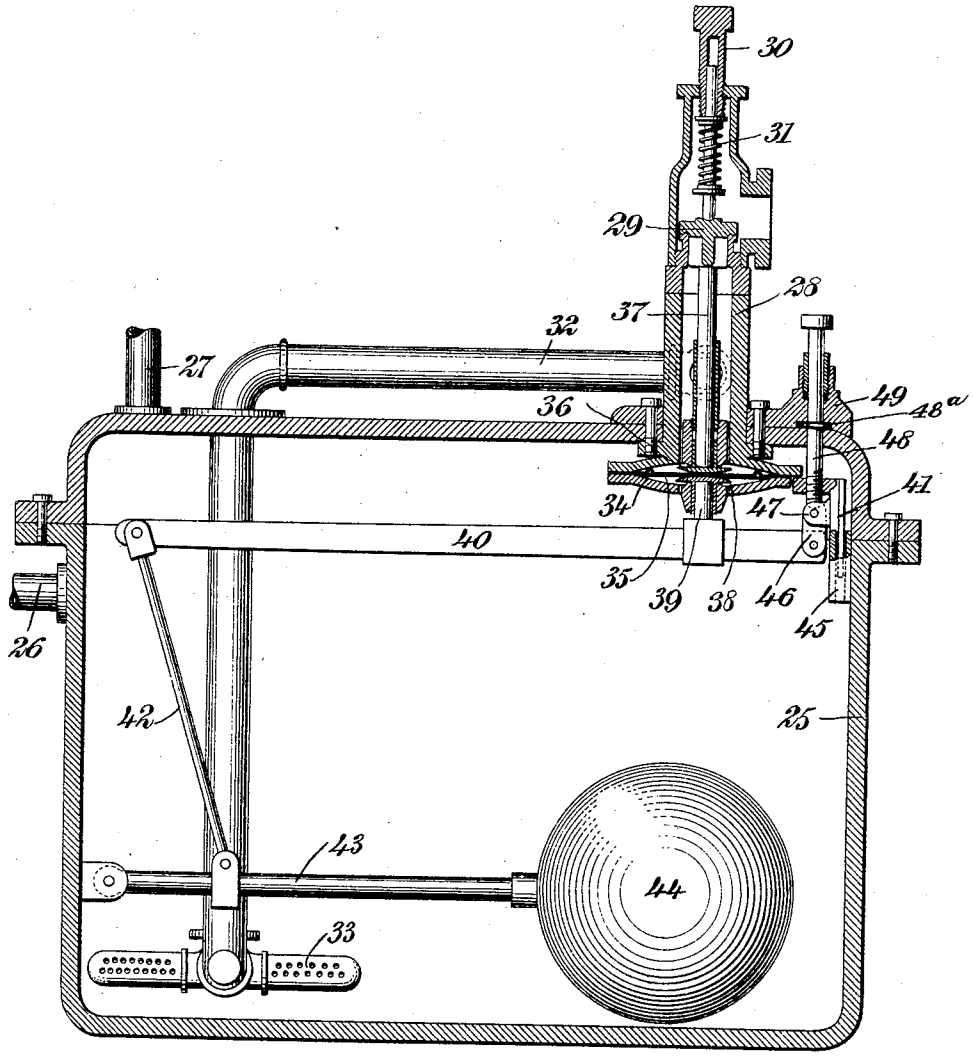
No. 771,686. PATENTED OCT. 4, 1904.

R. D. TACKABERRY.

STEAM TRAP.

APPLICATION FILED OCT. 29, 1903.

NO MODEL.



WITNESSES:

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No. 771,686. Patented October 4, 1904.

UNITED STATES PATENT OFFICE.

ROBERT DANIEL TACKABERRY, OF LEWISTON, MAINE.

STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 771,686, dated October 4, 1904.

Application filed October 29, 1903. Serial No. 178,977. (No model.)

