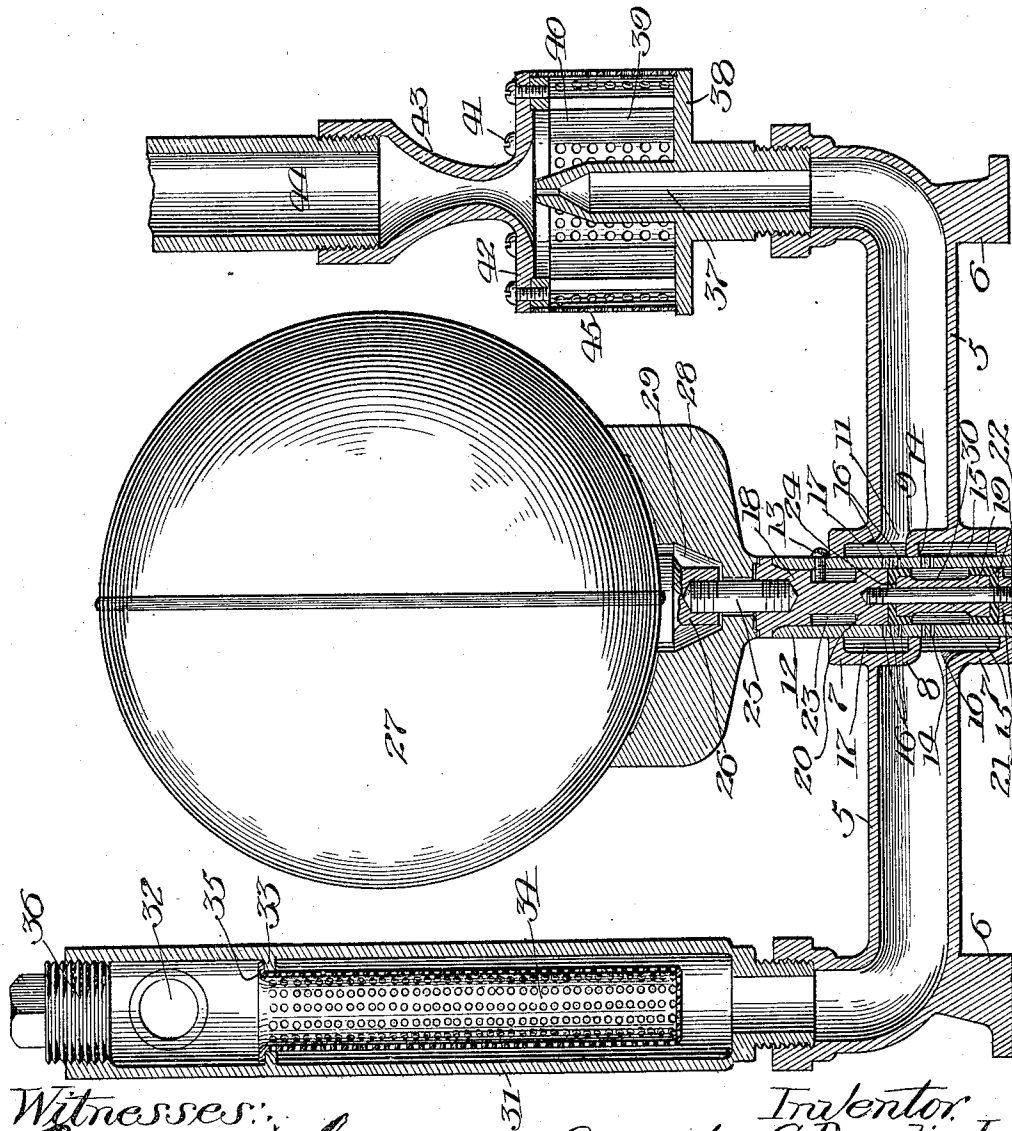


A. C. DURDIN, JR.
 VALVE FOR CELLAR DRAINERS.
 APPLICATION FILED FEB. 14, 1908.

972,441.

Patented Oct. 11, 1910.



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UNITED STATES PATENT OFFICE.

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VALVE FOR CELLAR-DRAINERS.

972,441.

Specification of Letters Patent.

Patented Oct. 11, 1910.

Application filed February 14, 1908. Serial No. 415,856.

To all whom it may concern:

Be it known that I, AUGUSTUS C. DURDIN, Jr., a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Valves for Cellar-Drainers, of which the following is a specification.

