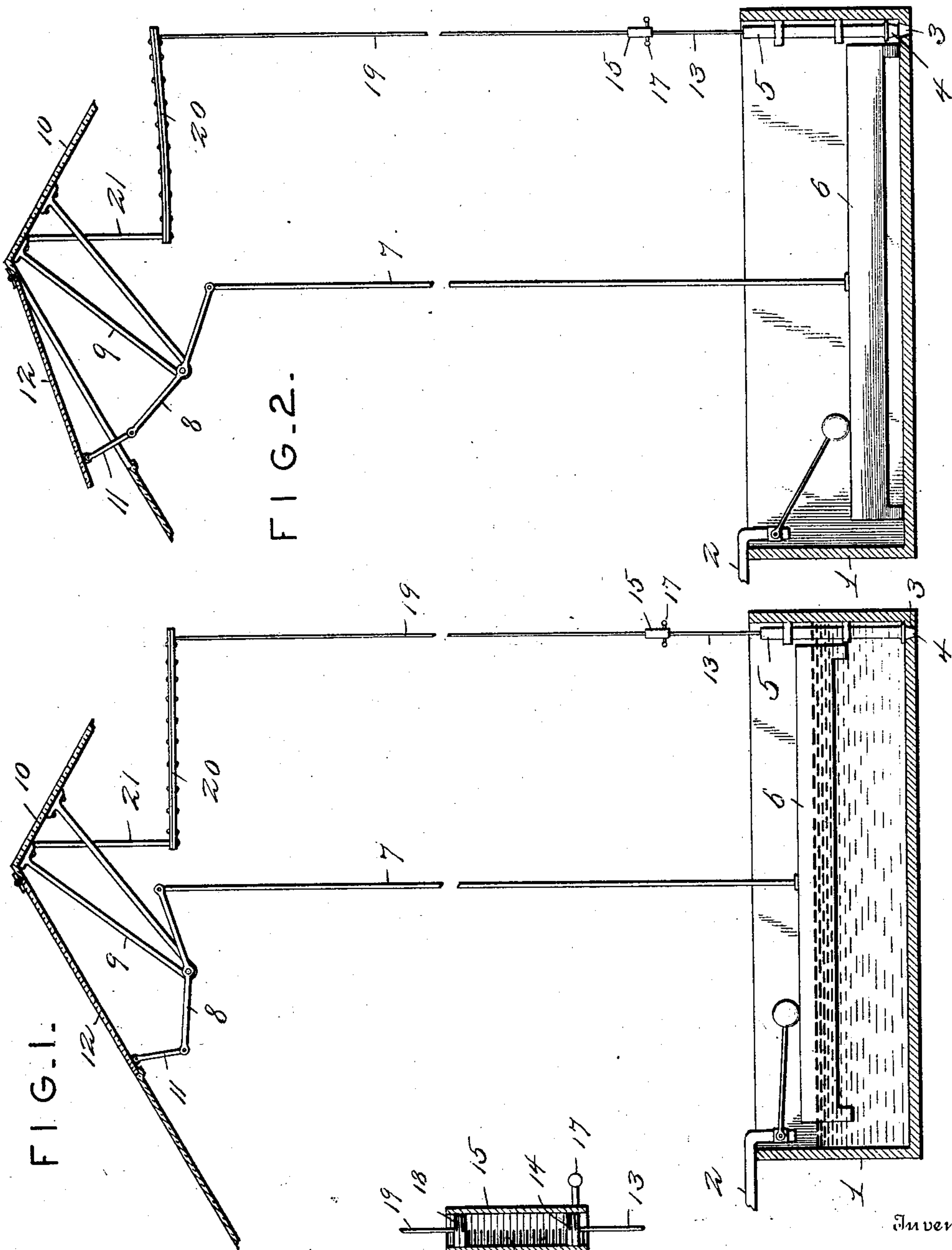


No. 755,928.

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J. PETERSON.
HEAT REGULATOR.
APPLICATION FILED SEPT. 2, 1903.

