Feb. 10, 1953 E. J. WHALEN 2,627,869

AUTOMATIC DRAIN VALVE FOR AIR LINES

Original Filed Oct. 18, 1944

Fig. 1

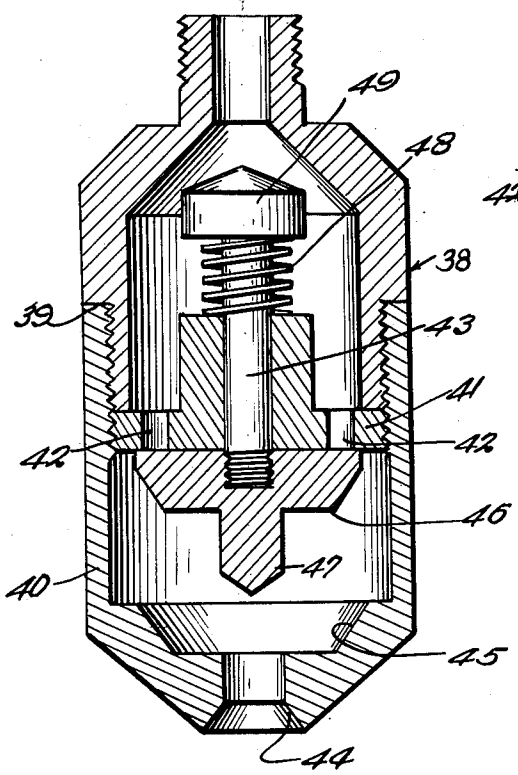


Fig. 2.

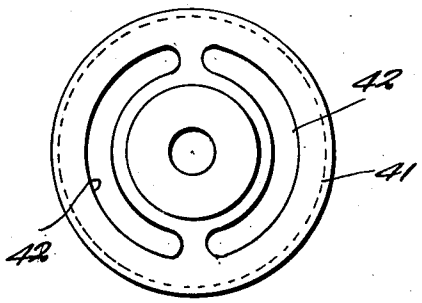


Fig. 3.

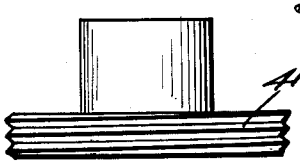


Fig. 5.

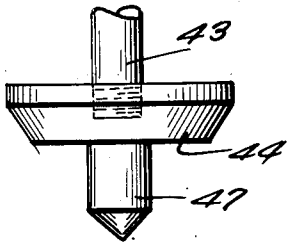
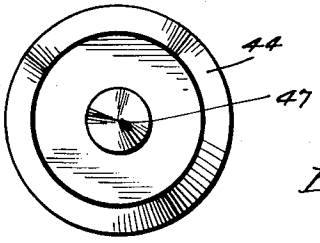


Fig. 4.



Inventor

Edward J. Whalen

By Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

Patented Feb. 10, 1953 2,627,869

UNITED STATES PATENT OFFICE

2,627,869

AUTOMATIC DRAIN VALVE FOR AIR LINES

Edward J. Whalen, North Providence, R. I.

Original application October 18, 1944, Serial No. 559,292. Divided and this application December 15, 1950, Serial No. 200,932

2 Claims. (Cl. 137—204)

1

My invention relates to improvements in automatic drain valves for use in air lines of humidifying installlations including atomizers, from which it is frequently necessary to drain condensed water and oil to prevent the same, instead of pure air, from being sprayed from the atomizers and damaging surrounding equipment.

The instant application for my improved automatic drain valve is a division of my co-pending application Serial No. 559,292 filed October 18, 1944, now Patent No. 2,559,692.

It is a primary object of my invention to provide an automatic drain valve for the above purpose which is operative to close by pressure in the line and spring operated to open when the pressure in the line is relieved so as to drain water and oil from the air line.

Another object is to provide a valve of the character and for the purpose above set forth which is of simple and inexpensive construction and is reliable and highly efficient in operation.

Other and subordinate objects will become apparent when the following description and claims are read in conjunction with the drawing accompanying and forming part of the specification.

In said drawing:

Figure 1 is a view in vertical section of my improved automatic drain valve;

Figure 2 is a view in plan of the valve guide;

Figure 3 is a view in side elevation of the guide;

Figure 4 is a view in bottom plan of the valve member; and

Figure 5 is a fragmentary view in side elevation of the valve member and valve stem.

Referring to the drawing by numerals, my improved valve comprises a valve housing 38 including upper and lower sections 39, 40, respectively, threadedly connected together with the upper housing section being suitably adapted, in the usual manner for connection at its upper end to an air line, not shown, of an atomizer of a humidifying installation, not shown. The lower housing section 40 is provided with an annular valve guide 41 dividing the housing diametrically and threaded therein with arcuate drain ports 42 in the same. The valve guide 41 slidably receives a vertical valve stem 43 therein carrying a disk valve member 46 at its lower end adapted to engage a tapering valve seat 45 in the lower end portion of the lower housing section 40. The lower end portion of the lower housing section 40 is formed with a drain port 44 in which a cleaning rod 47 depending from the valve member 46 is adapted to work to maintain the drain port 43 free of sediment.

The valve member 46 is substantially greater in diameter than the valve stem 43 and otherwise arranged to be subjected, through the ports 42, to downward pressure of air entering the upper housing section 39 of the valve housing 38 whereby to seat said valve member 46 downwardly in the valve seat 45.

2

A coil spring 48 on the valve stem 43 interposed between the valve guide 41 and a head 49 on said stem urges the valve member 46 upwardly into valve opening position against valve guide 41 in closing position relative to the drain ports 42.

As will now be seen, when air enters the upper housing section 39 from the air line, not shown, under sufficient pressure to overcome the coil spring 48, such pressure acts through the drain ports 42 against the valve member 46 to move said member downwardly into seating engagement with the valve seat 45 and closes the drain port 44 and the lower section 40 so that oil and water may find its way from the air line into said lower section 40 through the drain ports 42. As soon as the pressure in the air line is shut off, for instance when the installation is rendered idle, the valve member 46 is unseated by the coil spring 48, in the manner already described, and the water and oil collected in the lower housing section 40 will drain out of the drain port 44.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention without further explanation.

Manifestly, the invention, as described, is susceptible of modification, without departing from the inventive concept, and right is herein reserved to such modifications as fall within the scope of the appended claims.

Having described my invention, what is claimed as new is:

1. An automatic drain for connection to a compressed air line and comprising a valve housing formed of threadedly connected sections and having a bottom drain port therein, a valve guide having ports therein and being threaded in one of the sections and dividing the housing diametrically, a disk valve slidably mounted in said guide for engagement therewith to close the ports therein and under influence of air pressure in the line to seat against said bottom and close the bottom drain port, and spring means for sliding the valve away from said bottom into engagement with said guide to open said bottom port and close the ports in said guide.

2. An automatic drain valve according to claim 1 including a rod on said valve for working in said bottom port to clean the same and which is withdrawn clear of said bottom port when said valve is engaged with said guide.

EDWARD J. WHALEN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
882,212	Wisenfeld	May 19, 1908
2,100,485	Lindemann	Nov. 30, 1937
2,232,899	Aikman	Feb. 25, 1941
2,285,802	Cahusac	June 9, 1942