

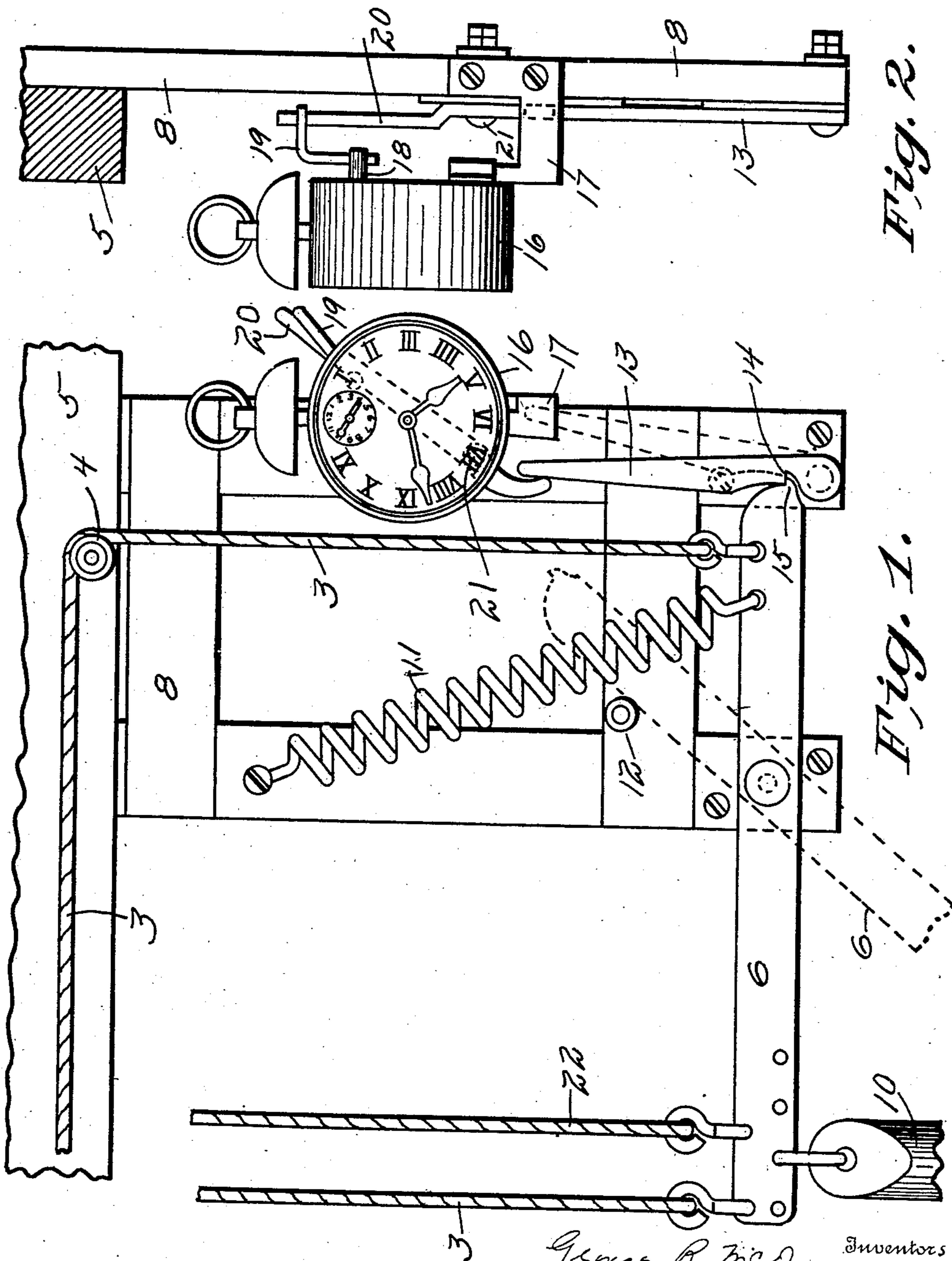
No. 854,428.

PATENTED MAY 21, 1907.

G. R. McDERMAND & E. C. BLACKBURN.
DRAFT CONTROLLING DEVICE FOR FURNACES.

APPLICATION FILED JAN. 23, 1907.

