

No. 897,285.

PATENTED SEPT. 1, 1908.

A. J. GREENAWAY.  
AUTOMATIC VALVE.  
APPLICATION FILED APR. 3, 1908.

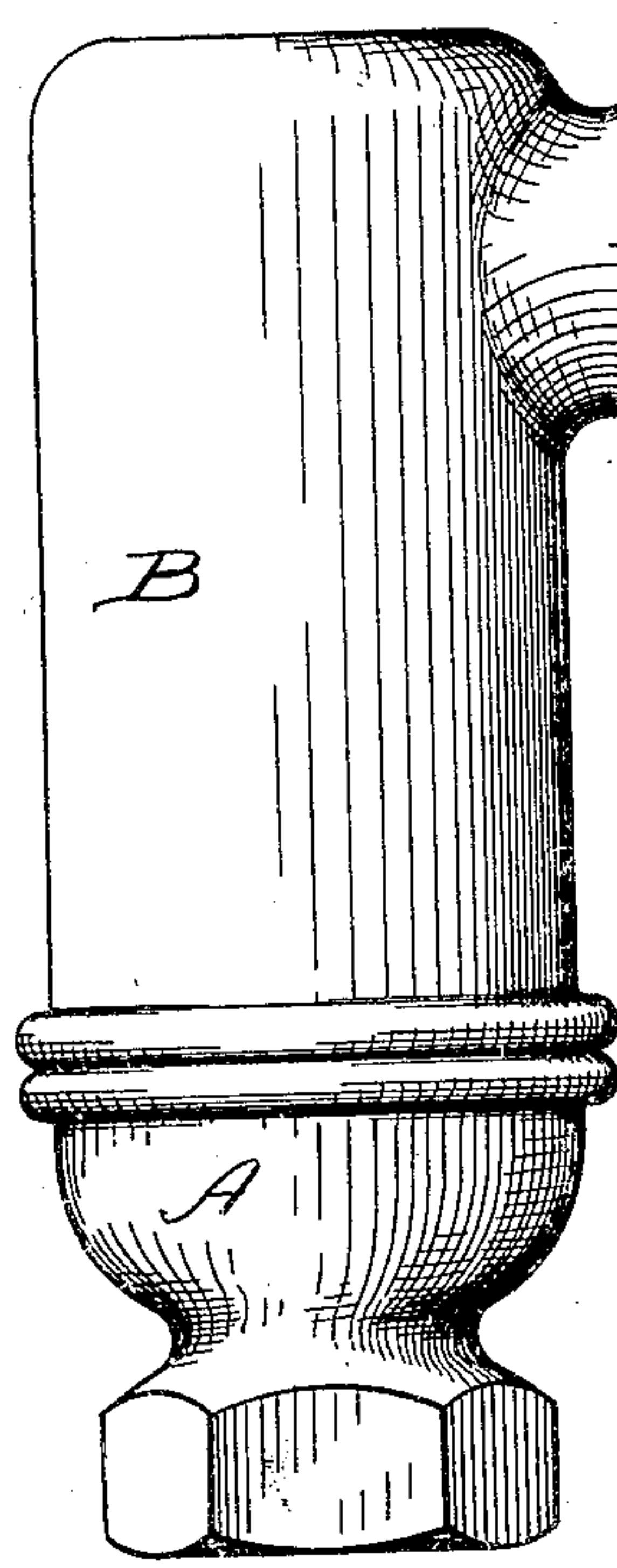


FIG. 1.

