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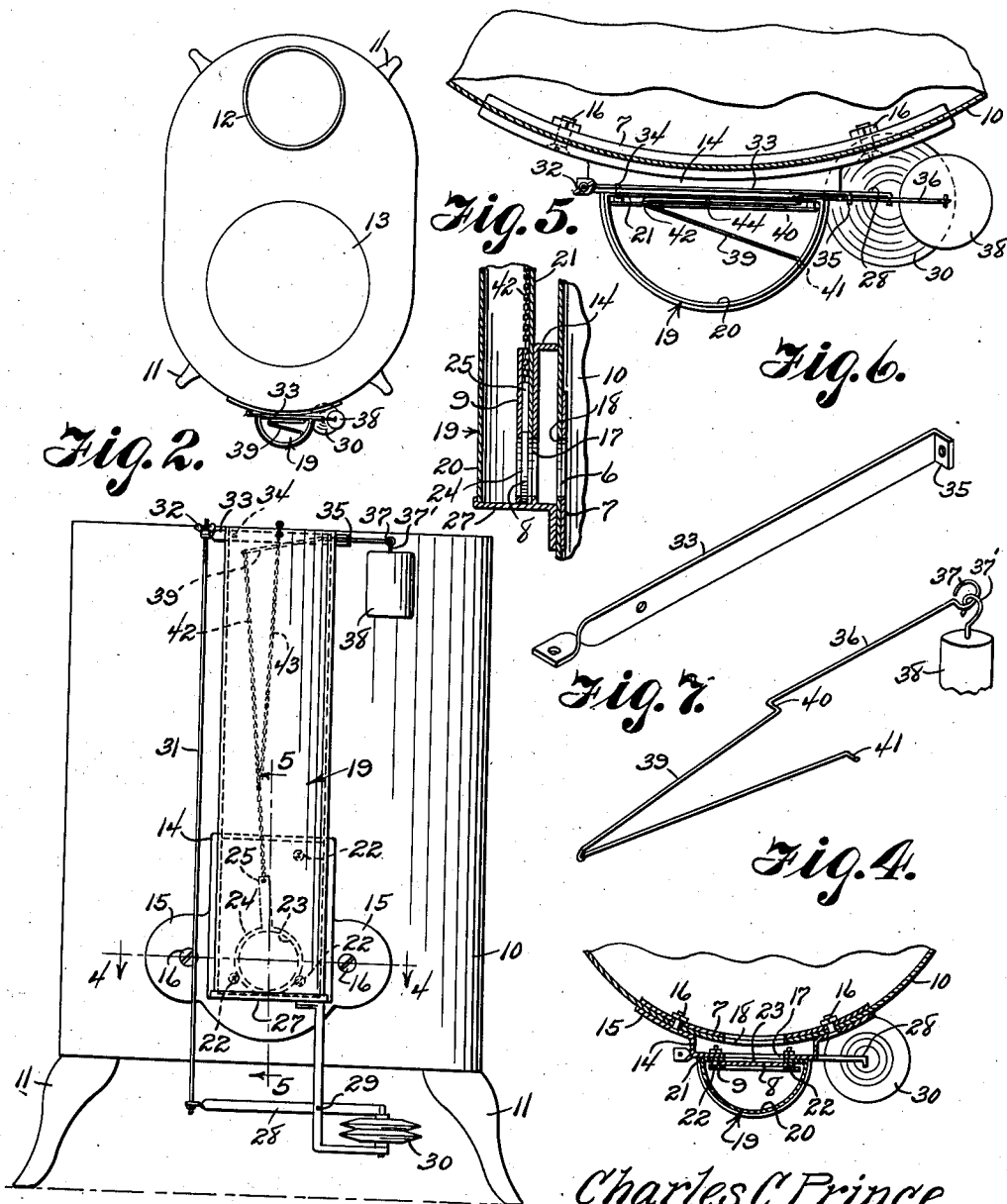
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THERMOSTAT WAFER CONTROL FOR WOOD STOVES

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Fig. 1.

Fig. 3.



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THERMOSTAT WAFER CONTROL FOR
WOOD STOVES

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2 Claims. (Cl. 236—95)

This invention relates to thermostat wafer controls for wood stoves and has for an object to provide a simplified thermostat control in which the thermostat wafer will be disposed below and in front of the fire box of the stove so as not to be influenced by the fire, but rather to be influenced by the heat of the room and thus promote sensitivity of the device in controlling the damper.

A further object is to provide means in a device of this character for manually opening the damper to eliminate smoke generated by smoldering wood while the thermostat has the damper cut off, thus permitting the smoke stack to draw the accumulated smoke up the stack before the stove lid is opened with the result that bursting of the smoke into the room when the lid is opened is positively prevented.

