

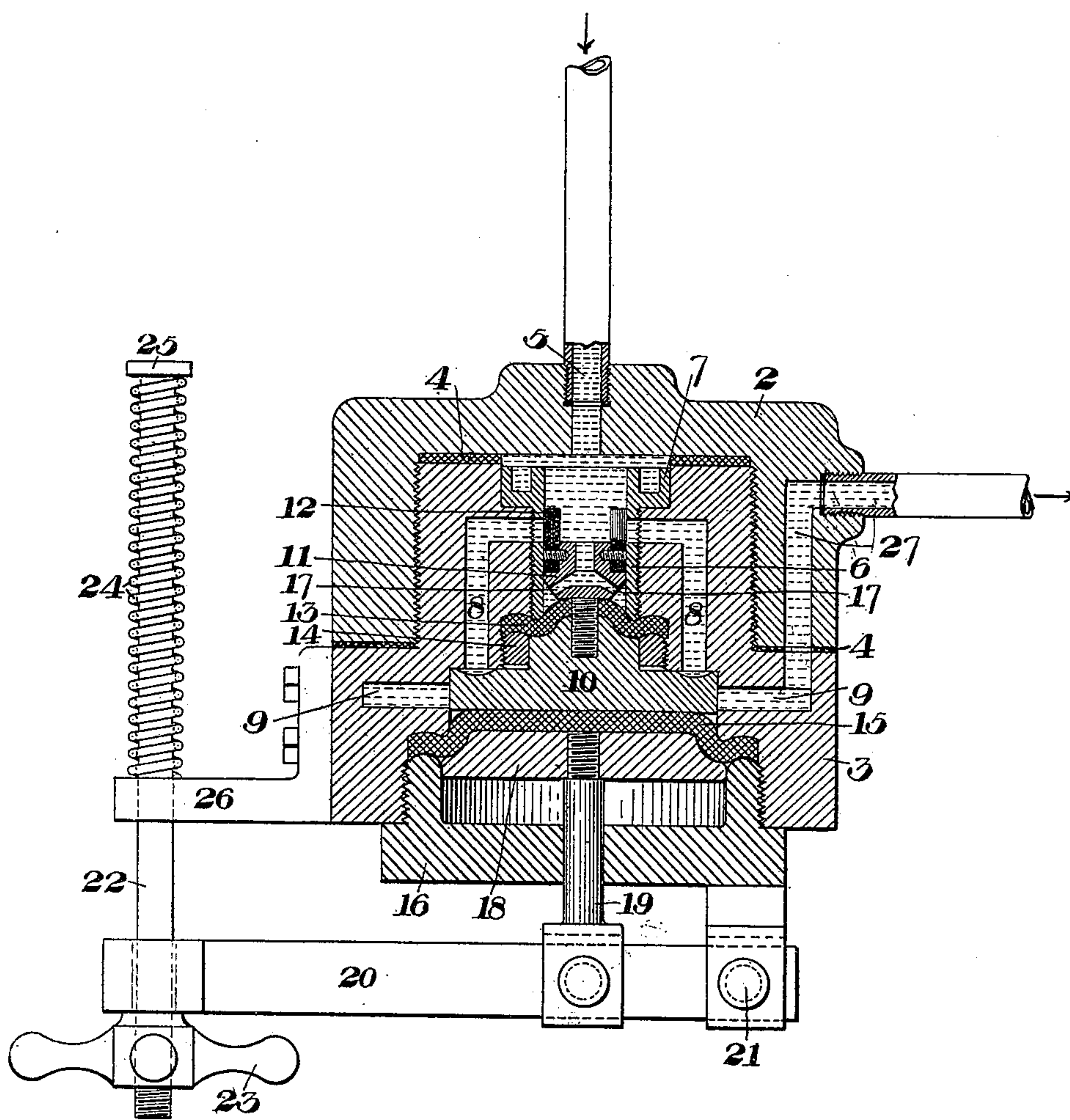
No. 644,674.

Patented Mar. 6, 1900.

C. KUHLEWIND.
HYDRAULIC VALVE.

(Application filed June 9, 1899.)

No Model.)



WITNESSES

L. A. Conner
Warren W. Swartz

INVENTOR

Cornelius Kuhlewind
by McArthur & Ballou
his attys.

UNITED STATES PATENT OFFICE.

CORNELIUS KUHLEWIND, OF KNOXVILLE, PENNSYLVANIA, ASSIGNOR TO
THE HYDRAULIC VALVE AND REGULATOR COMPANY, LIMITED, OF
PITTSBURG, PENNSYLVANIA.

