No. 829,486. PATENTED AUG. 28, 1906.

J. O'MEARA.

VALVE.

APPLICATION FILED MAY 2, 1905.

Fig. 1.

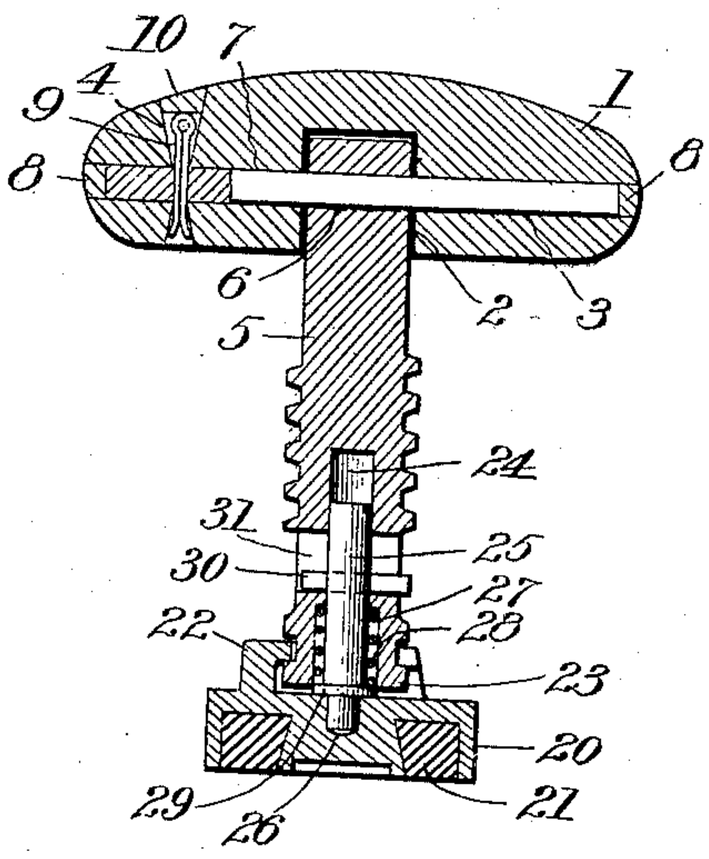


Fig. 2.

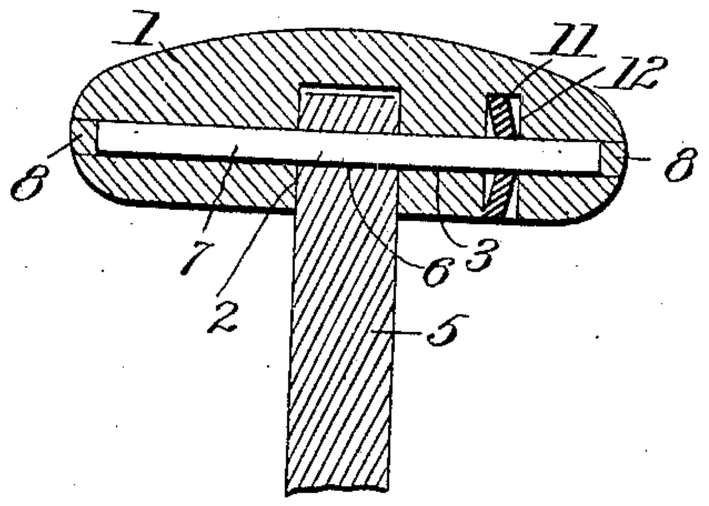


Fig. 3.