A further object is to provide in a device of this character a damper which lifts vertically in such a manner as to be entirely free from any effect of the pull of the smoke stack, which effect in conventional dampers tends to shut such dampers off before the temperature demands, and to keep them shut off after the fallen temperature demands that they open.

A further object is to provide a counter-balancing weight detachably connected to the device for opening the damper when the thermostat wafer contracts and also to continuously hold the damper in the proper place by not permitting it to be shifted by changes in velocity of air currents in the room and around the stove, or any change other than the temperature of the room, removal of the weight permitting of the fire to smoulder when so desired, even after the temperature of the room has dropped low enough for the thermostat to allow the weight to open the damper.

A further object is to provide a device of this character which will be formed of a few strong, simple and durable parts, which will be inexpensive to manufacture, and which will not easily get out of order.

With the above and other objects in view, the invention consists of certain novel details of construction and combinations of parts hereinafter fully described and claimed, it being understood that various modifications may be resorted to within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawing forming a part of this specification:

Figure 1 is a plan view of a wood burning stove

of the heater type equipped with a thermostat wafer control constructed in accordance with the invention.

Figure 2 is a front elevation of the stove and thermostat wafer control.

Figure 3 is a fragmentary plan view, with parts broken away, showing the thermostat wafer control applied to the stove.

Figure 4 is a detail cross sectional view taken on the line 4—4 of Figure 2.

Figure 5 is a detail longitudinal sectional view taken on the line 5—5 of Figure 2.

Figure 6 is a perspective view of the counter-balanced lever.

Figure 7 is a perspective view of the wire rod for connecting the weight to the lever and for securing the operating chain to the damper.

Referring now to the drawing in which like characters of reference designate similar parts in the various views, 10 designates a wood burning stove, which is supported upon legs 11, and is provided in the top with a flue opening 12 and with a large opening 13 through which the wood is inserted in the sheet metal body of the stove. In carrying out the invention, a casting 14 of substantially rectangular shape, and curved to fit the contour of the cylindrical wall of the stove, is provided with lugs 15 which are secured to the body of the stove by stove bolts 16. The casting is provided with an opening 17, which registers with the air supply opening 18 of the stove. The casting is offset outwardly to provide a substantially box-like rim having a flat front wall, best shown in Figure 4.

A flue 19 is provided with a semi-circular front wall 20, a flat back wall 21, the back wall being disposed upon the front flat wall of the casting 14 and secured thereto by three bolts 22, best shown in Figure 2. The back wall is provided with an opening 23 which registers with the air inlet opening 18 of the stove and air inlet opening 17 of the casting.

A back plate 7 shaped to fit the inner surface of the wall of the stove in rear of the casting is secured to the stove and to the casting by the bolts 16. This plate is provided with an air inlet opening 6. This plate prevents the lining of the stove from puckering around the draft opening as a result of the intense heat generated when the damper begins to open and while it remains open.

A circular damper 24 is provided with a radially disposed handle 25. A retaining plate 9 is secured to the back wall 21 of the flue 19 by the bolts 22 to retain the damper in place. The

retaining plate is provided with an air inlet opening 8. When the damper is in position to close the air inlet openings, above described, it is supported upon the bolts 22 and may be raised to any adjusted open position to increase the draft for maintaining a predetermined temperature in the room to be heated.

For operating the damper, a bracket 26 is secured at the upper end to the closed bottom 27 of the flue 19, which bottom is formed integral with the casting 14. A lever 28 is pivoted between its ends on the bracket, as shown at 29 in Figure 2. The lower end of the bracket extends underneath a projecting end of the lever and a wafer thermostat 30 is secured to the bracket and under the projecting end of the lever.

A rod 31 is secured to the free end of the lever 28 and extends upwardly along the flue 19 to the open top of the flue. The rod is threaded and provided with a wing nut 32 for adjustably connecting the rod to one end of a lever 33 which is pivoted, through a pivot pin 34, best shown in Figure 3, to the back wall 21 of the flue 19. The lever extends across behind the flue between the wall 21 and the stove 10, and projects at the free end beyond the flue 19, as best shown in Figure 2. The lever is provided with a perforated out turned free end 35, best shown in Figure 6, to receive a wire rod 36.

The wire rod 36, best shown in Figure 7, is provided at one end with a ring 37 to which is detachably connected the hook 37' of a weight 38. The rod is provided with a V-shaped extension 39 which terminates in oppositely disposed gudgeons 40 and 41, the latter being pivotally engaged in the semi-circular front wall 20 of the flue 19 and the former being pivotally engaged in the flat rear wall of the flue to pivotally mount the wire rod 36 through the flue. A chain 42 connects the inner end of the wire rod with the damper handle 25.