2 SHEETS—SHEET 1.



Witnesses

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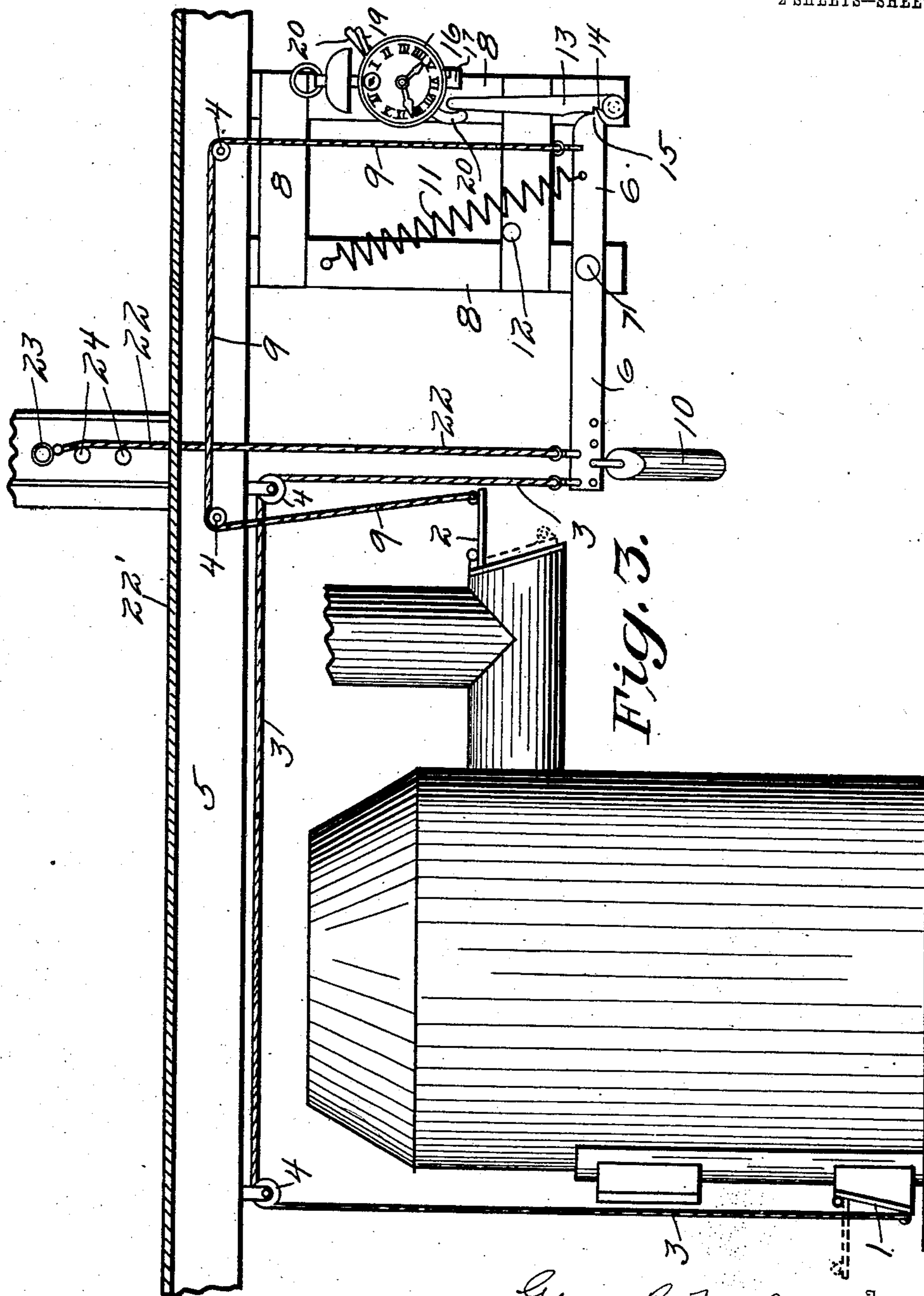


Fig. 3.

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UNITED STATES PATENT OFFICE.

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DRAFT-CONTROLLING DEVICE FOR FURNACES.

No. 854,428.

Specification of Letters Patent.

Patented May 21, 1907.

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To all whom it may concern:

Be it known that we, GEORGE R. McDERMAND and ERNEST C. BLACKBURN, citizens of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Draft-Controlling Devices for Furnaces; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in automatic means for controlling the drafts of furnaces, and comprises a rigging which is controlled by a clock, and is designed to open the dampers of the furnace at a predetermined time to promote combustion.

The object of the invention is to provide such automatically-controlled mechanism which is simple and effective in its operation and which is operated by an ordinary clock to close the dampers or to open them, all as hereinafter more particularly described, in connection with the accompanying drawings, of which—

Figure 1, is an enlarged view of the rigging. Fig. 2, is an end view of Fig. 1. Fig. 3, is an elevation of a furnace showing the rigging attached and in operative relation therewith.

In a detail description of the invention, similar reference characters indicate corresponding parts.

