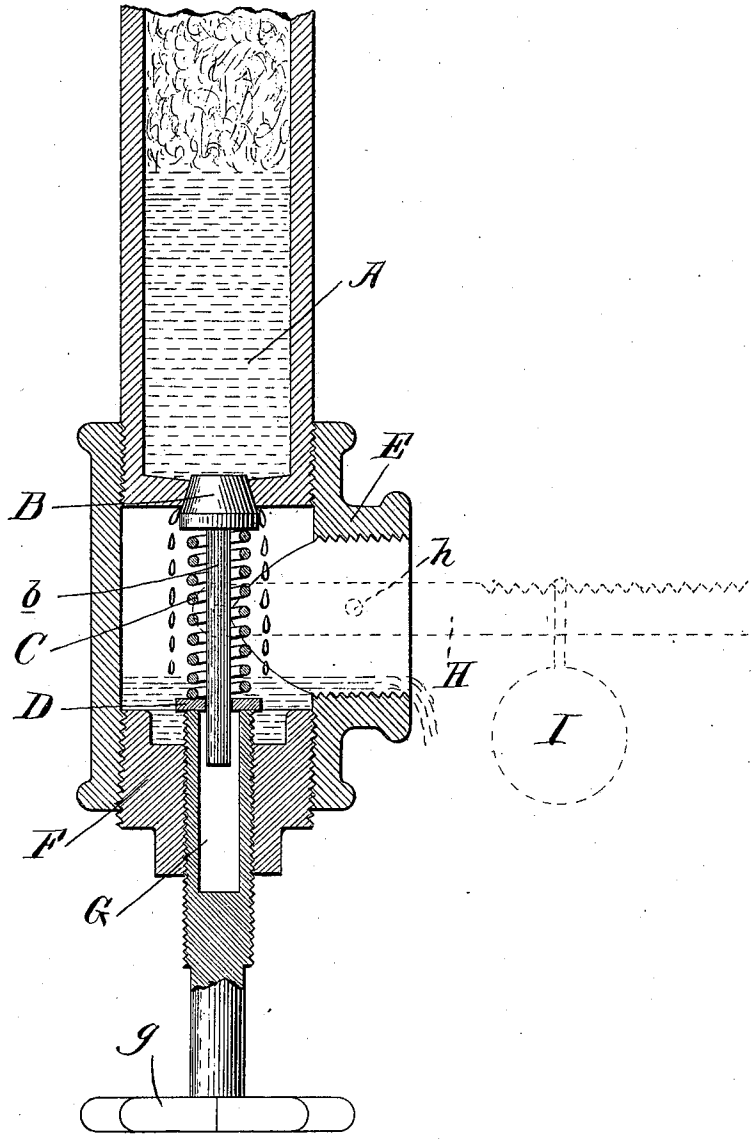
(No Model.)

J. SPITZMILLER.

STEAM TRAP.

No. 590,866. Patented Sept. 28, 1897.



Witnesses:
G. A. Pennington
F. R. Cornwall

Inventor:
John Spitzmiller,
by Paul Bakewell
his atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN SPITZMILLER, OF POPLAR BLUFF, MISSOURI, ASSIGNOR OF ONE-HALF TO HORACE D. WILLIAMS, OF SAME PLACE.

STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 590,866, dated September 28, 1897.

Application filed March 27, 1897. Serial No. 629,512. (No model.)

To all whom it may concern:

Be it known that I, JOHN SPITZMILLER, a citizen of the United States, residing at the city of Poplar Bluff, in the county of Butler, State of Missouri, have invented a certain new and useful Improvement in Steam-Traps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, in which the figure represents a sectional view of my improved steam-trap.

This invention relates to a new and useful improvement in steam-traps, the object being to construct a device of the character described with a view to simplicity, cheapness, and effectiveness.

With these objects in view my invention consists in the construction, arrangement, and combination of the several parts, all as will hereinafter be described and afterward pointed out in the claims.

