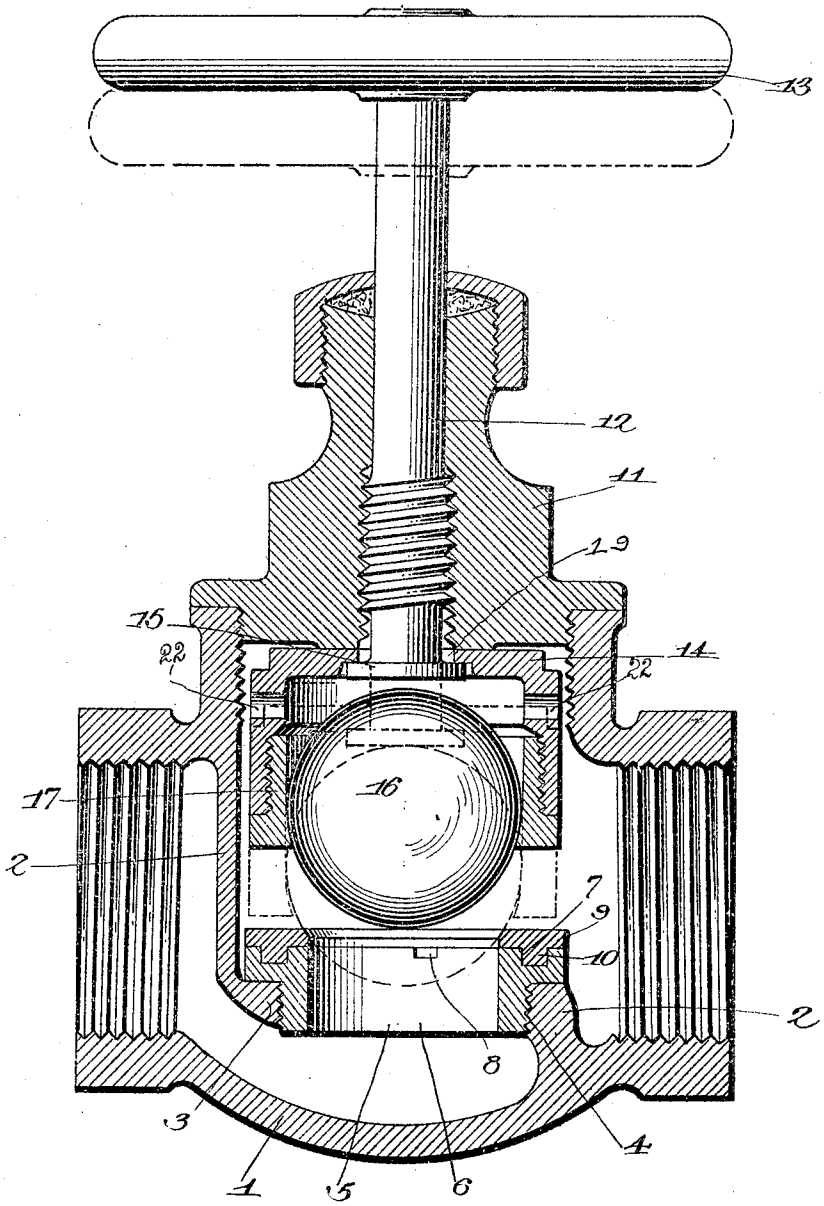
No. 807,476. PATENTED DEC. 19, 1905.

F. W. LEIDECKER.

GLOBE VALVE.

APPLICATION FILED DEC. 28, 1904.



Witnesses

E. F. Stewart

H. D. Shepard.

Frank W. Leidecker, Inventor

by C. A. Snow & Co.

Attorneys

UNITED STATES PATENT OFFICE.

FRANK WALACE LEIDECKER, OF MARIETTA, OHIO, ASSIGNOR TO LEIDECKER GAUGE COMPANY, OF MARIETTA, OHIO.

GLOBE-VALVE.

No. 807,476. Specification of Letters Patent. Patented Dec. 19, 1905.

Application filed December 28, 1904. Serial No. 238,574.

To all whom it may concern:

Be it known that I, FRANK WALACE LEIDECKER, a citizen of the United States, residing at Marietta, in the county of Washington and State of Ohio, have invented a new and useful Globe-Valve, of which the following is a specification.

