

(No Model.)

J. M. SNYDER.
DAMPER REGULATOR.

No. 441,591.

Patented Nov. 25, 1890.

Fig. 1.

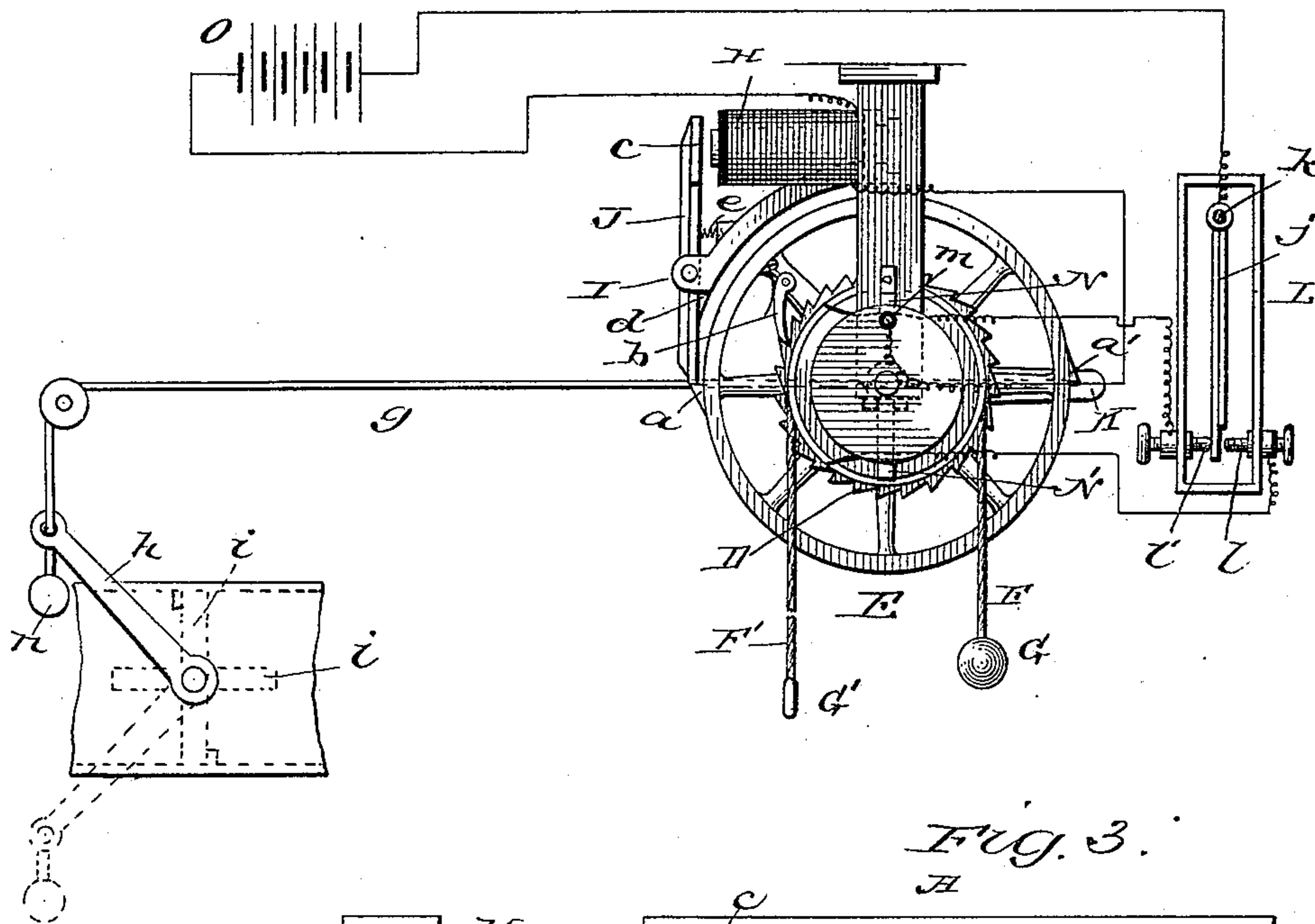
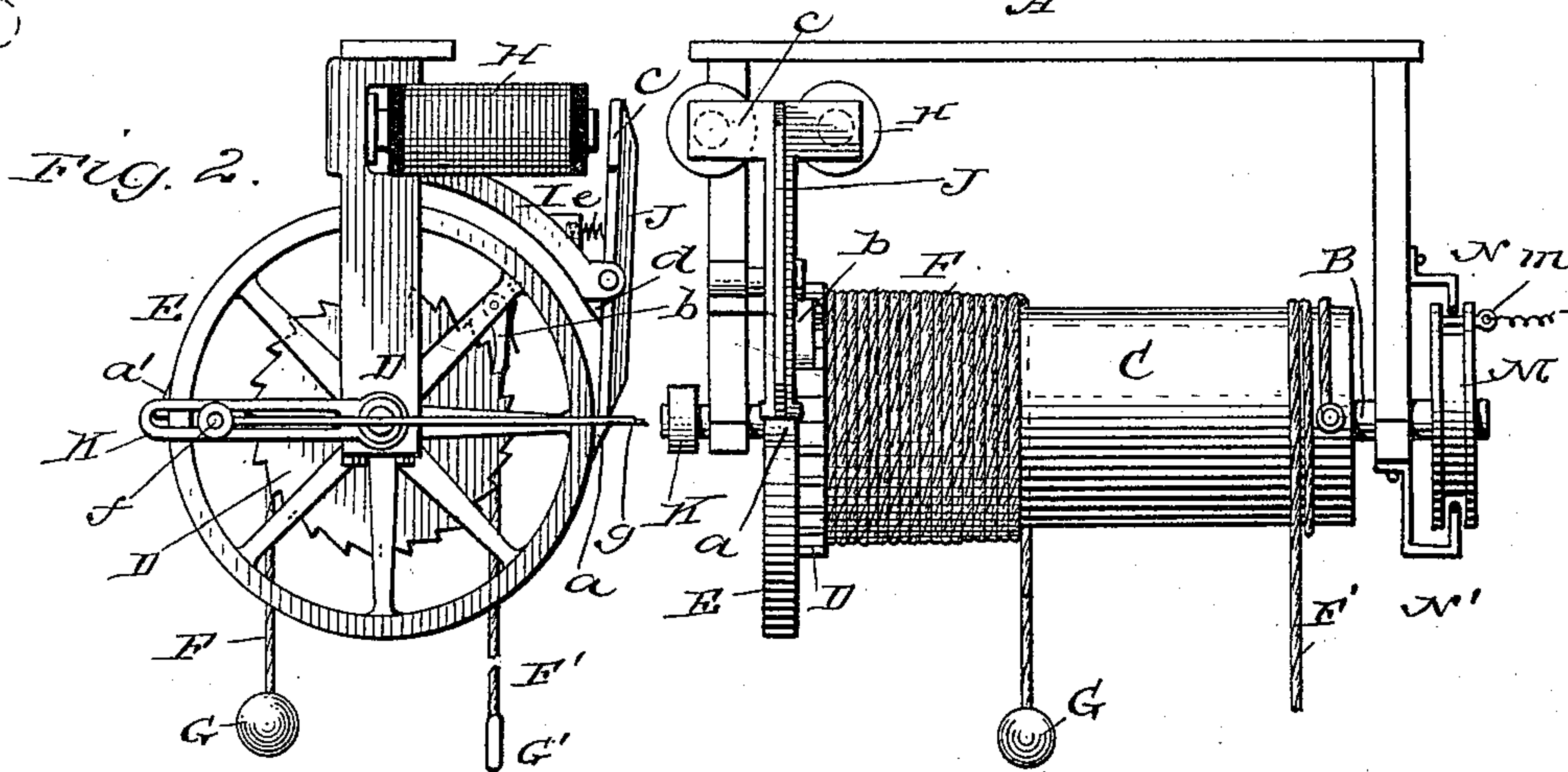


