

(No Model.)

J. F. McELROY.
TEMPERATURE REGULATOR.

No. 475,513.

Patented May 24, 1892.

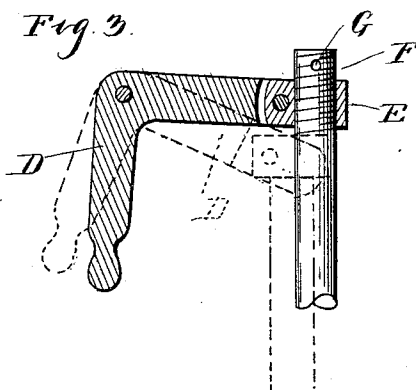
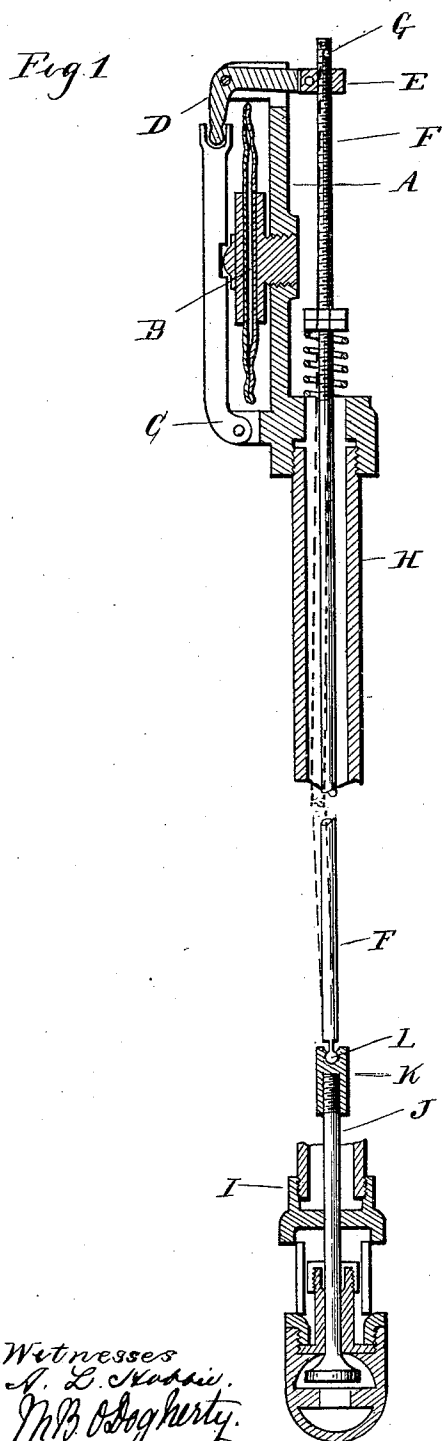


Fig. 2.

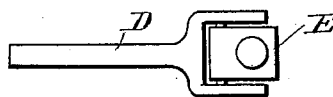
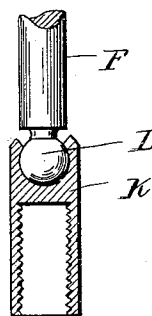


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES F. MCELROY, OF ALBANY, NEW YORK, ASSIGNOR TO THE CONSOLIDATED CAR HEATING COMPANY, OF WHEELING, WEST VIRGINIA.

TEMPERATURE-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 475,513, dated May 24, 1892.

Application filed May 1, 1891. Serial No. 391,275. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. MCELROY, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Temperature-Regulators, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to new and useful improvements in temperature-regulators; and the invention consists in the peculiar construction of the mechanism connecting the thermostat with the valve to be operated, and
15 consists especially in the means of adjusting the parts and setting them up and in preventing damage from buckling or bending of the rod or bending of the parts due to the angular movement of the actuating-lever, all as
20 more fully hereinafter described.

In the drawings, Figure 1 is a vertical central longitudinal section through my improved temperature-regulator. Fig. 2 is a plan view of the bell-crank-actuating lever. Fig. 3 is a vertical section thereof enlarged. Fig. 4 is an enlarged section of the connecting-coupler between the valve-stem and rod.

30 A is the frame, adapted to be secured to the wall of the chamber the temperature of which is desired to be governed.

B is a thermic cell or thermostat secured centrally to this frame and acting expansibly against the lever C, which is pivoted at the lower end of the frame and extends to the upper end thereof, where it pivotally connects with the bell-crank lever D, extending to the rear of the frame. The rear end of this lever is bifurcated and between the bifurcations is pivoted the block E, constituting a hinged
40 extension of the lever, having a screw-threaded aperture with which the upper end of the rod F engages, the rod being suitably screw-threaded to engage therewith. This rod is provided with a suitable aperture G, through
45 which a pin may be placed to turn the rod to adjust it vertically in the block E.

H is a rigid hollow frame connecting the frame A with the valve-casing I.

J is a valve-stem slidingly engaging through

a stuffing-box and adapted to open and close 50 more or less the passage through the valve to increase or diminish the supply of steam.

K is a coupling provided with a screw-threaded socket at its lower end, with which the upper end of the stem J engages and at
55 its upper end provided with a spherical socket, in which the ball L, formed on the lower end of the rod F, engages, forming a ball-and-socket joint between the valve-stem and the rod. This ball-and-socket joint allows of rotating the rod F without turning the valve-
60 stem J.

It frequently happens in the use of such an apparatus that when the temperature becomes excessive from any cause the expansion of the material in the thermic cell D
65 brings great pressure upon the rod F. This rod is usually of small size, and this pressure will cause the rod to buckle or bend. The result of this will be (if the connection is made
70 directly from this rod to the valve-stem without intermediate flexible joint) to bend the rod at or near the stuffing-box and prevent the proper working of the stem through such
75 stuffing-box, greatly impairing the effectiveness of the device. With the ball-and-socket joint the buckling or bending is taken up between it and the bell-crank lever, thus maintaining the accuracy of operation even if the rod remain bent.
80

In the use of such a device, as shown in Fig. 1, the vertical movement of the bell-crank lever causes the rod to assume an angular position, as plainly shown in Fig. 3. This ball-and-socket joint also takes up this angular
85 movement without bringing any added friction on the stuffing-box or rod.

What I claim as my invention is—

1. In a temperature-regulator, the combination, with a thermostat, of a lever actuated
90 thereby, a hinged extension on said lever, a connecting-rod arranged at right angles to said lever and secured to said extension, and a valve connected with the rod, substantially as described.
95

2. In a temperature-regulator, the combination of the thermostat, the valve, the connecting-rod, the lever D, the block E, pivoted in

said lever, the screw-threaded engagement between the rod and block, and the ball-and-socket joint in the rod at or near the valve, substantially as described.

- 5 3. In a temperature-regulator, the combination, with the thermostat, the valve, and the connecting-rod, of the ball L, formed on the end of the rod, and the coupling K, engaging with the valve-stem at one end and having a socket

at the other end in which the ball is secured, 10 substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES F. McELROY.

Witnesses:

ALMON C. BROWN,
H. J. NODINE.