The furnace as shown in Fig. 3, is located as usual in the basement or cellar and has the usual front draft door 1 and rearward check door 2. Extending from the draft door 1 is a suitable flexible connection 3 consisting of a chain or pliable rope which passes over a suitable number of guide pulleys 4 suspended from a beam 5 above the furnace. This chain or rope 3 extends downwardly in the rear of the furnace and is connected to one end of a lever 6 which is pivoted at 7 to a frame 8 depending from the beam or joist 5. A chain connection 9 extends from the check door 2 over guide pulleys 4 and is attached to the other end of the lever 6. A suitable weight 10 is suspended from the ends of the lever 6 to which the chain 3 is

attached, and the length of said lever on that side of its fulcrum is greater than its length on the other side of the fulcrum. The end of the lever opposite that to which the weight 10 is attached, is connected with a spring 11 which is attached to the depending frame 8 and exerts a pressure or draft upon the lever 6 which supplements the weight 10 and enables the employment of a weight of minimum gravity.

12 designates a bumper which is attached to the lower part of the frame 8 and arrests the movements of the lever 6 when the lever has been thrown from its horizontal position to the inclined position by the weight and spring.

13 designates an upright detent or arm pivoted at its lower end and having a notch 14 on its inner side adapted to interlock with a tooth or projection 15 on the lever 6 and to maintain said lever in a horizontal position ready to be tripped and given over to the influence of the weight 10 and spring 11. The portion of the upright arm 13 immediately above the notch 14 is recessed to permit of the tooth or projection 15 on the end of said lever moving upwardly unobstructed. It will be noted that the upward pressure upon the arm 13 due to the engagement of the lever 6 therewith, is in a line with the pivot of said arm and such pressure is instrumental in maintaining the arm in an upright position while the engagement between said arm and the lever exists.

16 designates an alarm clock of ordinary construction which is mounted upon a bracket 17 attached to the depending frame 8; the winding shaft 18 of the alarm mechanism of the clock has fixed to it a trip arm 19 which is extended in a position to make contact with a lever 20 and to trip said lever at a predetermined time, and through said lever 20 to trip the detent 13 to release the horizontal lever 6. The tripping lever 20 is pivoted at 21 to the frame 8 and has its lower end suitably shaped to make the desired engagement with the upper end of the trip arm 13 as shown in Fig. 1. When the lever 20 is thus caused to move the detent arm 13, the latter is moved from its upright position to the position shown in dotted lines in Fig. 1, where it will be seen, releases the lever 6 and thereby causes a lowering of the draft door 1 of the furnace and the closing of the check door 2. This operation may take place at any time as regulated by the clock. In order to regulate

the draft of the furnace throughout the day, after the automatic operation has taken place to release the lever 6, a chain 22 is provided; this chain is connected to the lever 6 and extends upwardly through an opening in the floor 22' and is provided with a ring 23 which may be connected with any of a series of pins 24 arranged at a suitable point above said floor; by this manually-operative connection 22 the draft of the furnace may be regulated from above and without the necessity of going into the cellar or basement for that purpose. It will be understood that whenever the device is set to be operated by the clock mechanism, the connection 22 is not attached at its upper end to the upper pin 24 as it is in Fig. 3, for the reason that when the device is actuated through the clock mechanism, the lever 6 must be free and in a condition to be given over to the influence of the weight 10 and the spring 11.

We claim:

1. In a draft-controlling device for furnaces embracing clock mechanism, a main lever, an upward pressure exerted on one end of said lever by means of a spring, and a downward pressure exerted upon the other end of said lever by an equivalent means, a chain connecting the check door of a furnace with one end of said lever, a chain connecting the draft door of a furnace with the other end of said lever, a chain connection extending from one end of said lever and providing means for manually operating said lever, an upright

arm maintaining the lever in a horizontal position, a trip lever engaging said upright arm, and a trip piece actuated by the clock mechanism to operate the trip lever and thereby actuate said upright arm to release the said main lever at a predetermined time, substantially as specified.

2. In a draft-controlling device for furnaces embracing clock mechanism, a weight-controlled lever, a chain connection between one end of said lever and the check door of a furnace, a chain connection between the other end of said lever and the draft door of a furnace, a third chain connection extending from said lever, an upright detent arm engaging said lever to hold it against the weight thereon, said upright detent engaging a projected end of said lever in line with the pivot of said detent whereby the pressure of the lever maintains said arm stationary in its upright position, a trip arm attached to the winding shaft of the alarm mechanism of a clock, and a trip lever interposed between the upright detent and said trip arm and whereby the upright detent is actuated at a predetermined time to release the chain connected lever, substantially as specified.

In testimony whereof we affix our signatures, in presence of two witnesses.

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