To all whom it may concern:

Be it known that I, ROBERT DANIEL TACKABERRY, a citizen of the United States, and a resident of Lewiston, in the county of Androscoggin and State of Maine, have invented a new and Improved Steam-Trap, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in the steam-trap forming the subject of my prior patent, No. 743,952, granted November 10, 1903, these improvements relating principally to a novel manner of mounting one element of the means for transmitting the movement of the float, so that said element may be readily and fully adjusted from the exterior of the trap, thus regulating the level in the trap to which the water is allowed to rise, and the improvements also relate to a novel diaphragm arrangement for operating the outlet-valve, this arrangement avoiding the use of a stuffing-box and the friction incident thereto, thus rendering the trap more sensitive to the changes in the water-level.

This specification is an exact description of one example of the invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawing, forming a part of this specification, which represents a vertical section of the invention.

28 indicates the shell or casing of the trap.

26 indicates the communication between the steam-trap and the source of steam and water supply, and 27 indicates a steam-pipe passing from the upper part of the source of steam—for example, the boiler—to the upper part of the chest 25 and serving to equalize the pressure in the boiler and steam-trap.

The trap is similar in general principles to that disclosed in my copending application above referred to. The shell or chest 25 is formed with a dome 28, in which is located a valve 29, opening outward from the chest, and the said dome is adapted to have connection with a pipe for carrying off the water of condensation to any desired point. The valve 29 is held yieldingly seated. This may be done by any suitable means, but preferably by means of the spring 31 and adjustable screw 30, as shown.

32 indicates the discharge-pipe, which passes from the dome 28 downward to the bottom portion of the chest 25 and which has at its lower or receiving end a strainer 33.

The stem 37 of the valve 29 extends downward through the dome 28 into the diaphragm-case 34. Said case 34 contains a suitable diaphragm 35, and the lower end of the stem 37 carries a running member or head 36, which bears on the upper side of the diaphragm. The lower side of the diaphragm is engaged by a similarly-shaped head 38, carried on a stem 39, which slides freely in the under side of the diaphragm-case 34. Movement upward of the stem 39 will, it is observed, impart a corresponding movement to the diaphragm 35. The diaphragm, however, prevents all leakage past the case 34, and consequently I am enabled to operate the valve 29 without the aid of a stuffing-box and without the friction incident to the movement of the valve-stem therewith. Said case 34 may be orificed, as shown, to equalize the pressure on the diaphragm.

44 indicates the float, which is carried by an arm 43, pivoted to the inner wall of the chest or case 25. Connected to the arm 43 intermediate its ends is a link 42, which in turn is joined to the free end of a lever 40, connected in any suitable manner with the before-described stem 39. At its fulcrum end the lever 40 is joined pivotally to a link 46, in turn pivoted to a bracket 47, carried on a slide 41. The said slide 41 operates in a suitable slideway 45, fastened securely to the inner wall of the chest 25, and 48 indicates a screw which has a collar 48^a thereon mounted suitably in the case to allow the rod to turn, but not to slide, and which has threaded engagement with the slide 41. The screw 48^a is arranged in a suitable stuffing-box 49, carried on the outer wall of the case or chest 25. By operating the screw 48 from the outside of the casing 25 the slide 41 and bracket 47 may be raised or lowered, and thus the position of the fulcrum of the lever 40 with respect to the coacting parts may be varied at will, and this will in turn vary the period of the action of the float 44 with respect to the level of water within the chest.

The operation and manner of using the invention will be apparent from the prior art and from my prior patent above referred to.

While I have referred to this invention as a "steam-trap," it should be understood that its use is not limited to steam, since it may be employed to remove liquids of condensation, of air, and various other gases, and my invention resides in the apparatus and not in its mode of employment.

Various changes in the form, proportion, and minor details of my invention may be resorted to at will without departing from the spirit and scope thereof. Hence I consider myself entitled to all such variations as may lie within the intent of my claims.

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

1. A steam-trap, comprising means controlling the outlet therefrom, such means including a lever, a link pivoted to the lever, a slide to which the link is pivoted, means for mounting the slide within the case or shell of the steam-trap, and an adjusting device extending from the slide to the extremity of the shell or case.

2. A steam-trap, comprising a shell, a dome mounted thereon, a valve commanding the dome for the purpose specified, a stem attached to the valve and extending to the dome, a diaphragm-case communicating with the dome, a diaphragm in the case and engaged by the said stem, a second stem engaging the opposite side of the diaphragm, means for operating the second stem, and means for conducting the outflow from the trap to the dome.

