

(No Model.)

2 Sheets—Sheet 1.

J. F. McELROY.
TEMPERATURE REGULATOR.

No. 471,523.

Patented Mar. 22, 1892.

Fig. 3.

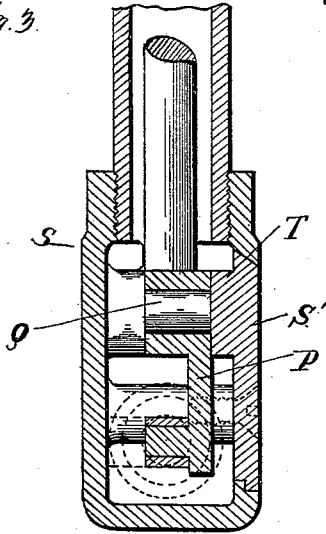
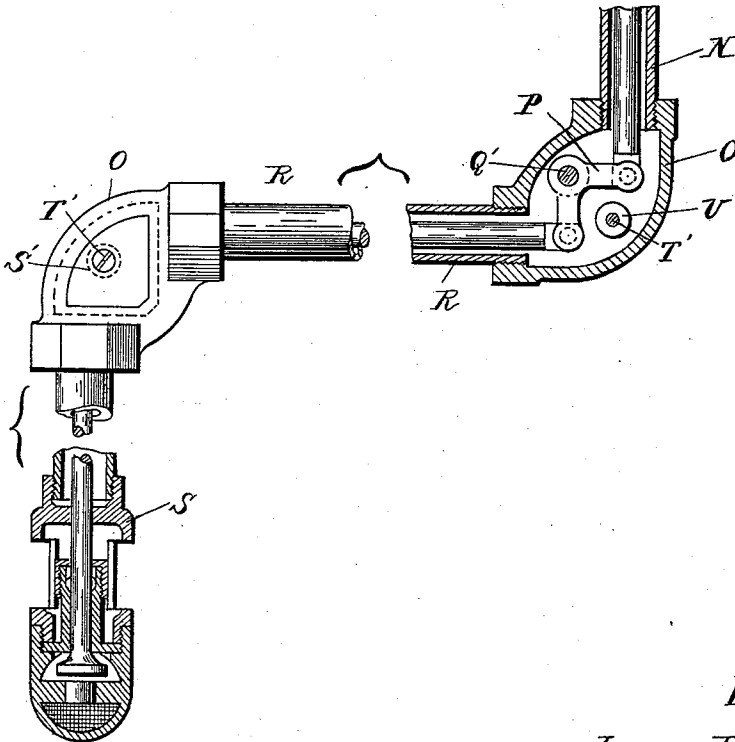
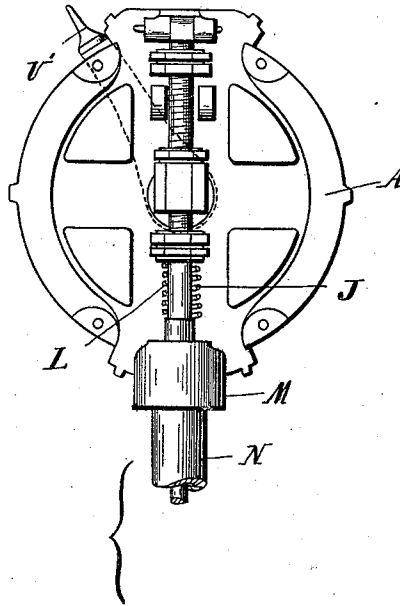


Fig. 1.



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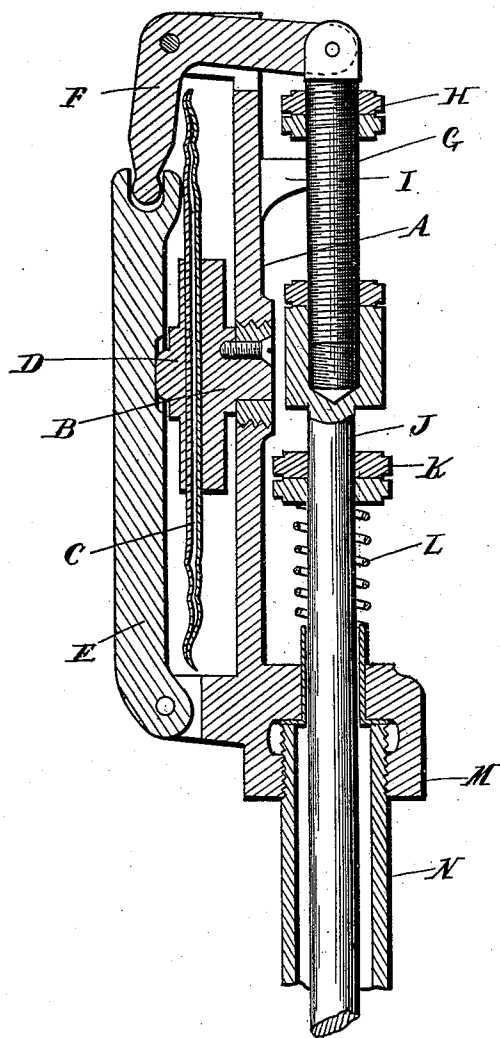
2 Sheets—Sheet 2.

