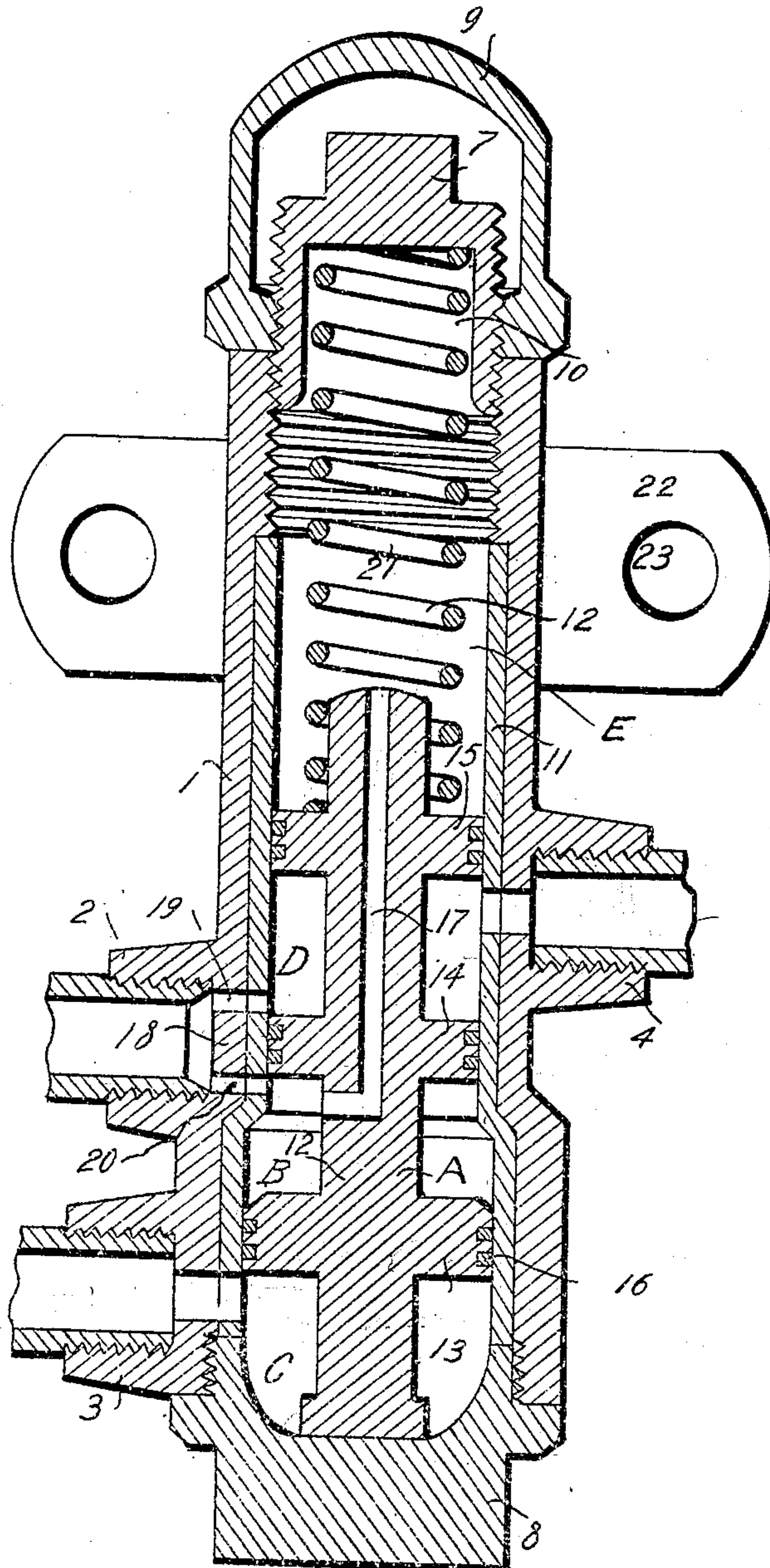


J. G. RADICK.  
 AUTOMATIC DRAIN COCK.  
 APPLICATION FILED OCT. 23, 1909.

948,344.

Patented Feb. 8, 1910.



Witnesses

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*By [Signature] Attorneys*



# UNITED STATES PATENT OFFICE.

JOHN G. RADICK, OF GREEN BAY, WISCONSIN.

## AUTOMATIC DRAIN-COCK.

948,344.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed October 23, 1909. Serial No. 524,197.

*To all whom it may concern:*

Be it known that I, JOHN G. RADICK, a citizen of the United States, residing at Green Bay, in the county of Brown and State of Wisconsin, have invented certain new and useful Improvements in Automatic Drain-Cocks, of which the following is a specification.

This invention relates to air pumps more particularly however to automatic drain cocks whereby the water of condensation is permitted to pass through the pump.