3. A steam-trap, comprising a shell, a dome mounted thereon, a valve commanding the dome for the purpose specified, a stem engaged with the valve and extending to the dome, a diaphragm-case communicating with the dome, a diaphragm in the case and engaged by the said stem, a second stem engaging the opposite side of the diaphragm, means for operating the second stem, and means for conducting the outflow from the trap to the dome, such means including a pipe running from the bottom of the shell or case upward out of the same and into the dome inward of the valve.

4. A steam-trap, comprising a shell or case having a dome rising therefrom and a diaphragm-case communicating with the base of the dome, a valve in the dome for the purpose specified, a diaphragm in the diaphragm-case, means for placing the dome in communication with the interior of the trap, and means for operating the valve, said means comprising elements bearing on opposite sides of the diaphragm.

5. A steam-trap, comprising means for controlling the outlet from the trap, said means including a pivoted member, means for movably mounting the pivot of said member, and a device connected with said means and extending to the outside of the case or shell of the trap, whereby to impart an adjusting movement to the pivot.

6. A steam-trap, comprising means for controlling the outlet therefrom, such means including a pivoted member, means movably mounting the pivot of said member, and a device in connection with the latter means and extending to the outside of the case or shell of the trap and capable of imparting a back-and-forth movement to the said pivot-mounting means.

7. A steam-trap, comprising means for controlling the outlet therefrom, said means including a pivoted member, means movably mounting the pivot of said member, and a device in connection with the latter means and extending to the outside of the case or shell of the trap and capable of imparting a back-and-forth movement to the said pivot-mounting means, said device comprising a screw mounted to turn in the case and having threaded connection with the said pivot-mounting means.

8. A steam-trap, comprising means controlling the outlet therefrom, such means including a pivoted member, a slide on which the pivot of said member is mounted, and a device connected with the slide and extending to the outside of the shell or case of the slide to impart a back-and-forth adjusting movement to the slide.

9. A steam-trap, comprising means controlling the outlet therefrom, such means including a pivoted member, a link to which said pivot is connected, a slide on which the link is pivoted, and a device connected with the slide and extending to the outside of the shell or case of the trap, to impart an adjusting movement to the slide.

10. A steam-trap, comprising a shell or case having a dome rising therefrom and a diaphragm and a case, the latter communicating with the base of the dome, a valve in the dome for the purpose specified, means for yieldingly seating the valve, means for placing the dome in communication with the interior of the trap, and means for opening the valve against the action of the said means for yieldingly seating the same, said means for opening the valve comprising elements bearing on opposite sides of the diaphragm.

11. A steam-trap, comprising a shell or case, a dome mounted thereon and having communication with the interior of the shell or case, at a point outward from the base of the dome, a valve mounted in the dome, a diaphragm-case at the base of the dome, a diaphragm in the diaphragm-case, and means for automatically operating the valve through the medium of the diaphragm, said means comprising elements bearing on opposite sides of the diaphragm.

12. A steam-trap, comprising a shell or case, a dome juxtaposed thereto, a valve mounted

in the dome to control the outlet therefrom, a diaphragm closing communication between the dome and the shell or case, means for operating the valve through the medium of the diaphragm, and means establishing communication between the shell and dome at a point in the dome outward from the diaphragm.

13. A steam-trap, comprising a shell or case, a valve exterior of the shell or case and controlling the outlet therefrom, and means for operating the valve from the interior of the case, said means including a diaphragm closing an opening in the shell or case, reciprocating elements bearing on opposite sides of the diaphragm to transmit movement through the diaphragm, and means for operating said reciprocating elements.

14. A steam-trap, comprising a shell or case, a dome juxtaposed thereto, a diaphragm closing communication between the dome and the interior of the shell or case, a valve mounted in the dome outward from the diaphragm to control the outlet from the dome, means for operating the valve from the interior of the case through the diaphragm, and means establishing communication between the shell and dome at a point in the dome intermediate the diaphragm and valve.

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

ROBERT DANIEL TACKABERRY.

Witnesses:

HERBERT F. KELLEY,

ROBERT J. CURRAN.