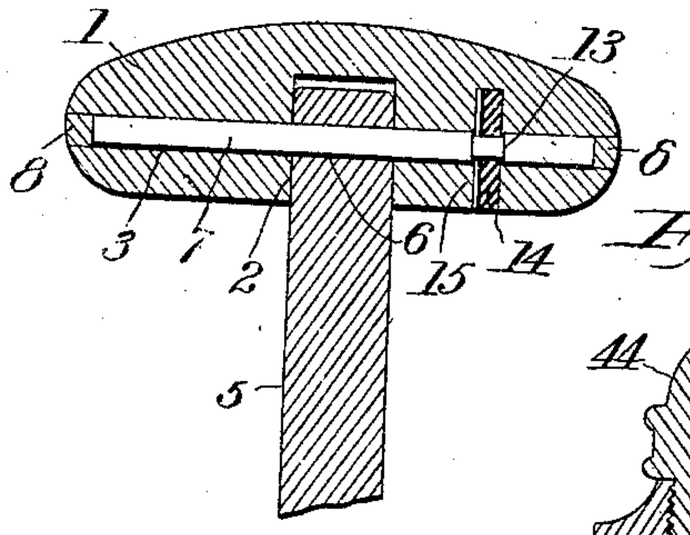


Fig. 4.

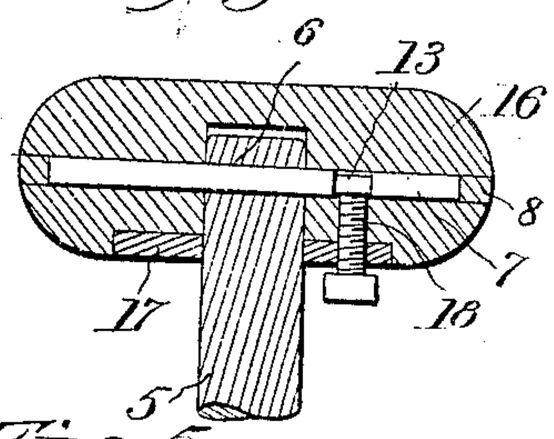


Fig. 5.

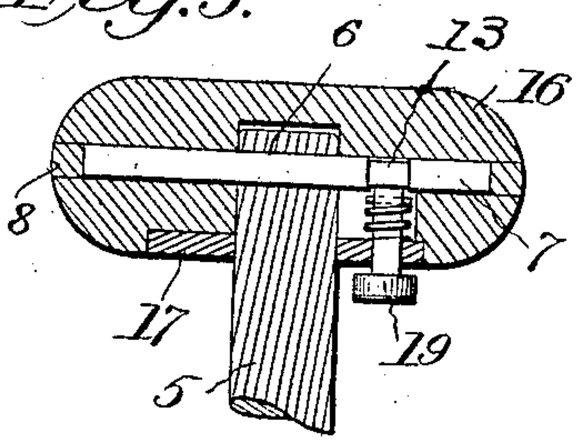
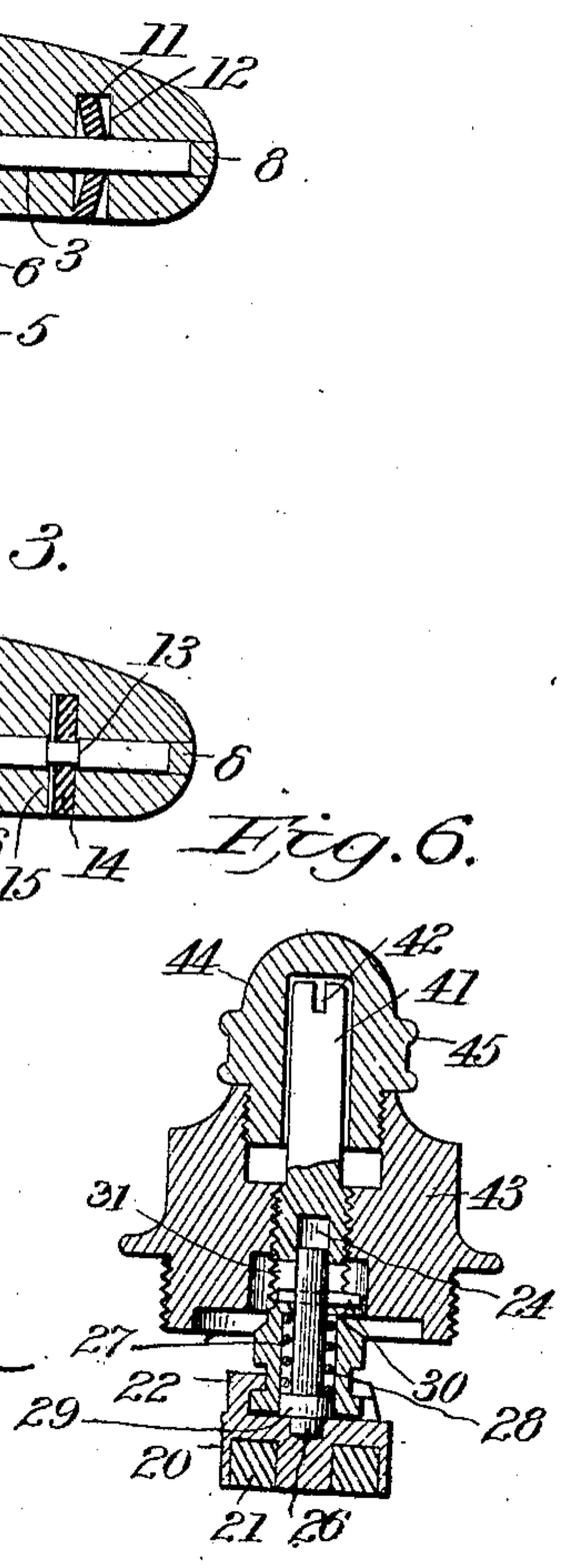