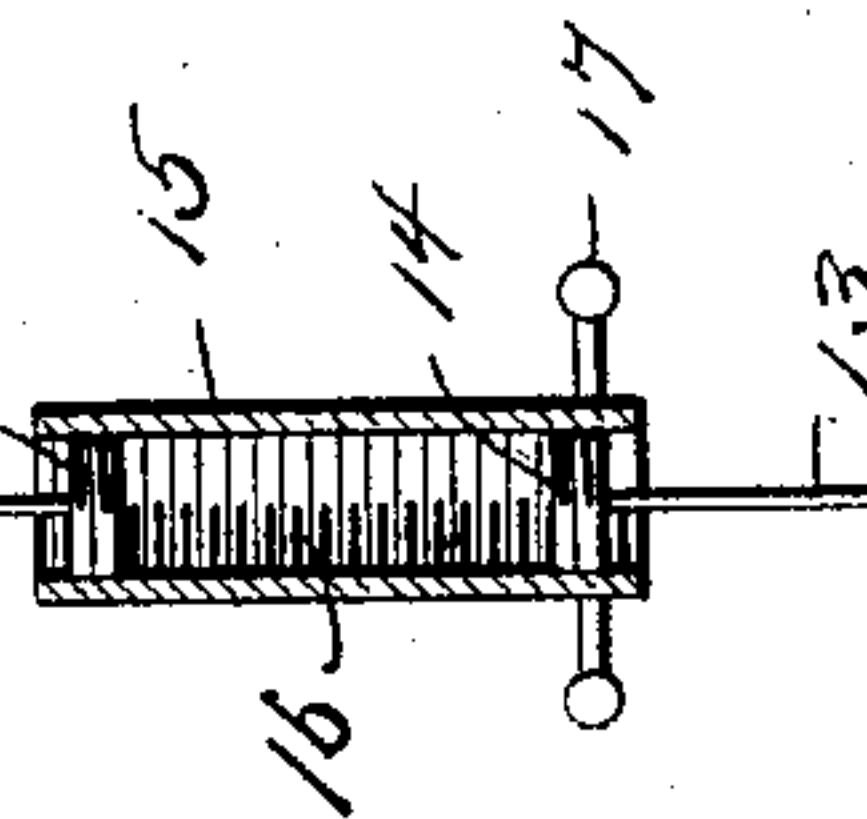
NO MODEL.



Witnesses

Harry L. Amer.
Chas. S. Hoyer.

FIG. 3.



Inventor

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By

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UNITED STATES PATENT OFFICE.

JOHN PETERSON, OF CALDWELL, NEW YORK.

HEAT-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 755,928, dated March 29, 1904.

Application filed September 2, 1903. Serial No. 171,675. (No model.)

To all whom it may concern:

Be it known that I, JOHN PETERSON, a citizen of the United States, residing at Abenia, Caldwell, in the county of Warren and State of New York, have invented new and useful Improvements in Heat-Regulators, of which the following is a specification.

This invention relates to heat-regulators of that class in which an expanding and contracting element is caused through intermediate devices to govern or control the temperature of an apartment, whereby the latter may be kept at a certain predetermined degree.

In the present improvement a thermostatic assemblage of elements is combined with a water-tank having a float therein to control the opening of a heat-regulator to temper the interior of a hothouse or other apartment, the several elements operating by their expansion to release a valve controlling an outflow-opening in the tank and permit the float in the latter to lower and forcefully operate a lever or similar device to open a heat-regulator. The same construction and arrangement of parts can be equally well applied to a damper of a stove without the least modification in the essential features of the invention.

The purpose of the present invention is to provide a simple and effective means to regularly and automatically control and maintain a certain desirable degree of heat within an inclosure without requiring the constant care of an attendant.

In the drawings, Figure 1 is a longitudinal vertical section of a water-tank, showing a float therein, a portion of a hothouse-roof, a heat-regulator, and thermostatic devices, together with connections for the float, embodying the features of the invention, the heat-regulator being shown closed. Fig. 2 is a similar view showing the heat-regulator open and the float in the tank lowered. Fig. 3 is an enlarged sectional view of an adjusting means for a part of the thermostatic devices.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a water-tank of any suitable dimensions and proportions, into which extends the extremity of a water-sup-

