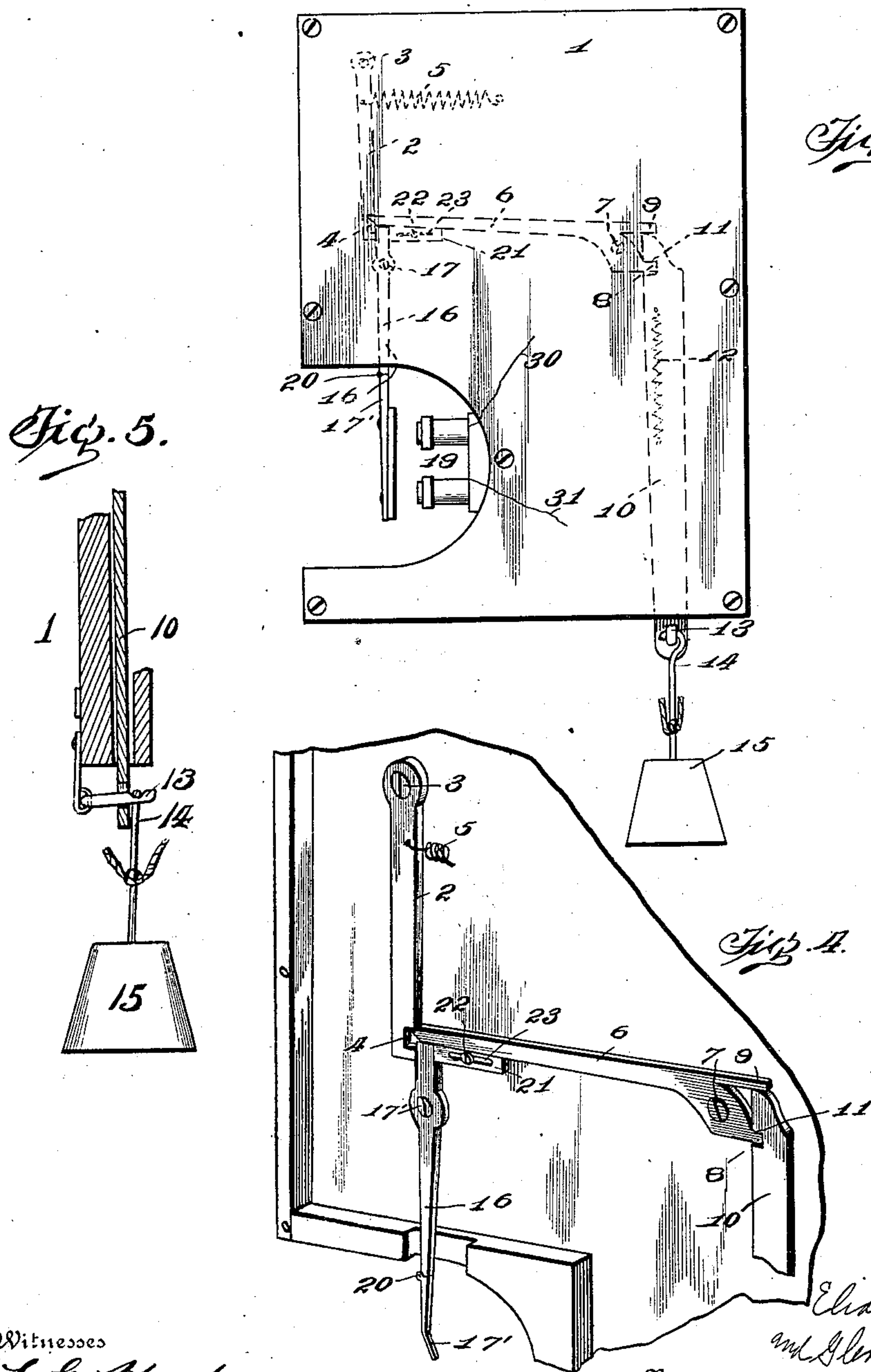


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NO MODEL.