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Fig. 2



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UNITED STATES PATENT OFFICE.

JAMES F. McELROY, OF ALBANY, NEW YORK.

TEMPERATURE-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 471,523, dated March 22, 1892.

Application filed February 11, 1891. Serial No. 381,103. (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 a temperature-regulator whereby it may be adjusted to open or close a valve or damper at varying temperatures, and, further, in the peculiar construction of the connecting mechanism between the temperature-regulator and the valve or damper, and, further, in the peculiar construction, arrangement, and combination of the various parts, all as more fully hereinafter described.

15 In the drawings, Figure 1 is a front elevation of my improved damper-regulator, showing the connections to the valve and the valve and one of the elbows in section. Fig. 2 is a vertical central section through the temperature-regulator, partly in elevation. Fig. 3 is a vertical section through the elbow.

20 A is the frame of the temperature-regulator, which is centrally provided with a screw-threaded aperture, in which a block or plug B, having a suitable screw-threaded shank, engages. To this block is secured an expansion-chamber C, preferably formed of two circular disks secured together at their edges. This expansion-chamber is provided on its front face centrally with a bearing-plate D, which bears against the lever E, pivoted at the lower end of the frame and extending to near the top thereof, where it engages with one end of a bell-crank lever F, pivoted in the frame, the other end extending to the rear of the frame, where it is connected with a vertical actuating-rod G. This rod is screw-threaded and is provided with lock-nuts H, adapted to strike against a rod or flange I to limit the movement of the rod, so as to prevent damage to the valve or valve-seat. This rod connects at its lower end with the upper end of the rod J, which is suitably guided through the frame of the machine.

50 K are lock-nuts on the rod J, against which

the spring L bears to hold the valve normally in its open position.

The frame A is provided at its lower edge with a screw-threaded socket M, into which a pipe N engages, this pipe forming a rigid frame to connect the valve-casing of the steam-supply valve with the frame of the temperature-regulator, so that the valve-casing and temperature-regulator frame may always remain at a fixed distance apart. It frequently happens in such constructions that the temperature-regulator cannot be placed directly over the valve, in which case it becomes necessary to use an elbow O in the pipe N. This elbow is of such shape as to allow of a bell-crank lever P being pivoted therein upon a pin Q, which I preferably cast integral with the elbow-casing. One arm of the bell-crank extends in line with the vertical pipe N and the other arm extends in line with the horizontal section R, which extends a suitable distance to a point over the valve-casing S, another elbow with a suitable bell-crank lever being placed over the valve to give a vertical movement to the valve-stem, as plainly shown in the drawings. One side of the elbow is open, and this is adapted to be closed by means of a face-plate S', which has a lug T against the end of the pin Q to hold the bell-crank lever upon its pivot. It is also provided with a suitable aperture to receive a screw T', entering a hollow post U to secure the cap in position. By means of this construction I am enabled to construct a rigid frame from the frame of the temperature-regulator to the valve-casing, making all necessary bends.

As the pins upon the ends of the bell-crank lever loosely engage in the ends of the rods, being held from displacement by the plate S', it is evident that if that plate is taken out the bell-crank lever is detached by simply withdrawing it from its pivot-post and withdrawing the pins from the ends of the connecting-rods.

In order to vary the operation of my thermostat, I connect to the block B a suitable hand-lever U', by means of which the block, together with the expansion-chamber, may be turned. The turning of this block by means of the screw-threaded shank engaging in the screw-threaded aperture carries the expan-

sion-chamber toward or from the lever E, requiring a greater or less expansion in the expansion-chamber to effect said lever and the valve.

- 5 I have found that with a comparatively small movement of the lever U I could vary the point at which the valve would be closed from eight to ten degrees.

What I claim as my invention is—

- 10 1. The combination, with a thermostat, its frame, and a valve controlled thereby, of a rigid frame connecting the valve-casing and thermostat-frame and comprising an elbow or bend, a bell-crank lever pivoted in the elbow, 15 and an actuating-rod connected thereto and extending on both sides thereof, substantially as described.

2. In a temperature-regulator, the combination, with the frame, of a thermostat consisting of a cell containing an expansible medium, a central screw-threaded shank secured to said cell, and a lever for rotating said cell and adjusting it to or from the actuating medium, 20 substantially as described.

- 25 3. The combination, with a temperature-regulator and a rigid tubular frame connecting the frame of the regulator with the valve-

casing, of an elbow O, having a pin cast integral therewith, a bell-crank lever having a socket formed thereon adapted to fit upon said pin, and bearings at the end of said lever to connect with the actuating-rods, substantially as described. 30

4. In a device of the kind described, the combination, with the tubular frame, of the elbow O, having the pin Q cast integral therewith, the bell-crank lever P, and the face-plate S', forming a cap for the pivot-pin Q, the parts being arranged to operate substantially as and for the purpose described. 35 40

5. In a temperature-regulator, the combination, with a supporting-frame and valve-actuating mechanism on the frame, of a thermic cell arranged between the mechanism and the frame, a supporting projection on the cell, and an adjustable connection between the projection and frame, substantially as described. 45

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

JAMES F. McELROY.

Witnesses:

EDWIN A. SMITH,
H. J. NODINE.