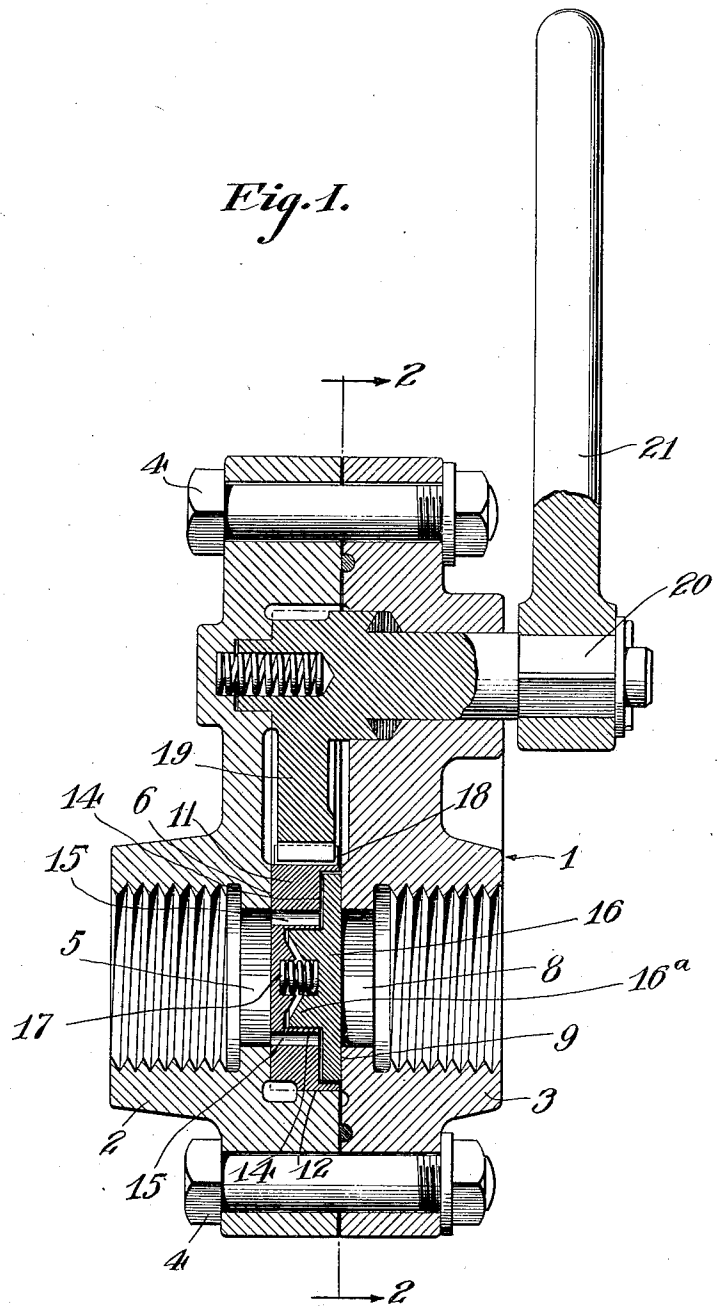
Aug. 4, 1925. 1,548,634

J. F. SCHILLER

ANTICLOGGING VALVE

Filed Oct. 15, 1923 2 Sheets-Sheet 1

Fig. 1.



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2 Sheets-Sheet 2

Fig. 2.

