(No Model.)

C. A. TUCKER.

ELECTRIC TEMPERATURE REGULATOR.

No. 328,156. Patented Oct. 13, 1885.

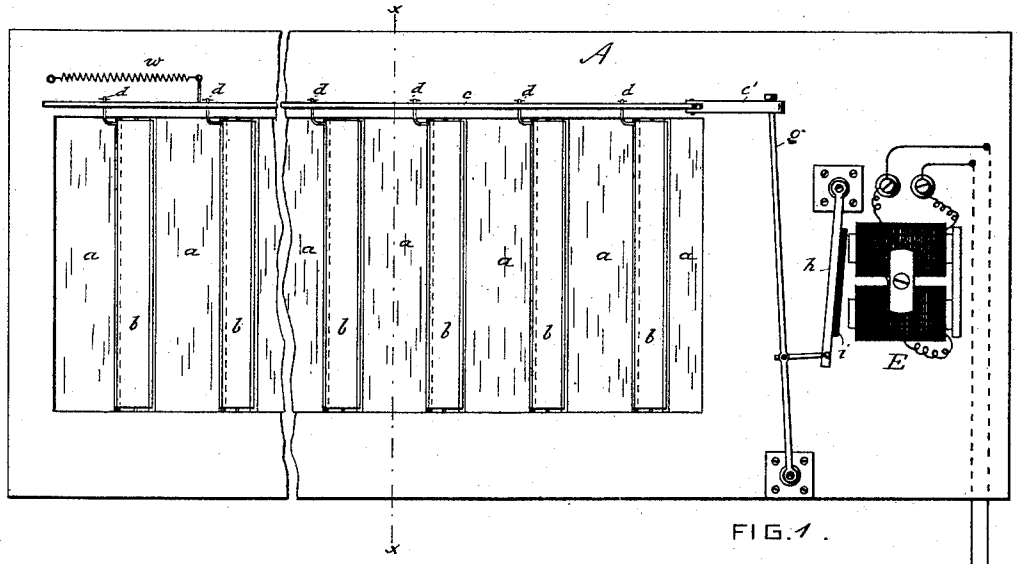


FIG. 1.

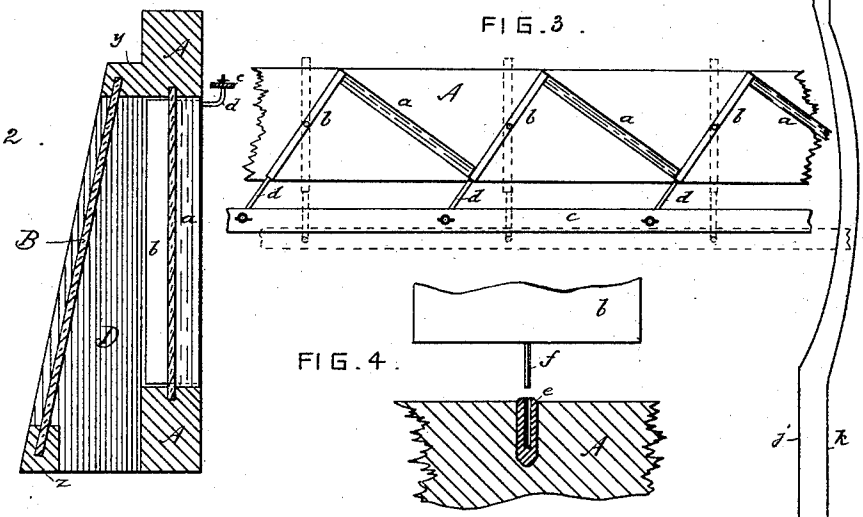


FIG. 2.

FIG. 3.

FIG. 4.

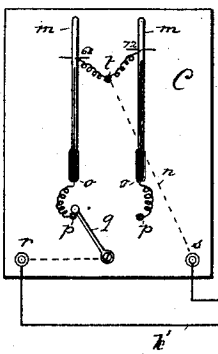
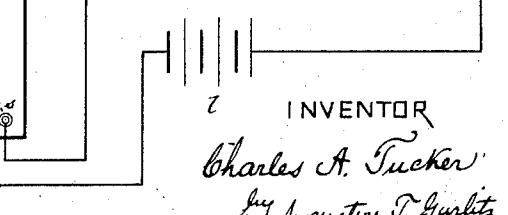


FIG. 5.



WITNESSES

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ELECTRIC TEMPERATURE-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 328,156, dated October 13, 1885.

Application filed June 4, 1885. Serial No. 167,674. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. TUCKER, residing in the town of Islip, in the county of Suffolk and State of New York, have invented certain new and useful Improvements in Electric Temperature-Regulators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

The object of this invention is a new and useful device for changing the air in rooms, halls, churches, and other structures by providing a sheltered chamber open to the outer atmosphere, and a passage between it and the place in which it is desired to regulate the temperature, and means to open and close such passage automatically by the employment of an electric current.

Figure 1 is a front view of my improved temperature-regulator. Fig. 2 is a cross-sectional elevation of the same, through the line *x x* of Fig. 1. Fig. 3 is a plan view of a portion of the same, the top of the frame removed to show the parts clearly. Fig. 4 is a detail view of a part of the movable slat *b* and its bearing. Fig. 5 is a front view of an arrangement of thermometers adapted to be used with my regulator.