In operation, the air draft is taken in at the top of the stove through the flue 19 and enters the draft openings near the bottom of the stove so that the thermostat wafer 30 will not be affected by the heat of the stove, but only by the room temperature. As the thermostat wafer 30 expands, the free end of the lever 28 will be pulled down and will pull down the rod 31, which in turn pulls down the end of the lever 33 connected thereto with resultant raising of the free end of the lever. This carries upward the wire rod 36 so that the rod is rocked on the gudgeons 40 and 41 and the inner end of the rod is lowered with resultant lowering of the chain 42 to move the damper to adjusted closed position and partly or wholly shut off the draft. As the wafer contracts due to a drop in temperature in the room below a predetermined degree, the above movement of the parts just traced will be reversed due to gravitation of the weight 38 with resultant adjusted opening of the damper to partly open or fully open position to increase the draft.

For manually operating the damper, a chain 43 is connected to the chain 42 and at the upper end has one of its links engaged with a pin 44 which projects from the back wall 21 of the flue 19. The chain may be pulled up to lift the damper to open position and permit the smoke stack to draw accumulated smoke from the stove before the stove lid is opened so that objectionable filling of the room with smoke when the lid is lifted is positively prevented.

It will be pointed out that the counter-balancing weight 38 continuously holds the damper in proper place by not permitting it to be changed by velocity of air currents in the room around the stove. By detaching the weight from the rod 31, the fire in the stove may be permitted to smoulder when desired, even after the temperature of the room has been dropped low enough for the thermostat to allow the weight to open the damper.

From the above description it is thought that the construction and operation of the invention will be fully understood without further explanation.

What is claimed is:

1. The combination with a wood burning stove having a sheet metal wall provided with a draft opening near the bottom, of a down draft flue opening at the top at substantially the top of the stove and extending down along the wall of the stove to a point below the draft opening for conducting air from above the stove to said draft opening, means securing the flue to the wall of the stove, said flue being closed at the bottom, a thermostat wafer connected to the bottom of the flue and disposed below and in front of the fire box of the stove so as not to be directly influenced by the fire, a horizontally disposed lever pivoted between its ends below the flue and connected at one end to the wafer to be rocked thereby, a horizontally disposed lever pivoted to the top of the flue and extending at both ends beyond the flue, a vertically disposed rod adjustably connected at the upper end to the second named lever and connected at the lower end to the first named lever, a wire rod pivoted in the upper end of the flue and connected to the second named lever, a weight detachably connected to one end of the wire rod, a chain connected to the other end of the wire rod, a vertical damper controlling said draft opening connected to said chain, and a second chain connected to the first named chain to operate the damper independently of the thermostat to eliminate smoke while the thermostat has the damper cut off, said weight opening the damper when the thermostat wafer contracts and holding the damper in proper place to be unaffected by velocity of air currents or other causes than the temperature of the room to be heated, removal of the weight permitting of the fire to smoulder when so desired even after the temperature of the room has dropped low enough for the thermostat to allow the weight to open the damper.

2. The combination with a wood burning stove having a sheet metal wall provided with a draft opening near the bottom, of a casting on the wall having a box-like portion extending over the draft opening and provided with a draft opening, a vertically movable damper on said box-like portion, a plate on the box-like portion in front of the damper having a draft opening holding the damper for vertical movement, a plate adapted to engage the inner wall of the stove and having a draft opening, means securing the casting and the last named plate together, said last named plate preventing puckering of the lining of the stove at the draft opening, all of said draft openings being in alignment, a down draft flue extending upwardly along the wall of the stove on the exterior thereof and communicating at the bottom with said draft openings, the upper end of the flue being open and disposed at about the top of the stove, a plurality of screws securing the flue to the casting and forming stops against

which the damper rests in closed position, the casting having an extension forming a bottom for said flue, a bracket depending from said bottom, a thermostat wafer connected to the bracket and disposed below and in front of the fire box of the stove so as not to be directly influenced by the fire, a horizontally disposed lever pivotally connected intermediate its ends on the bracket and connected at one end to the wafer to be rocked thereby, a horizontally disposed lever pivoted to the top of the flue and extending at both ends beyond the flue, a vertically disposed

rod adjustably connected at one end to one of the levers and connected at the other end to the other lever, a wire rod pivoted in the flue at the upper end thereof and connected to the second named lever, a weight detachably connected to the rod, a chain connected to the other end of the rod and connected to said damper, and a second chain operatively connected to the damper to operate the damper independently of the thermostat wafer.

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