

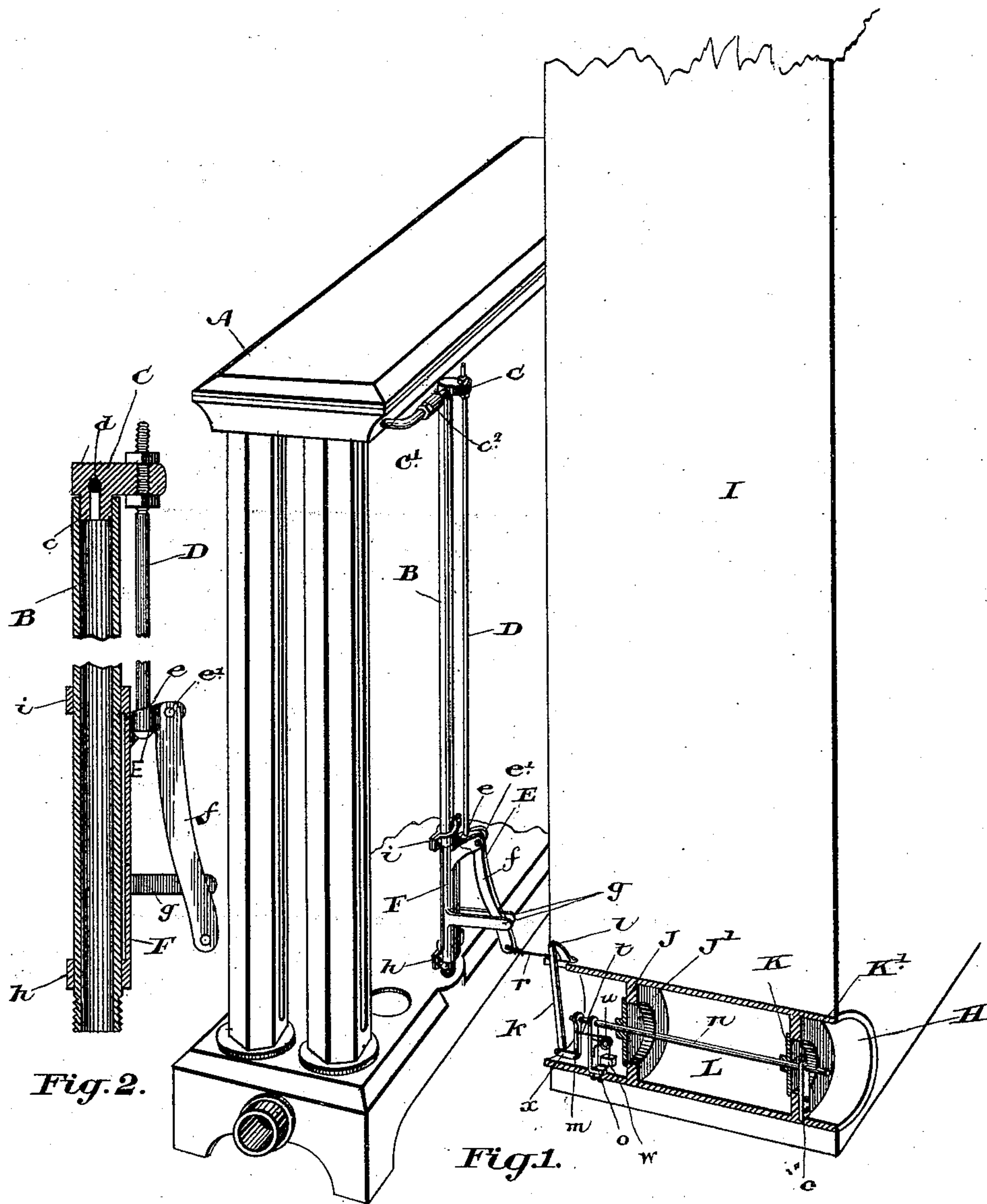
(No Model.)

E. GURNEY & C. W. PENISTON.

TEMPERATURE REGULATOR.

No. 378,835.

Patented Feb. 28, 1888.



Witnesses.

