July 31, 1928. 1,678,855

F. F. FORSHEE

COUNTERBALANCE FOR OVEN DOORS

Filed May 31, 1927

Fig. 1.

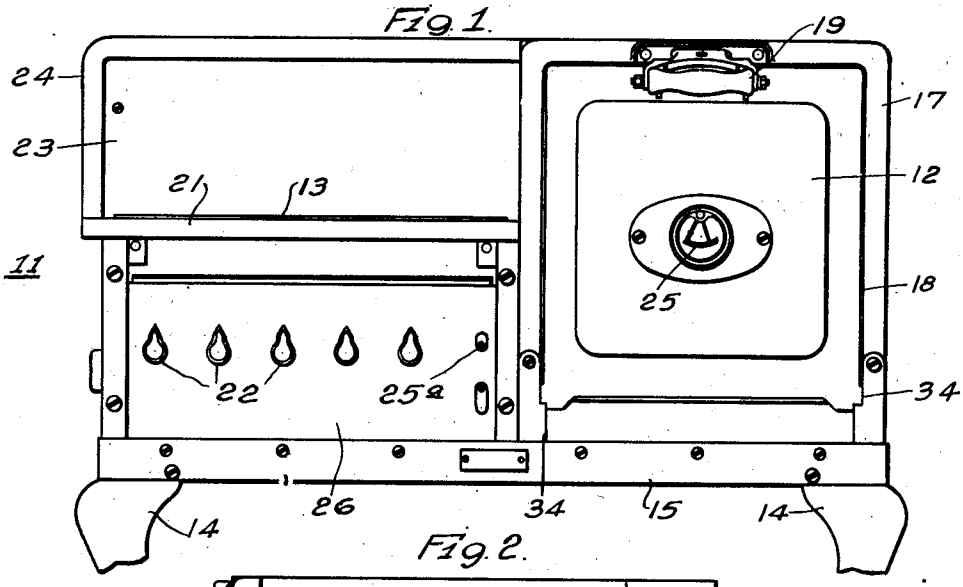


Fig. 2.

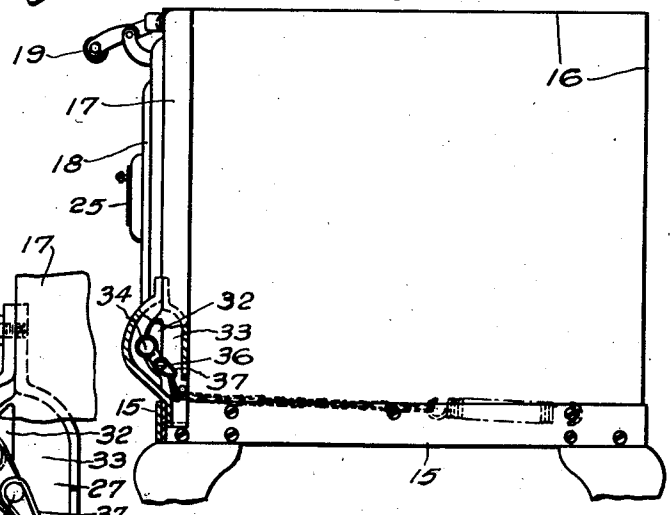


Fig. 3.

Fig. 4.

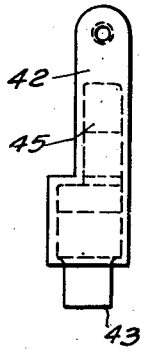
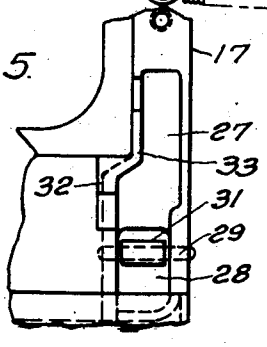


Fig. 5.



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Patented July 31, 1928. 1,678,855

UNITED STATES PATENT OFFICE.

FRANK F. FORSHEE, OF MANSFIELD, OHIO, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

COUNTERBALANCE FOR OVEN DOORS.

Application filed May 31, 1927. Serial No. 195,182.

My invention relates to ranges and particularly to oven doors therefor.

An object of my invention is to provide a relatively simple, effective and compact device for counterweighting an oven door.

In practicing my invention, I provide an oven casing on a range, a front frame having a recess therein at the two lower corners and a forwardly extending recessed flange for receiving the hinge pin of an oven door. The hinge pin has a downwardly extending crank arm integral therewith and a chain has one end connected to the crank arm and the other end connected to a spring, the chain extending over a roller located in the recess over the frame. A base band extends over the lower part of the frame recess and a hinge cap covers the frame recess, having its lower end located back of the base band, the upper end being secured against the front of the frame by a machine screw.

In the single sheet of drawings,

Figure 1 is a view, in front elevation, of a range comprising the device embodying my invention,

Fig. 2 is a view, in side elevation thereof, with certain portions shown in section,

Fig. 3 is a partial view, in side elevation, of the device embodying my invention,

Fig. 4 is a view, in front elevation, of a hinge cap, and,

Fig. 5 is a view, in front elevation, of a front frame.

A range 11 comprises an oven portion 12 and a stove portion 13 located in side-by-side relation on a frame, not shown, the frame being provided with a plurality of legs 14. The frame is covered by a base band 15 extending peripherally thereof.

