

G. H. TUCKER.

Register-Valves for Water-Heaters.

No. 146,412.

Patented Jan. 13, 1874.

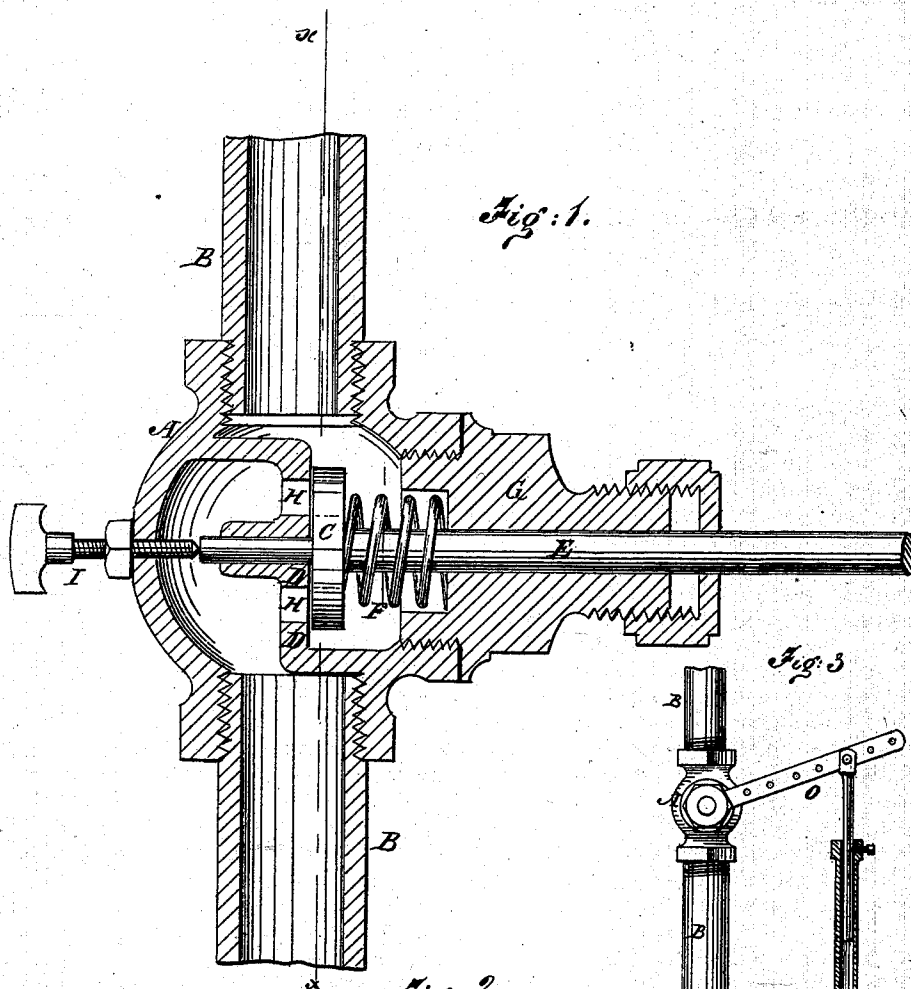


Fig. 1.

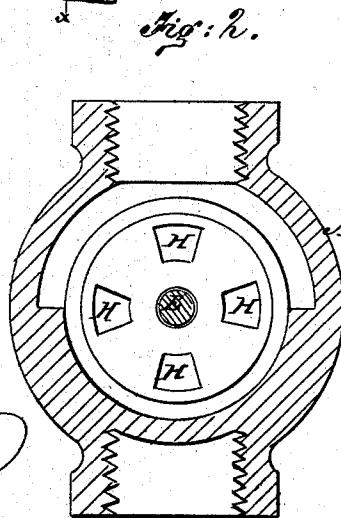


Fig. 2.

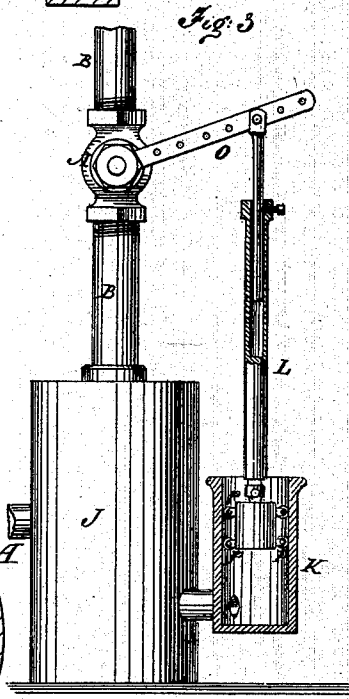


Fig. 3.

Witnesses:

Chas. Nida.
[Signature]

Inventor:

G. H. Tucker
Per [Signature]
Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE H. TUCKER, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO HIMSELF
AND JAMES C. RICKETSON, OF SAME PLACE.

IMPROVEMENT IN REGISTER-VALVES FOR WATER-HEATERS.

Specification forming part of Letters Patent No. **146,412**, dated January 13, 1874; application filed
October 25, 1873.

To all whom it may concern:

Be it known that I, GEORGE H. TUCKER, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Register-Valves for Water-Heaters, of which the following is a specification:

My invention relates to valve mechanism for regulating admission of water to a boiler-feeder; and consists in the construction and arrangement of a valve-shell, valve-spring, and screw, as hereinafter described, with a view, chiefly, to economy of space and material, and reduction of the friction of the valve on its seat to a minimum. It also relates to a float mechanism.

The water is supplied to the tank or heater J through pipe B, whose sections screw into the shell A. Said shell is essentially globular in form, and has diaphragm D joining its diagonally-opposite sides, and forming, immediately, a flat seat for the disk-valve C. The valve-seat has openings H, corresponding in shape, size, and number, with those in the valve. The spiral spring F encircles the stem E, bears on the valve, and is arranged or fitted in a circular recess in the plug G, at its opposite end. To prevent the pressure of the spring and of the water in the pipe B above the valve from holding it too firmly on its seat, thereby unduly increasing the friction and rendering it liable to stick, I employ a screw, I, which passes through the side of the shell A, and bears against the short guide-stem of the valve that passes through the central enlargement of diaphragm D.

By means of the screw and spring the most delicate adjustment of the valve can be effected, so that it shall turn on its seat with the least possible friction, and yet be water-tight when closed.

By the construction above described I provide ample space within the shell for a long, and hence duly elastic, spring, without enlarging the shell beyond the ordinary limits of such devices, and without filling up the space needed for the water. I also provide a many-apertured and ample seat for the disk-valve, through which the water can flow as and when required, while I avoid providing the shell itself with a supplemental socket or chamber for the spring, as heretofore done in another class of valves.

The means of operating the valve is a float working in a tank, K, which communicates with the heater. To relieve the float of undue friction, rollers P are employed. The connection between float and valve is by extension-rod L and arm O, the latter being affixed to the valve-stem E.

When the water rises or falls in the heater, it rises or falls correspondingly in the tank K. The float will have a like and simultaneous movement, and hence the valve will be turned one way or the other, as required, to admit or shut off the water.

What I claim is—

1. The combination, with the shell A and diagonal diaphragm D, having an apertured valve-seat, of the valve C, similarly apertured, to register therewith, the adjusting-screw I, the spring F, and the recessed plug G, all as shown and described.

2. The combination, with the register-valve C, rods E and L, and arm O, of the float, having friction-rollers P, and working in tank K, connected with the heater, as shown and described.

GEORGE H. TUCKER.

Witnesses:

VINCENT ROBERTS,
J. D. WHEELLOCK.