April 26, 1932. F. E. SACKRIDER ET AL 1,855,317

VALVE

Filed Oct. 4, 1930

Fig. 1.

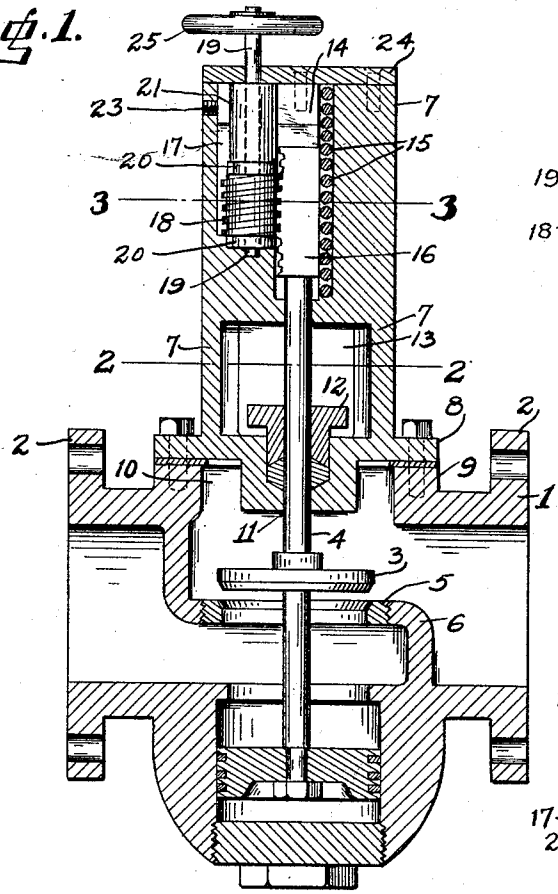


Fig. 3.

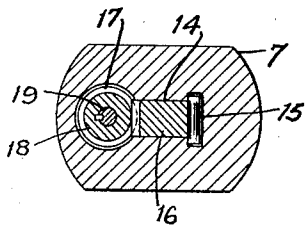


Fig. 4.

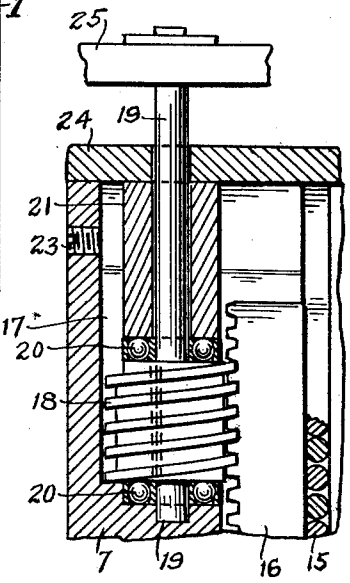
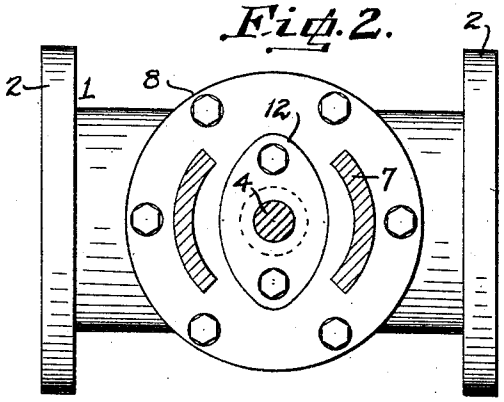


Fig. 2.



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UNITED STATES PATENT OFFICE

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VALVE

Application filed October 4, 1930. Serial No. 486,476.

This invention relates to valves and more particularly for operating mechanism for valves.

Experience has indicated that in many situations it is desirable that the operating mechanism for a valve shall not be exposed to the contents of the system controlled by the valve. Further experience has indicated that a direct reciprocating movement of a valve stem without rotation is desirable as increasing the life of the valve stem and packings and also assuring a tighter fit and more accurate operation of the parts.

The present invention is directed to providing an improved and simplified valve operating mechanism in conjunction with a housing adapted to serve as a closure for a port in the valve casing and in which said mechanism is located in a grease tight chamber, capable of holding a suitable lubricant. This mechanism is further provided with anti-friction bearings and is of a character lending itself to a ready taking up of wear in the parts.

The object of the present invention is to provide a device of the character indicated and as hereinafter more particularly specified. The invention consists in the novel construction, arrangement and combination of parts hereinafter particularly described and claimed.

One sheet of drawings accompanies this specification in which like reference characters indicate like parts throughout.

Figure 1 is a vertical cross section through the improved device applied to a standard valve structure.

Figure 2 is a horizontal cross section taken on line 2—2 of Figure 1.

Figure 3 is a horizontal cross section taken on line 3—3 of Figure 1.

Figure 4 is an enlarged fragmentary vertical cross section similar to Figure 1 but on a larger scale.

Referring to the drawings: 1 indicates a valve housing of standard construction having attachment flanges 2—2, a wall 6 provided with a valve seat 5, a valve 3 mounted on a valve stem 4 and adapted to be reciprocated into and out of association with valve seat 5.

A port 10 is provided in the valve housing which, as is customary, is in alignment with valve stem 4, through which port 10 the said stem 4 extends.

The present invention is directed to the valve stem operating mechanism which comprises a housing member 7 provided with an end wall 8 adapted to seat over port 10 and be secured to the valve housing 1 constituting a closure for said port.

A suitable orifice 11 is provided in wall 8 through which valve stem 4 extends and a packing gland 12 may be provided to assure tightness around the valve stem at this point.

In the upper part of the housing member 7 is provided a chamber 14 in which is slidably positioned a rack member 16, which rack 16 is attached to or if desirable made integral with valve stem 4. In an extension 17 of chamber 14 adjacent to rack 16 is positioned a worm 18, the threads of which are adapted to engage the teeth of the rack. Suitable ball bearing devices 20—20 are positioned to support worm 18, which worm is mounted upon a stem 19, which extends above housing 7 and is provided at its end with operating wheel 25. A spacer sleeve 21 is positioned around stem 19 within chamber 17 to properly position worm 18 and is held in position by a top closure member 24 which also operates to close chambers 14 and 17.

A port 23 is provided with a suitable screw closure member to permit the introduction of a lubricant into chambers 17 and 14, in which lubricant rack 16 and worm 18 normally operate. A number of roller bearings 15 are positioned between rack member 16 and the wall of chamber 14 opposite to worm 18 to provide an anti-friction slide and bearing for rack 16.

Various modifications in the exact construction and arrangement of parts will readily suggest themselves to those skilled in the art but within the scope of our invention as claimed.

Having thus fully described our invention, we claim:

1. In a valve a combined housing and

bonnet member, said housing having a chamber, a rack in said chamber, a worm in said chamber, and means associating the rack with the valve stem, said chamber adapted to hold a lubricant in which the worm and rack operate.

2. The structure of claim 1 with anti-friction rollers disposed in the chamber between the rack and the wall of the chamber opposite the worm.

In testimony whereof we affix our signatures.

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