N. D. HULL.

DISCHARGE VALVE.

APPLICATION FILED APR. 14, 1916.

1,224,546. Patented May 1, 1917.

Fig. 1.

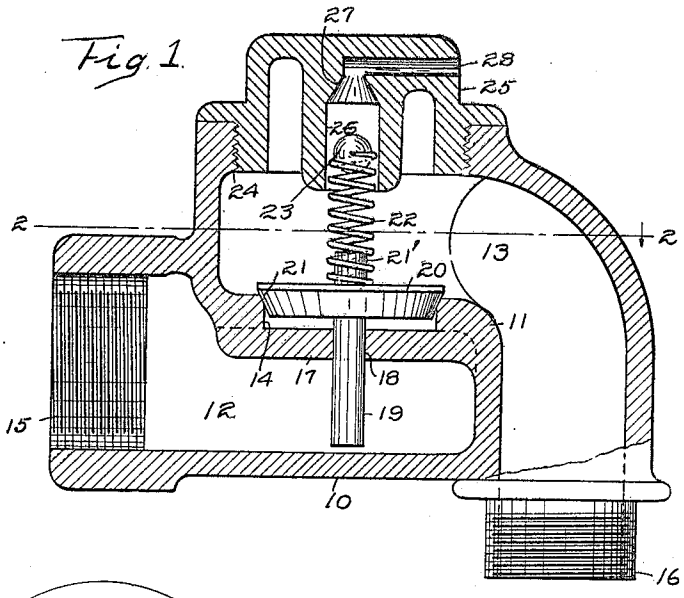


Fig. 3.

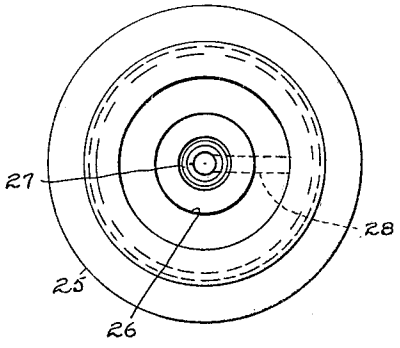
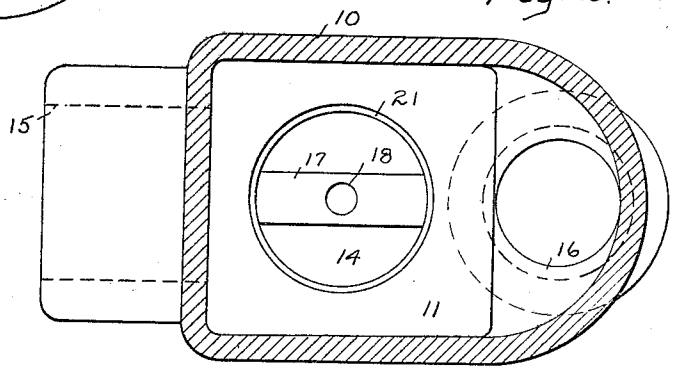


Fig. 2.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NATHANIEL D. HULL, OF OWENSBORO, KENTUCKY, ASSIGNOR TO THE HULL PUMP & TANK COMPANY, OF OWENSBORO, KENTUCKY, A CORPORATION.

DISCHARGE-VALVE.

1,224,546. Specification of Letters Patent. Patented May 1, 1917.

Application filed April 14, 1916. Serial No. 91,039.

To all whom it may concern:

Be it known that I, NATHANIEL D. HULL, a citizen of the United States, residing at Owensboro, in the county of Daviess and State of Kentucky, have invented new and useful Improvements in Discharge-Valves, of which the following is a specification.

The invention relates to discharge valves and particularly to valves for use in connection with the discharge side of pumps and its object is to provide a simple and efficient valve which shall have novel means for venting it.

In the drawings Figure 1 is a vertical cross-section of the valve provided with my invention; Fig. 2 a cross-section on the line 2—2 of Fig. 1 and Fig. 3 a bottom view of the vent plug.

Referring to the drawings the valve body 10 is in any suitable form and is provided with a partition 11 which divides it into two compartments 12 and 13. Port 14 in the partition provides communication between the two compartments. Connection 15 in the body serves to attach or connect the body to the discharge side of the pump and through which connection fluid is delivered by the pump to compartment 12, from whence it passes through port 14 into compartment 13 and out through connection 16 in body 10. A hose may be attached to connection 16 for convenience of delivery of the fluid being pumped. Rib 17, integral with partition 11, extends across port 14 and it is apertured at 18 to receive and guide stem 19 of valve 20. Seat 21 for the valve is provided in partition 11. Stem 19 projects up through valve 20 a short distance and on its extended end 21′ is supported coiled spring 22 and a ball 23 is supported in the upper end of the spring.

Above valve 20 the wall of the body is apertured at 24 for assembling and access purposes. A plug 25 is in threaded engagement with the wall of aperture 24. A recess 26 of suitable depth is provided in the plug, the walls of which converge at the upper or inner end to form a cone-shaped seat 27 for ball 23. The upper end of spring 22 and the ball are normally within the recess, the ball being off its seat 27. Aperture 28 in the plug connects the cone-shaped portion of recess 26 with the exterior of the plug.

When fluid is being pumped into compartment 12 valve 20 is raised thereby and the elevation of the valve carries the spring and ball upwardly to cause the ball to take its seat 27 for closing aperture 28. The fluid, therefore, flows through the valve body and the entrance of outside air through aperture 28 and recess 26 is prevented. As soon as the pumping operation ceases valve 20 takes its seat and ball 23 drops with the valve and establishes communication between outside air and compartment 13. All fluid in that compartment immediately drains out through connection 16, since air now freely enters through the apertured and recessed plug. The action of the ball valve is positive for it is moved by and coincidently with the controlling valve 20, so that the venting of compartment 13 is always assured.

What I claim is:

1. The combination of a body having inlet and outlet connections, a partition dividing the interior of the body into a plurality of communicating compartments, a valve to control the said communication and means to vent one of said compartments comprising a valve operatively connected to the first named valve and a vent adapted to be closed by the second valve when fluid is flowing through the compartments.

2. In combination, a casing having inlet and discharge connections for fluid, and having a plurality of communicating compartments therein, means to control the latter communication, means to vent one of said compartments and means to control the vent having operative connection to the first named controlling means.

3. In combination, a casing having fluid inlet and discharge connections and having a plurality of communicating compartments within it, a valve to control the latter communication, a vent connecting one of said compartments with outside air, a valve seat adjacent the vent and a valve flexibly connected to the first named valve and adapted to be moved therewith to and off said seat for controlling the admission of outside air to said compartment.

4. In combination, a casing having fluid inlet and discharge connections and having a plurality of communicating compartments within it, a valve to control the said communication, a recessed and apertured plug in the casing, a valve seat in the wall of the recess, a resilient member connected to the valve, a ball valve carried by the resilient member and adapted to be moved onto and away from said seat by the first named valve for closing and opening the aperture in the plug.

In witness whereof I herunto subscribe my name this 10th day of April, 1916.

NATHANIEL D. HULL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."