

R. H. ALDRICH.
VALVE.
APPLICATION FILED JAN. 20, 1912.

1,025,732.

Patented May 7, 1912.

Fig. 1,

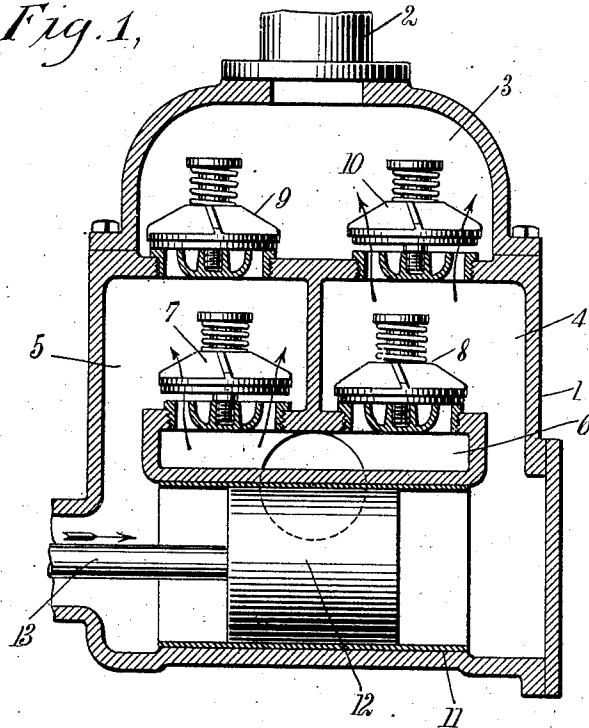
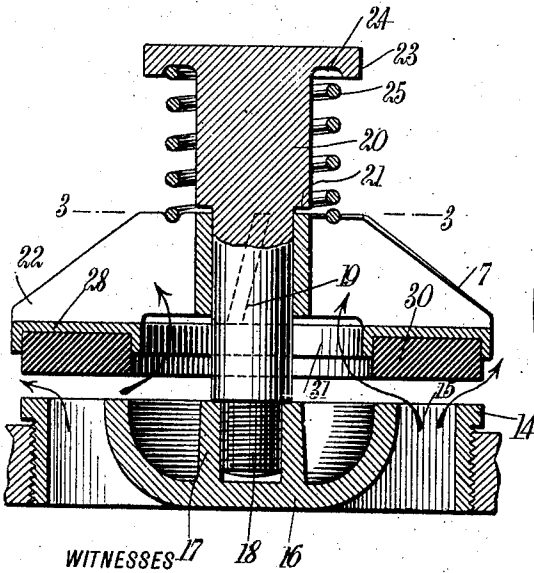


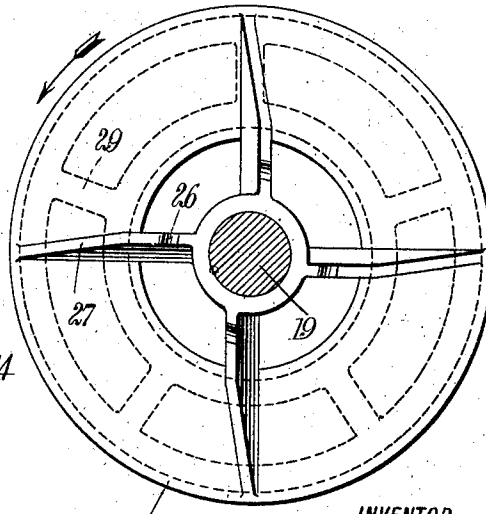
Fig. 2,



WITNESSES 17 18 16

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Fig. 3.



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ROSCOE H. ALDRICH, OF ALLENTOWN, PENNSYLVANIA.

VALVE.

1,025,732.

Specification of Letters Patent.

Patented May 7, 1912.

Application filed January 20, 1912. Serial No. 672,297.

To all whom it may concern:

Be it known that I, ROSCOE H. ALDRICH, a citizen of the United States, and a resident of Allentown, in the county of Lehigh and State of Pennsylvania, have invented a new and Improved Valve, of which the following is a full, clear, and exact description.

This invention relates to valves, and particularly to rotating water valves designed to be used in pumps and other similar places where water is forced or drawn through a valve.

The object in view is to provide a new and improved structure which will be automatically actuated by the water passing through the valve for causing the movable part of the valve to seat at a different place upon each opening and closing of the valve.

Another object of the invention is the provision of a double discharge opening valve in combination with wings placed at an angle so as to be engaged by liquid passing through the inner discharge opening for causing a rotary movement of the movable part of the valve whereby the same seats itself at a different place upon each opening and closing.

