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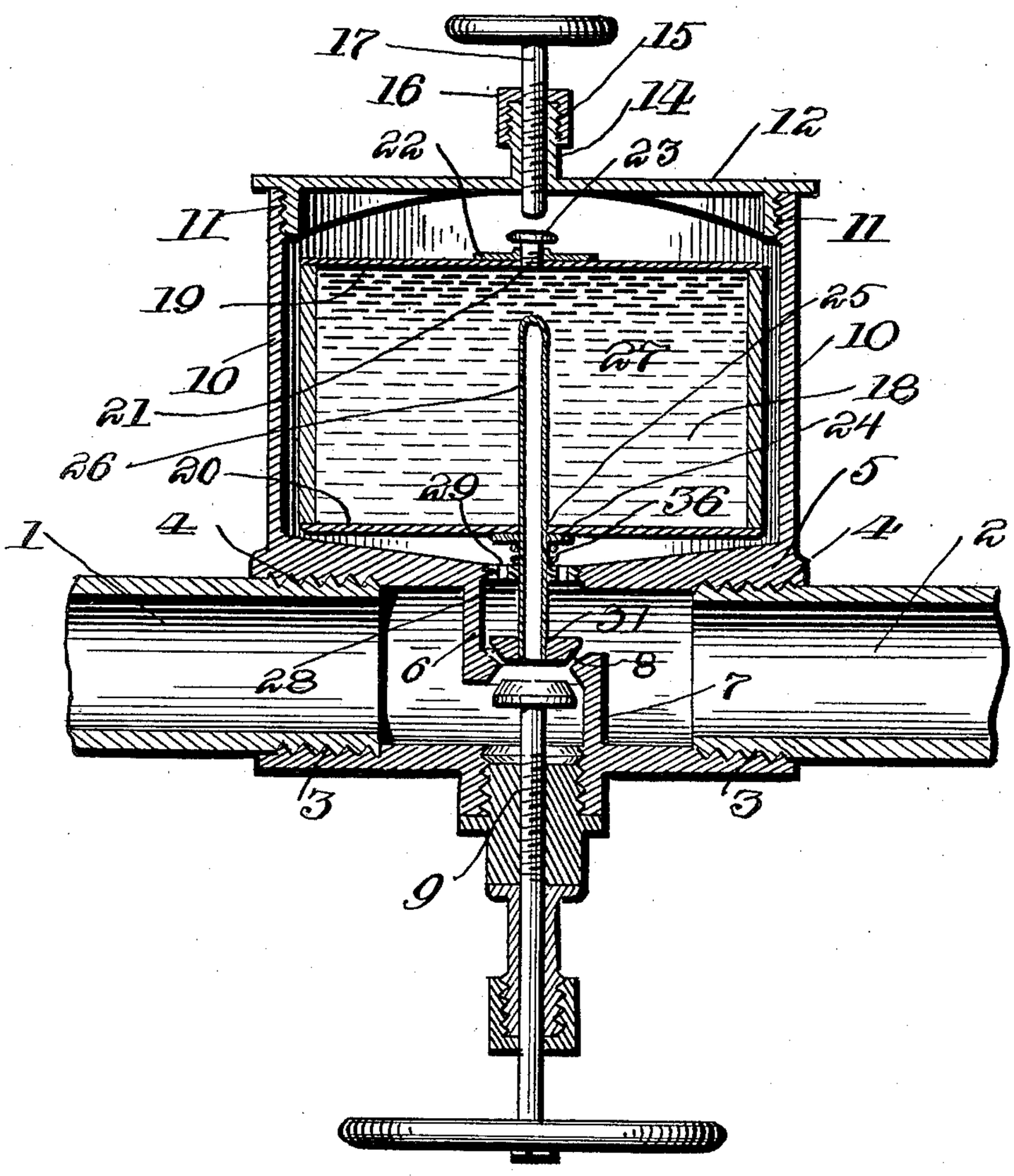
J. H. BLAKELY.

AUTOMATIC DRIP FOR STEAM LINES.

(Application filed Dec. 18, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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AUTOMATIC DRIP FOR STEAM-LINES.

SPECIFICATION forming part of Letters Patent No. 697,932, dated April 15, 1902.

Application filed December 18, 1901. Serial No. 86,351. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. BLAKELY, a citizen of the United States of America, residing at Homestead, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Drips for Steam-Lines, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to certain new and useful improvements in automatic regulating-valves, and relates more particularly to valves controlled by a thermostat.