2 SHEETS—SHEET 2.



Witnesses

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ELIAS S. WALKER AND GLENN B. WALKER, OF BENTON HARBOR, MICHIGAN.

TIME DAMPER MECHANISM.

SPECIFICATION forming part of Letters Patent No. 724,354, dated March 31, 1903.

Application filed May 19, 1902. Serial No. 108,065. (No model.)

To all whom it may concern:

Be it known that we, ELIAS S. WALKER and GLENN B. WALKER, citizens of the United States, residing at Benton Harbor, in the county of Berrien and State of Michigan, have invented certain new and useful Improvements in Devices for Opening Dampers; and we do hereby 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.

This invention relates to improvements, regulated by a clock, for opening the dampers of furnaces of heating plants for residences or other buildings at any desired predetermined time.

The object of the invention is to provide a device of this character whereby the disagreeable necessity of rising in the morning in a cold house to open the dampers or air-drafts is obviated, and it is rendered possible to secure a warm house in the morning before rising and without the necessity of keeping the heating apparatus filled up, and thus consuming fuel throughout the night.

With this object in view the invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described and afterward specifically pointed out in the claims.

In the accompanying drawings we have illustrated, by way of example, means for carrying out our invention, in which drawings—

Figure 1 is a diagrammatic and partially sectional illustration of the connections between the operating mechanism and a furnace-damper. Fig. 2 represents the device proper in elevation, the front being removed, the mechanism being shown set and ready for action in full lines and tripped or after action in dotted lines. Fig. 3 is a view in elevation, illustrating the application to the mechanism of an electromagnet. Fig. 4 is a fragmentary perspective detail view of the tripping mechanism. Fig. 5 represents a vertical section taken on the plane of line 5 5 of Fig. 2.

Referring to the drawings by reference characters, 1 indicates the side of a box or frame of any suitable character, or it may be a wall

or other upright surface upon which to mount the operating mechanism, consisting, primarily, of a lever 2, pivoted at 3, provided in one edge near its lower end with a notch 4 and with a spring 5, having a normal tendency to draw the lever to the right, as shown in the drawings, a latch-lever 6, pivoted at 7, pointed at its outer end to engage notch 4 of lever 2 and provided at its inner end with a lower projection 8 and an upper projection 9, a vertically-slidable bar 10, provided near its upper end with a notch 11, adapted to engage the lower inner projection 8 of lever 6, a spring 12, having a normal tendency to keep the bar 10 in its uppermost position, and a hook 13 near its lower end to receive the eye of a bar 14, upon the lower end of which is secured a weight 15, and a trigger 16, pivoted at 17, adapted at its upper end to engage the lower end of the lever 2 and at its lower end, as at 17', to engage the hour-hand of a clock, as at 18 in Fig. 2, or an electromagnet, as at 19 in Fig. 3, the lower end of said trigger 16 being pivoted, as at 20, to facilitate removing the clock, and its motion when pressed at its upper end toward the right by the action of lever 2 and spring 5 being regulated by a stop-block 21, secured to upright 1 by means of a screw 22, passing through a horizontal slot 23 in the block. These parts compose the device proper, as before stated, and operate as follows:

Presuming the outer end of lever 6 to be engaged in the notch 4 of lever 2, and said lever 2 being drawn by spring 5 to the right and pressing the upper end of the trigger 16 against block 21 and bringing the lower end of the trigger in the path of the hour-hand of the clock, the weight 15 is hung on the hook 13 of the bar 10, and cords, as at 24 and 25 in Fig. 1, passing over suitable pulleys 26, connect the bar 14 to the weight 15 with the draft-openings 27 and 28 of a furnace 29, (or other heating apparatus,) as shown in Fig. 1, the clock in its usual operation brings the hour-hand into contact with the lower end of the trigger 16, and by forcing said lower end to the right, as shown in Fig. 2, carries the upper end of the trigger to the left, forcing the lever 2 to the left and disengaging the latch-lever 6 from notch 4 of said lever 2, as shown in dotted lines in Fig. 2, thus permit-

ting the weight 15 to draw the bar 10 downward, the lever 6 rising at the same time to the position shown in dotted lines in Fig. 2, and the pull of the weight upon the cords 24 and 25, Fig. 1, serving to open the draft-openings 27 and 28 of the furnace 29.