Fig. 3.
H



WITNESSES:

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JOHN M. SNYDER, OF HOLLIDAYSBURG, PENNSYLVANIA.

DAMPER-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 441,591, dated November 25, 1890.

Application filed April 2, 1890. Serial No. 346,290. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. SNYDER, of Hollidaysburg, in the county of Blair and State of Pennsylvania, have invented a new and Improved Damper-Regulator, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is an end elevation showing the circuit-controlling apparatus of my improved damper-regulator. Fig. 2 is an end elevation of the same, showing the damper-operating crank; and Fig. 3 is a side elevation.

Similar letters of reference indicate corresponding parts in all the views.

My invention is an improvement in the class of automatic electrical apparatus for controlling dampers which regulate the draft of furnaces. In this class of apparatus a weighted cord wound on a windlass to which a scape-wheel and ratchet are applied has been employed in connection with an armature and electro-magnet whose circuit is closed by a thermostatic attachment.

The object of my invention is to simplify the apparatus and to reduce its size and weight.

To these ends I adopt the construction and arrangement of parts hereinafter described.

In the frame A, attached to a suitable support, is journaled a shaft B, upon which is loosely placed a drum C, furnished at one end with a ratchet-wheel D. On the shaft B is secured the scape-wheel E, furnished with two teeth $a a'$. The scape-wheel E carries a spring-pressed pawl b , which engages the ratchet-wheel D on the drum C. On one end of the said drum C is wound a cord F, one end of which is fastened to the drum, while the opposite end supports a weight G. To the other end of the drum C is attached a cord F', which is wound in the opposite direction and furnished at its free end with a weight G', which is smaller than the weight G. By pulling the cord F' the said cord is unwound from the drum C, causing the said drum to turn, so as to wind the cord F.

To the frame A is attached an electro-magnet H, and to an arm I projecting from the said frame is pivoted an armature-lever J of the first order, carrying the armature c . The lower end of the lever J is adapted to engage

the teeth $a a'$ of the scape-wheel D. The arm I is provided with a stop d , which prevents the lever J from touching the scape-wheel E, and between the arm I and the armature-lever J is placed a spiral spring e , which keeps the lever J normally in contact with the stop d and in engagement with one of the teeth $a a'$.

To one end of the shaft B is attached a slotted crank K, provided with the adjustable crank-pin f , which receives a cord g , which is connected with the lever h of the damper i . (Shown in dotted lines in Fig. 1.) The damper i is placed in the smoke-pipe or hot-air pipe of the furnace or connected with the draft-opening of the furnace.

In the room the temperature of which is to be regulated is placed a thermostat L, consisting of a compound bar j , fixed to the post k and extending between the electric contact-screws $l l'$. Upon the end of the shaft B opposite that to which the crank K is attached is secured a circumferentially-grooved disk M, and to the frame A are attached the contact-springs $N N'$, which extend into the groove of the disk M. The said disk at a point ninety degrees from the tooth a is perforated to receive the pin m . One pole of the battery O is connected with the fixed end of the thermostatic bar j . The contact-spring N is connected with the contact-screw l' , and the contact-spring N' is connected with the screw l . The remaining pole of the battery is connected with one terminal of the electro-magnet H, the remaining terminal being connected by a flexible connection with the pin m in the disk M.

When the thermostatic bar j is expanded by heat, so as to be thrown into contact with the screw l' , as shown in Fig. 1, the circuit is closed upon the magnet H and the weight G revolves the drum C, carrying around the scape-wheel E and crank K, which by its connection with the damper i allows the weight n , attached to the lever h , to close the damper. The scape-wheel E is stopped by the engagement of the armature-lever J with the tooth a' . At the same time the pin m is carried into contact with the spring N' , where it remains until the temperature increases, so as to carry the compound bar j over against the screw l , when the circuit is closed through the spring N' and the armature-lever J is drawn

forward, allowing the tooth a' to escape, thus permitting the shaft B to make a half-revolution until it is stopped by the engagement of the armature-lever with the tooth a , thus opening the damper.

It is obvious that my improvement may be applied to one or more dampers or registers upon the same furnace.

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

In an apparatus for regulating dampers, the combination of the following parts: the damper

and its lever h , the slotted crank K, having the adjustable pin f and the cord g , which connects said lever and crank-pin, the windlass, weighted cord, scape-wheel, and ratchet, the pawl-armature J, arranged vertically, the electro-magnet placed horizontally, and the thermostatic and electric circuit connections, all as shown and described.

JOHN M. SNYDER.

Witnesses:

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E. R. BALDRIGE.