G. F. WEBER.

GATE VALVE.

APPLICATION FILED JULY 13, 1917.

1,324,990.

Patented Dec. 16, 1919.

3 SHEETS—SHEET 1.

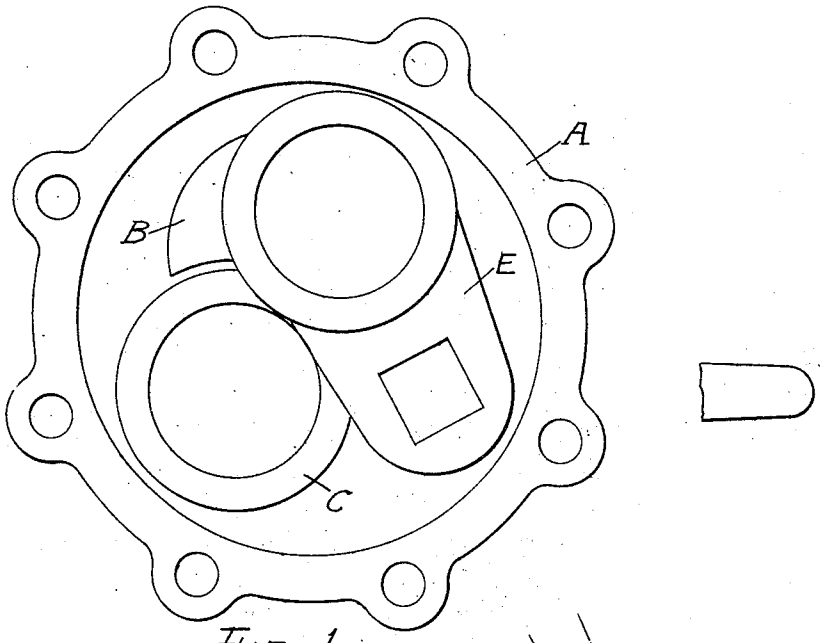


FIG. 1.

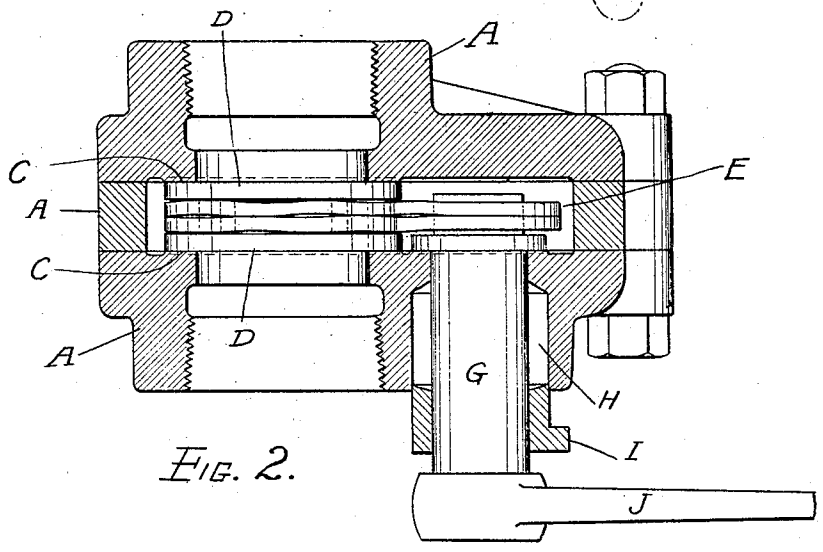


FIG. 2.

WITNESSES:

H. E. A. Kreade

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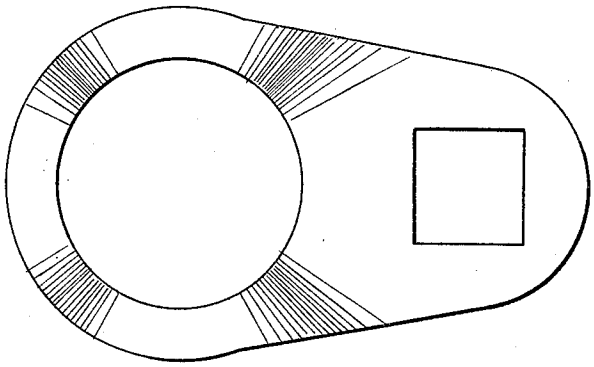


FIG. 3.

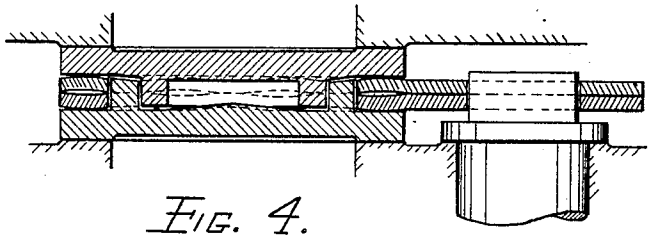


FIG. 4.

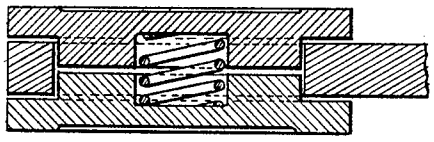


FIG. 5.

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3 SHEETS—SHEET 3.

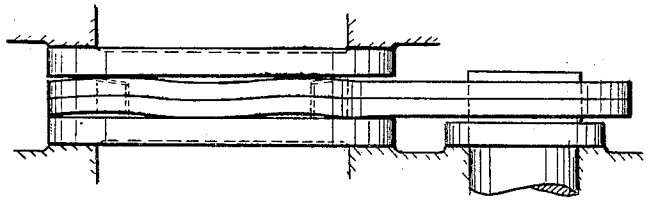


FIG. 7.