This invention relates to globe-valves of that class in which the valve member consists of a ball or sphere; and the objects of the invention, briefly stated, are to simplify and improve the construction and operation of this class of devices.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in improved means for moving the ball-valve toward and from its seat and for supporting said valve when unseated.

The invention further consists in an improved construction of said means whereby the valve in the act of unseating shall be twisted or mechanically moved or agitated so that at each unseating operation a fresh wear-surface of the valve shall be exposed, thereby greatly increasing the life and utility of the valve.

The invention further consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawing, the single figure of which represents a vertical sectional view of the improved globe-valve, has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations, and modifications within the scope of the invention may be made when desired.

The casing 1 of the improved valve is of the usual globe type, provided with the opposite transverse partitions 2 and the longitudinal partition 3, extending between the transverse partitions and having an opening 4, the peripheral edge of which is threaded to receive the externally-threaded portion of the fixed valve-seat member 5, which lies flat upon the top of the longitudinal partition 3. This fixed member is pierced by a central opening 6, constituting a port through which the fluid is designed to pass, and an annular channel-groove 7 surrounds said opening, there being suitable diametrically opposite seats or notches 8 formed in the top of the fixed valve-seat member to receive a suitable wrench or spanner for applying and removing the fixed member. A removable valve-seat ring 9 has an annular rib or flange 10 on its under side and substantially midway between its inner and outer peripheral edges, so as to be received within the grooved channel 7, the opening in the ring being substantially of the same diameter as the opening in the fixed valve-seat member, whereby the removable valve-seat member is not subjected to the pressure of the fluid, and therefore cannot become displaced thereby, while at the same time it may be removed and replaced whenever desired.

The valve-casing is provided with a suitable closure plug or cap 11, which is provided with a threaded bore for the reception of the threaded portion of the valve-stem 12, which latter is provided at its outer end with a suitable handle 13, preferably in the form of a hand-wheel. Upon the lower or inner end of this valve-stem there is loosely supported a valve-cage comprising an inverted cap or cup 14 and a gland 17, which is screwed into the lower end of said cup, so as to retain within the cage thus formed the valve-ball 16, which is capable of playing freely within the cage, the dimensions of the latter being such as to permit a distinct movement of the ball from the supporting-gland of the cage in the direction of the valve-stem and reversely permitting the cage to move away from the ball when the latter has been seated, said cage being loosely connected with the valve-stem, so as to have free movement independent of the ball. The valve-stem extends loosely through an opening 19 in the top of the cage, which opening is of ample size to permit the cage to move freely with relation to the valve-stem, the latter being provided with an enlargement or head 15, whereby the cage is retained in position upon the stem. The cage is thus capable of swiveling movement upon the stem and of a distinct degree of movement with relation to the ball and independently of the latter. The cage has been illustrated as provided with openings 22 to prevent the accumulation of foreign material as well as the creation of pressure within said cage, which might in any wise interfere with the operation of the valve. When the valve

is open, the cage hangs or depends from the headed lower end of the valve-stem, and there is a space between the ball and the lower end of the stem, so that in closing the valve the ball engages the seat, while the valve-stem carrying the cage continues to rotate and to advance in the direction of the seat until the valve-stem strikes the ball and presses the latter against the seat. In unseating the valve the valve-stem recedes from the ball, carrying the loosely-supported cage for a short distance before the latter strikes the ball with a twisting action, the cage being supported frictionally upon and carried around with the valve-stem, as will be readily understood. The mechanical contact of the cage with the ball will disturb and agitate the latter to a sufficient extent to cause a fresh surface to be exposed to contact with the seat when the valve is reseated, thereby greatly increasing the life of the device.

Having thus described the invention, what is claimed is

1. The combination with a ball-valve and a seat for said valve, of a stem movable in the direction of the seat and adapted to contact directly with the ball, and means operated by the valve-stem for raising the ball from the seat; said means having movement independent of the ball before engaging with it.

2. The combination with a ball-valve and a seat for said valve, of a stem movable in the direction of the seat and adapted to contact with the ball, and a ball-cage loosely connected with and supported by the stem, said cage having movement independent of the ball prior to engaging the latter in the act of unseating.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

FRANK WALACE LEIDECKER.

Witnesses:
C. J. GARDNER,
WM. G. JEWELL.