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UNITED STATES PATENT OFFICE.

EDWARD GURNEY AND CHARLES W. PENISTON, OF TORONTO, ONTARIO, CANADA, ASSIGNORS TO THE E. & C. GURNEY COMPANY, (LIMITED,) OF SAME PLACE.

TEMPERATURE-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 378,835, dated February 28, 1888.

Application filed June 20, 1887. Serial No. 241,880. (No model.)

To all whom it may concern:

Be it known that we, EDWARD GURNEY, manufacturer, and CHARLES WILLIAM PENISTON, clerk, both of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have jointly invented a certain new and useful Improved Ventilator, of which the following is a specification.

The object of the invention is to provide a device by which the admission of fresh air into an apartment may be automatically regulated in such a manner that the general temperature shall not be materially lowered; and it consists, essentially, in inserting in the wall of the apartment an air-flue provided with two valves acting upon two seats formed within the flue at a suitable distance apart, so as to leave a dead-air space between them when the valves are seated, mechanism arranged to connect the valves with a radiator or other heater being provided, and so constructed that the increase or decrease of the temperature of the radiator or other heater is utilized for the purpose of opening and closing the valves located within the air-flue, substantially as hereinafter more particularly explained.

Figure 1 is a perspective view, partially in section, exhibiting the mode of operating our device. Fig. 2 is a detail in section of the expansion-pipe and attachments.

In the drawings like letters of reference indicate similar parts in the different figures.

In Fig. 1, A is a radiator of ordinary construction, and B is the expansion-pipe rigidly attached at its bottom to the base of the radiator, through which the hot water or steam which circulates through the radiator passes. At its top (see Fig. 2) it is sleeved and soldered onto a projection, *c*, formed on the cap C, which cap is bored or hollowed out at *d* to permit of the passage of the steam or water which circulates through the expansion-pipe B and through the bent pipe C' back into the body of the radiator. The elbow-pipe C' is screwed into a hole communicating with the interior of the radiator, and is connected by a coupling, *c*², to the cap C on the top of the expansion-pipe B.

D is a rod rigidly attached at its top to the

outer end of the bracket or cap C, and at its lower end it is attached to the short arm *e* of the bent lever E in such a manner as to admit of play. The bent lever E is pivoted at *e'* to a bearing formed on the half-sleeve F, which also provides guides *g*, between which the long arm *f* of the bent lever E is adapted to move. The half-sleeve F is rigidly secured at its lower end by the half-clip *h* to the expansion-pipe B, and is also secured to said pipe at the upper end of said half-sleeve by the clip *i* in such a manner as to admit of a slight play. To the lower end of the long arm *f* of the bent lever E is attached a piece of cord or wire, *r*, which attaches it to the valve-lever *k* near its fulcrum or pivot point *l*, thus forming a lever, *k*, of the "third class." The lower end of this lever *k* is pivotally attached at *x* to the end of the handle *m*, which is adapted to communicate the inward pull of the lever *k* to the valve-shaft *n*, which may slide easily through bearings in the small brackets *o*, suitably placed, as indicated in the body of the air-flue H, formed in the wall I of the building or apartment. This valve-shaft *n* has rigidly attached thereto the valves J and K, which are adapted to open and close the apertures in the valve-seats. The valve K, with its valve-seat K', is placed in the air-flue H near the outside, with the valve-seat K' nearest to the outside, and the valve J, with its valve-seat J', is placed in the air-flue H toward its outside end, the valve J being nearest to the inside of the apartment, so as to form when the valves are closed and the cold air is excluded a dead-air space, L, which more effectually excludes the cold outside air.

It will be seen that when the expansion-pipe B has become expanded or elongated by the passage of the heated water or steam through it it slightly pushes up the cap C, the elbow-pipe C' slightly springing, thus elevating in a very slight degree the rod D. This slight upward movement of the rod D raises the short arm *e* of the bent lever E, drawing the end of the long arm *f* toward the radiator, and by its attachment to the lever *k* by the cord or wire *r* carries with it the valve-shaft *n* by means of the handle attachment *m*.