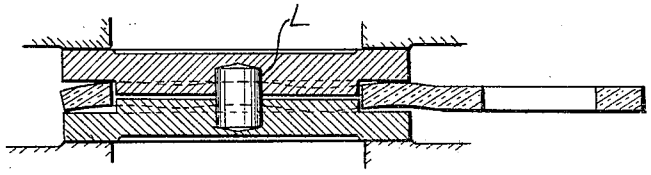


FIG. 6.

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UNITED STATES PATENT OFFICE.

GEORGE F. WEBER, OF NEWARK, NEW JERSEY.

GATE-VALVE.

1,324,990. Specification of Letters Patent. Patented Dec. 16, 1919.

Application filed July 13, 1917. Serial No. 180,474.

To all whom it may concern:

Be it known that I, GEORGE F. WEBER, a citizen of the United States of America, residing at Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Gate-Valves, and hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates chiefly to such gate valves operated by means of a hand lever which is connected to the gate proper by a short shaft about which the gate as well as the hand lever swing in parallel planes; but with slight mechanical alterations my device could also be applied to screw operated valves.

The objects of my invention are to simplify the construction of such valves as well as to reduce the over-all length of the valve body by reducing the thickness of the gate. Another object of my invention is to reduce the tendency of the gate pads to cant while sliding on their seats, when the valve is being operated and at the same time to maintain the self grinding and cleaning features desirable in such valves.

In the accompanying drawings:

Figure 1 is a plan of the complete valve with the cover removed, showing the gate in the "open" position.

Fig. 2 is a sectional elevation of the complete valve taken at right angles to Fig. 1, but with the gate in the "closed" position.

Fig. 3 is a plan of the gate lever.

Fig. 4 is a sectional elevation of the gate lever with the gate pads in position, taken at right angles to Fig. 3.

Fig. 5 is a common commercial type of such valves shown in longitudinal section for comparison, and for more clearly pointing out the features of advantage of my invention.

Fig. 6 is a section of the gate lever in its simplest form, as well as a different construction of the gate pads.

Fig. 7 is an elevation of the gate lever showing a slightly different arrangement than the previous illustrations.

Like letters of reference denote like parts in the drawings and specification.

Substantially the valve consists of the body A shown here constructed of three parts, and provided with hubs or bosses for receiving the pipe, also the guides B, for guiding the gates, which guides are faced off in the same plane with the gate seats C so as to insure proper alinement of the gate pads in any position of the latter.

The gate pads D are provided with necks, which telescope each other, and also loosely engage with the gate levers E as shown in detail in Fig. 4.

The gate lever E which is provided with the square hole F to slip over a squared projection on the spindle G, consists of one or more sheet metal leaves, which are corrugated for a part of their length. These corrugations are slightly compressed between the backs of the gate pads when the latter are assembled between their seats or guides in the valve body, and therefore act as springs which secure proper contact between the pads and seats or the pads and guides in the closed as well as open positions.

The spindle G passes through the stuffing box H to prevent leakage, and is provided with the thrust collar I so it will not be blown out by internal pressure.

To the outer end of the spindle the hand lever J is attached, by means of which the valve is operated.

By telescoping the necks of the gate pads, I am enabled to reduce the overall thickness of the whole gate, and at the same time I can use a very thin gate lever without the danger of having the gate pads slide by each other, which could happen if the square hole in the lever or the projecting square on the spindle should become worn.

By referring to Fig. 5 it will be seen that the common construction does not possess these advantages, also that the excessive thickness of the gate is necessary in order to find room for the coiled spring K.

If desirable I could dispense with the telescoping necks on the gate pads and use the construction shown in detail in Fig. 6. In this construction I would use the pin L to keep the gate pads in alinement with each other.

To operate the valve, the hand lever J is swung in the arc of a circle. This motion is transmitted to the gate lever by means of the spindle G, and the gate is thus swung between the valve seats for the closed position or to one side of the seats between the guides for the open position, thus leaving a clear opening for the fluid to pass through the valve, as will be apparent to those skilled

in the art, and familiar with the purpose to which such valves may be applied.

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

1. A gate valve, comprising a casing, having valve ports for the induction and eduction of a fluid, a valve seat surrounding said ports, guides adjacent to said ports, gate pads slidably suspended between said ports, said gate pads being provided with necks which loosely engage with a lever, said lever consisting of a thin sheet corrugated in such a manner as to act as a spring between the valve pads for the purpose of securing proper contact between said pads and the valve seat or the guides, and means for operating said lever from the outside of the valve casing for the purpose specified.

2. A gate valve, comprising a casing having valve ports for the induction and eduction of a fluid, valve seats surrounding said ports, guides adjacent to said valve seats, gate pads slidably suspended between said ports, there being a lever provided having suitable connection with said gate pads for sliding said gate pads within the space between said valve ports and between said guides; said lever consisting of laminated sheets of metal having one or more corrugations, which latter press against the backs of said gate pads for the purpose of exerting spring pressure against said pads, for keeping them in contact with the valve seats or guides, and means for operating said lever from the exterior of the valve casing for the purpose heretofore set forth.

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

GEORGE F. WEBER.

Witnesses:
H. E. A. RAABE,
J. C. TRUSDELL MOORE.