This invention relates to improvements in a valve which is especially designed for use in connection with a drainer to be used with a supply of fluid under pressure for draining water from cellars, basements and other places, which water may seep or otherwise find its way into such places, and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal object of the invention is to provide an improved balanced valve having the two-fold function of a valve and stuffing-box, thereby obviating the necessity and expense of the latter being separately constructed and applied.

In order to enable others skilled in the art to which my invention pertains, to make and use the same, I will now proceed to describe it, referring to the accompanying drawing, which serves to illustrate the invention, and in which the single view illustrates partly in section and partly in elevation the valve in connection with a cellar drainer.

Like numerals of reference, refer to corresponding parts of the drawing.

The reference numeral 5 designates the body or horizontal duct of the drainer, which is in the form of a pipe section or tube having each of its ends upturned and internally screw-threaded, and is provided on its lower portion near each of its ends with a leg 6 to rest on the floor of a well or receptacle, for it will be understood that in using the drainer it is located in a well, receptacle or depression below the surface of the floor of the cellar or basement in which the water to be drained flows of its own gravity. Between its ends and preferably at its middle the body-duct 5 is provided with an enlargement 7, and has in its portion adjacent to the inlet end of the duct a downwardly and inwardly extending partition 8 and in its portion adjacent to the outlet end of the duct 5 an upwardly and

inwardly extending partition 9 which form ports 10 and 11, respectively. The enlargement 7, as well as the partitions 8 and 9, is provided with a vertical opening in which is tightly fitted a tube 12, of any suitable material, but preferably of brass. As shown, this tube has each of its ends open, and the lower end thereof is about flush with the lower portion of the enlargement 7 while the upper end of the tube 12 projects some distance above the upper portion of said enlargement, and is provided with a screw or pin 13 which projects inwardly of the tube for the purpose to be presently explained. Below the portions of the partitions 8 and 9 which project inwardly of the enlargement 7 the tube 12 is provided with a series of perforations 14 which afford communication with the interior of said tube and the port 10, as well as the annular chamber 15 in the lower portion of the enlargement 7, which chamber surrounds the lower portion of the tube. Above the inturned portions of the partitions 8 and 9 the tube 12 is provided with a series of openings 16 which afford communication with the port 11, as well as with the annular chamber 17, which is formed in the upper portion of the enlargement 7 and surrounds the said tube. Movable located in the tube 12 is a valve-stem which comprises an upper piece 18 having screw-threaded vertical sockets in each of its ends and a lower piece 19, through a longitudinal opening in which is extended a rod 20 which has each of its ends screw-threaded, the upper end of said rod engaging the lower socket in the piece 18 and the lower end of said rod having thereon a nut 21 which is used for securing a valve 22, of leather or other suitable material, on the lower end of the piece 19 of the valve-stem. As shown, the piece 18 of the valve-stem fits snugly but movably in the tube 12 and has its upper end enlarged to normally rest on the upper end of said tube. The piece 18 is reduced between its ends as at 23 and has opposite sides of said reduced portion flattened so that said portion of said piece may be engaged by a wrench or other suitable instrument used for turning it. By reducing the portion 18 as at 23 it is apparent that the inner end of the screw 13 will be permitted to project inwardly through the tube 12 so that the piece 18 may be moved upwardly until the

enlarged portion at the lower end of the piece 18 strikes said screw, when its further upward movement will be prevented. Located between the upper end of the piece 19 of the valve-stem and the lower end of the piece 18 thereof is a valve 24, of leather or other suitable material, which surrounds the upper portion of the piece 19 and is held in position by means of said piece, the rod 20 and nut 21 on the lower end of said rod. Screwed at one of its ends into the socket in the upper end of the valve-stem-piece 18 is a screw-rod 25 which engages at its other end a socket formed in a piece 26 which is soldered or otherwise secured to the lower portion of a float 27, which may be of any suitable size and material. Located on the upper end of the piece 18 of the valve-stem is a weight 28 which has its upper surface formed to conform with the shape of the lower portion of the float and is provided with a central opening 29 to receive the screw-rod 25 and the piece 26 on the float with which said rod engages.