Fig. 6.



WITNESSES:

C. H. Wacker

Ada C. Briggs

INVENTOR

Jeremiah O'Meara

BY Wm. M. Finnell

Attorney

UNITED STATES PATENT OFFICE.

JEREMIAH O'MEARA, OF NEW YORK, N. Y.

VALVE.

No. 829,486. Specification of Letters Patent. Patented Aug. 28, 1906.

Application filed May 2, 1905. Serial No. 258,498.

To all whom it may concern:

Be it known that I, JEREMIAH O'MEARA, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Valves, of which the following is a full, clear, and exact description.

The object of this invention is to provide a substantially concealed fastening for securing the knob or wheel to the spindle of a valve.

A further object of the invention is to provide means for securing the valve-disk to the spindle in a detachable way and in such manner that the valve-disk is always automatically seated when the valve is closed and held firmly to its seat, irrespective of the contraction incident to the cooling down of the valve parts.

In the accompanying drawings, illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a longitudinal section illustrating one embodiment of the two features of the invention. Figs. 2, 3, 4, and 5 are longitudinal sections of four several modified forms of knob or wheel fastening. Fig. 6 is a longitudinal section of a sealed valve.

The knob or wheel 1 may be of wood or other equally inexpensive material, finished as desired and provided with a central socket 2, made to receive directly the spindle. The knob is pierced transversely at 3 and again pierced at right angles to its transverse hole, as at 4. The spindle or valve stem 5 is provided with a transverse hole 6. To connect the knob or wheel and spindle, a rod or pin 7, of steel, is driven through the transverse holes in the knob and spindle. The pin-holes at the ends may then be plugged up, as at 8, and thereby the knob or wheel and spindle are securely united by means of a concealed fastening, so that a very cheap but entirely efficient and durable spindle and knob fastening is had.

To prevent surreptitious removal of the locking-pin 7, a cotter-pin 9 or other fastening may be driven through the right-angle hole 4 and the pin 7, and this cotter-pin may then be concealed by a plug 10, or the pin 7 may be driven through a flexible washer or other medium 11, arranged in a recess 12 in the knob, as shown in Fig. 2, and be thereby prevented from falling out or being easily withdrawn, or, as shown in Fig. 3, the pin 7 may have a reduced portion or groove 13, adapted to be engaged by a resilient washer 14, placed in a hole 15 in the knob or wheel. As shown in Fig. 4, the knob or wheel 16 may be provided with a socket-plate 17 and this socket-plate have applied to it a set-screw 18 to impinge against the pin 7 or a groove 13 in said pin to hold it in place, or, as shown in Fig. 5, the knob 16 may have the socket-plate 17 and this socket-plate provided with a spring-bolt 19, adapted to impinge against the pin 7 or engage the groove 13 in said pin.