As indicated in Fig. 5, the hook member 13 has its rear end pivotally supported and extends through slide-bar 10, with the hook proper extending outside the bar and being engaged by the eye of bar 14, whereby descent of the slidable bar 10 will cause the member 13 to assume an inclined plane, and thereby permit the eye of bar 14 to become disengaged and the weight 15 to drop, so that said bar 10, under the action of spring 12, will be caused to rise to its normal position in engagement with the projections 8 and 9 of the lever 6.

A modified form of the device is shown in Fig. 3, in which a clock or other time mechanism is made to close an electric circuit at any predetermined time through the wires 30 and 31 and electromagnet 19, thus energizing the electromagnet and causing it to draw the trigger 16 to the right at its lower end and trip the mechanism in precisely the manner heretofore described.

When it is desired to remove the clock for winding or other purposes, it may be readily taken from its position by folding back the lower end of the trigger 16 on its pivotal connection 20, and after such removal the lower end of the trigger will drop back into its normal position, ready to be engaged by the hour-hand of the clock or the electromagnet, as the case may be.

From the foregoing it will be seen that we have provided simple, economical, and reliable means whereby by the setting of a clock upon retiring at night the householder will be saved the disagreeable necessity of rising in the morning to open the drafts of his heating apparatus, thus assuring at the time of rising a warm and comfortable house without the necessity of consuming fuel throughout the night.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an automatic mechanism for operating dampers of heating apparatus, the combination with a latch-lever pivoted near its inner end, of a lever pivoted at its upper end and provided on one side with a notch adapted to engage the outer end of the latch-lever, a bar vertically slidable and normally held in its upper position and provided with means for engaging the inner end of the latch-lever,

a trigger pivoted intermediate its ends adapted at its upper end to engage with and release the lever from the latch-lever, timed mechanism for operating the lower end of the trigger, a weight suspended upon the vertical bar, and means for connecting the weight with the draft-openings of a heating apparatus, substantially as described.

2. In an apparatus of the character described, the combination with the latch-lever pivoted near its inner end, a lever pivoted at its upper end and provided with a notch in one edge for engaging the outer end of the latch-lever, a trigger-lever pivoted intermediate its ends, an adjustable stop-block against which the upper ends of the trigger rest when in its set position, a spring for normally holding the lever in engagement with the latch-lever and against the upper end of the trigger while in contact with the stop-block, timed mechanism for dropping the trigger, a vertical bar suspended from the inner end of the latch-lever, a weight attached to the bar near its lower end, means for connecting the weight with the draft-openings of a heating apparatus, and means for disengaging the weight from the vertical bar when the mechanism is tripped, substantially as described.

3. In a mechanism of the class described, the combination with a pivoted latch-lever, of a notched lever contiguous to said latch-lever and adapted to have its notch engage the same, a longitudinally-slidable bar formed of means for receiving the end of said latch-lever opposite that engaging said notched lever, a trigger pivoted intermediate its ends adapted to engage the latch-lever, timed mechanism for tripping said trigger for releasing said notched lever from engagement with said latch-lever, and means controlled by said longitudinally-movable bar for governing the damper of a heating apparatus, substantially as described.

4. In an apparatus of the class described, the combination with a latch-lever of a notched lever engaging the same, a trigger pivoted intermediate its ends, an adjustable stop-block forming an abutment for the operating end of said trigger, timed mechanism for tripping said trigger, and means controlled by said pivoted lever for governing the damper of a heating apparatus, substantially as described.

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

ELIAS S. WALKER.
GLENN B. WALKER.

Witnesses:

W. P. HARVEY,
LOIS A. BASSETT.