

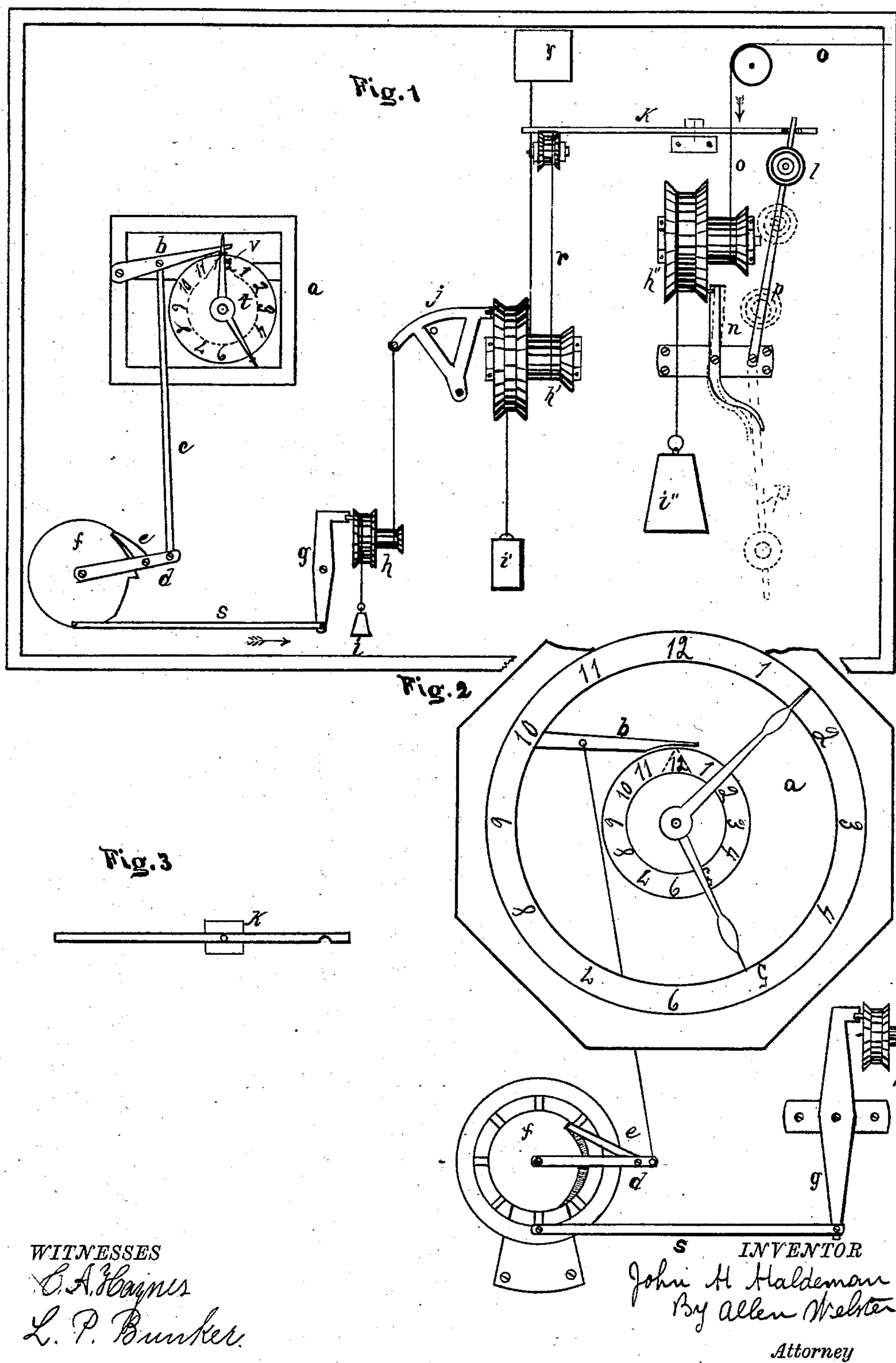
(No Model.)

J. H. HALDEMAN.

## APPARATUS FOR OPENING DAMPERS.

No. 279,867.

Patented June 19, 1883.





# UNITED STATES PATENT OFFICE

JOHN H. HALDEMAN, OF WESTFIELD, MASSACHUSETTS.

## APPARATUS FOR OPENING DAMPERS.

SPECIFICATION forming part of Letters Patent No. 279,867, dated June 19, 1883.

Application filed February 23, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. HALDEMAN, of Westfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Apparatus for Opening Drafts, Dampers, &c., at any Desired Time, of which the following is a specification, reference being had to the accompanying drawings, in which—like letters of reference indicating like parts—

Figure 1 is a front view of my device, illustrating the relation of each of the parts to the others, the whole being inclosed in a frame. Fig. 2 is a view of the clock portion of the device and parts immediately attached on a larger scale than the first figure, and Fig. 3 is a top view of one of the levers.