In the drawing I have shown my invention as embodied in its simplest form, but it is obvious that various changes could be made without departing from the principle thereof.

A indicates a receptacle or pocket for the water of condensation from the system, said pocket being located at the lowest point in the system. I have shown this receptacle as consisting of a pipe, but suitable chambers may be employed if desirable, and the height of the pocket will depend on the variations of the steam-pressure in the system. The lower end of this pocket is formed with a valve-seat, in which is seated a valve B, preferably cone-shaped. This valve is provided with a stem *b*, around which is arranged a spring C, whose upper end is seated against the lower face of the valve, while its lower end is seated against a follower D, through which the valve-stem *b* passes.

E indicates an ordinary T-coupling secured to the lower end of pocket A, said coupling having mounted in it, opposite the pocket A, a plug F, through which plug is threaded a hollow stem G, having a hand-wheel *g* for turning the same. The valve-stem *b* fits in this hollow threaded stem G, and the upper end of the stem G engages the spring-follower.

The operation of the device is as follows: The water of condensation from the system being collected in the receptace A will gradually rise, forming a water column. This column exerts a certain pressure against the valve B, which increases with the height of the column. In addition to the pressure of the column we have the pressure of the steam in the system above. In first setting the device the handle *g* is turned down, permitting the water to run from the pocket until all of the water has passed away and the steam escapes beyond the valve B. Pressure is now placed upon the valve B until it is sufficient to overcome the pressure of the steam in the system, which is determined when the steam ceases to escape beyond the valve. If the pressure in the system is liable to exceed that present in the initial setting of the valve, a slight extra under pressure is placed against the valve. The water of condensation now falling into the pocket will collect therein until its pressure, combined with the pressure of the steam in the system, will cause said water to pass beyond the valve. There being more pressure on the under side of the valve than there is in the steam in the system above the valve a small quantity of water will collect and remain above the valve, which is desirable in that this water forms practically a seal between the steam in the system and the valve.

I have shown in dotted lines another method of applying pressure to the under side of the valve in which a weight may be used instead of a spring. In this construction H indicates a lever pivoted at *h* in the T-joint. The outer end of this lever is notched along its upper end and carries a weight I. The inner end of the lever supports the valve B and holds it yieldingly to its seat. By adjusting the weight along the lever a greater or less pressure can be placed against the under side of the valve, as is obvious.

I am aware that many minor changes in the construction, arrangement, and combination of the several parts of my device can be made and substituted for those herein shown and described without in the least departing from the nature and principle of the invention.

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

1. The combination with a pipe A forming a reception for water of condensation, of a coupling arranged on the end of said pipe, a plug in said coupling opposite the pipe A, a rod threaded through said plug and extending into said coupling, a valve closing an opening in the pipe A, and a spring interposed between said threaded rod and valve; substantially as described.

2. In a steam-trap, the combination with a suitable receptacle for collecting the water of condensation, of a valve which closes an opening in the bottom of said receptacle, a stem on said valve, a spring surrounding said stem, a follower strung on the stem, a hollow threaded rod for regulating the compression of the spring and a coupling in which said hollow threaded rod is mounted; substantially as described.

3. In a steam-trap, the combination with a suitable receptacle in the form of a pipe for collecting the water of condensation, of a valve for closing an opening in the bottom of said receptacle, a stem on said valve, a spring surrounding said stem, a follower which bears against one end of said spring, a hollow, threaded rod for adjusting the compression of the spring, the hollow in said rod receiving the valve-stem and a T-coupling mounted on the end of said pipe, in which coupling the hollow threaded rod is mounted, the water of condensation passing beyond the valve from the pipe, finding an exit through the side opening in the T-coupling; substantially as described.

In testimony whereof I hereunto affix my signature, in presence of two witnesses, this 20th day of March, 1897.

JOHN SPITZMILLER.

Witnesses:
H. D. WILLIAMS,
BEN. F. HAWKINS.