

L. C. BALDWIN.
Heat-Regulator.

No. 227,201.

Patented May 4, 1880.

Fig: 1.

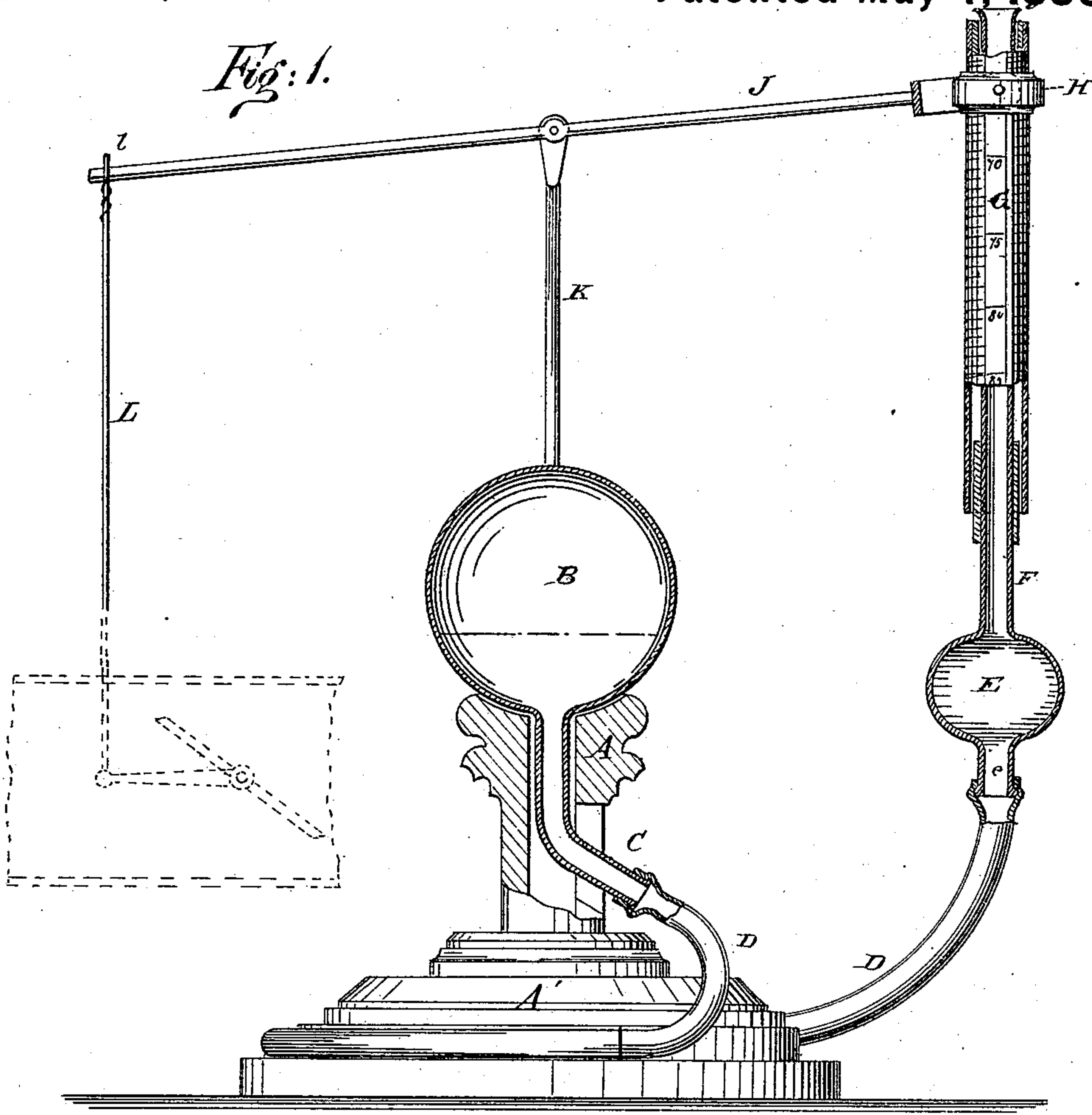
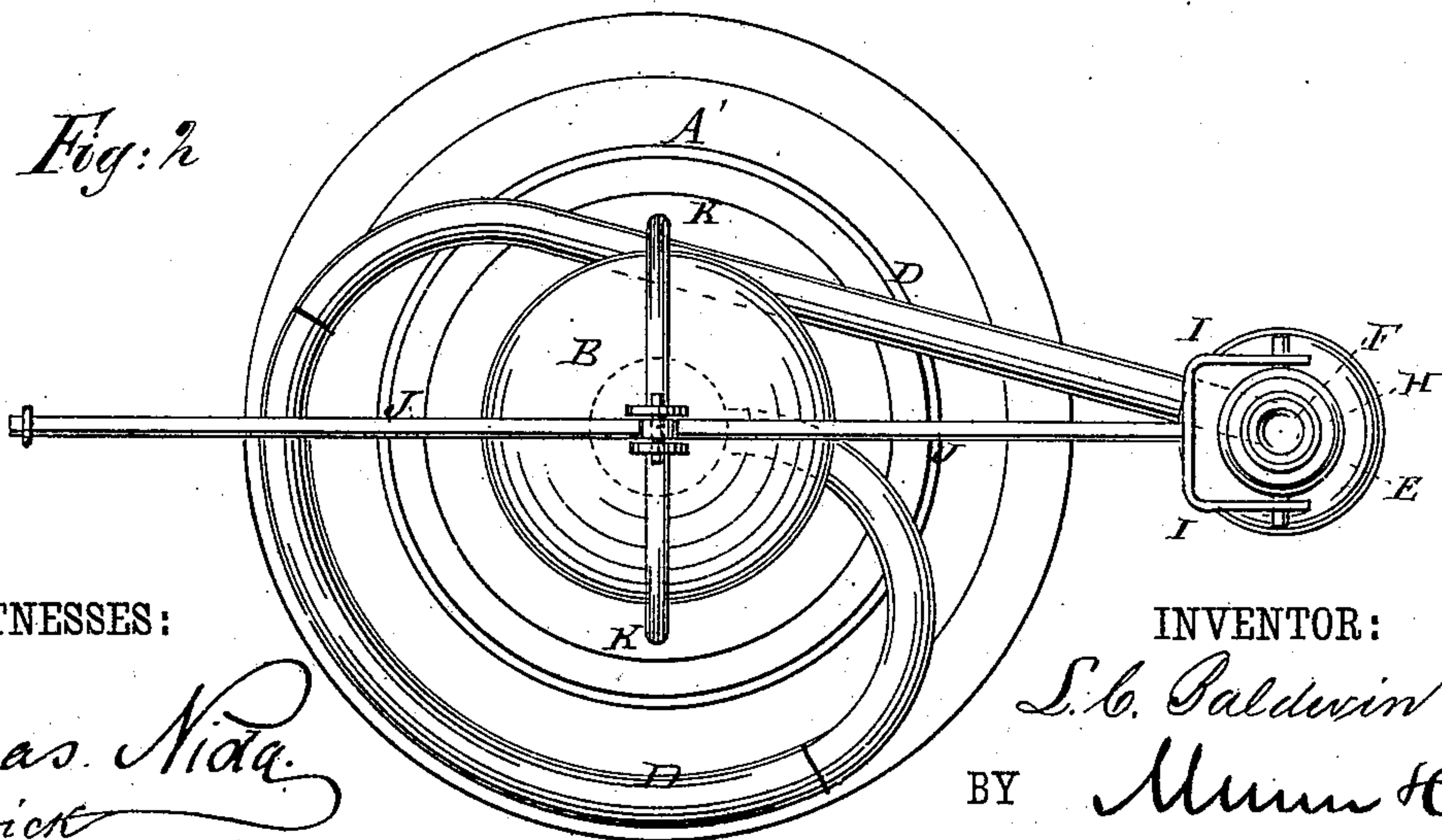


