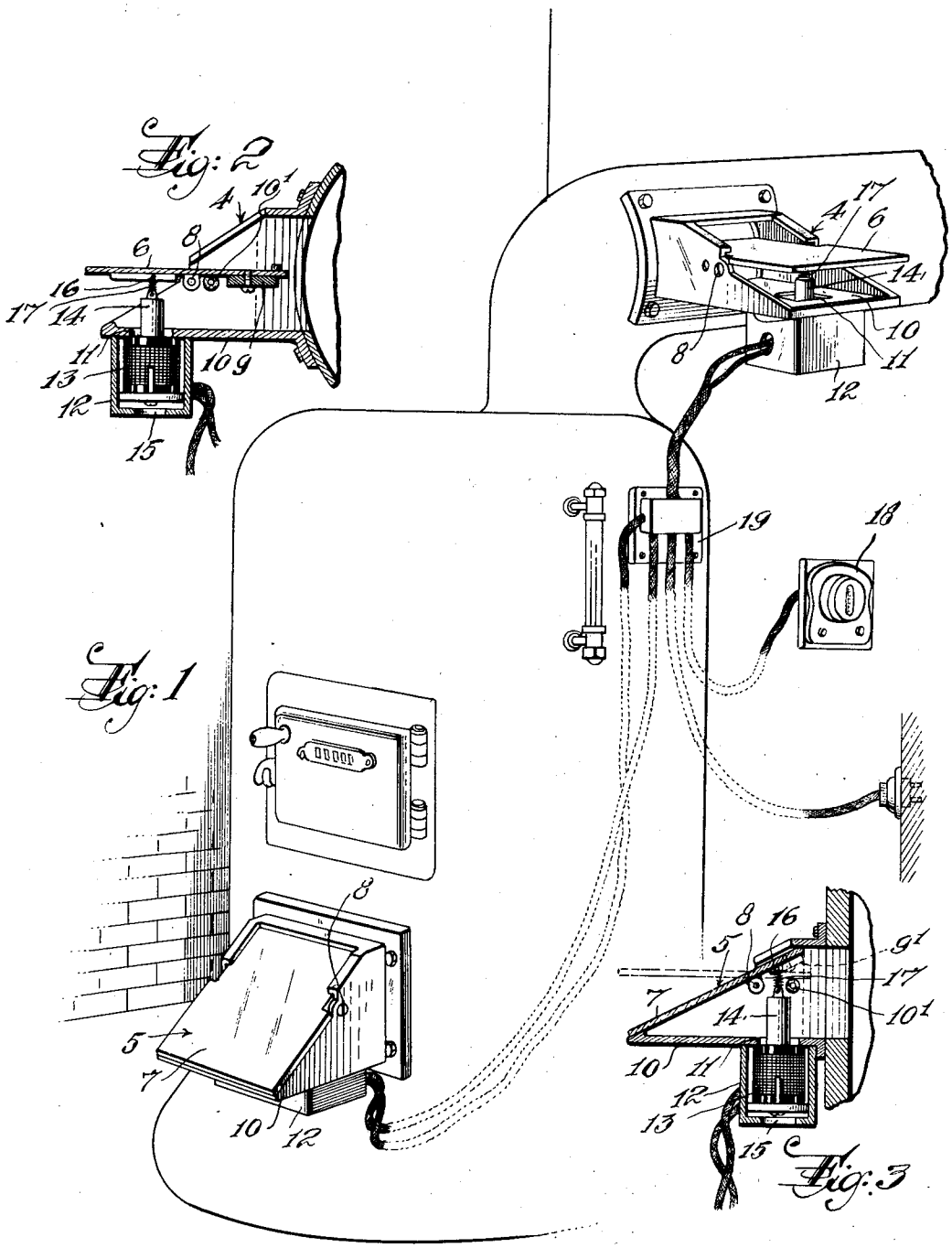
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AUTOMATIC TEMPERATURE REGULATOR

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AUTOMATIC TEMPERATURE REGULATOR

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This invention relates to improvements in automatic damper controlling devices for use on household and other heating furnaces.

Heretofore, devices have been provided for automatically opening and closing furnace dampers to maintain a uniform temperature in the rooms being heated. However, such devices have been objectionable in that their operation has not been positive and the dampers do not properly open or close, resulting in an undesired condition of the fire in the furnace and improper heating. Also, such devices further are objectionable in that they are noisy in operation, and generally no provision is made to enable essential movable parts to be cleaned of the ashes and dust ever present in the vicinity of a furnace.

It is, therefore, an object of this invention to provide an automatic damper controlling device which is positive in operation, and having a pair of dampers interconnected so that the movement of one damper is dependent upon the movement of the other damper.

A further object is the provision of an automatic damper controlling device having means to prevent rattling of parts and noisy operation.

A further object is the provision of an automatic damper controlling device in which the dampers are normally maintained in predetermined positions by gravity and moved to other positions by electromagnetic means, said device being provided with means to enable essential movable parts to be cleaned from time to time to prevent faulty operation.

