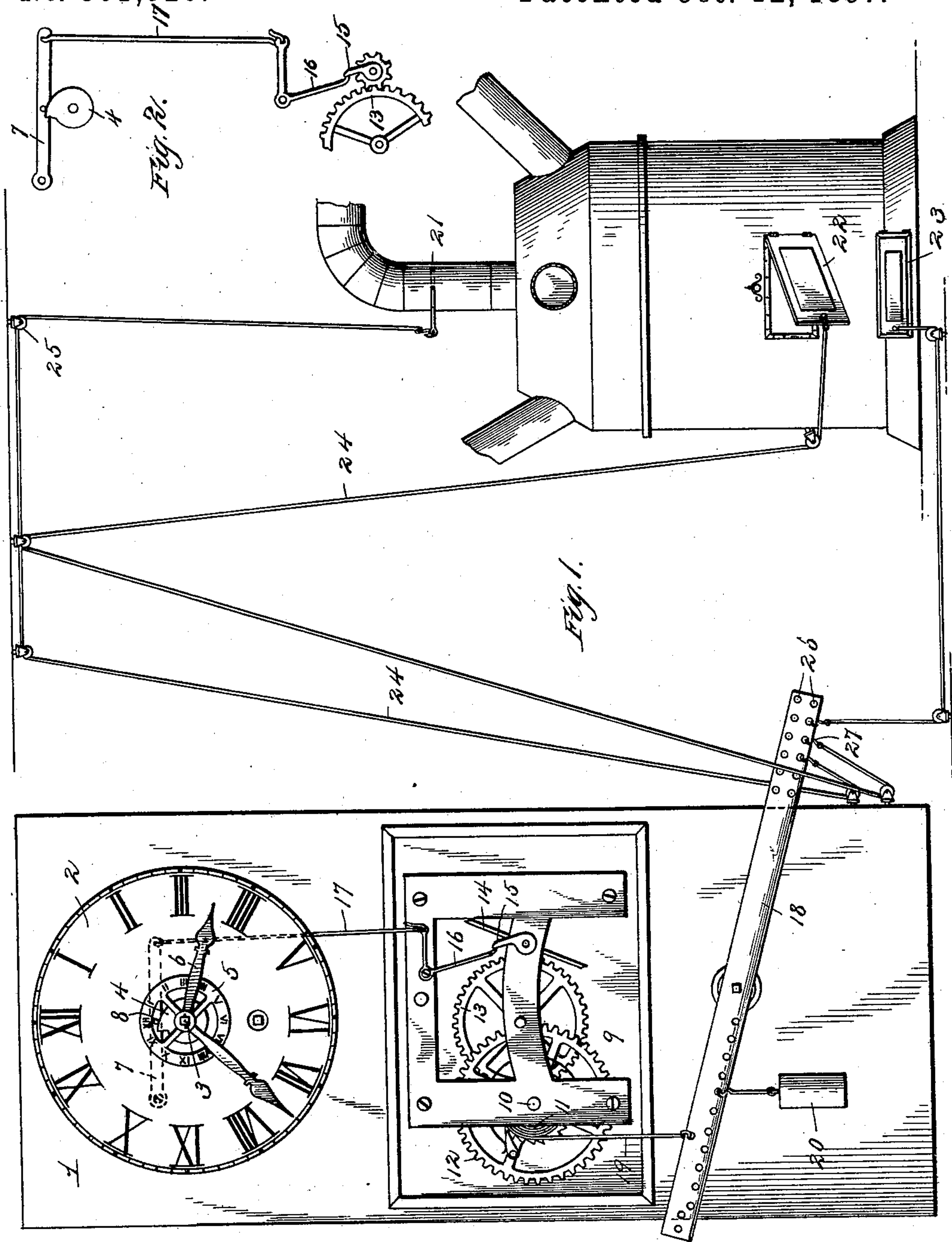


(No Model.)

J. F. BURLEY.
HEAT OR DAMPER REGULATOR.

No. 591,526.

Patented Oct. 12, 1897.



Inventor

Witnesses
Harry L. Ames.
U. B. Hillyard.

By *his* Attorneys,

Jacob F. Burley.

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

JACOB F. BURLEY, OF BELVIDERE, NEW JERSEY.

HEAT OR DAMPER REGULATOR.

SPECIFICATION forming part of Letters Patent No. 591,526, dated October 12, 1897.

Application filed April 30, 1896. Serial No. 589,703. (No model.)

To all whom it may concern:

Be it known that I, JACOB F. BURLEY, a citizen of the United States, residing at Belvidere, in the county of Warren and State of New Jersey, have invented a new and useful Heat or Damper Regulator, of which the following is a specification.

This invention relates to draft-controlling mechanism, and has for its object to save fuel and enable a person to lie abed longer in the morning than would be possible if compelled to arise to open drafts of the furnace or other heater for the purpose of warming up.

The improvement consists, essentially, of an ordinary clock-movement, an intermediate train of gearing arranged to be released at a predetermined time by means of the clock-movement, a lever controlled by the train of gearing, and connections between the lever and the various dampers, doors, or draft-regulating devices of the furnace or heater, the parts being combined so that when the clock-movement reaches the predetermined time at which it is set to release the train of gearing the latter will be actuated and through the intermediate connections insure a draft to the furnace or heater, whereby the latter will burn freely and throw out the requisite heat for warming the dwelling or other structure to which the invention is applied.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

Figure 1 is an elevation showing the invention in practical operation. Fig. 2 is a detail view of the releasing mechanism for liberating the train of gearing at the proper time for actuating the draft-controlling devices.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, which are detail views of the invention applied.