By reference to the drawing it will be seen that the lower member 19 of the valve-stem is reduced as at 30 between the valves 22 and 24 thereon, thus affording an annular chamber around said reduced portion for the passage of water or fluid under pressure. Vertically mounted on one end of the horizontal or main duct 5 and communicating therewith is an inlet-pipe 31 which may have communication with a supply of water or other fluid under pressure through an opening 32 in its upper portion. This pipe is provided at a suitable point below its inlet-opening 32 with an inwardly extending annular flange 33 for the support of the upper end of a cylindrical screen 34 which is considerably smaller than the inner diameter of the pipe 31, and has its upper end open and provided with an outwardly extending flange 35 to rest on the flange 33 of the pipe, thus holding the bottom of the screen 34 at some distance from the discharging end of the inlet-pipe, the upper end of which pipe is provided with an opening and a plug 36 to close it, which opening is used for the purpose of permitting the screen 34 to be removed when it is desired to clean the same. By the foregoing arrangement of the screen 34 within the pipe 31 it is apparent that all of the water or fluid admitted to the pipe 31 through its opening 32 will be caused to pass through the screen, and thus be freed of all foreign matter which might clog the openings 14 and 16 in the tube 12 or valve-casing. Mounted on the discharging end of the body or horizontal duct 5 and communicating therewith is the ejector-nozzle 37 which carries a support for a cylindrical screen or drum, which support consists of a horizontally disposed annular flange or floor 38 and a series of spaced apart uprights 39 which

are connected together at their upper ends by means of a ring 40 which is provided with a number of openings to receive screws 41 used for securing the horizontal bottom 42 of the tube 43, which has an opening therethrough converging from both of its ends toward its middle and which tube communicates at its upper end with an outlet-pipe 44 which may lead to a sewer or other drain and through which the water will be discharged. Located around the uprights 39 and resting at its lower end on the floor 38 of the support therefor is a perforated drum or cylinder 45, which is held in position on the floor 38 and around the uprights 39 by means of the bottom 42 of the tube 43, which tube comprises a part of the ejector. By using this perforated cylinder or drum arranged as above set forth it is apparent that foreign matter or refuse will be prevented being drawn into the ejector with the water which is being drained off.

When a sufficient quantity of seepage water shall have accumulated in the well or tank in which the drainer is located the valves 22 and 24 will be moved from the positions shown in the drawing upwardly by reason of the buoyancy of the water and the instrumentality of the float, until the screw or pin 13 stops or prevents the further upward movement of the valve-stem and valves, when the upper valve 24 will occupy a position within the tube or valve-casing 12 above the openings 16 in said tube, and the valve 22 will occupy a position below the openings 14 in said tube, thus permitting the water or fluid under pressure, which has been admitted through the inlet-pipe 31 to the duct 5, to pass through the port 11 out through the ejector-nozzle 37 and tube 43 with sufficient force to cause a partial vacuum around said nozzle, thus causing the seepage water in the well or receptacle to be drawn into the sleeve 43 from which it will pass through the outlet-pipe 44 to the drain or sewer. After a sufficient quantity of the seepage water has been thus discharged it is apparent that the weight 28 and gravity of the float will cause the valve-stem and its valves to assume their normal positions, as shown in the drawing. As the valve 24 must necessarily pass the openings 16 in the tube 12 or valve-casing, and as said valve is preferably made of leather when water under pressure is used, I produce the openings 16 in the tube 12 much smaller in size than the openings 14 so as to prevent the flexible sides of the said valve being forced by the pressure of the water into said openings and thereby creating friction and wear of the valve.

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

1. The combination with a main or body- 130

duct having between its ends an enlargement provided with a vertically disposed opening having each of its ends open, the said enlargement also having a downwardly and inwardly extended partition on one side and an upwardly and inwardly extended partition on the other side of said opening and provided with an annular chamber above and below said partitions, an open-ended tube located in said opening and having a group of openings above and another group of openings below the inward extensions of the partitions, the upper of said openings being larger than the lower ones, a vertically movable valve-stem located in said tube and having a pair of valves located thereon one above the other and provided with reduced portions above and between the valves, a projection extended through the upper portion of the tube into the upper reduced portion of the valve-stem to restrict the movement thereof, and a float centrally supported on the valve-stem and above the same.

2. The combination with a main or body-duct having between its ends an enlargement

provided with a vertically disposed opening having each of its ends open, the said enlargement also having a downwardly and inwardly extended partition on one side and an upwardly and inwardly extended partition on the other side of said opening and provided with an annular chamber above and below said partitions communicating with the duct, a tube open at each of its ends located in said opening and having a group of openings above and another group of openings below the inward extensions of the partitions, a vertically movable valve-stem located in said tube and consisting of an upper and lower part, the lower part having a vertical opening, a bolt extended through said opening of the lower part of the valve-stem and engaging the upper part thereof, a pair of valves located on the valve-stem one above the other, and a float centrally supported on the upper portion of the valve-stem and above the same.

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