In carrying out the objects of the invention, a valve seat is provided designed to receive a retaining pin upon which is rotatably mounted a movable valve member carrying a washer adapted to contact with the valve seat each time the movable valve member is closed, a spring being arranged to normally press against a projection extending from the pin and against the movable valve member for maintaining the movable valve member closed and returning the same to its closed position. Arranged on the movable valve member are a plurality of blades or wings set at such an angle as to engage the water passing through a central discharge opening whereby the movable valve member is not only raised away from its seat, but is rotated in respect to the seat, whereby when the same reseats it will engage a different place on the valve seat proper.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a longitudinal vertical section through a pump supplied with a plurality of valves embodying the invention, certain

parts of the valves being shown in section; Fig. 2 is a vertical longitudinal section through a valve embodying the invention; and Fig. 3 is a section through Fig. 2, approximately on the line 3—3.

Referring to the accompanying drawings by numerals, 1 indicates the casing of a pump formed with a discharge pipe 2, a discharge chamber 3, and a pair of inlet chambers 4 and 5, which receive the water or other fluid from a supply chamber 6 through valves 7 and 8. Valves 9 and 10 are arranged between the chambers 4 and 5 and are adapted to permit the water to freely flow into the chamber 3 from the chambers 4 and 5, but prevent any reverse movement of the water. The chambers 4 and 5 are connected by a cylinder 11 in which is mounted a piston 12 connected with a piston rod 13. The piston rod 13 is connected with any suitable source of power which reciprocates the piston 12 and alternately draws in water through the valves 7 and 8 from the chambers 4 and 5, and alternately forces it out through valves 9 and 10 into the chamber 3 and from thence in a continuous stream out the discharge pipe 2. All of the valves are of similar construction, so that a description of one will equally apply to all. The valve 7 (Figs. 2 and 3) is provided with a valve seat 14 formed with an outlet 15 which is preferably substantially circular although other forms of outlet could be used. A substantially spider structure 16 is provided which is formed integral with the valve seat 14 and which includes an internally threaded extension 17. The extension 17 is designed to receive the reduced threaded end 18 of a shaft 19. The shaft 19 is enlarged at 20 and defines a shoulder 21 which limits the upward movement of the movable valve member 22. At the upper end the shaft 19 is formed with an overhanging ledge 23 having an annular depression 24 which accommodates one end of a spring 25. The spring 25 also engages the grooves 26 in the blades or wings 27 forming part of the movable valve member 22. The wings 27 merge into and are formed integral with, a plate 28 which is substantially channel-shaped in cross section, and which is preferably provided with a plurality of ribs in order to prevent the washer 30 from rotating independent of the plate 28.

The washer 30 may be of fiber, or of any

other desired material. The washer 30 is designed to tightly close the opening 15 when the movable valve member 22 is in its lowered position, but when raised, as shown in Fig. 2, the water or other liquid may pass out the opening 15 and from thence around the outer periphery of the washer, or may pass inwardly and out an opening 31 formed in the center of the movable valve member 22. By this construction and arrangement the valve has an interior and an exterior exit from the discharge opening 15. The liquid passing through the interior exit or opening 31, strikes against the inclined wings 27 and causes a rotation of the valve member 22. Of course this rotation is designed not to be of any great speed as it is intended only to turn the movable valve member sufficiently for causing the washer 30 to seat at a slightly different place upon each closing of the valve. In this way the washer will wear more evenly and will form a tight joint with the seat 14 until entirely worn out. Unless the valve member 22 is rotated the washer 30 would wear at certain places more than at others so that in course of time leakage would occur long before the washer was worn out.

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

1. In a valve of the class described, a valve seat formed with an opening, a movable valve member normally resting on said valve seat and closing said opening, said movable valve member being formed with an interior opening and a plurality of inclined wings arranged in the path of movement of fluid passing through said interior opening whereby said movable valve member is rotated each time the fluid flows through the valve, and means for reseating the movable valve member.

2. In a valve of the class described, a valve seat formed with a discharge opening therein, a movable valve member arranged to normally close said seat formed with an interior opening whereby the opening in

said valve seat has two discharge openings, baffle means connected with said movable valve member arranged in the path of movement of the fluid passing through the interior discharge opening whereby the movable valve member is rotated when fluid is forced through said valve, and means for reseating said movable valve member.

3. In a valve of the class described, a seat formed with a discharge opening, a movable valve member formed with an interior opening for providing a path by which fluid flowing through the discharge opening in said seat may pass around the periphery of said movable valve member and through the center thereof, a plurality of inclined blades arranged in the path of movement of the fluid passing through the interior opening whereby said movable valve member is rotated upon each unseating thereof, a spring normally pressing against the upper edge of said movable valve member, and means for guiding said movable valve member and holding said spring to its work.

4. In a valve of the class described, a valve seat formed with a discharge opening, a rotating laterally movable valve member arranged to normally close said valve seat, a shaft formed with a bearing portion extending through said movable valve member and into said valve seat whereby said valve seat and said movable valve member are held in proximity, means arranged on said movable valve member for being engaged by water passing through the valve for rotating the movable valve member when the same is forced off its seat, a spring normally holding said movable valve member to its seat, and an overhanging grooved member extending from said shaft for holding said movable valve member to its work.

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

ROSCOE H. ALDRICH.

Witnesses:

WAYNE A. BECKER,
H. W. TOWNSEND.