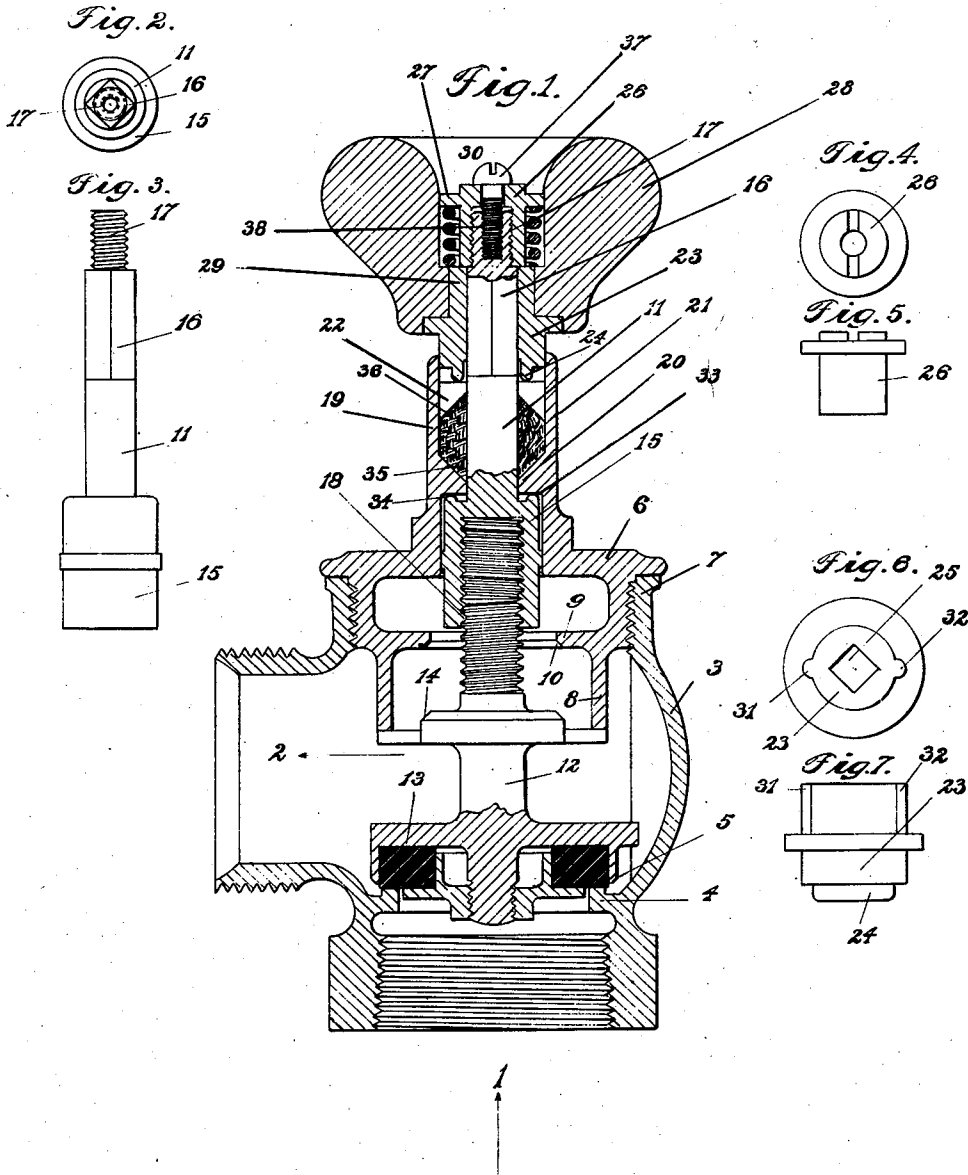


F. SCHREIDT.
VALVE.
APPLICATION FILED APR. 5, 1909.

938,080.

Patented Oct. 26, 1909.



Witnesses

Paul C. Korman.
Freda. Schlosser.

Inventor

Frank Schreidt

By

John H. Boss
his Attorney

UNITED STATES PATENT OFFICE.

FRANK SCHREIDT, OF MANSFIELD, OHIO.

VALVE.

938,080.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed April 5, 1909. Serial No. 487,949.

To all whom it may concern:

Be it known that I, FRANK SCHREIDT, a citizen of the United States of America, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Valves, of which the following is a specification.