ply pipe 2, provided with an ordinary form of automatically-operating float cut-off valve. The bottom of the tank is formed with a valve-seat 3, adapted to be engaged by a valve 4, having an upwardly-extending elongated stem 5. In the tank a float 6 is disposed and has a rod 7 projecting upwardly from the center thereof and connected at its upper end to one terminal of a bell-crank or analogous lever 8, fulcrumed at an intermediate point to a depending bracket 9, secured in the present instance to a roof 10 of a hothouse. The opposite end of the bell-crank lever 8 is movably attached to a link 11, also pivotally connected to the free edge of a heat-regulator 12. The heat-regulator 12 is of that class usually employed in connection with the roofs of hothouses or other light inclosures, and for the purpose of demonstrating one practical application of the invention the lever 8 is shown arranged to open the heat-regulator. It is obvious, however, that a damper or other heat-controlling device might be equally well connected to the rod 7 or lever 8, and the operation of controlling the temperature of an apartment or inclosure could thus be automatically and regularly carried on. It is also proposed to equip the water-tank 1 with such devices as are usually found in these structures—for instance, an overflow-pipe might be employed; but it would be rarely necessary to use an overflow-pipe, particularly where the valve of the supply-pipe 2, as shown, is automatically closed by a float attachment.

Secured to the upper end of the valve-stem 5 is a smaller rod 13, having a screw-head 14 at its upper end, as clearly shown by Fig. 3, fitted in an adjusting-sleeve 15, having interior screw-threads 16, the said sleeve also being provided with lower turn-bars or projections 17. A second screw-head 18 engages the upper portion of the sleeve and has a small rod 19 centrally attached thereto and projected upwardly to one end of a sensitive thermostat-arm 20. The upper end of the rod 19 is secured to the end of the thermostat-arm 20, and the opposite end of the latter is firmly held by a hanger-rod 21, depending from the roof 10 of the hothouse. This thermostat-arm is made up of laminæ of metal,

which will readily expand and contract under changes of temperature. This arm being rigidly held by the hanger-rod 21 will be obstructed in its expansion under certain high temperatures in the direction of said rod, and a certain resistance to longitudinal expansion also being set up by the rod 19 will cause the arm 20 when it expands to curve upwardly or rise at the end to which the rod 19 is attached, and consequently the valve-stem 5 and valve 6 will be elevated to permit the water to flow out from the tank 1. The valve-stem 5 will be steadied in its movement by suitable guides, as shown, so that the valve 4 will always be held in operative relation to the valve-seat 3. When the water is permitted to flow out from the tank 1, the float 6 lowers and draws downwardly on the rod 7, which through the bell-crank lever 8 and link 11 will throw the heat-regulator 12 open, as clearly shown by Fig. 2, to admit air into the hothouse or other apartment, and when the temperature again lowers to the degree desired the arm 20 returns to normal position and closes the valve 4, so that the water which has been flowing into the tank during the time that the heat-regulator was open will cause the float 6 to gradually rise and reverse the movement of the bell-crank lever 8 and link 11 and gradually close the heat-regulator. It will be understood that if a considerable length of time elapses before the temperature in the apartment reaches the degree desired after the heat-regulator has been automatically opened the water flowing into the tank 1 will not affect the float 6, but will pass out from said tank, and hence the operation of the device as an entirety is rendered positive.

The valve 4 may be adjusted through the medium of the sleeve 15 with respect to the thermostatic member so that it will open at

different temperatures, and by the use of said sleeve the rods 13 and 19 are rendered virtually continuous.

As before indicated, the improved apparatus is not limited in its application, but may be used for many purposes, and more than one of the devices may be disposed in the same apartment.

Though the preferred form of the device or apparatus has been explained and illustrated, it is obvious that changes in the proportions, dimensions, and minor details may be resorted to without in the least departing from the spirit of the invention.

Having thus fully described the invention, what is claimed as new is—

1. In an apparatus of the class set forth, the combination with a heat-regulator, of a tank provided with liquid-supply and outlet means, a float in the tank directly connected to the heat-regulator, and thermostatic devices controlling the operation of the outlet means.

2. In an apparatus of the class set forth, the combination with a heat-regulator, of a tank having a valved liquid-supply provided with a float and an outlet-opening, a large float loosely disposed in the tank and directly connected to the heat-regulator, the rising-and-falling movements of the large float respectively opening the valve of the liquid-supply through the throat of the latter and permitting said float to close the valve, and a thermostatically-controlled valve cooperating with the said outlet-opening.

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

JOHN PETERSON.

Witnesses:

HARVEY TUBBS,
ALBERT ASPERN.