Feb. 10, 1925. 1,526,248

N. M. SMALL

VALVE HEAD

Filed March 20, 1922

Fig. 1.

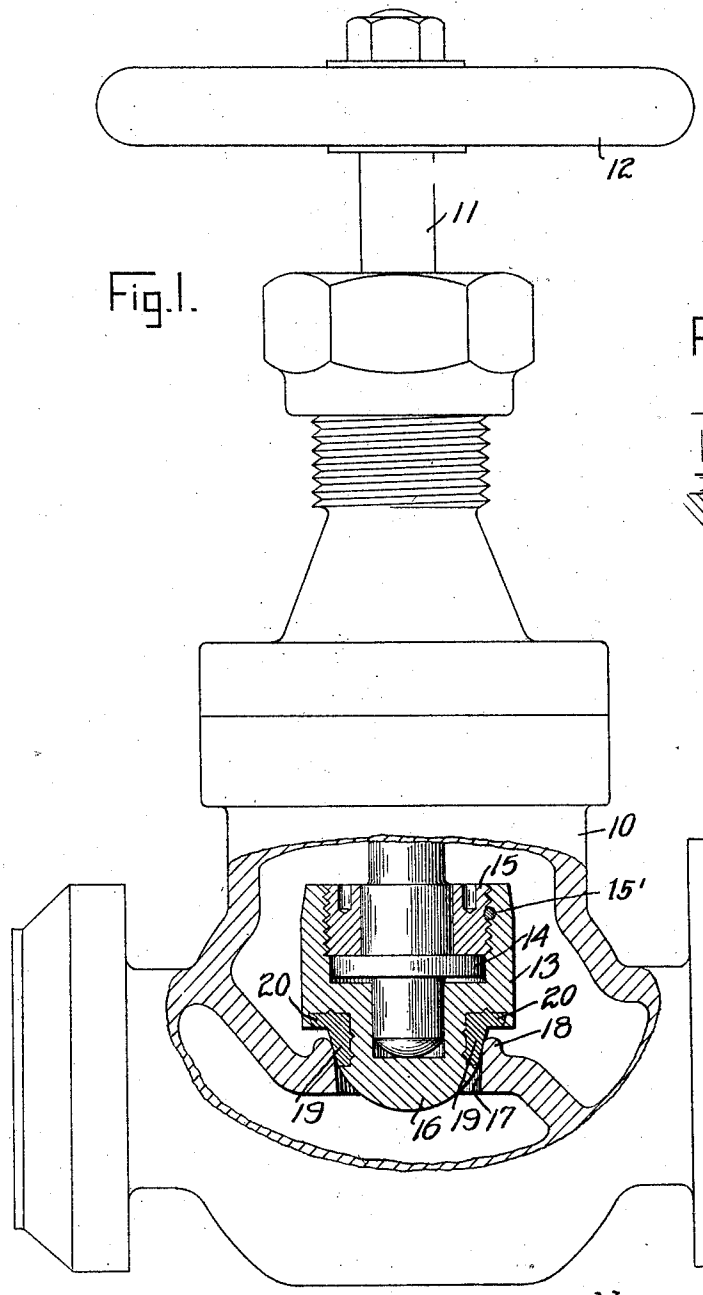
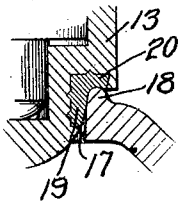


Fig. 2.



Inventor

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By

Attorney

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UNITED STATES PATENT OFFICE.

NORMAN M. SMALL, OF WAYNESBORO, PENNSYLVANIA, ASSIGNOR TO FRICK COMPANY, OF WAYNESBORO, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

VALVE HEAD.

Application filed March 20, 1922. Serial No. 545,173.

To all whom it may concern:

Be it known that I, NORMAN M. SMALL, a citizen of the United States, residing at Waynesboro, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Valve Heads, of which the following is a specification.

My said invention relates to a valve head intended for use in refrigerating or other pipe lines where a tight joint is essential or where it is necessary to use some specific material to avoid corrosion. It is an object of the invention to provide a valve head in which there shall be automatic compensation for wear and the effectiveness of which shall increase rather than decrease with wear.

Referring to the accompanying drawings which are made a part hereof and on which similar reference characters indicate similar parts,

Figure 1 shows a side elevation of a valve embodying the features of my device with parts broken away to show my invention in vertical section, and

Figure 2 is a fragmentary view showing the relation of parts after the seat has been worn down to a considerable extent.