Similar letters of reference indicate like parts in all the drawings.

A is a frame of suitable size to fit into the opening designed, having outwardly-projecting portions *y z*, and roof B, which is made preferably of glass, to form the outer chamber, D, which is inclosed on all sides, but open at the bottom. This frame A is usually made to fit into a part of a window or other suitable opening, and has the roof B far enough from it to leave the outer chamber, D, as large as may be desired.

In the frame A, I arrange vertical stationary slats *a a*, permanently fixed in position diagonally across the frame, as shown clearly in Fig. 3, and leaving open spaces between them. The drawings show these slats *a a* made of glass, which is the material I prefer to use when it is desired to admit the light, although other materials may be used. Into the open spaces between the fixed slats *a a*, I fit movable slats *b b*, which are pivoted between the fixed slats so that they may be turned straight across the frame A to open the spaces between the fixed slats, as is indicated by the dotted lines in Fig. 3, and these slats *b b* are of such size that when they are turned diagonally across the frame they will close the spaces between the slats *a a*. The object of having these pivoted slats stand straight across the frame when the spaces are to be open, is to have them present the least surface to the currents of air passing through the openings so that they may not be turned thereby. These pivoted slats *b b* are preferably made of metal, which is the material indicated in the drawings, and I use thin brass plates, which I have found will produce good results. Into the top and bottom of these slats I fit little pintles *f*, preferably made of steel, and into the upper and lower parts of the frame I drive little metal bearings *e* for the pintles, preferably made of brass, as is shown in Fig. 4, by which arrangement the pivotal movements can be made with very little friction.

To the tops of the slats *b b* arms *d d* are attached, which pivot them all to the horizontal rod *c*, and this rod *c* is pivotally connected at one end to the compound lever *g h* by means of the arm *c'*; and to a part of the frame A a spring, *w*, is attached to draw the rod *c* in one direction to hold the slats *b b* diagonally across the frame A and close the openings between the fixed slats.

To the arm *h* of the compound lever an armature, *i*, is attached, near which is located the electro-magnet E in such position that when the armature is attracted to the magnet the lever will draw the rod *c* far enough to bring the slats *b b* straight across the frame. One wire, *k*, runs from the magnet E to the battery *l*, and a wire runs from the battery to the bulb of a thermometer. The other wire, *j*, runs from the magnet to the tube of the thermometer, where it is hermetically sealed at any desired degree of temperature indicated.

In case only one standard of temperature is provided for, only one thermometer need be employed, arranged as above described; but if several standards of temperature are to be provided for, I employ more than one thermometer, arranged as shown in Fig. 5.

C is a frame on which two thermometers are

placed side by side, each of them having a wire, preferably platinum, fused into their tubes *m m* at a determined degree of temperature, in the drawings shown at 68° and 72°, respectively. These tube-wires meet at *t*, and are carried to a binding-post, as *s*, where they are brought into electrical connection with the wire *j*.

The bulb-wires *o o* are independently brought to the switch-buttons *p p*, which buttons are placed in contact distance, radially, of the switch *q*, and this switch *q* is electrically connected through the binding-post *r*, wire *k'*, and battery *l*, and wire *k*, to the magnet E, and thereby an electric circuit may be formed through either thermometer.

I have shown two thermometers only; but more may be arranged on the frame C and employed in the same manner, where it is likely that greater variations of temperature may be required at different times, as in sick rooms or hospitals, &c.

The advantage of using a separate thermometer for each standard of temperature is that each thermometer can then be made air-tight and the mercury retained in vacuum, by which oxidation is retarded, and the thermometers will last a long time.

The thermometer-frame C is adjusted on that level in the room at which it is desired to have the temperature kept even—*e. g.*, on the level of a bed, &c.

The operation is as follows: When the temperature rises in the room to the maximum point desired, the mercury in the thermometer-tube rises, and when it touches the tube-wire it closes the electrical circuit, whereby the magnet E becomes excited and attracts the armature *i*, which operates the levers *g h*, drawing the rod *c*, and holding the slats *b b* in position straight across the frame A, unclosing the openings between the fixed slats *a a* and allowing the cold air to pass into the room and the warm air to pass off through the outer chamber, D, until the temperature has been reduced, when the mercury again falls, breaking the circuit, and the spring *w* draws the rod *c* and closes the openings.

The air-chamber D not only protects the slats and passage from rain and snow, but the air confined therein is also tempered before entering, and makes but little disturbance on coming into the room; and by the arrangement of slats described the friction in operation is so slight that very little battery-power is required to operate the device.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A temperature-regulator consisting of an outer chamber, D, frame A, slats *a a* and *b b*, and the rod *c* and its connections, in combination with a suitable electric device for operating the same, arranged substantially as described and shown.

2. A temperature-regulator consisting of a frame, A, chamber D, fixed slats *a a*, movable slats *b b*, and rod *c* and its connections, in combination with a magnet, E, and battery *l*, electrically connected with a suitable thermometer, substantially as described and shown.

3. A temperature-regulator consisting of a chamber, D, frame A, having fixed slats *a a*, movable slats *b b*, and rod *c* and its connections, in combination with two or more thermometers connected from their tubes electrically through the magnet E, and battery *l*, with the switch *q*, the bulb of each thermometer connected independently with a button, as *p*, substantially as described and shown.

CHARLES A. TUCKER.

Witnesses:

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