

(No Model.)

J. E. HUNTER.
COUNTERBALANCING DEVICE FOR OVEN DOORS.

No. 541,234.

Patented June 18, 1895.

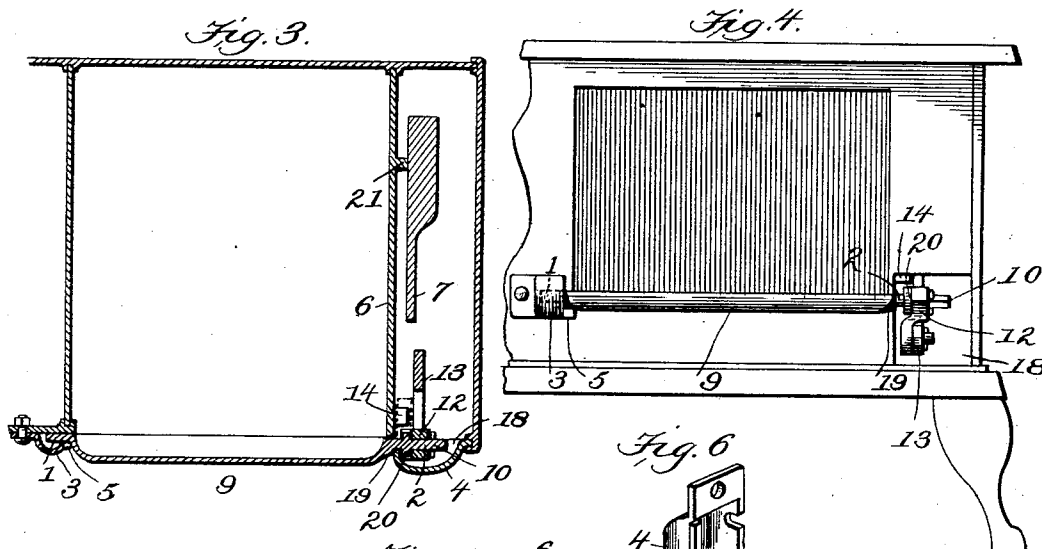
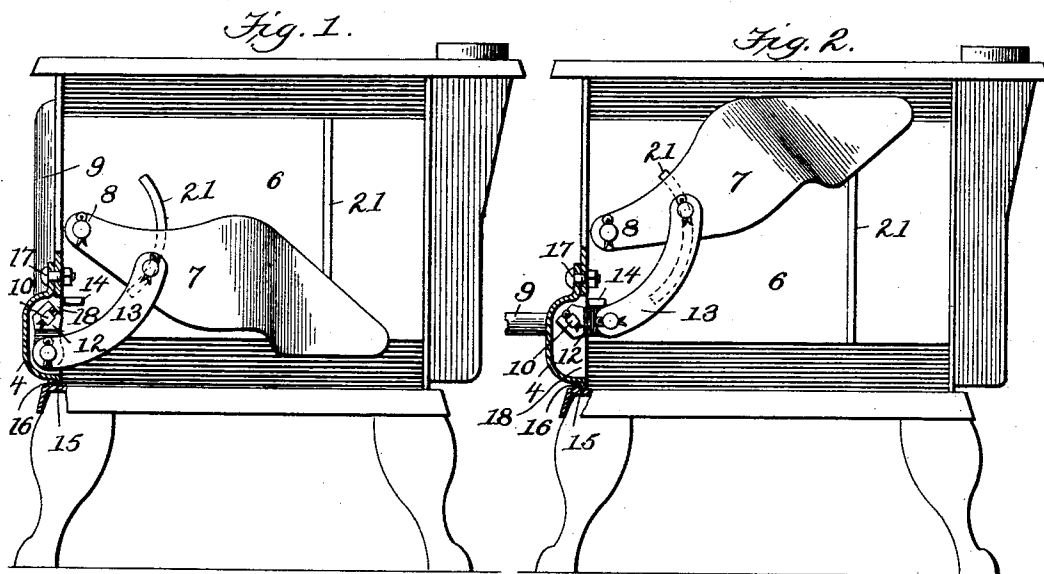


Fig. 5. *Fig. 6.*

WITNESSES:

D. P. Cowl
C. M. Ireland

INVENTOR
John E. Hunter
BY *John E. Hunter*
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN E. HUNTER, OF PEORIA, ILLINOIS, ASSIGNOR TO THE CULTER & PROCTOR STOVE COMPANY, OF SAME PLACE.

COUNTERBALANCING DEVICE FOR OVEN-DOORS.

SPECIFICATION forming part of Letters Patent No. 541,234, dated June 18, 1895.

Application filed April 1, 1895. Serial No. 544,023. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. HUNTER, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented a new and useful Improvement in Counterbalancing Devices for Oven-Doors, of which the following is a specification.

I have improved the provision of a counterbalancing device for controlling the opening and the closing of drop-doors for the ovens of stoves and ranges, and for supporting the door when in horizontal open position.

My improvement is particularly directed to a construction whereby the connection of the controlling and counterbalancing device, with the bearing-arm of the door, is rendered durable; to the provision of a hollow cap for covering said bearing-arm, its connections and the opening in the stove plate within which such connections operate, and to a construction whereby a crank-arm on the door bearing-arm, in connection with a lug on the inner wall of the stove-plate, serve to support the door when turned down in horizontal position.

