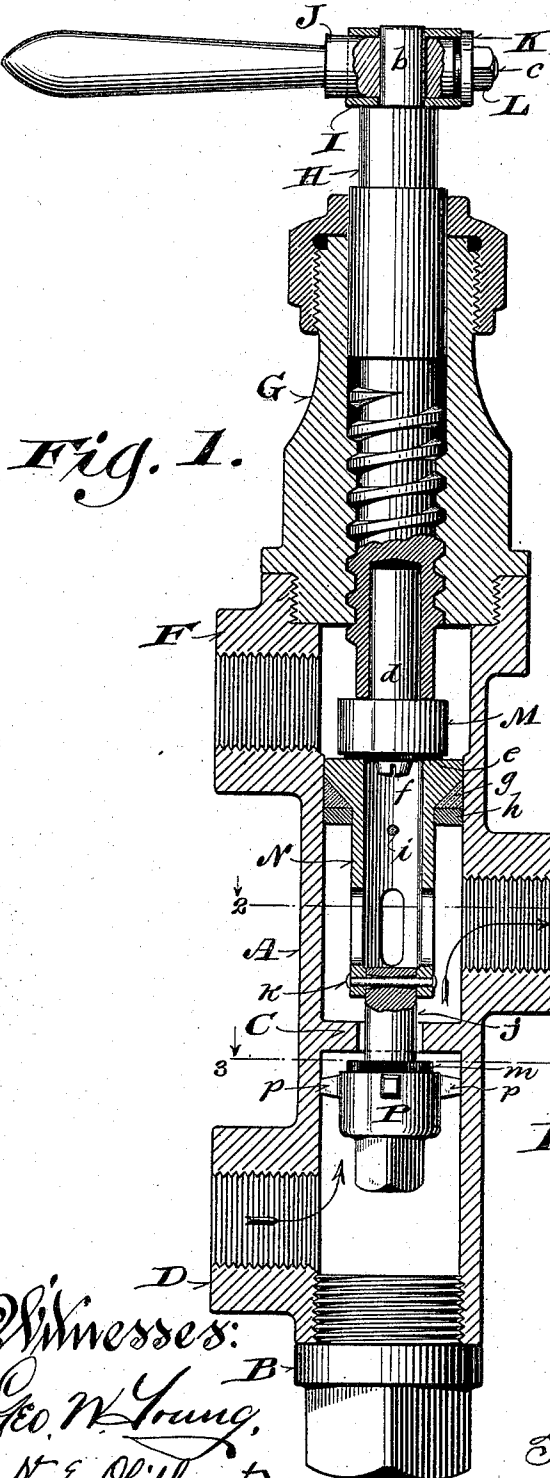


Fig. 1.

Fig. 2.

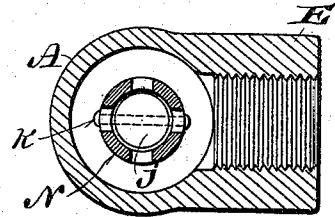


Fig. 3.

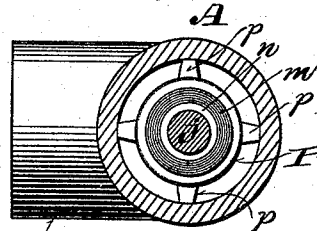
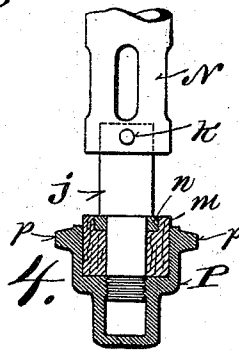


Fig. 4.



Witnesses:
Geo. W. Young,
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Inventor:
William J. Egan

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UNITED STATES PATENT OFFICE.

WILLIAM J. EGAN, OF MILWAUKEE, WISCONSIN, ASSIGNOR OF ONE-HALF
TO ALBERT SLOCUM, OF SAME PLACE.

VALVE.

SPECIFICATION forming part of Letters Patent No. 537,819, dated April 23, 1895.

Application filed November 30, 1894. Serial No. 530,335. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. EGAN, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Valves; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to provide a simple, economical and efficient valve especially designed for used in connection with various hydraulic apparatus; and it consists in certain peculiarities of construction and combination of parts hereinafter specified with reference to the accompanying drawings and subsequently claimed.

In the drawings: Figure 1 represents a sectional view of a valve constructed according to my invention; Figs. 2 and 3, horizontal sections respectively taken on lines 2—2 and 3—3 of the preceding figure, and Fig. 4, a detail sectional view of a puppet that constitutes part of my device.

Referring by letter to the drawings, A represents a casing closed at its lower end by a screw-plug B and provided with an apertured horizontal partition C that constitutes the seat for a puppet hereinafter more particularly described. The casing is also provided with three lateral ports or nipples D, E, F, for connection with fluid-conveyers, the first of these ports or nipples being below the partition C and the other two above the same.

The upper end of the casing is tapped for screw-thread engagement with a bonnet G, and this bonnet has a threaded bore engaging a screw-rod H that is recessed at its lower extremity.