The clock-movement 1 may be of any ordinary construction and comprises a dial 2 and an hour-post 3. Upon the hour-post 3 is frictionally mounted a cam 4, having connected therewith a setting-dial 5, which latter coop-

erates with the hour-hand 6 of the clock-movement to effect a release of the means employed for controlling the draft of the heater or furnace. An arm 7 has pivotal connection with the frame of the clock-movement and is supplied with a lateral extension or pin 8, which travels upon the cam 4, which supports the arm until the pin 8 reaches the shoulder of the cam, when the arm will fall and effect a release of the draft-controlling means, as hereinafter more fully explained.

A supplemental movement or train of gearing 9 is placed intermediate of the clock-movement and the heater and comprises a suitable frame in which is mounted a winding-arbor 10, carrying a winding-drum 11 and a drive-wheel 12, the drum and drive-wheel having the usual ratchet-and-pawl connection, an intermediate gear-wheel 13, driven from the gear-wheel 12, and a fan 14 in mesh with the gear-wheel 13. A detent 15 is secured upon the fan-shaft and is engaged by a lever 16, of the elbow type, to hold the detent in check until released by the lever 16 moving aside. A connection 17 is interposed between the arm 7 and the horizontal part of the lever 16, and when the pin 8 is riding upon the elevated portion of the cam 4 the lever 16 will be held in engagement with the detent 15, but when the pin 8 leaves the elevated part of the cam 4 the arm 7 will drop at its free end and throw the lever 16 out of the path of the detent 15 and permit the movement or train of gearing 9 to operate and open the draft to the furnace or heater and thereby effect the desired end. A lever 18 is fulcrumed intermediate of its ends, and a string or cord 19 connects an end portion of the lever with the drum 11 and is adapted to wind upon the latter. A weight 20 has adjustable connection with an end portion of the lever 18, so that its position may be changed according to the nature of the load or resistance of the draft-regulating devices to be moved. The greater the load and resistance the farther the weight 20 will be moved from the fulcrum of the lever 18, and proportionately as the work decreases the weight 20 will be moved toward the fulcrum of the lever, as will be readily understood.

The heater may be a range, furnace, or suitable appliance generally resorted to for

warming dwellings, buildings, and like structures, and the draft-regulating devices thereof will be suitably connected with the lever 18. As shown, the heater is a hot-air furnace 5 having a damper 21 in the smoke-pipe, a door 22 leading to the combustion-chamber, and a door 23 opening into the ash-pit. Chains, wires, cords, or similar connections extend between the damper and doors and 10 the lever 18 and connect these parts, the connections 24 passing over guide-pulleys 25, suitably arranged to give proper direction thereto. The connections 24 have adjustable connection with the lever 18, and the latter 15 is formed with a series of openings 26, which are engaged by hooks 27 at the terminals of the connections 24. By this means the damper 21 or the doors 22 and 23 can be arranged to be opened more or less by a move- 20 ment of the lever 18.

The operation of the invention is as follows: The fire in the heater is banked overnight and the damper 21 and the doors 22 and 23 properly adjusted, so as to keep the fire alive. 25 The cord 19 is wound upon the drum 11 to elevate the weight 20 and the latter is positioned so that when released it will move the lever 18 and move the damper and doors. The dial 5 is set with reference to the hour- 30 hand 6, so as to release the movement 9 at the required time. The clock-movement runs in the usual way, and when the time at which the dial 5 is set is reached the pin 8 will drop from the elevated part of the cam 4 and per- 35 mit the arm 7 to lower at its free end, which in turn will disengage the lever 16 from the detent 15 and release the movement 9, which will permit the weight 20 to gravitate and operate the lever 18, so as to actuate the draft- 40 controlling devices of the heater and cause the fire to burn briskly, thereby warming the

dwelling or building, so that the latter will be comfortable when the occupants arise in the morning, thereby permitting them to en- 45 joy repose until the last moment. The connections 24 are removably attached to the damper, doors, or other heat and draft controlling devices by swivel, clamp, or other means, so that the said connections may be disconnected in the daytime or when required 50 and hung up out of the way.

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

In a draft-controlling device, the combina- 55 tion with an ordinary clock-movement, of a straight lever 18 pivoted or fulcrumed intermediate its ends to a fixed point of attachment, a flexible draft-controlling connection having a detachable and adjustable engage- 60 ment at one end with one end portion of said straight lever, a weight detachably and adjustably engaging with the opposite end portion of said straight lever, a train of gearing independent of the clock-movement arranged 65 above, in a proximal relation to, the straight lever and having a winding-drum, a single direct flexible connection 19 between the weighted end of the straight lever 18 and the winding-drum of the independent train of gearing, and a releasing mechanism actuated 70 by the clock-movement and having a connection with the independent train of gearing for liberating the latter at a predetermined moment, substantially as set forth.

In testimony that I claim the foregoing as 75 my own I have hereto affixed my signature in the presence of two witnesses.

JACOB F. BURLEY.

Witnesses:

JACOB V. CARTER,
CHRIS B. SNYDER.