The present invention has for its object the provision of novel means whereby a valve may be accurately regulated in the steam-line, said valve being normally retained in a slightly-opened position to allow the steam to carry off the condensations that are formed within the line.

A further object of the invention is to provide novel means for regulating the valve in such a manner that in case there is an accumulation of the condensations within the valve-line the same will cause the valve to slightly open to a further degree, which will allow this condensation to be carried through a valve into a suitable drain-pipe. (Not shown in the drawing.)

A still further object of my invention is to construct a regulating device that will retain the valve normally in proper position at all times irrespective of the degree of heat of the steam or steam-pressure.

With the above and other objects in view the invention consists in the novel combination and arrangement of parts to be hereinafter more fully described, and specifically pointed out in the claims.

In describing the invention in detail reference is had to the accompanying drawing, wherein the figure represents a vertical sectional view of my improved regulating-valve.

Referring to the drawing by reference-numerals, 1 and 2 indicate the steam-pipes, which are screw-threaded, as shown at 3 3, these screw-threads engaging the screw-threaded portions 4 4 of the casing 5, said casing having formed therein partitions 6 7, forming a double valve-seat 8. In the lower portion of the said casing 5 is secured the ordinary globe-valve 9, which operates against the lower portion of the double seat 8. Formed integral with the casing 5 is formed a cylindrical casing 10, said cylindrical casing being interiorly screw-threaded, as shown at 11, to receive a cap 12, carrying a bushing 14, which is screw-threaded at 15 to receive the cap 16.

The reference-numeral 17 represents a screw-threaded stem extending through the bushing and cap for the purpose of regulating the thermostat.

The reference-numeral 18 represents a cup located within the casing 10 and carrying an upper diaphragm 19 and the lower diaphragm 20, the upper diaphragm having formed therein an opening 21, a plate 22, and a screw-threaded plug 23, arranged in said opening.

The reference-numeral 24 represents a disk secured to the under face of the lower diaphragm 20, said disk and lower diaphragm having an opening 25 formed therethrough for the reception of a hollow valve-stem 26, extending upwardly into the mercury 27, arranged in the cup 18, passing downwardly through the seat 28, having openings 29 formed therein. A spiral spring 36 surrounds the said hollow valve-stem 26, said spring bearing against the under face of the disk 24 and upper face of the seat 28, and at the lower end of said valve-stem is secured the regulating-valve 31.

The operation of my improved device is as follows: As shown in the drawing, the valve is in an open position, and as the heat of the steam increases, passing upwardly through the hollow valve-stem and ports formed in the seat, will tend to expand the mercury in the cup, causing both diaphragms to expand, the hollow valve-stem being connected to the lower diaphragm will be forced downwardly, thereby almost closing the valve, and the upper diaphragm coming in contact with the regulating screw-threaded stem secured in the cup. As the condensations accumulate in the steam-line and the diaphragms thereby lower the mercury in the cup will contract and tend to open the valve to a greater degree, allowing the steam to force out the accumulations of condensations, which will be carried through the steam-line into a suit-

able drainage-pipe. (Not shown in the drawing.) When it is desired to close the steam-line entirely for the purpose of repairs or for adjusting the same, the lower valve 9 is closed, thereby forming a partition, which will entirely close the entire line.

The many advantages obtained by the use of my improved device will be readily apparent from the foregoing description, taken in connection with the accompanying drawing.

It will be noted that various changes may be made in the details of construction without departing from the general spirit of my invention.

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

1. In a steam-line, the combination of a regulating-valve, a mercurial thermostat secured to said regulating-valve, and a hollow valve-stem extending into said mercurial thermostat, substantially as described.

2. In a device of the character described, the combination with a steam-line, a casing, a mercurial thermostat secured in said casing, a regulating-valve comprising a hollow stem extending into said thermostat, and means whereby said valve is automatically regulated, substantially as described.

3. In a device of the character described, the combination with a steam-line, a casing formed therein, a cup arranged in said casing, a diaphragm secured to the upper and lower sides of said cup, means to regulate the expansion and contraction of said diaphragms, a valve, a hollow stem secured to said valve and extending into said cup and secured to one of said diaphragms, and a spring arranged between said diaphragm and casing, all parts being arranged substantially as described, and for the purpose set forth.

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

JAMES H. BLAKELY.

Witnesses:
JOHN NOLAND,
E. E. POTTER.