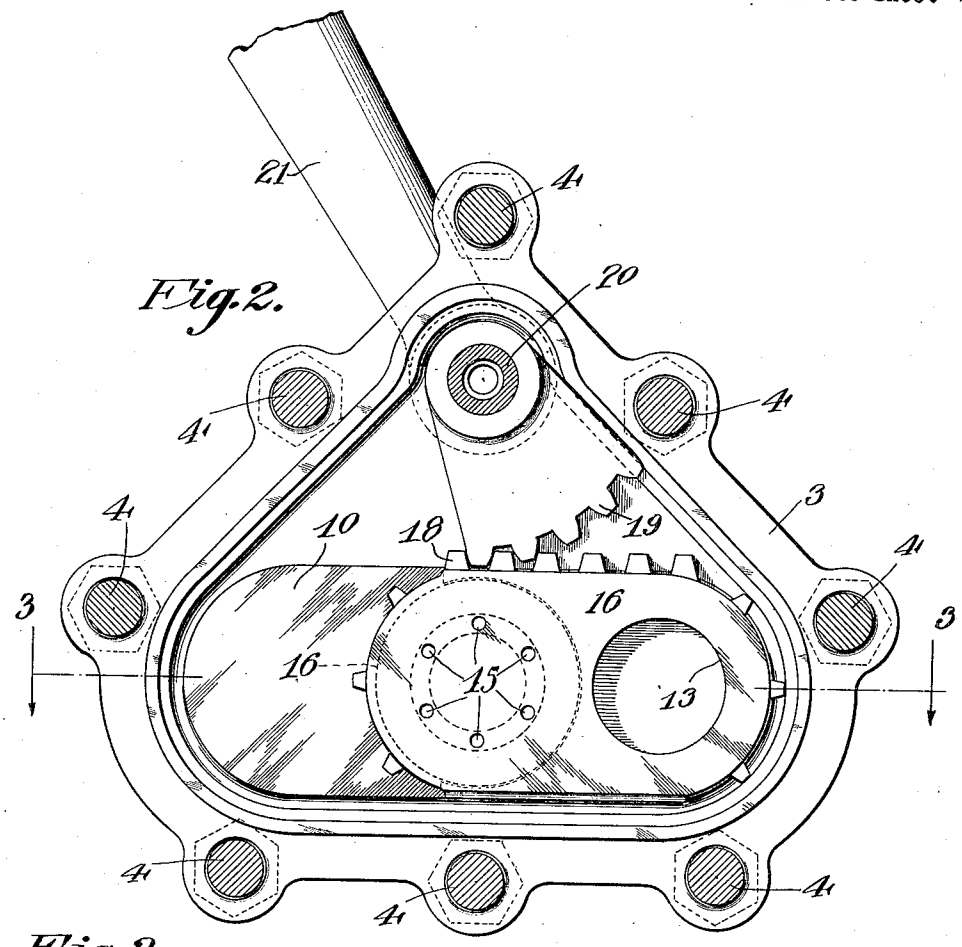
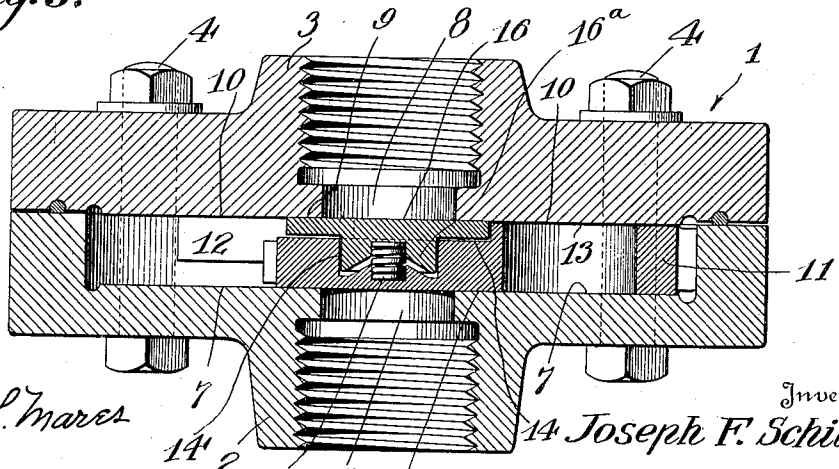


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOSEPH F. SCHILLER, OF PHILADELPHIA, PENNSYLVANIA.

ANTICLOGGING VALVE.

Application filed October 15, 1923. Serial No. 668,476.

To all whom it may concern:

Be it known that I, JOSEPH F. SCHILLER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Anticlogging Valves, of which the following is a specification.

My invention relates to valves of the type which are opened and closed by a sliding member and more particularly to slide valves which are subjected to high pressures. The chief defects in valves of that type heretofore used are due to the binding effect of the pressure and the liability to clog because scale or sediment is deposited between the working parts, thereby rendering operation of the valve difficult if not impossible and causing wear upon the parts which leads to leakage. The binding effect of the pressure is aggravated because the initial pressure acts upon one extremity of the sliding member and is transmitted to one part of the seat while the remainder of the seat is under but slight pressure or no pressure.

The objects of my invention are to provide a valve in which the initial pressure of the fluid takes effect upon the central part of the sliding member, thereby equalizing its pressure upon the seats; in which deposit of scale or sediment between the working parts is practically precluded and in which the pressure upon the seating member is so balanced that the valve works easily under all conditions of pressure.

