H. WHITE.

VALVE STRUCTURE.

APPLICATION FILED AUG. 17, 1907.

915,321. Patented Mar. 16, 1909.

Fig. 1

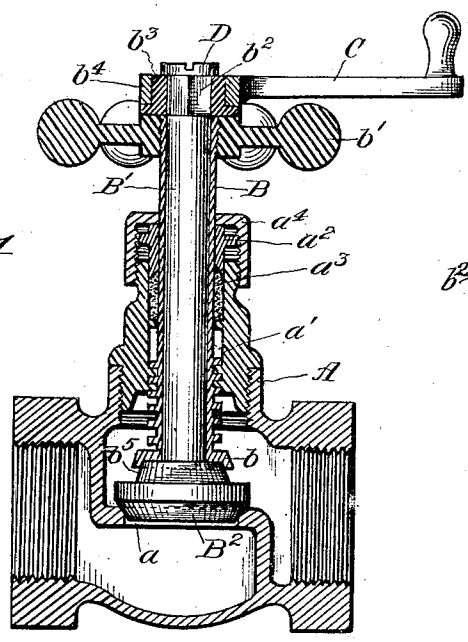


Fig. 2.



Witnesses:

J. C. Turner

Lena A. Durham

Inventor:

Henry White

by A. E. Merkel.

his attorney.

UNITED STATES PATENT OFFICE.

HENRY WHITE, OF MARION, OHIO.

VALVE STRUCTURE.

No. 915,321. Specification of Letters Patent. Patented March 16, 1909

Application filed August 17, 1907. Serial No. 389,008.

To all whom it may concern:

Be it known that I, HENRY WHITE, a citizen of the United States, resident of Marion, county of Marion, and State of Ohio, have invented a new and useful Improvement in Valve Structures, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to valve structures, its object being to provide means whereby the leakage between a valve and its seat may be corrected.

To this end I have provided a valve structure wherein are provided means for periodically rotating the valve about its axis so as to bring valve and seat into different contact positions, thereby correcting any slight leakages which may have existed. In case such leakages are serious and cannot be overcome by the mere changing of the relative positions of the valve and seat the rotating movement may be continued and extended into a grinding movement, the valve being ground into the seat by such operation.

The invention consists of means hereinafter described and particularly set forth in the claims.

The annexed drawing and the following description set forth in detail, certain mechanism embodying the invention, the disclosed means constituting but one of various mechanical forms in which the principle of the invention may be applied.

In said annexed drawing:—Figure 1 represents a vertical section of the valve embodying my invention, certain parts cut by the plane of section being shown in elevation. Fig. 2 represents a detailed plan of the top of the valve structure shown in Fig. 1.

Referring to the structure illustrated in Fig. 1: A is a valve casing of ordinary structure and provided with a valve-seat a. The seat casing is further provided with an interior thread a' which is engaged by a hollow threaded member B. This member B is suitably packed by means of the gland a^2, packing a^3 and cap a^4 so as to be steam tight, in the usual manner. The inner extremity of the member B is formed with a cup-shaped portion b, the cavity formed by this portion being preferably of frusto-conical form as shown. To the upper projecting end of member B is fixed a hand wheel b' by means of which said member may be turned and therefore caused to project into or withdraw from the interior of the casing, as will be readily understood. The upper extremity of member B is cut off flush with the outer surface of the hub of the hand wheel as shown. Loosely mounted in the bore of the hollow member B is a valve-stem B′ whose lower end is either fixed to the valve B^2 or made integral therewith. The upper end of this stem projects beyond the end of the member B and a squared as at b^2. Upon this squared portion is removably fitted a cap b^3 which is provided with a squared outer surface b^4 for receiving a wrench or removable handle C. This cap is secured against displacement from the stem B by a screw D whose head is larger in diameter than the squared end b^2 of said stem. This head is however made of a diameter sufficiently small as not to prevent the handle C from being readily slipped over it. The valve B^2 is provided with a boss b^5 of frusto-conical form and its upper surface is in engagement with the lower surface of the portion b of member B, as shown in the drawing.

From the above construction it will be seen that by rotating the hand wheel b' the valve may be seated and un-seated as in an ordinary valve structure. It will however be further noted that by means of the handle C or a wrench applied to the cap b^3, the stem and valve attached thereto may be rotated about their axis independently of the un-seating and seating mechanism. When a valve has been in use for some time and particularly under heavy pressure, small leakages occur between it and its seat, due to the formation of small grooves or recesses in the valve surfaces. When such leakages occur and become of sufficient degree to materially interfere with the efficiency of the structure, the valve is turned by means of the handle C or a wrench, as previously described, and the relative positions of the valve and seat are thereby changed so as to bring other points of the surface into contact with each other. Where the leakages are small such turning will correct them. If however the grooves are deep and the leakages are serious, the valve and seat may be ground into each other by a continued turning of the stem B′, as will be readily understood, the compressed fluid which the valve controls furnishing the necessary pressure for this operation. Leakages

between the surfaces of the member B and the boss b^5 are similarly corrected and when serious may also be ground into each other by the previously described turning operation, as will be readily understood.

The cap b^3 held in place by the screw D prevents displacement of the stem B′ with reference to the member B, at the same time permitting it to rotate at all times with reference to the latter.

Other modes of applying the principle of my invention may be employed, instead of the one explained, and change may be made as regards the mechanism herein disclosed, provided the means covered by any one of the following claims be employed. I, therefore, particularly point out and distinctly claim as my invention:—

1. In a valve structure, the combination of a valve casing provided with a valve seat, a hollow member having screw-threaded engagement with said casing, said hollow member projecting into the latter and having its outer extremity provided with a hand-wheel fixedly secured thereto; a valve member comprising a valve and stem therefor, the latter being seated in said hollow member and rotatable therein, the outer extremity of said stem projecting above said hand-wheel; a cap secured to said projecting extremity and formed with a squared surface for receiving a wrench or crank; and means for removably securing said cap to said stem.

2. In a valve structure, the combination of a valve casing provided with a valve seat; a hollow member having screw-threaded engagement with said casing and projecting into the latter, the outer end of said hollow member being provided with a hand-wheel fixedly secured thereto; a valve member comprising an integral valve and stem, the latter being mounted in and rotatable in said hollow member; the outer end of said stem projecting above said hand-wheel, and provided with a squared portion; a cap seated on said squared portion and also formed with a squared portion for receiving a wrench or crank; and a screw for securing said cap in place; said cap adapted to prevent longitudinal displacement of said stem in said hollow member but arranged to permit of the rotation of said stem in the latter.

Signed by me, this 8 day of August, 1907.

HENRY WHITE.

Attested by—
JENNIE E. GARY,
LENA A. DIRLAM.