In the drawings 10 indicates a valve casing of any desirable type enclosing a stem 11 with a handle 12. The stem has a swivel connection at its lower end with a head or button 13, the latter having an axial cavity enlarged at its upper end to receive a flange 14 on the stem and the head being held in place on the stem by a nut 15 threaded into it and bearing against the upper side of the flange. At its underside 16 the head is appropriately formed and the valve face rests in a tubular seat 17, a raised rim or head 18 being formed about its upper edge.

The parts thus far described are old and well-known in the art, the invention residing in the structure of an annular insert 19 which forms a wear compensating device between the head and the seat and which acts as a packing to insure close contact. This annular member is made of soft metal or a soft metal composition or may in some instances be formed of vulcanized fiber or the like, according to the exigencies of the situation. Preferably it has a flange 20 extending over and beyond the rim of the seat though this may be dispensed with in some instances. It will be noted that the circumferential face of the member 18 forms a continuation of the face at the lower end 16 of the head and is preferably reamed at the point of contact to make a slight flat of the same taper as the soft part that fits into it.

It will be seen that as the annulus wears away there will be an increasing extension of the annulus 19 out over the rim 17 of the seat and that when the parts become sufficiently worn as in Figure 2 the rim will engage the lower face of the flange 20 thus greatly prolonging the life of the valve and insuring a tight contact until the wear has extended substantially through said flange 20. It will be understood, of course, that the invention may be used with a valve having its head and stem solid as well as with the head swiveled to the stem.

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

1. A valve comprising a tubular seat having a rim formed about its upper edge, a head having an insert of softer material adapted to contact with the wall of the tubular seat said insert having an extension adapted to contact with the said rim portion of the seat, substantially as set forth.

2. In a valve, a tubular seat, a head therefor and an insert of softer material in said head said insert having a portion contacting with said tubular seat and having another portion extending beyond the edge of said seat and substantially at right angles with the said tubular seat portion and adapted to contact with said edge, substantially as set forth.

3. In a valve, a tubular seat having a beveled contact surface and an upper rim portion, a head therefor and an insert of softer material in said head said insert being beveled to correspond to that of the seat, an extension on said insert adapted to contact with the rim portion of the seat upon partial wearing of the contact surface of the head or seat, substantially as set forth.

4. In a valve, a tubular seat, a valve head having a part extending into the seat and an insert of softer material contacting with the tubular part of the seat and having a portion extending outwardly beyond the edge of the seat adapted to contact with said edge upon partial wearing of the contact surface of the head or seat, substantially as set forth.

5. In a valve, a tubular seat having an upstanding rim thereabout, a head resting therein, an insert of softer material in the head at the point of contact with the tubular seat and having a flange extending at substantially right angles with the axis of the tubular portion outwardly beyond the rim of the seat to contact with said rim, substantially as set forth.

6. In a valve, a seat having an annular rim, extending upwardly therefrom, a valve head having a tapered extension to enter said seat, and a flat face extending outward from said extension beyond the rim, said head having an insert of softer material at the point of contact with the seat and said insert having a flange extending beyond said upwardly extended rim adapted to seat on said rim, substantially as set forth.

7. In a valve, a tubular seat having a raised rim thereabout, a head therefor and an insert of softer material in said head contacting with the tubular portion of the seat said insert having a portion extending outwardly beyond the rim and contacting therewith, substantially as set forth.

8. A valve comprising a head, a reduced rounded extension on said head and a flat face surrounding said reduced extension said head having an insert of soft material forming a portion of said extension and extending outwardly therefrom to form at least a portion of the flat face, substantially as set forth.

9. A valve construction comprising a seat having an annular upstanding rim and a substantially cylindrical valve head having a dome shaped end with an annular ledge surrounding said dome adjacent its base, said head having an annular depression around the base of said dome, an inserted seating portion of soft material in said depression substantially flush with the annular ledge and with the surface of the dome, a valve stem having an annular flange around its lower portion, said head having a hollow portion for accommodation of said annular flange, a follower adapted for securing said flange within said head, and means for locking said follower in said head, substantially as set forth.

In witness whereof, I have hereunto set my hand and seal at Waynesboro, Pennsylvania, this 2nd day of March, A. D. nineteen hundred and twenty-two.

NORMAN M. SMALL. [L. S.]

Witnesses:
M. E. KANN,
FRANCIS SHENTON.