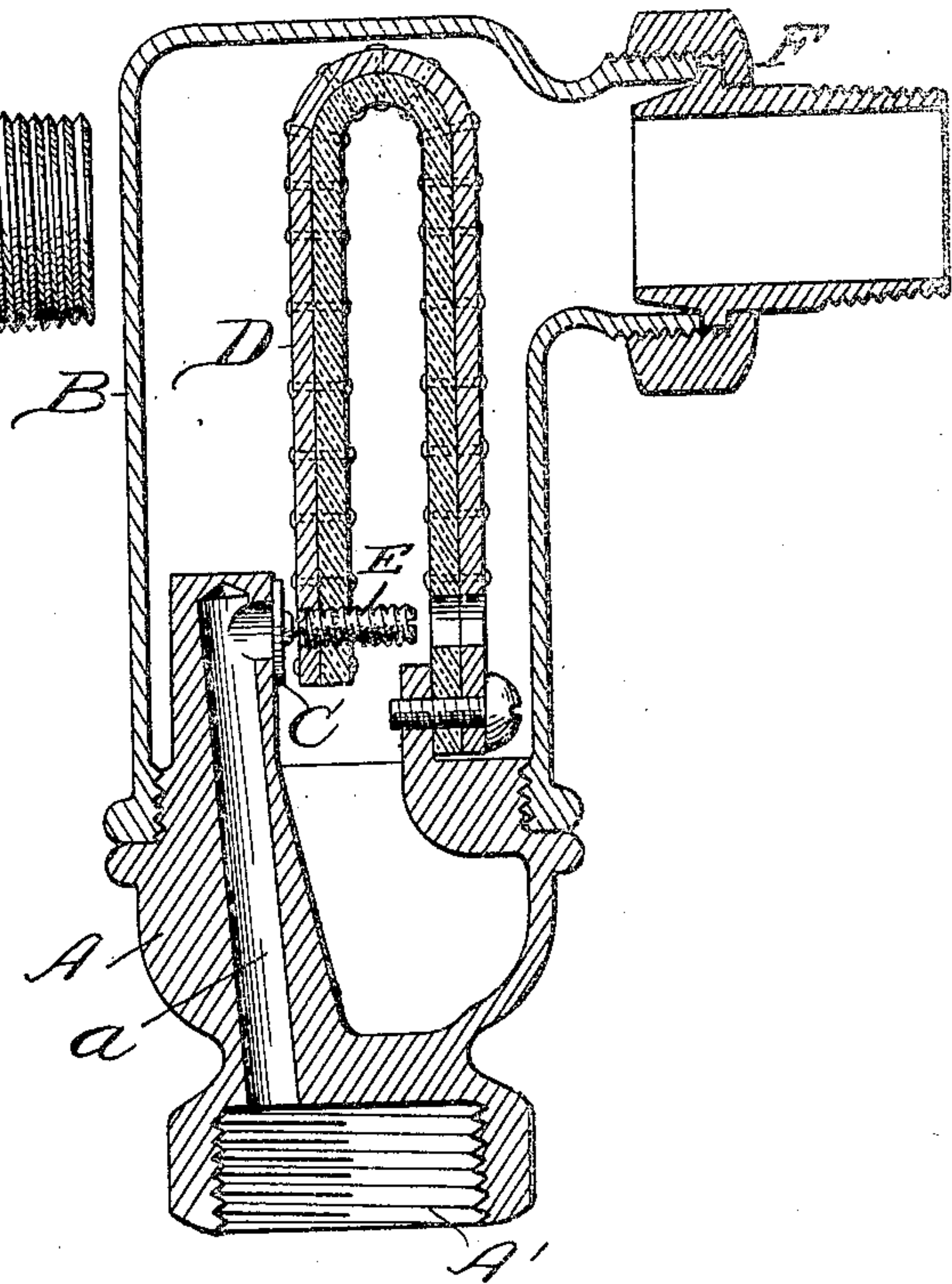


FIG. 2.

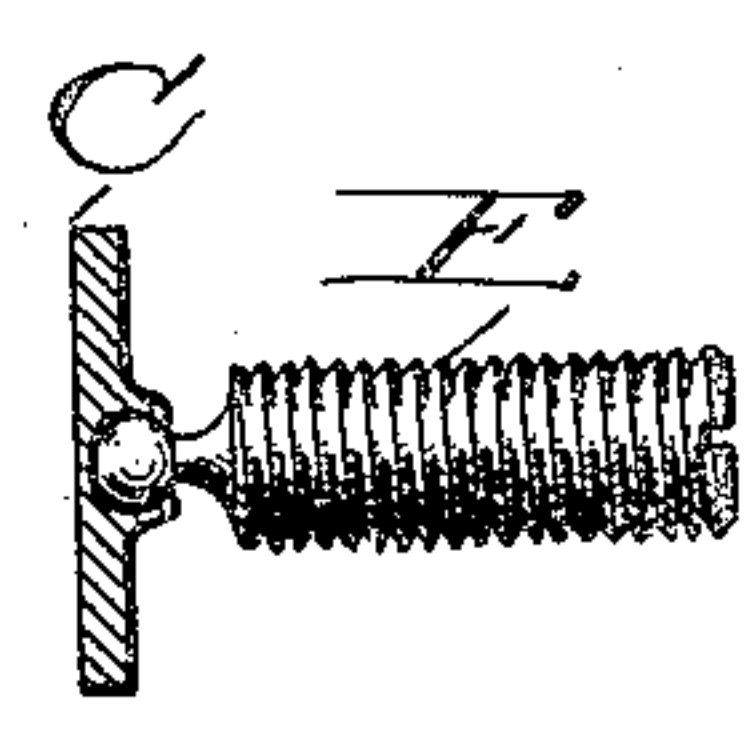


FIG. 3.

Inventor

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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC VALVE.

No. 897,285.