Fig: 2



WITNESSES:

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UNITED STATES PATENT OFFICE.

LUTHER C. BALDWIN, OF MANCHESTER, NEW HAMPSHIRE.

HEAT-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 227,201, dated May 4, 1880.

Application filed October 23, 1879.

To all whom it may concern:

Be it known that I, LUTHER CHASE BALDWIN, of Manchester, in the county of Hillsborough and State of New Hampshire, have
5 invented a new and Improved Heat-Regulator, of which the following is a specification.

The object of my invention is to provide a new and improved automatic heat-regulator, simple in construction, and so arranged as to
10 operate, under the smallest changes of temperature, upon the valves of the source of heat.

The invention consists in a heat-regulator formed of a glass bulb resting upon a standard, and connected by means of a rubber tube
15 with another smaller bulb suspended from one end of a lever, the other end of which may be connected with the valve of an air-pipe or other device for regulating temperature. A small quantity of ether and some mercury are
20 placed into the larger bulb, so that when the ether expands it forces the mercury into the small bulb, thus increasing the weight on one end of the lever, and thus raising the other end, with which the draft-check is connected;
25 or, if the ether contracts, the reverse movements will take place.

In the accompanying drawings, Figure 1 represents a partial front elevation and longitudinal vertical section of the apparatus. Fig.
30 2 is a top view of the same.

Similar letters of reference indicate corresponding parts.

A represents a standard resting upon a base, A', and supporting a bulb, B, of glass or other
35 suitable material, and provided with a neck, C, that passes through the standard A, and is connected with a soft-rubber tube, D, the other end of which is connected with the lower projection, e, of a similar bulb, E.

40 The bulb E is provided with a long-neck tube, F, the upper end, f, of which is flared outward and rests upon the upper edge of a threaded and graduated metal tube, G, between which and the tube F there is a packing at the upper and lower ends to prevent
45 breaking of F.

The threads of the tube G take in the threads of a ring, H, threaded on the inner side and pivoted between the arms of a fork, I, attached to one end of a lever, J, pivoted between the rods K. A wire, L, that is attached

to the end l of the lever J opposite the fork I, is also attached to the draft-check, damper, stove-door, or some similar contrivance, by means of which hot or cold air can be excluded.
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The bulb B contains a small quantity of ether or some other volatile substance, and is about half-filled with mercury. As the ether is much lighter than the mercury, it will always remain
60 on top of the same.

The operation is as follows: If it is desired to keep the temperature of the room at 70°, the bulb E is adjusted, by means of the tube G, so that the mercury just shows in the bottom of
65 E at 70°. If the temperature rises above 70° the ether in the bulb B will expand, and will force the mercury from B to the bulb E, thus increasing the weight on the forked end of the lever, causing the same to descend. The other
70 end, l, rises, and as it is connected with the draft-check, &c., it closes the same, thus shutting off the heat. If the temperature falls below 70° the ether will condense and produce a vacuum in B, and the mercury will pass from
75 E into B. The forked arm of the lever J will then be lighter than the other end, will rise, and the draft-check, &c., is opened, thus admitting heat.

The end l of the lever can be connected with
80 any suitable device for shutting off the heat or admitting cold air, as may be desired.

The tube G can be graduated so that a thermometer is not required, so that if it is desired to keep the temperature at a certain degree
85 the ring H is set at the corresponding mark on the scale.

This apparatus can be used to regulate the supply of heat from any source, and in case the heat source is situated a considerable distance from the regulator, they can be connected by wires and bell-crank levers.
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Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—
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1. In a heat-regulating apparatus, the combination of the lever J with the fork I, the threaded ring H, the threaded tube G, and the bulb E, substantially as herein shown and described, and for the purpose of raising and
100 lowering the weight on the forked end of the lever, as set forth.

2. In a heat-regulating apparatus, the combination of the lever J with the bulbs B and E, connected by the tube D, and the threaded graduated tube G, substantially as herein
5 shown and described, and for the purpose set forth.

3. The within-described heat-regulating apparatus, consisting of a bulb, B, containing ether and mercury, and connected by a rubber

tube with another bulb, E, suspended from one end of a lever, J, the other end of which is connected with a valve acting upon the source of heat, as described.

LUTHER CHASE BALDWIN.

Witnesses:

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