My invention relates to improvements in valves and is especially designed to be used with the valve shown and described in Letters Patent granted to me May 4, 1909, (valve) No. 920,187.

One of the objects of my improvement is to provide one or more joint members which will all cooperate to prevent leakage past the valve stem for the purpose of obviating the necessity of using the ordinary soft packing.

A further object is to provide means of automatically taking up the wear of the parts comprising the joint members for the purpose of keeping them constantly in close contact with each other.

A further object is to provide means of adjusting the parts to contact with each other under a pre-determined pressure and locking said parts in their adjusted position.

The primary objects of my improvements are to provide means of automatically packing the valve stem to admit of the constant operating or rotation of the valve stem in opening and closing the main valve and which will take up all the wear of the parts automatically thereby obviating the necessity of repacking the valve stem and provide a self-packing valve stem.

I attain these and other objects by the mechanism illustrated in the accompanying drawing, in which:

Figure 1 is a vertical sectional side elevation of a valve and its parts showing my improvements applied thereto. Figs. 2 and 3 are end and side views, respectively, of the valve stem. Figs. 4 and 5 are end and side views, respectively, of the spring and valve stem holder. Figs. 6 and 7 are end and side views, respectively, of a socket member.

In the drawings, reference figure 1 represents the inlet and figure 2 the outlet of the body portion of the valve 3. An inwardly projecting member 4 is formed in the lower portion of the valve body and surrounds the inlet 1. The member 4 has a valve seat 5 formed on its upper portion. A bonnet 6 is threadably connected to a part of the valve body and is provided with a depending tubular portion 8 having an inwardly

extending annular member 9. A valve seat 10 is formed on the member 9.

A valve stem comprising two parts 11 and 12 is provided. The part 12 carries a main valve 13 and a stop valve 14. The part 11 of the valve stem is provided with an interiorly threaded socket portion 15, an upper rectangular portion 16 and an exteriorly threaded end portion 17. The threaded portion 18 of the valve stem 12 engages with the inner threaded periphery of the socket portion 15 of the valve stem 11 and when movement is imparted to the socket portion the part 12 of the valve stem is raised or lowered to open or close the main valve as desired.

The stop valve 14 contacts with the seat 10 when the main valve has reached its full open position and prevents further rotation of the valve stem in the direction of opening the main valve. The stop valve 14 performs two functions in that it prevents the steam from leaking past the valve stem in the first instance and prevents the further rotation of the valve stem after the main valve has reached its full open position. The bonnet 6 is provided with an upwardly extending elongated tubular portion 19 having an inwardly extending annular portion 20 formed on its inner periphery with an upper beveled portion and a lower flat portion which provides two faces to contact with joint members which will be described hereinafter.

The upper portion of the valve stem 11 passes through an aperture in the central portion of the annular portion 20 and extends upwardly beyond the end of the tubular portion 19 of the bonnet. A soft double beveled faced ring member 21 is fitted to the part 11 of the valve stem and one face thereof is adapted to contact with the inwardly extending portion 20 of the bonnet. The member 21 is made of softer material than other parts of the joint member of the valve stem. A ring 22 of hard material is also fitted to the part 11 of the valve stem and its beveled face is adapted to contact with the upper beveled face of the soft double faced ring member. A tubular or socket member 23 is provided with the end adapted to fit within the inner periphery of the tubular member 19 and is provided with an annular rib member 24 which is adapted to contact with the flat surface of the ring 22.

The upper portion 16 of the valve stem is

fitted to the rectangular aperture 25 formed in the socket member 23. The threaded end 17 of the part 11 of the valve stem is exteriorly screw-threaded and adapted to engage with the threaded inner periphery of the valve stem and spring holder 26. The valve stem and spring holder is adapted to contact with the upper surface of the tubular socket member 23. The lower portion of the valve stem and spring holder is smaller in diameter than the upper portion.

A handle 28 is fitted to the upper portion 29 of the tubular member 23 and has an aperture formed through the center. The upper portion of the handle 17 is depressed leaving a space 30. The handle 28 is fastened to the upper portion 29 of the socket member by the lugs 31 and 32 of the socket member 23 which engage with grooves formed in the handle. (Not shown).

