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VALVE.

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My invention relates to a valve and it is an object thereof to provide a valve having independent upper and lower plates for closing the ports, said plates being normally held in closed position by springs.

Another object of the invention is to provide the valves with narrow ring seats whereby the necessary differential pressure for operating the plates is reduced to a minimum.

Another object is to provide a sort of double-ported effect whereby the flow through the valve may be increased when it is fully opened.

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

Figure 1 is a longitudinal section of the valve in closed position,

Figure 2, a longitudinal section in open position,

Figure 3, a transverse section on line 3—3 of Figure 1,

Figure 4, a section on line 4—4 of Figure 1, and

Figure 5, a section on line 5—5 of Figure 1.

In the drawings reference character 10 indicates the upper body member of the valve which is provided with a separable lower body portion 11 held to the first-named member by a screw 12, the members being separated along line 3—3 of Figure 1. A perforated ring 13 fits in the cored-out underside of the body member 10 and a ring 14 lies against the underside of the ring 13 in the closed position of the valve. A flat coiled spring 15 bears against the underside of the ring 14 and serves to hold the two rings in the valve closing position. The spring 15 is located in an annular chamber in the lower body member 11 which chamber is provided with fluid outlets 26 for relieving pressure created by movement of spring and plates.

The upper ring fits against narrow seats on flanges 16 and 17 of the upper body member, these narrow seats causing the valve to operate with a much smaller difference in pressure than has heretofore been customary.

The upper body member is provided with a plurality of ports 19 leading from a cored-out upper chamber to ports 20 in the ring 13. When the pressure in the chamber rises sufficiently high the rings 13 and 14 will be

forced downward against the pressure of the spring 15, the downward movement of ring 14 being limited by the upper ends of the inner and outer walls of the annular chamber in which the spring is located and the downward movement of the ring 13 being limited by shoulders at 21 on the body member 11.

When the rings have thus been forced down the fluid may pass through ports 19 and over the top of the ring, as indicated by arrows in Figure 2 or through ports 19 and ports 20 and then between the rings 13 and 14 to the passages 22 and 23. One of the body members may be provided with a pin to enter an opening in the other member for insuring proper registration of the ports. In the present embodiment of the invention a pin 24 is shown on the lower body member and a cooperating hole 25 on the outer body member.

It may be noted in Figure 4 that the valve seat 17 is spaced from the outer circumferential part of the body member 10 and from the inwardly directed parts between the passages 22. The inner seat 16 is also spaced from the central part of the body and from the spider-like projections which co-act with the lower body member to provide passages 23.

It will be obvious to those skilled in the art that various changes may be made in my device without departing from the spirit of the invention and therefore I do not limit myself to what is shown in the drawings and described in the specification but only as indicated in the appended claims.

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

1. A valve comprising upper and lower body members having axially disposed passages therethrough and an internal annular chamber intercepting said passages, concentric rings at one side of said chamber forming valve seats, a perforated ring valve for cooperation with said seats, a second ring valve for closing the ports in the first mentioned ring valve, means for limiting the rings in their movement away from the valve seats for holding such rings in spaced relation, and spring means for holding said rings in position to close the axially disposed passages through the valve, substantially as set forth.

2. A valve comprising a pair of body members, axial openings through said body members, a perforated valve for closing the openings through one of the body members, a second valve for closing the perforations through the last mentioned valve, spring means for holding the valves in closed position, and means permitting said valves to be held in fixed spaced relation when open, substantially as set forth.

3. A valve comprising a pair of body members, an annular chamber formed in said body members, passages extending axially through the valve body into said annular chamber, a perforated ring valve disposed in said chamber, an imperforate ring valve resting on said perforated ring, a coiled spring for holding said valves in closed position, passages adjacent each side of said coil spring for permitting the escape of fluid through the valve body and means for holding said ring valves in spaced relation

when in open position, substantially as set forth.

4. A valve comprising a pair of body members, staggered passages through said body members, an annular chamber formed in the body members, a perforated ring shaped valve body disposed in said annular chamber, an imperforated ring shaped valve body disposed in said annular chamber in contact with said perforated valve body, means for limiting the movement of said valve bodies away from their seats whereby they are held in spaced relation and spring means for normally holding said valve bodies in closed position, substantially as set forth.

In witness whereof, I have hereunto set my hand at Waynesboro, Pennsylvania this 19th day of February, A. D. nineteen hundred and twenty-six.

NORMAN M. SMALL.