The accompanying drawings illustrate my improvement in oven-door opening and closing counterbalancing device, wherein—

Figure 1 is a side view of a cooking-stove, the side plate being removed to show the counterbalancing device in the flue-space in the position it occupies when the oven-door is closed. Fig. 2 is a similar view showing the counterbalancing device in the position it occupies when the oven-door is open. Fig. 3 is a horizontal section taken through the bearing-arm of the door and showing the hollow cap covering the bearing-arm and the opening in the stove-plate within which the balancing connections operate. Fig. 4 is a view of the oven-door side of the stove, showing the manner of securing the bearing-arms of the oven-door; and Fig. 5 shows a detail of the bent or offset crank-arm and its stop which serves to support the oven-door. Fig. 6 shows the hollow-tongued cap for the door-bearing.

The counterbalancing device is arranged in the flue-space at the side of the oven and the door is connected with such device through an opening in the stove-plate at said flue-space. It is important therefore that this

opening in the stove-plate be closed to exclude the cold air from the flue, and the provision which I have made for the purpose serves also as the means of securing the door in place and of inclosing the connections of the counterbalance with the door.

The bearing-arms 1 and 2 of the door are mounted in hollow caps 3 and 4, the cap 3 having a shoulder 5 by which the door is supported at that end when turned down. The co-operating provision for supporting the other end of the door I will presently describe in connection with a counterpoise device.

To the oven wall 6 in the flue space, is pivoted a weighted lever 7, its pivoted end 8 being next to the door-plate. One of the bearing-arms 2 of the oven-door 9 has a shouldered part 10 of square cross section, and on this square part of the bearing-arm is secured a short arm 12 like a crank, in position in line with the door. An arm or rod 13 has pivotal connection with the end of the crank-arm and with the weighted lever, at a point about the middle of its length, which relation is such that when the oven door is closed, the crank-arm will stand down and the weighted arm will hang on a downward incline so as to press its connected crank-arm outward and the door thereby inward, to keep it closed tightly, the weight of the arm being adjusted for this purpose and for counterbalancing the door in its opening and in its closing movements. The pivot connected end of the crank-arm stands offset to its bearing connected end so that this offset end moves in a vertical path nearer the oven wall, which has a lug 14 against which the crank-arm abuts when the door is open and firmly supports the door in such position. The crank arm in its function of supporting the door when open, dispenses with the usual external lug used for that purpose. The hollow cap 4 is formed with a tongue 15 which sets in a recess or groove 16 in the bottom plate and is secured by a screw 17 to the vertical stove-plate. This cap forms the bearing for the door 2, a cover for the opening 18 within which work the counterpoise connections with the door, and it serves to secure the door from edgewise movement on its bearing arms, the hollow cap 4 for this purpose fitting between the shoulders 19 and 20

on the bearing 2 of the door, as seen in Figs. 3 and 6. A cotter-pin serves to secure the crank-arm in place on the bearing-arm against the shoulder 20.

5 It is important to so relatively connect the weighted arm and the crank-arm, that when the door is open and supported in horizontal position by the crank-arm and its coacting lug, the weighted-arm will be raised and the
10 position of its connecting-rod will be such as to exert a force upon the crank-arm in a horizontal line with the door, whereby the weight will not act to close the door until the latter is started upward from its horizontal position.

15 The weighted-arm and the door are so evenly balanced as to hold the door in partial open position.

The oven wall has ribs 21 which form bearings for the weighted arm, and prevent it from
20 wobbling in its vertical movements with the opening and closing of the door. Cotter-pins connect the pivots of the counterpoise parts.

It will be understood that shoulder 5, the crank-arm 12 and the lug 14, are disposed so
25 that they will act together to firmly support the door at each end when turned down.

The arrangement of the lug and the short crank-arm gives a very strong support for the door close to its bearing and the advantage
30 of utilizing the short crank-arm as the means of both connecting the weighted-lever and engaging the lug.

I claim as my improvement—

1. The combination of a vertically swinging oven-door the bearing-arm whereof has a fixed
35 crank-arm, the pivoted weighted-arm, and the arm or rod connecting the crank-arm and the weighted-arm, with a lug projecting horizontally from the inner wall of the stove-plate in such relation to said crank-arm as to engage
40 its weight connecting end in the way and for the purpose stated.

2. The combination of a vertically swinging oven-door the bearing-arm whereof has a
45 crank-arm, and a counterbalancing lever for the door connecting said crank-arm, of a lug or projection arranged between the pivoted end of said lever and the said crank-arm, whereby the latter is caused to engage said lug.

3. The combination of a vertically swinging
50 oven-door, hollow caps confining the door bearing-arms, the cap 3 having a shoulder 5 for supporting that end of the door, the cap 4 engaging shoulders 19 and 20 on the bearing-arm 2 and stepped or seated into the base-
55 plate of the stove, a crank-arm 12 on said bearing-arm 2, a lug 14 on the oven-wall in the path of the crank-arm for supporting the door when open, and suitable counterbalancing devices connecting said crank-arm, sub-
60 stantially as described.

JOHN E. HUNTER.

Witnesses:

RICHARD A. CULTER,
HENRY C. MORSE.