HYDRAULIC VALVE.

SPECIFICATION forming part of Letters Patent No. 644,674, dated March 6, 1900.

Application filed June 9, 1899. Serial No. 719,933. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS KUHLEWIND, of Knoxville borough, in the county of Allegheny and State of Pennsylvania, have
5 invented a new and useful Improvement in Hydraulic Valves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, in which the figure is a sectional side elevation of my improved valve.

My invention relates to the valves employed for controlling the flow of liquids or gases under pressure and is designed to provide a simple and effective valve for this purpose which
15 shall prevent leakage and be long-lived.

In the accompanying drawing, 2 represents the upper part of a hollow casing or housing, into which is screwed the externally-threaded lower casing portion 3, the lower portion of which fits against the base of the part 2, suitable packings 4 being interposed between the casing parts. The inlet-port 5 leads through the upper casing part into a valve-chamber
25 formed in a screw-threaded hollow valve-plug 6. This valve-plug is provided with an upper enlarged portion 7, having end holes to receive a spanner, by which it is screwed into place, and its sides are provided with holes which register with ports 8, which lead downwardly to an annular port 9. The valve consists of a disk 10, which closes the lower ends of the ports 8 and is provided with a central boss, to which is secured by a screw-threaded
35 stem a head 11. The upper portion of this head is reduced in diameter, and on the sides are secured a series of thin flexible metal plates 12. These plates are preferably ground thin and are secured by screws passing
40 through them into the head. Between the head and the boss is secured a cup-packing 13, whose edges are held by a clamping-ring 14. To the lower face of the disk 10 is secured another flexible packing-disk 15, the
45 edges of which are secured within the plug by the flanged follower 16. The head is inwardly beveled in its lower portion and is provided with branch ports 17, so that any possible leakage past the thin plates will be returned
50 to the valve-chamber.

18 is a backing-plate for the lower disk, and into it is screwed the stem 19, which is externally slotted and pivotally connected with the lever 20, fulcrumed at 21 and operated by a stem 22, having an adjusting-wheel 23 engaging the same and bearing upon the lever. The valve is normally held in closed position by a spiral spring 24, surrounding the stem 22 and bearing against a collar 25 at its end and against a bracket 26 upon the frame.

The ports 8 lead to an annular groove or recess in the disk 10, which when the valve is open communicates with the annular port 9, leading to the outlet-port 27.

The operation is apparent. When the parts are in closed position, as shown in the figure, the thin flexible plates are held firmly against the ends of the ports by the outward pressure exerted against them by the fluid, and hence any leakage through the ports is prevented. On moving the lever outwardly the pressure forces out the valve, moving the plates beyond the ports, and fluid passes to the outlet.

The advantages of the invention result from the use of the thin plates, which the pressure of the liquid holds securely in closed position. The higher the pressure the more strongly they are pressed against the sides of the chamber, so as to prevent leaking. The cup-packings prevent any leakage from the housing, and the valve is easily operated.

Many variations may be made in the form and arrangement of the valve-chamber, the thin plates, and the other parts without departing from my invention.

I claim—

1. In pressure-valves, a chamber having an inlet and an outlet port, a thin plate arranged to close the outlet-port, and connections arranged to slide the plate over the inner face of the chamber to open and close the port; substantially as described.

2. In pressure-valves, a valve-chamber having an inlet and side outlet ports, and a valve-head movable within the chamber and having thin flexible plates fitting against the inner walls of the chamber and arranged to close the outlet-ports; substantially as described.

3. In pressure-valves, a valve-chamber having an inlet at one end, and side outlet-ports,

and a movable disk valve arranged to close the outer ends of the outlet-ports, and having a head within the chamber provided with thin plates arranged to fit against the walls of the chamber and close the inner ends of the outlet-ports; substantially as described.

4. In pressure-valves, a housing having an internal valve-chamber, an inlet leading to one end of the chamber, branch outlet-ports leading from the sides of the chamber to an annular outlet-port, a disk arranged to close the outer ends of the branch ports, and having flexible packing, and an inner head secured to the disk and provided on its sides with sets of thin flexible plates arranged to

close the inner ends of the branch ports; substantially as described.

5. In pressure-valves, a chamber having an inlet and an outlet port, a series of thin plates secured to a movable member within the chamber, and connections arranged to move the member to slide the plates along the inner face of the chamber over the outlet-port; substantially as described.

In testimony whereof I have hereunto set my hand.

CORNELIUS KUHLEWIND.

Witnesses:

H. M. CORWIN,
F. E. GAITHER.