These objects, and other advantageous ends which will be described hereinafter, I attain in the following manner, reference being had to the accompanying drawings in which

Figure 1 is a central section through a valve embodying my invention,

Figure 2 a section on line 2—2 of Figure 1, and

Figure 3 a section on line 3—3 of Figure 2.

I have shown my invention applied to a slidable member having a rack thereon and operated by a segment, but it may be applied equally well to a swingable member which is directly connected to the operating lever.

Referring to the drawings, 1 indicates a casing made in sections 2 and 3 secured together by bolts 4. Section 2 is provided with an inlet 5, a seat 6 surrounding the inlet and guiding faces 7 at opposite sides of the seat. Section 3 is provided with an outlet 8, a seat 9 surrounding the outlet and guiding faces 10 at opposite sides of the seat. An oblong slidable member 11 is adapted to travel on a face 12 at the bottom of section 2 and slide between seats 6 and 9. The slidable member is provided near one end with a fluid passage 13 equal in diameter to the inlet, a counterbored recess 14, in the other end, and openings 15 leading from the inlet side to the recess. A seating member 16 of disk form and having a hub 16^a is mounted in recess 14 with its hub fitting in the counterbore. The seating member is disposed within the confines of the edges of slidable member 16 and its face engages outlet seat 9. A coiled spring 17 is interposed between slidable member 11 and seating member 16, within the counterbore and serves to hold the seating member, when not under fluid pressure, in engagement with seat 9. The top of the slidable member is provided with a rack 18 which meshes with a segment 19 carried by a stem 20 having a handle 21.

When the valve is closed, seating member 16 is held in close contact with seat 9 by the pressure of fluid entering through openings 15. When the valve is being opened the incoming fluid first contacts with that part of the face of the slidable member which is adjacent the inner wall of passage 13. The slidable member being oblong this contact is in its center and the pressure against seat 9 and guiding face 10 is distributed over the entire surfaces of the slidable member so that there is no tendency to bind upon one part rather than another. As the sliding member is moved further, passages 15 are closed thereby relieving the pressure upon the seating member and the valve is easily opened.

In closing, the fluid first impinges upon that part of the face of the sliding member which is adjacent the inner wall of passage 13 and the pressure is central as before. The seating member being within the recess 14, and held in contact with seat 9 by spring 17 only, exerts but slight pressure. As the sliding member is moved further passages 15 are uncovered and fluid entering these passages exerts pressure against the seating member and forces it into close contact with

seat 9 so that when the sliding member reaches the limit of its movement passage 13 will be tightly sealed.

In this way the seating member is relieved of pressure when pressure is not required and subjected to pressure when pressure is required for sealing the fluid passage.

In actual use I have found that my valve may be operated easily whether subjected to a pressure of five pounds or five hundred pounds.

A valve constructed in this manner will last until seating member 16 wears out when the seating member may be renewed and the valve again used. During the use of the valve, seating member 16 wears evenly against seat 9 making a fluid-tight fit at all times. When the seating member is not under fluid pressure, spring 17 holds it against seat 9, and no adjustment is needed for insuring contact of the seating member with its seat.

By making the slidable member oblong with the fluid passage in one end, the passing fluid exerts its pressure on its center and distributes the pressure over its entire surface, thereby causing it to wear evenly and preventing binding.

While I have described my invention as taking a particular form, it will be understood that the various parts may be changed without departing from the spirit thereof, and hence I do not limit myself to the precise construction set forth, but consider that I am at liberty to make such changes and alterations as fairly come within the scope of the appended claims.

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

1. A valve including a casing having an inlet and an outlet, an oblong slidable valve member having a fluid passage near one end, a recess with a counterbore positioned near the other end of said valve member and having openings leading from its inlet face to the counterbore, a disk shaped seating member within the recess and having a hub fitting in said counterbore, a solid central portion between said fluid passage and said seating member for engaging and sliding along said casing, a spring seated in said valve member and engaging said seating member in said counterbore, and means for operating the slidable valve member.

2. A valve including a casing having an inlet and an outlet, an oblong slidable valve plate having a rack on its upper edge, a fluid passage near one end, a counterbored recess near the other end and openings leading from its inlet face to the recess, a seating member within the recess and having a hub fitting in the counterbore in said recess, a spring between said valve plate and seating member, a swinging toothed segment meshing with said rack, and lever means for swinging the segment.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH F. SCHILLER.

Witnesses:
ELIZABETH GARBE,
CHAS. E. POTTS.