By referring to the drawings it will be seen that the series of levers employed multiplies the slight upward pull of the rod D to such an extent as to cause the valve-shaft *n* so to slide
5 on its bearings as to freely raise the valves J and K off their seats J' K', admitting the outside air into the chamber.

The inside end of the ventilating-aperture H is so situated with respect to the radiator A
10 as to cause the cold air which enters to pass or be drawn into the base of the radiator, whereby it becomes heated and rises through the radiator, passing through holes in the base and top thereof into the apartment.

15 When the radiator becomes cooled off, the pipe B contracts and resumes its normal position, the elbow-pipe C' springing back to its normal position. The rod D pushes down the short arm of the bell-crank or curved lever E,
20 thus pushing outwardly from the radiator, the long arm *f* slackening the cord or wire *r* and permitting the weight *w*, by means of the cord or wire *t*, which is attached to the handle *m* and passes over the pulley *u*, to draw back the
25 valve-shaft *n* and reseat the valves J and K on their seats J' and K', thus effectually closing up the ventilating-aperture H and forming a dead-air space, L, between them.

The valves might be resealed by means of a spring, the expansive power of the pipe B
30 causing a pull against the weight or its equivalent during the operation of the opening of the valves.

What we claim as our invention is—

35 1. An air-flue provided with two valves acting upon two seats formed within the air-flue at a suitable distance apart, so as to leave a dead-air space between them when the valves are seated, in combination with mechanism ar-
40 ranged to connect the valves with a radiator or other heater, and so constructed that the increase or decrease of the temperature of the radiator is utilized for the purpose of opening and closing the valves located within the air-
45 flue, substantially as specified.

2. The combination of the cap C, having a passage, *d*, and connected by a coupling with elbow-pipe C', attached to a radiator, the ex-
50 pansion-pipe B, sleeved on said cap, and the rod D, rigidly attached at one end to said cap and which actuates a lever, substantially as described, and for the purpose specified.

3. The combination of the bored cap C, on which the expansion-pipe B is sleeved, and
55 connected by a coupling with the elbow-pipe

C', attached to a radiator, the rod D, and the bent lever E, pivoted in bearings formed on the half-sleeve F, which is secured to the expansion-pipe B, and which communicates motion to valves in the air-flue, substantially as speci- 60 fied.

4. The combination of the expansion-pipe B, connected by a bored cap, C, and elbow-pipe C' to a radiator, the rod D, bent lever E, pivoted on bearings formed in the radiator, the
65 cord *r*, pivoted lever *k*, handle *m*, and valve-rod *n*, adapted to slide in suitable bearings formed in an air-flue, H, and carrying a valve which is moved from its seat by motion derived from the expansion of the pipe B when
70 seated, substantially as specified.

5. The combination of the bored cap C, on which the expansion-pipe B is sleeved, and connected by a coupling with the elbow-pipe C', attached to a radiator, rod D, and bent lever E,
75 pivoted on a bearing formed on the half-sleeve F, attached to the expansion-pipe B, the long arm *f* of the bent lever E being adapted to move between guides *g*, also formed in said half-sleeve F and connected by the cord *r* to
80 the pivoted lever *k*, which is pivotally connected with an attachment formed at the inner end of the valve-rod *n*, carrying, by means of suitable bearings, the valves J and K, adapted to open and close the apertures in the
85 valve-seats J' and K', formed in the air-flue H, substantially as described and specified.

6. The combination, with the air-flue, the brackets *o*, and the valve-shaft *n*, supported by said brackets, of the pulley *u*, having bearings
90 in said flue, the cord *t*, passed over said pulley and attached to the inner end of the valve-shaft, and the weight *w*, adapted to reseat the valves in the air-flue when the radiator has become cooled, substantially as described. 95

7. The combination, with a radiator, an expansion-pipe attached thereto, an air-flue, a valve-rod and valves in said flue, and a series of levers connected together and connecting said pipe and rod, of a weight carried by a
100 cord connected by said levers and acting in opposition to the expansive force of said pipe, substantially as and for the purpose specified.

Toronto, June 2, 1887.

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Witnesses:

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