It is obviously highly desirable to have the handles or knobs or wheels cool at all times, and to this end I prefer to interpose between the knob or wheel and the spindle a suitable heat-insulator or non-conducting material, such as asbestos, as shown by the heavy black lines in Fig. 1.

It will be observed that in pinning the knob or wheel to the spindle as herein described it is not necessary to square the end of the spindle, and thus there is considerable economy in manufacturing.

The foregoing and other variations of the principle of securing the spindle and knob or wheel by means of a transverse concealed pin are obviously within the scope of the invention.

The valve-disk 20, preferably of the kind having a packed face 21, is supplied with an undercut lug 22 on its back, which is engaged by the flanged end 23 of the spindle 5, and in order to secure this engagement and prevent the lateral disengagement of the disk I construct the spindle with a longitudinal bore 24 and in the bore arrange a pin 25, having a reduced end 26 to engage a complemental hole or socket in the center of the back of the disk. The bore 24 is counterbored at 27, and within this counterbore is arranged a spring 28, which bears against a flange 29 on the pin 25, so as to exert an outward pressure on the pin, or, in other words, to exert a pressure against the disk, tending to force the disk away from the spindle. The spring thus subserves the double purpose of holding the pin in engagement with the disk and so connecting the spindle and disk and of forcing the disk always toward its seat. This last feature, therefore, is useful in compensating for any contraction that may take place in the valve, especially in steam-radiator valves, by the cooling down of the valve or radiator. Or-

dinarily the hissing sound in steam-radiators is due to the failure of the valve to retain its seat against the steam-pressure when the valve is supposed to be closed or partly closed. The contraction of the valve-stem practically lifts the valve-disk from its seat just enough to permit a leakage of steam, but by the construction hereinbefore described the spring comes into play to automatically compensate for any contraction of the parts and to force the disk firmly to its seat at all times. Enough play is left between the undercut lug 22 of the disk and the flange 23 of the spindle to permit a slight movement of the valve-disk under the action of the spring.

In order to readily disconnect the disk and stem, the pin 25 should be easily controllable externally, and for this purpose I place a transverse pin 30 through the pin 25 and through a transverse slot 31 in the spindle, so that by lifting upon the transverse pin 30 the longitudinal pin 25 may be withdrawn from the socket in the disk and the disk slid off of the spindle.

As shown in Fig. 6, a disk connection such as shown in Fig. 1 is employed, and the valve is used in a flow-controlling valve commonly used in large buildings in the washstands and other fixtures where it is desired to regulate the flow of water. It is also desirable in these valves to prevent tampering with them, and for this purpose the spindle 41 has a nick 42 in its end instead of a handle or knob or wheel, and this nicked spindle is concealed or sealed in its bonnet 43 by a hollow screw-plug 44, screwing into the bonnet 43.

The plug may be made in any ornamental way and milled or knurled at 45 to facilitate its operation by an authorized person.

Although there are many ways of applying the valve-disk to the stem with a spring-pressure coming within the principle of the invention, still I prefer the construction and arrangement shown in Figs. 1 and 6, because the connecting devices remain always in position and ready for use, or, in other words, do not fall away from the valve-disk or valve-stem when the disk is detached from the valve-stem.

What I claim is—

1. A valve knob or wheel, provided with a spindle-socket, pierced transversely, combined with a spindle having a transverse hole, and a pin arranged in the holes in the knob and spindle and concealed therein, and a device arranged within the knob for retaining the pin in engagement with the knob and spindle.

2. In a valve, the combination of a valve-spindle having a longitudinal bore, a pin arranged in said bore, a spring acting upon the pin and normally projecting it outwardly from the spindle, means applied to the pin to lift said pin at pleasure and to connect it permanently with the spindle, and a valve-disk swiveled upon the spindle and detachably engaged by said spindle and its spring-pin.

In testimony whereof I have hereunto set my hand this 27th day of April, A. D. 1905.

JEREMIAH O'MEARA.

Witnesses:
WALTER L. CLARK,
M. B. CLARK.