

No. 725,378.

PATENTED APR. 14, 1903.

C. E. TETLEY & N. PETERSEN.

VALVE.

APPLICATION FILED JULY 18, 1902.

NO MODEL.

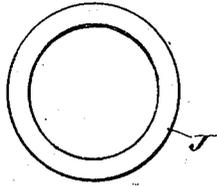


Fig. 5.

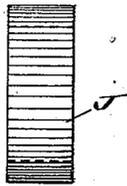


Fig. 6.

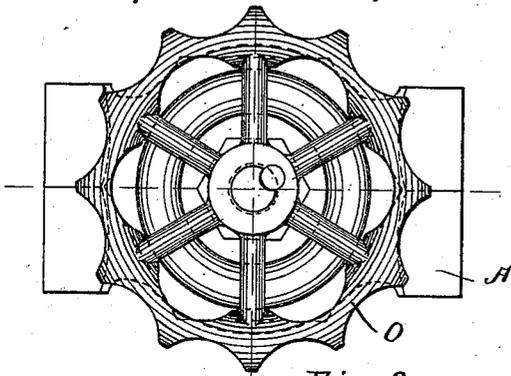


Fig. 3.

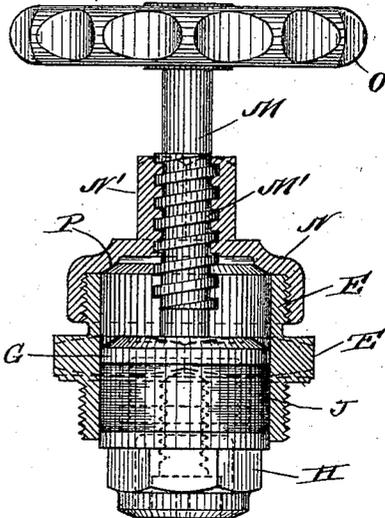


Fig. 4.

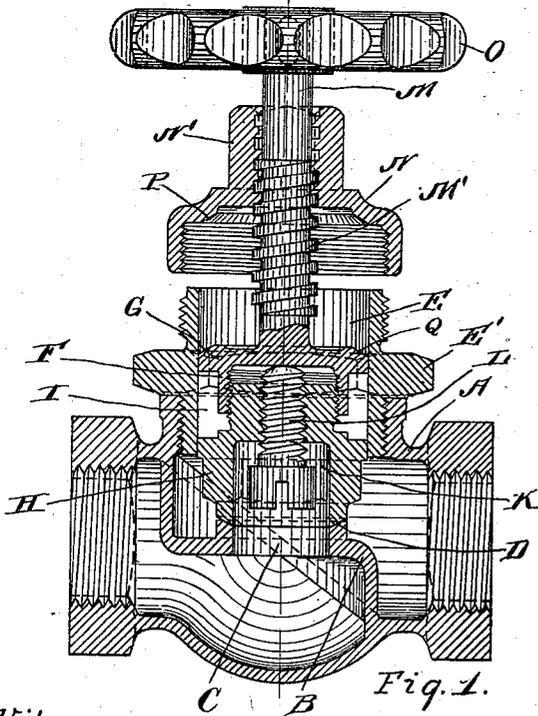


Fig. 1.

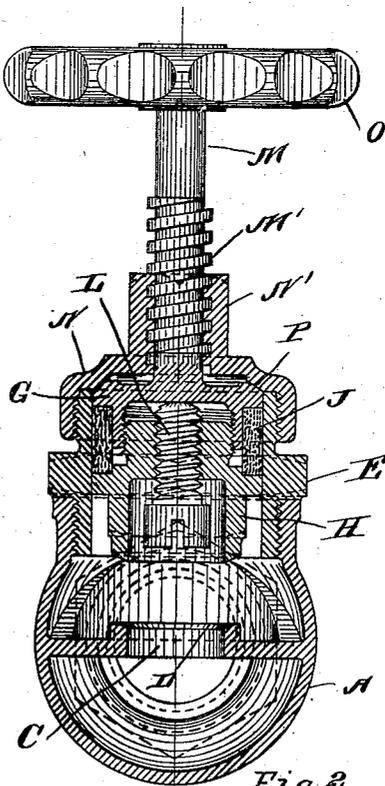


Fig. 2.

Witnesses;

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UNITED STATES PATENT OFFICE.

CHARLES E. TETLEY AND NIELS PETERSEN, OF PHILADELPHIA,
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VALVE.

SPECIFICATION forming part of Letters Patent No. 725,378, dated April 14, 1903.

Application filed July 18, 1902. Serial No. 116,101. (No model.)

To all whom it may concern:

Be it known that we, CHARLES E. TETLEY and NIELS PETERSEN, citizens of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a certain new and useful Improvement in Valves, of which the following is a specification.

Our invention relates to a new and useful improvement in valves, and relates more particularly to that class of valves known as "globe-valves," and has for its object to so construct a valve that the usual packing and gland around the valve-stem are done away with and the packing surrounds the valve-plug, which plug works within a removable cylinder; and a further object of our invention is to provide a seat against which the valve-plug seats when the valve is open to further prevent leakage around the stem.

Other objects of our improvement will be detailed farther on in the description.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a vertical longitudinal section of the valve with the bonnet removed and raised, the valve being in the position when closed; Fig. 2, a vertical cross-section of the valve, the plug being in its raised position, the valve being open; Fig. 3, a plan view of the valve; Fig. 4, a vertical longitudinal section of the valve cylinder and bonnet, the valve stem and plug being shown in elevation; Fig. 5, a plan view of the packing-ring; Fig. 6, a side elevation of the packing-ring.