The oven portion comprises the usual walls of sheet metal indicated generally by the numeral 16 in Fig. 2 of the drawing, a front frame 17 shown more particularly in Fig. 1 of the drawing, and a door 18 hingedly mounted in the frame 17. A handle 19 is provided to permit of opening and closing the door and of locking it in its closed position.

The stove portion 13 comprises a platform 21 having a plurality of heating units mounted thereon but not shown in detail in the drawings. A plurality of switches are mounted below the stove top or platform 21 and are indicated by switch knobs 22. A back wall 23 is provided at the rear of the platform 21 and a stove-trim member 24 is provided in a manner well known in the art.

A thermostat 25 is mounted in the oven door and co-operates with an electromagnetic circuit breaker to control the energization of one or more electric heating units located within the oven, the circuit breaker being indicated generally by the operating handles 25^a extending through a front plate 26 beneath the stove platform. While I have described briefly these elements they constitute no part of the present invention and may be either of the form shown in the drawings or of any other similar form suitable for the purpose specified.

A lower corner portion of the front oven frame 17 is shown more in detail in Fig. 5 of the drawing. A recess 27 is provided in each of the two lower corners and extends substantially vertically at the side of the frame. At the bottom portion there is provided also an opening 28 having two integral side walls through which there extends a pin 29, having a roller 31 mounted thereon. An integral and forwardly extending flange portion 32 is located on the inside of the recess 27 and is provided with a substantially semicircular recess 33 therein.

The oven door, and more particularly the front frame thereof is provided with hinge pins 34 extending substantially laterally and horizontally therefrom at the two lower corners thereof, the hinge pins being adapted to be located in the respective recesses 33 hereinbefore described. The hinge pins are each provided with a crank arm 35 integral therewith and a crank pin 36 at the outer end of the crank arm, which crank arm extends substantially downwardly, but angularly relatively to the front surface of the oven door. A ring 37 is located on the crank pin 36 and has connected thereto one end of a cord or sash chain 38 comprising a plurality of individual flat links, the other end of the chain operatively connected to the forward end of a tension spring 39 the rear end of which is hooked over a pin 41 which is suitably secured to either the oven casing or the frame hereinbefore described, and located therebeneath. The chain 38 operatively engages the roller 31, extending therebeneath and the lengths of the chain and of the spring are such that the spring is placed under tension when the oven door is closed and the crank arm is in the position

shown in Figs. 2 and 3 of the drawings. A chain or cord and a spring are provided at each of the two lower corners of the oven.

A hinge cap 42 is provided, shown more particularly in Fig. 4 of the drawing, having a lower portion 43 which is located back of the base band 15 as shown more particularly in Figs. 2 and 3 of the drawing to hold the lower end of the cap in proper operative position. The hinge cap is provided with an inner recess 45 shown in Fig. 4, whereby side flanges are provided with substantially semicircular recesses 48 for fitting over the hinge pin 34. This construction is shown more particularly in Fig. 3 of the drawing. When the hinge cap is in place, the hinge pin is held in proper operative position and permits of opening and closing of the oven door.

When the oven door is opened by the handle 19 the crank pin 36 moves upwardly in an arcuate path, the chain 38 moving over the roller 31 and placing the spring 39 in tension. By suitable design as to the strength of the spring 39 and the length of the crank arm 35 it is possible to counterweight the door to any desired extent so that it may be swung open quickly without danger of swinging downwardly too far and possibly breaking a portion of the oven frame or itself.

The device embodying my invention thus provides a relatively simple and compact structure for counterweighting an oven door that requires but little space and the parts of which are so located as to require no additional space in the design of the oven.

Various modifications may be made in the device embodying my invention without departing from the spirit and scope thereof and I desire that only such limitations shall be placed thereon as are imposed by the prior art or are set forth in the appended claims.

I claim as my invention:

1. In a range, the combination with an oven casing, a front frame therefor having a recess therein in the front thereof, a base band at the bottom of the oven, and a door for the oven having a hinge pin fitting into said recess, of a hinge cap having a lower end extending back of said base band to hold the lower end of the cap, and a single screw extending through the upper end of the cap and into the oven frame to hold the hinge pin in said recess.

2. In a range, the combination with an oven casing, a front frame therefor having a recess therein in a corner thereof and a forwardly-projecting flange having a substantially semicircular recess therein, a base band extending over the lower portion of the recess in the frame, and a door for the oven having a hinge pin thereon fitting into said semicircular recess, of a hinge cap having a substantially semicircular recess in its rear surface cooperating with the semicircular recess in the flange to receive said hinge pin, a projecting portion of the hinge cap extending back of the base band and cooperating with the walls of said frame recess to prevent lateral movement of the lower end of the hinge cap, and a lateral movement of the lower end of the hinge cap, and a screw at the upper end of the hinge cap for securing it against the frame.

3. In a range, the combination with an oven casing, a front frame therefor having a forwardly-extending recessed flange and a recess in the frame at one corner thereof, a base band extending over the lower portion of the recess in the frame, an oven door having a hinge pin fitting in said flange recess and a crank arm integral with said hinge pin and located in said frame recess, of a roller supported by the frame in the recess below said crank arm, a tension spring secured to the oven casing, a chain having its ends secured respectively to the spring and the crank arm and extending over the roller, a hinge cap having its lower end extending back of the base band and resting thereon and having an inner recess for cooperating with the flange recess to receive the hinge pin, and means for securing the upper end of the hinge cap against the frame.

In testimony whereof, I have hereunto subscribed my name this 25th day of May, 1927.

FRANK F. FORSHEE.