This invention is designed to not only provide a cock or valve of this type and character, but to construct an automatic pressure regulator.

With the above and other objects in view, this invention consists of the construction, combination and arrangement of parts all as hereinafter more fully described, specifically claimed and illustrated in the accompanying drawings wherein there is illustrated a central longitudinal section of a valve constructed in accordance with my invention.

The valve forming the subject matter of this invention comprises a cylindrical body portion 1 having an exhaust port 2, and air pressure port 3 formed on one side thereof, and the steam port 4 on the other. The upper and lower extremities of the cylinder 1, are threaded interiorly and are adapted to receive the caps 7 at the upper and 8 at the lower extremities. The cap 7 at the upper extremity is threaded throughout its entire length by the top 9 threaded thereon. This cap 7 is also provided with an interiorly formed chamber 10 which forms a housing for the spring hereinafter more fully described.

A brass bushing 11 is countersunk into the body portion 1 of the valve, and is provided with openings therein coincident with the aforementioned ports.

A piston indicated in general as A, reciprocates in the lower extremity of the body portion, and comprises a piston rod 12 having pistons 13, 14 and 15 formed consecutively thereon, said pistons being of the usual construction and provided around the periphery thereof with the packing 16. A passage 17 extends from the upper terminal of the piston rod to the intervening space between the pistons 13 and 14, and thence angularly to the chamber B formed between

said pistons, said passage or conduit being centrally disposed in said piston rod.

The exhaust port 2 has a centrally disposed partition 18 which separates the port 19 connected with the live steam chamber D and the port 20 connected to the leakage chamber B.

A spring 21 bears between the cap 7 and upper piston 15 and is of such a tension that it retains the pistons in the positions shown in the illustration. When in this position the water of condensation is forced through the port 4 into the live steam chamber D by the steam from the pump, and thence to the port 19 of the exhaust 2 into the exterior atmosphere. The valve remains open until the air pressure in the chamber C reaches a certain predetermined point when the piston is moved up against the force of the spring a central element 14 thereof, closing the port 19 and retaining the steam therein. When the pressure in the chamber C has been reduced sufficiently the spring will force the piston down and permitting the water of condensation to pass out through the port.

Should any of the steam leak past the piston 15 and condense in the chamber E it drains off through the conduit or passage 17 into the leakage chamber B where it passes out through the port 20 to the drain or exhaust 2. Similarly should any of the steam leak through the piston 14, it will be forced out through the port 20 in a similar manner to that passing through the conduit 17.

A bracket 22 of any desired or usual construction is secured to the body portion 1 and it is provided with the bolt holes 23 whereby the same may be secured to the machine.

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

1. In a valve or drain cock of the class described, the combination with a cylindrical body portion having an exhaust, a live steam inlet and an air pressure port formed therein, of a three-way piston automatically reciprocating therein having means for conducting any leakage into above or below the piston as and for the purpose set forth.

2. In a device of the class described, the combination with a cylindrical body portion having a detachable cap at each extremity thereof, and provided with an exhaust port, a live steam and water of condensation inlet,



and an air pressure port, said exhaust port being provided with a centrally disposed partition forming two outlets, a piston rod reciprocating in the lower extremity of said body portion, having formed thereon three pistons, means whereby said piston is reciprocated to close and open said exhaust.

3. In a device of the class described, the combination with a cylindrical body portion having a detachable cap at each extremity thereof, and provided with an exhaust port, a live steam and water of condensation inlet, and an air pressure port, said exhaust port being provided with a centrally disposed partition forming two outlets, a piston rod reciprocating in the lower extremity of said body portion, having formed thereon three pistons, a spring bearing between the upper of said pistons, and the cap of the body portion adapted to retain the valve in an open position, and means whereby all leakage by said pistons may be conducted out of the cylinder.

4. In a device of the class described, the combination with a cylindrical body portion having a detachable cap at each extremity thereof, and provided with an exhaust port, a live steam and water of condensation inlet,

and an air pressure port, said exhaust port being provided with a centrally disposed partition forming two outlets, a piston rod reciprocating in the lower extremity of said body portion, having formed thereon three pistons, a spring bearing between the upper of said pistons, and the cap of the body portion adapted to retain the valve in an open position, and means comprising a centrally disposed conduit in said piston rod adapted to conduct all water of condensation from the spring chamber into the chamber formed between the lower pistons.

5. In a device of the class described, the combination of a hollow cylindrical body portion having three outlets and inlets formed therein, of a piston rod reciprocating adjacent said outlets and inlets having formed thereon piston heads adapted to close and open the same said piston normally operated by counteracting live steam and air pressure.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN G. RADICK.

Witnesses:

DAVID LA PLANT,  
M. M. TOWNSEND.