These and other advantageous objects, which will later appear, are accomplished by the simple and practical construction and arrangement of parts hereinafter described and exhibited in the accompanying drawing, forming part hereof, and in which:

Fig. 1 is a perspective view of a conventional furnace having my automatic damper controlling device installed thereon,

Fig. 2 is a sectional view showing details of the upper damper and control means associated therewith, and

Fig. 3 is a sectional view of the lower damper and associated control means.

Referring to the drawing, in Fig. 1 is shown a conventional household heating furnace having an upper checkdraft damper 4 and a lower draft damper 5. Each damper comprises preferably an aluminum casing having triangular side walls so that the covers 6 and 7, are inclined when closed. The upper cover 6 is pivotally mounted so that the cover 6 is normally open, and insures the maintaining of the cover 6 in a horizontal position as shown in Fig. 2, the upper portion of the cover 6 on its underside beyond its pivots 8 being weighted at 9. The pivots 8 are preferably made of brass or a similar material to eliminate the possibility of faulty operation due to rust and corrosion as frequently happens with pivots and bearings made of steel or cast iron.

The lower cover 7 has a pivot mounting similar to that for the upper cover, with the exception that the pivot is offset from the center of gravity of cover 7 so that the cover is normally urged by force of gravity to a closed position. The cover is provided on its underside with a weight 9' to urge it to a counterbalanced position.

The inside of each casing is provided with a stop 10' to limit the upward movement of the covers. The bottom 10 of each casing has an aperture 11 therein, and has attached thereto in any desired or convenient manner a box 12 containing a solenoid 13 in which is movably positioned a core 14; and the bottom of each box 12 is provided with an aperture 15 through which the solenoid and core may be cleaned from time to time without necessitating detaching the box.

Each core has attached to it a small coil spring 17, which is connected to a hook 16 attached to the cover.

The two solenoids are electrically connected in series with each other and with a thermostat 18 which is positioned in the room in which the temperature is to be controlled.

The lower cover 7 is connected above its pivot to its associated core 14, while the cover 6 is connected below its pivot to its associated core 14, with the result that when the solenoids 13 are energized to draw the core 14 therein, the upper cover 6 will be closed and the lower cover moved to an open position.

In operation, when the temperature in the room falls below a predetermined degree, the thermostat moves to a position to close the circuit through the solenoids to move the lower cover 7 to a horizontal position and to close the upper cover 6. This condition of the dampers increases the draft through the furnace to cause a more vigorous burning of the fuel and resulting in more heat.

When the temperature of the room exceeds a predetermined degree, the thermostat moves to open the circuit through the solenoids to allow the covers 6 and 7 to move by gravity to their normal positions in which the upper damper is open and the lower damper is closed. This condition of the dampers checks the draft through the

furnace and allows the fire to cool until the room is again at the desired temperature.

The lower damper or ash pit damper is mounted on the furnace below the fire bed, and the upper damper is mounted on the draft pipe above the furnace; and a junction box 19 may be mounted on the furnace, electrical connection leading from the junction box to the solenoids, to the thermostat and to a source of electrical current.

From the above description it will be seen that I have provided a simple and effective damper regulating device for automatically controlling the temperature of rooms. The device is positive and noiseless in operation, having few parts so mounted that they will not get out of order. The device can be readily and conveniently installed on any furnace in a short time without material alteration of the furnace.

The foregoing disclosure is to be regarded as descriptive and illustrative only, and not as restrictive or limitative of the invention, of which obviously an embodiment may be constructed including many modifications without departing from the general scope herein indicated and denoted in the appended claims.

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

1. In an automatic damper controlling device, a casing having a cover pivotally mounted off center thereon, a box mounted on the underside of the casing, and a solenoid mounted in the box, a core slidably positioned in the solenoid, and resilient means connecting the core to the cover.

2. In an automatic damper controlling device, a casing having a cover pivotally mounted off center thereon, a box mounted on the underside of the casing, and a solenoid mounted in the box, a core slidably positioned in the solenoid, and resilient means connecting the core to the cover, said box having an opening in its bottom to enable easy cleaning of the solenoid.

3. In an automatic damper controlling device, a casing having a cover pivotally mounted off center thereon, a solenoid mounted on the casing, a core slidably mounted in the solenoid, and spring means connecting the core to the cover, said cover being maintained normally in a predetermined position by gravity.

4. In an automatic damper controlling device, a casing having a cover pivotally mounted off center thereon, a box mounted on the underside of the casing, and a solenoid mounted in the box, a core slidably positioned in the solenoid, and means connecting the core to the cover at all times.

5. In an automatic damper controlling device, a casing having a cover pivotally mounted off center thereon, a box mounted on the underside of the casing, and a solenoid mounted in the box, a core slidably positioned in the solenoid, and means connecting the core to the cover at all times, said box having an opening in its bottom to enable easy cleaning of the solenoid.

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