



# UNITED STATES PATENT OFFICE.

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## PLUG CHECK-VALVE FOR BOILERS.

SPECIFICATION forming part of Letters Patent No. 592,501, dated October 26, 1897.

Application filed March 25, 1896. Serial No. 584,744. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. THOMPSON, a citizen of the United States, residing at the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Plug Check-Valves for Boilers, of which the following is a specification.

My invention has relation to a combined plug and check-valve for use on locomotive, traction-engine, and other boilers, and in such connection it relates particularly to the construction and arrangement of such a valve.

The principal objects of my invention are, first, to provide a combined plug and check-valve of simple and durable construction, efficient in operation, and having the plug mounted in a casing the bottom of which is closed, and, second, to provide in such a valve a ball-check adapted to rest upon a valve-seat formed within the plug.

My invention, stated in general terms, consists of a combined plug and check-valve constructed and arranged in substantially the manner hereinafter described and claimed.

The nature and scope of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1 is a vertical sectional view of a combined plug and check-valve embodying the main features of my invention; and Fig. 2 is a top or plan view, partly broken away to expose the stuffing-box of the valve.

Referring to the drawings, *a* represents a tubular valve-casing of substantially conical shape, the lower end *a'* of which is closed and the upper end *a<sup>2</sup>* open. Leading to the casing *a* is an inlet *a<sup>3</sup>*, and leading from the casing is an outlet *a<sup>4</sup>*. Within the casing *a* is located a tubular conical plug *b*, its lower closed end *b'* normally engaging the wall of the casing above the closed lower end *a'* thereof, so as to compensate for wear of the same and to permit of the tightening thereof and thereby to prevent leakage of said plug during continual use. The interior of the plug *b* is provided with a valve-seat *b<sup>2</sup>* and with the openings *b<sup>3</sup>* and *b<sup>4</sup>* above and below the seat *b<sup>2</sup>*. When the plug *b* is turned in one direction, the opening *b<sup>3</sup>* will register with the outlet *a<sup>4</sup>*, and the

opening *b<sup>4</sup>* will register with the inlet *a<sup>3</sup>* to permit of the flow of liquid through the plug and casing; but when the plug is turned in the casing in an opposite direction the flow of liquid through the plug and casing is stopped.

The upper end of the hollow conical plug is sealed or closed by means of a cap *d*, screw-threaded to the interior thereof and having formed on its upper end a square or polygonal projection *d'*, by means of which the cap *d* may be screwed or unscrewed by the application of a wrench thereto. The tubular plug *d* is also provided near its upper end with a ledge or shoulder *e*, upon which the inner periphery of a clamping-ring *f* is adapted to rest. This ring *f* is screw-threaded to the upper end of the conical casing *a*, and between the ring *f* and casing *a* is mounted a packing *f'* of asbestos or the like, the ring and packing forming thereby a stuffing-box in which the plug is adapted to turn without permitting of the leakage of liquid. Between the ring *f* and ledge *e* is preferably located a washer *e'*. Upon the valve-seat *b<sup>2</sup>* of the plug *b* is introduced, by preference, a ball *h* of metal, rubber, or similar material to constitute a check in the passage of water through the plug. This ball *h* may be removed from the plug by simply unscrewing the cap *d* and the plug removed from the casing by unscrewing the ring *f* of the stuffing-box.

From the above description it will be understood that the ball *h* may be removed from the interior of the plug *b* by unscrewing the cap *d* and without disturbing the ring *f*, packing *f'*, or washer *e'*, and that the packing and washer may also be removed or repaired by simply unscrewing the clamping-ring *f* and without removing the plug or ball.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination, in a plug check-valve, of the casing *a*, having a closed lower end *a'*, and inlet and outlet openings, a conical hollow plug *b*, adapted to turn in said casing and having an opening in its upper end and openings in its wall adapted to register with the openings in the casing, a screw-cap *d*, adapted to normally close the upper end of said plug, a ball-valve *h*, adapted to be introduced through the opening in the upper

end of the plug and to seat itself in the interior of the plug, a ledge *e*, formed on the periphery of the plug, a clamping-ring *f*, adapted to slip over the cap *d'* and the upper end of  
5 the plug and to be screwed down on the casing *a*, toward the ledge *e*, a packing *f'*, interposed between the casing and ring, and a washer interposed between the ledge *e*, and said ring, all arranged so that said ball-valve  
10 may be removed from the interior of the plug without disturbing said packing and pack-

ing-ring and said packing may be removed without removing said plug or ball-valve, substantially as described.

In testimony whereof I have hereunto set  
my signature in the presence of two subscrib- 15  
ing witnesses.

GEO. S. THOMPSON.

Witnesses:

J. WALTER DOUGLASS,  
RICHARD C. MAXWELL.