The spring 27 is what is designated an open helical spring and is interposed between the inner periphery of the opening formed in the handle 28 and the outer periphery of the reduced portion of the spring and valve stem holder 26. The part 11 of the valve stem is held in place by the holder 26 which is screwed down on the threaded portion of the end 17 of the part 11 of the valve stem, closing the coils of the spring 27 until the pre-determined tension is obtained for keeping the joint members in contact with each other. This draws the joint member 33 against and in contact under tension with the flat surface 34 of the annular inwardly extending portion 20 and the soft double beveled faced annular ring 21 is at the same time forced in contact with the beveled face 35 and the annular ring 22 is forced in contact with the upper beveled portion 36 of the double beveled faced annular ring 21.

The spring is compressed more or less according to the tension desired forcing all of the joint members in close contact with each other under a pre-determined pressure and as the handle 28 is rotated for the purpose of opening or closing the main valve, the wear of the parts forming the joint members is automatically taken up by the tension of the spring.

In order to lock the spring and valve stem holder in position after adjustment, I provide a screw 37 which engages with a screw-threaded aperture 38 formed in the end of part 11 of the valve stem. When the screw 37 is screwed down in place, it securely locks the spring and valve stem holder in place as the pitch of the screw 37 is different than the pitch of the end 17 which engages with the valve stem and spring holder 26.

It will be noted that the leakage of steam or other fluid past the stem is prevented by a series of joint members cooperating together to obtain the same result. All of the wear

of the contacting surfaces of the joint members is automatically taken up by the spring 27 thereby obviating the necessity of repacking the valve stem. The soft ring or joint member 21 provides a means that readily accommodates itself to the wear of the contacting surfaces and forms a close contact or packing around the stem.

Having fully described my invention, what I claim and desire to secure by Letters Patent is:

1. A packless valve comprising a body portion with a valve seat formed in the lower portion thereof, a bonnet secured to said body portion having a valve seat formed within the inner periphery, a valve adapted to contact therewith, a two-part valve stem, one of said parts secured to said bonnet by twin joints both of which are adapted to prevent leakage past the stem, said part being provided also with a threaded end portion, a spring and valve stem holder threadably connected to said end, a spring held by said spring holder and adapted to exert a pre-determined pressure on the valve stem and the twin joint members thereof to hold them in close contact under a pre-determined pressure.

2. A valve stem comprising a body portion with an inlet and outlet aperture, a valve seat formed in the lower portion of the body, a bonnet secured to said valve and provided with a valve seat, a valve stem composed of two parts, one of said parts mounted in the bonnet and movably secured thereto by two ground joint members and the other part threadably connected to the part mounted in the bonnet, one of said joint members being a loose member formed of softer material than the other joint member, a socket member secured to the upper portion of the bonnet, a spring, a spring and valve stem holder adapted to retain said spring and one part of the valve stem in place and hold the joint members in close contact with each other as and for the purpose described.

3. A valve comprising a body portion with an inlet and outlet aperture, an elongated bonnet secured thereto, a valve stem composed of two parts and threadably connected together, twin joint members formed in the bonnet, a loose joint member of softer material than the other parts of the joints fitted to the valve stem and adapted to contact with the seats of the joints, a ring of harder material adapted to contact with the upper face of said loose joint member, a socket fitted to the inner periphery of the bonnet, a spring mounted on said socket member, a spring and valve stem holder threadably secured to the end of the stem to hold said spring and one part of the valve stem, a locking screw threadably connected to a threaded aperture in the end of the stem and adapted to prevent the spring and valve

stem holder from moving from its adjusted position.

4. A valve comprising a body portion with an inlet and outlet aperture, a bonnet threadably connected to the body having a valve seat formed in the lower portion, a two part valve stem threadably connected, the upper portion of said valve stem having a threaded interior, a socket member fitted to the bonnet, a handle secured thereto having an aperture in the center, a valve stem and spring holder, a spring retained in place by said valve holder, said spring and valve stem holder being adapted to hold the valve stem in place under a pre-determined pressure.
5. A valve comprising a body portion with an inlet and outlet aperture, a bonnet threadably connected to the body having a valve

seat formed in the lower portion, a two part valve stem threadably connected, the upper portion of said valve stem having a threaded interior, a socket member fitted to the bonnet, a handle secured thereto having an aperture in the center, a valve stem and spring holder, a spring retained in place by said valve holder, said spring and valve stem holder being adapted to hold the valve stem in place under a pre-determined pressure, and means to lock said spring and valve stem holder in place.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK SCHREIDT.

Witnesses:

JOHN H. COSS,
FRANCIS YUNCKER.