Heretofore various apparatus have been used to open and close the dampers of furnaces, these being controlled by various mechanical contrivances, in most of which, however, heat is relied upon to control the operation.

The object of my invention is to provide a simple, cheap, compact, easily-operative device which will open the dampers and drafts at any stated time, to which the releasing mechanism may be adjusted; and I accomplish these objects by the construction and arrangements herein illustrated.

The operation will be readily understood on referring to the drawings.

*a* represents a clock of ordinary construction, provided with a means to move the lever *b*, which lever is connected with the lever *d* by means of a rod, chain, or equivalent device. This lever is provided with a pawl, *e*, adapted to engage with the ratchet-disk *f*. This disk is connected with the lever *g* by means of a rod, *s*. The lever *g* engages at one end with a pin or catch on the pulley *h*. A cord passing over the larger diameter of this pulley is provided with a weight, *i*, and a cord wound upon its lesser diameter is connected with the lever *j*.

*h'* and *h''* represent pulleys of similar construction to the pulley *h*, though preferably somewhat larger, each being provided with weights connected with cords passing over the larger diameter of the pulley. The cord *o* passes from the smaller diameter of the pulley *h''* over pulleys, or in any convenient manner, to the furnace doors or dampers, to which

it is secured. The lever *p* is pivoted at one end to a support or frame, and is provided with a weight, *l*, which is adapted to slide toward or from the pivotal end, thus allowing the force of the downward movement to be varied. The lever *n* engages at one end with the pulley *h''*, and is adapted to receive the blow of the descending lever or striker *p* at its opposite end, as shown. The striker *p* is held in its elevated position by a lever or catch, *k*, which is acted upon by the pulley, *h'*, through the medium of a cord, *r*. If, now, it is desired to set the device, the striker *p* is raised, as indicated in full lines in the drawings, where it held in position by the lever *k*. The pulley *h''* is then turned in a direction to wind the weight-cord upon it, and when wound sufficiently the lever *n* is moved to engage with the pin on the pulley, and thus hold it in that position until it is released by a movement of the lever to the position indicated by dotted lines. The pulley *h'* is then revolved in a direction to wind the weight-cord upon it, and is held in the desired position by the lever *j*, which engages with it. The weight-cord is wound upon pulley *h* in like manner, and this pulley is held in position by the lever *g*.

It will now be readily seen that when the rod *s* is moved in the direction indicated by the arrow the whole holding mechanism will be released with the application of a trifling force, and the striker *p*, being released, will fall, as indicated, striking the lever *n* with sufficient force to release the pulley *h''*, thus allowing the weight *i* to drop, causing the pulley to revolve and wind the cord *o* upon it, thus opening the drafts.

The holding mechanism may be released by the pressure of the hour-hand of an ordinary clock upon a lever suitably adapted to engage with it. I prefer, however, to use a clock of the usual construction of an alarm-clock, and provide the disk *t* with a projecting portion, *v*, which will, at the time for which it is set, bear against a lever, *b*, thus operating the disk *f*. As, however, an alarm-clock cannot be set to strike the alarm more than twelve hours after setting, I adapt the device to be released when the hour-hand has reached the desired point a second time after being set—that is to say, when the projection first comes in contact with the lever *b* it causes the ratchet-disk *f*



to revolve a short distance, and the pawl *e* falls to the second notch, and when the projection *v* again acts upon the lever *b* the ratchet-disk *f* is again moved and releases the holding mechanism. I am thus enabled to set the device a trifle less than twenty-four hours in advance, or earlier than the time at which the damper will be opened.

It will readily be seen that the system of compound levers adopted by me may be greatly varied without departing from my invention. I do not therefore confine myself to the particular construction shown.

An alarm, *y*, may be located in any room in the building, and, being connected with the pulley *h'* by a suitable cord or wire, will be operated at the same time with the draft mechanism.

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

1. A damper-opening device consisting of a series of levers adapted to release a weight, said weight being connected with the damper, and a clock adapted to operate upon the releasing-lever, substantially as shown.

2. In a damper-operating device, a striker,

*p*, adapted to release a weight, in combination with a releasing mechanism operated by a clock, substantially as shown.

3. The combination of a clock having a means to move a lever, *b*, a system of levers and weights constructed and operating as shown, adapted to release the striker *p*, the lever *n*, pulley *h''*, and a cord, *o*, adapted to be connected with the drafts, substantially as shown.

4. In a draft-opening device, a ratchet and pawl adapted to move the releasing mechanism and allow the weights to act when the disk is moved the second time, in combination with a clock having a means of moving the pawl-lever, all in combination with the levers, pulleys, and weights, substantially as shown.

5. A clock provided with a means to move a lever, *b*, a ratchet and pawl, said ratchet having two or more teeth, a lever, *g*, connected with said ratchet, pulleys *h h' h''*, levers *j k n*, striker *p*, and weights *i*, all constructed and operating substantially as shown.

JOHN H. HALDEMAN.

Witnesses:

ALLEN WEBSTER,

C. A. HAYNES.