

No. 661,372.

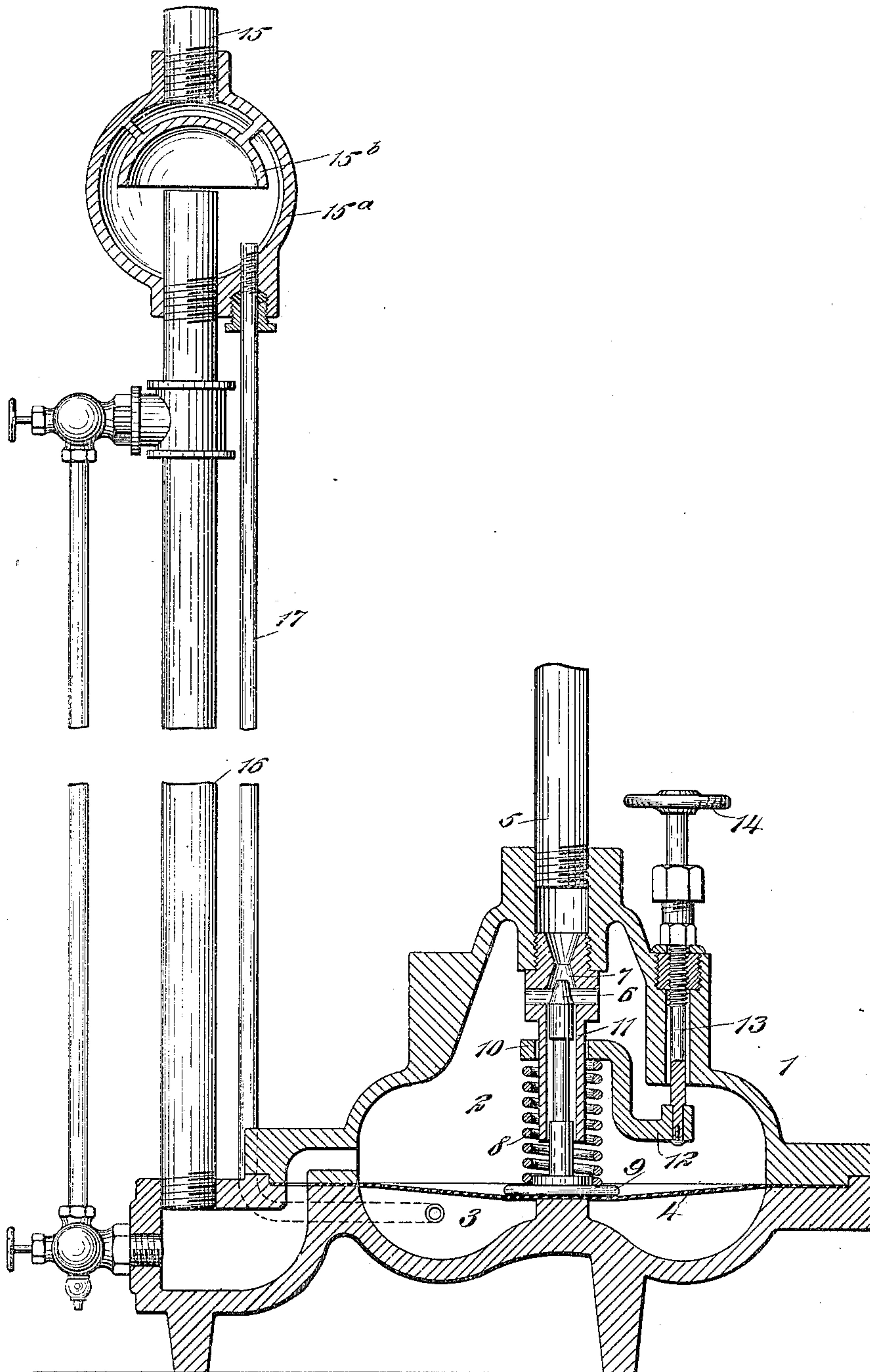
Patented Nov. 6, 1900.

G. H. GROTE.

STEAM TRAP.

(Application filed July 26, 1900.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE H. GROTE, OF ST. LOUIS, MISSOURI.

## STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 661,372, dated November 6, 1900.

Application filed July 26, 1900. Serial No. 24,905. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE H. GROTE, a citizen of the United States, and a resident of St. Louis, in the State of Missouri, have invented a new and Improved Steam-Trap, of which the following is a full, clear, and exact description.

This invention relates to improvements in steam-traps; and the object is to provide a steam-trap with a simple means for regulating the tension-spring, whereby it is made unnecessary to shut off or take the trap apart in order to adjust the spring, thus resulting in a saving of time and consequent expense.

I will describe a steam-trap embodying my invention and then point out the novel features in the appended claim.

Reference is to be had to the accompanying drawing, forming a part of this specification, in which the figure is a sectional elevation of a trap embodying my invention.

The trap comprises a casing 1, divided into upper and lower chambers 2 3 by a flexible diaphragm 4. From the chamber 2 an outlet-pipe 5 extends, and this outlet is controlled by means of a needle-valve 6, adapted to engage in a valve-seat 7. The stem of this valve rests upon the diaphragm 4 and is normally held open by means of a spring 8, engaging at one end with a disk 9, attached to the lower end of the valve-stem, and at its opposite end engaging with a collar 10, surrounding the valve-casing 11, and on this collar 10 is an arm 12, to which an adjusting screw-rod 13 is attached. This screw-rod 13 extends through the casing 1 and has on its outer end a hand-wheel 14. Obviously by turning this screw-rod the tension of the spring 8 may be regulated as desired, making it unnecessary to separate the parts for such adjustment.

In operation the water of condensation en-

ters through the pipe 15 into the globe 15<sup>a</sup>, where it is deflected by the hemispherical plate 15<sup>b</sup> to the pipe 17, which has communication with the chamber 3, so that the pressure acting on the diaphragm 4 will close the valve against the counter-pressure of the spring. As the water fills it overflows through the pipe 16 and flows into the chamber 2. As it rises in the pipe 16 to about one-half its height the pressure on the sides of the diaphragm 4 becomes equal, the shorter column in the pipe 16 and the pressure of the spring balancing the pressure of the column of water in the pipe 17. An increase of the height of water in the pipe 16 causes a depression of the diaphragm and a consequent opening of the valve 6, which allows the water to escape until it has fallen to a level of about the middle of the pipe 16, when the valve is again closed.

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

A steam-trap, comprising a casing, a flexible diaphragm in said casing, dividing it into upper and lower chambers, pipes leading into said chambers, a valve for controlling an outlet from the upper chamber, the said valve resting on the diaphragm, a collar surrounding the valve-stem, a spring arranged between said collar and a disk on the lower end of the valve-stem, an arm extended from said collar, and a rod having screw-thread engagement in the casing and engaging with said arm, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE H. GROTE.

Witnesses:

NILS JOHNSON,  
WM. GILLESPIE.