The upper end of the screw-rod is reduced to form a shoulder for a sleeve I apertured at right angles to its bore for the purpose of loosely engaging the reduced extremity *b* of said screw-rod. The inner end of a handle J is loose on the rod extremity *b* within the sleeve I, and a washer K abutting the sleeve is loose on a screw-threaded boss *c* projecting from said inner end of the handle. A nut L on the boss bears against the washer, and the action resulting from tightening of the nut is to clamp the sleeve I and handle J in fric-

tional contact with the engaging extremity *b* of the screw-rod, said sleeve being pushed and said handle drawn against said rod-extremity by the adjustment of said nut.

From the foregoing it will be understood that the handle is pivotally adjustable on the valve-rod and that the adjustment may be readily effected.

Loose in the socket-end of the rod H is the stem *d* of a puppet M the latter being an inverted metal cup containing a projecting disk *e* of lignum-vitæ or other material having the same qualities, this disk being held in place by a binding-screw *f* engaging said stem.

Within the casing A below the nipple F is a hollow piston N having lateral ports, the head of this piston corresponding to the diameter of the casing and opposing the aforesaid puppet. Part of the piston-head is tapered in a downward direction and surrounded by a soft-metal packing *g* held in place by a ring *h* supported on the extremities of a horizontal pin *i* run through said hollow piston. The lower end of the piston joins the stem *j* of another puppet P, and this stem works in the aperture of the partition C above specified. It is preferable to have a yielding joint between the piston and puppet-stem *j*. Therefore I show said stem having a transverse opening that flares from the center toward both ends and engages a horizontal pin *k* supported by said piston.

The puppet P is a metal cup containing a projecting disk *m* of lignum-vitæ or other material having the same qualities, and said puppet has a screw-threaded bottom opening engaged with the reduced lower end of its stem, that is also of metal, a metal washer *n* being screw-threaded in the disk *m* to oppose the shouldered portion of said stem, this construction and arrangement of parts being clearly illustrated in Fig. 2. To center the puppet in the casing I provide it with a series of lateral lugs *p*, as herein shown.

The nipple D of the casing is an inlet for fluid, the nipple E a connection for a press or other hydraulic apparatus and the nipple F an outlet for waste fluid. In practice the rod H is turned by the handle J in the proper direction to exert pressure on the puppet M and

thereby seat the same against the upper end of the hollow piston N whereby the latter is cut-off and forced downward to unseat the puppet P, thus permitting a flow of fluid from the inlet nipple D through the partition C and nipple E into the press or other hydraulic apparatus. The rod being run back away from the puppet M, the pressure of the incoming fluid acting against the piston N causes the latter to reverse and thereby seat the puppet P against the partition C thus cutting off the supply while at the same time the waste fluid returning through the nipple E rises through the ports in said piston to automatically unseat the former puppet and escape through the outlet nipple F, it having been hereinbefore stated that the stem of said former puppet is loose in the socket-end of said rod.

The yielding joint between the piston and puppet P permits the latter to adjust itself to possible inequalities between the same and its seat, while both the puppet disks are of such material as to withstand a very heavy pressure and yet allow gritty particles to imbed themselves therein. Consequently said disks will always come flat on their seats.

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

1. A valve comprising a three-port casing provided with an apertured partition intermediate of the inlet and next succeeding port, an apertured hollow piston loose in the casing beyond the partition, a puppet having its stem extended through the partition-aperture and joined to the piston, another puppet facing the open end of said piston, and a screw rod that works in the casing-bonnet and has a recessed end loosely engaging the stem of the latter puppet.

2. A valve comprising a three-port casing provided with an apertured partition intermediate of the inlet and next succeeding port, an apertured hollow piston loose in the cas-

ing beyond the partition, a puppet having its stem extended through the partition-aperture and in yielding connection with the piston, another puppet facing the open end of said piston and a screw-rod that works in the casing-bonnet and has a recessed end loosely engaging the stem of the latter puppet.

3. A valve comprising a three-port casing, a screw-plug closing one end of the casing, a bonnet in screw-thread engagement with the other end of the casing, an apertured partition intermediate of the inlet and next succeeding port of the casing, an apertured hollow piston loose in said casing beyond the partition, a puppet having its stem extended through the partition-aperture and joined to the piston, another puppet facing the open end of said piston, and a screw-rod that works in the casing-bonnet and has a recessed end loosely engaging the stem of the latter puppet.

4. A valve-rod having a shouldered outer end, a sleeve that rests on the shoulder and has apertures at right angles to its bore loosely engaging the rod, a handle having its inner end loose on said rod within the sleeve and provided with a screw-threaded longitudinal boss, a washer loose on the boss against said sleeve, and a nut run on said boss in opposition to the washer.

5. A valve-rod having a shouldered outer end, a sleeve that rests on the shoulder and has apertures at right angles to its bore loosely engaging the rod, a handle having its inner end loose on said rod within the sleeve, and a clamping-nut arranged to push said sleeve and draw the handle against the afore-said rod.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

WILLIAM J. EGAN.

Witnesses:

N. E. OLIPHANT,
HENRY DANKERT.