Specification of Letters Patent.

Patented Sept. 1, 1908.

Application filed April 3, 1908. Serial No. 424,871.

*To all whom it may concern:*

Be it known that I, ARTHUR J. GREENAWAY, citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Automatic Valves, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improvement in automatic valves, the object being to provide means in a steam heating system,—either vacuum or pressure,—whereby a radiator or other appliance may be relieved of the water of condensation, permitting it to flow or be drawn therefrom, and promptly closing when the same is exhausted.

It is a well known fact in connection with vacuum systems of steam heating:—a system specially designed to use the exhaust from an engine,—that a vacuum pump is installed in order to circulate the steam through the radiating units and with practically no back pressure on the engine,—the returns from the radiators being connected with the suction of the pump whereby the water of condensation is removed therefrom.

As before indicated the object of this invention is to produce a valve which will permit of the water being drained from the radiator and which will automatically close the exhaust opening from the valve the instant steam reaches the same. I am aware of the fact that numerous valves have been devised employing various means to accomplish this result. This invention, however, differs from these inasmuch as it is an entirely metallic device, simple in construction, and adapted to the purpose whether operating under vacuum or pressure.

With the foregoing in view the invention consists in certain features of construction and in a combination of parts described in the following specification and more particularly pointed out in the claims.

In the drawings: Figure 1 is a side elevation. Fig. 2 is a central vertical section of the same. Fig. 3 is a detail view of the valve and its stem, with parts in section.

Referring now to the letters of reference spread upon the drawings: A denotes the lower portion of the valve body and B a cap or hood portion secured thereto. The lower

portion A is cup-shaped to serve as a grit or scale receiving chamber, its wall being formed with a discharge channel *a* under the control of the valve C.

D is a thermostatic bar preferably U-shaped in form and composed of two dissimilar metals united together in any suitable manner, but preferably by riveting the parts together as shown. One end of the bar is rigidly attached to the wall of the body portion A, the other being free to move upon the expansion and contraction of the metal. Supported in the free end of the bar D is a projecting adjustable stem E, to which is secured,—by a ball and socket connection,—the disk valve C designed to close the port *a* through the action of the thermostatic bar.

F is a union whereby the valve body may be secured to the radiator in the usual manner and A' is the internally screw threaded hub of the valve body by which the vacuum pipe (not shown) may be secured to the valve body.

Having indicated the several parts by reference letters, the operation of the device will be readily understood. The valve disk C is so adjusted with reference to its seat that it stands normally open. The steam on entering the valve chamber through the connection F, encounters the thermostatic bar D and instantly expands the metal thereby forcing the valve C to its seat and thus closing the discharge port *a*. Upon condensation collecting in the valve chamber the thermostatic bar is caused to contract, which action lifts the valve from its seat whereby the condensation is released into the port *a* from which it flows or is otherwise drawn by the action of a vacuum pump. As soon as the chamber is relieved from the water of condensation, the steam will again encounter the thermostatic bar forcing the valve C to its seat, it will remain closed until the action just described is repeated.

Having thus described my invention, what I claim is:—

1. In a valve of the class described having a discharge port, a thermostatic inverted U-shaped bar composed of dissimilar metals riveted together, one of the legs of said bar being longer than the other with the shorter leg free to move under the expansion and contraction of the parts, a screw threaded bolt or rod set transversely through the shorter leg of said bar and adapted for adjustment, a valve disk, a ball and socket con-



nection between the valve disk and rod, and means for securing the longer leg of the thermostatic bar fixedly to the valve casing.

2. In a valve of the class described including an inlet and a discharge port, a thermostatic U-shaped bar, one of the legs of said bar being longer than the other, the longer leg being fixed to the valve casing and the shorter leg being free to move under the expansion and contraction of the parts, a screw threaded bolt or rod set transversely through the shorter leg of said thermostatic bar and adapted for adjustment, and a valve disk connected to said shorter leg of the thermostatic bar for movement into and out of engagement with the port of the valve, the longer leg of the thermostatic bar having an opening to permit of the passage of said screw threaded bolt therethrough when the

shorter leg is contracted toward the longer leg.

3. In a valve of the class described, having an inlet, and a discharge port, a thermostatic U-shaped bar composed of dissimilar metals riveted together, one of the legs of said bar being free to move under the expansion and contraction of the parts, a screw-threaded bolt or rod set transversely through the free leg of said bar and adapted for adjustment, a valve disk, and a ball and socket connection between the valve disk and rod.

In testimony whereof, I sign this specification in the presence of two witnesses.

ARTHUR J. GREENAWAY.

Witnesses:

GRACE E. WYNKOOP,  
SAMUEL E. THOMAS.