A represents the body of an ordinary globe-valve, which is provided with the usual partition B, separating the inlet from the outlet, and this partition is provided with the usual port C, located directly underneath the valve-

plug, and surrounding this port is a beveled valve-plug seat D.

E is a valve-plug cylinder, which is externally threaded at each end, and between the two ends is provided an annular projecting polygonal flange E', which furnishes a wrench-hold, and the lower end of the cylinder is threaded into the body of the valve.

F is a valve-plug which consists of two parts G and H. The part G is internally threaded and the part H is externally threaded and they are adapted to be brought together, as shown in Figs. 1 and 2. Both parts G and H are cut away around their periphery, as indicated at I, so that when the two parts are assembled an annular groove or channel will be formed; but before the parts are assembled a packing-ring J is slipped over the part G, and then as the part H is threaded into the part G the packing-ring J will be bound between the two parts, and the nearer together the parts are brought the tighter the packing-ring J will be compressed and cause it to expand against the walls of the cylinder E. Thus the packing can be always tightened by screwing the part H farther into the part G. The part H is recessed from the lower end, as indicated at K, and through the part H, above the recess, is threaded a set-screw L, which extends entirely through the part H and is adapted to bear against the under side of the part G. Thus when the two parts G and H are properly adjusted, so as to give the desired expansion to the packing-ring, the two parts are locked in place by screwing the screw L tightly against the part G, thus locking the two parts against turning, the slotted head of the screw L lying within the recess K of the part H. The lower rim of the part H, surrounding the recess K, is beveled and ground to fit the seat D of the valve.

M is a valve-stem which is formed integral with or secured to the part G of the valve-plug and extends upward therefrom and is exteriorly threaded, as indicated at M'.

N is a bonnet, the lower end of which is adapted to be threaded over the upper end of the cylinder E. The boss N' upon the upper end of the bonnet is interiorly threaded

to receive the threads M' of the valve-stem M. Thus when the bonnet is secured in place the valve-plug F is raised or lowered by the revolving of the valve-plug and valve-stem in the well-known manner.

O is a handle for revolving the valve-stem located upon the upper end thereof.

P is a beveled annular seat formed upon the interior of the bonnet N, and the part G has formed upon its upper face the annular beveled portion Q, beveled and ground to fit upon the seat P. When the valve is open, the valve-plug is raised until the beveled portion Q seats upon the seat P of the bonnet. Thus leakage is not only prevented by the packing J, but also by means of the valve-plug seating against the seat P.

The advantage of our invention is that we do away entirely with the necessary small packing-ring and gland surrounding the valve-stem and substitute in place thereof a comparatively large packing-ring which need not be divided, but is made continuous, and may be easily tightened at any time by removing the cylinder E from the valve, loosening the screw L, screwing the part H farther into the part G, and then again tightening the screw L to lock the two parts together. We are thus enabled to provide a more effective packing, and at the same time providing an upper seat against which the valve-plug seats when the valve is open we form a double protection against leakage around the valve-stem. A further advantage is that our improvement may be applied to the body of any ordinary globe-valve by removing the ordinary bonnet from the globe-valve and inserting in place thereof the cylinder E. Our invention consists entirely in the parts shown in themselves in Fig. 4.

Another advantage of our improvement is that by raising the bonnet N, as shown in Fig. 1, the valve-plug may be turned around upon the seat D without raising the valve-plug, and thus the valve-seat may be re-ground at any time desired.

Of course we do not wish to be limited to the exact construction here shown, as slight modifications could be made without departing from the spirit of our invention.

Having thus fully described our invention, what we claim as new and useful is—

1. In a valve, a valve-plug cylinder, a valve-plug adapted to said cylinder, said valve-plug consisting of two parts threaded together, annular cut-away portions formed around the periphery of each of the parts, a packing-ring adapted to surround the parts and be compressed between the same, means for locking the two parts against rotation relative to one another, a valve-stem secured to one of the parts of the valve-plug, a bonnet secured upon the outer end of the valve-plug cylinder, said valve-stem being exteriorly threaded and threaded through the bonnet, as and for the purpose specified.

2. In a valve, a valve-body, a partition separating the inlet from the outlet within the body, a port formed through the partition, a valve-plug seat surrounding said port, a valve-plug cylinder, the lower end of which is threaded into the body directly above the valve-seat and concentric therewith, a valve-plug arranged within said cylinder and adapted to reciprocate therein, said valve-plug consisting of two parts threaded together, the lower part being ground to fit the valve-seat, each of the parts of the valve-plug cut away around their periphery so as to form an annular groove or channel when the parts are assembled, a continuous packing-ring fitted in said groove or channel and adapted to be compressed against the wall of the cylinder when the two parts are forced together, a screw threaded through one of the parts and bearing against the other for the purpose of locking the two parts against rotation relative to one another, a bonnet threaded over the outer end of the valve-plug cylinder, a valve-stem secured to the outer part of the valve-plug and threaded through the bonnet, an annular seat formed upon the interior of the bonnet, the outer part of the valve-plug provided with a surface ground to fit said seat, as and for the purpose specified.

In testimony whereof we have hereunto affixed our signatures in the presence of two subscribing witnesses.

CHARLES E. TETLEY.
 NIELS PETERSEN.

Witnesses:

H. B. HALLOCK,
 L. W. MORRISON.