July 27, 1926. 1,594,219

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OVEN DOOR OPERATING MECHANISM

Filed March 10, 1926

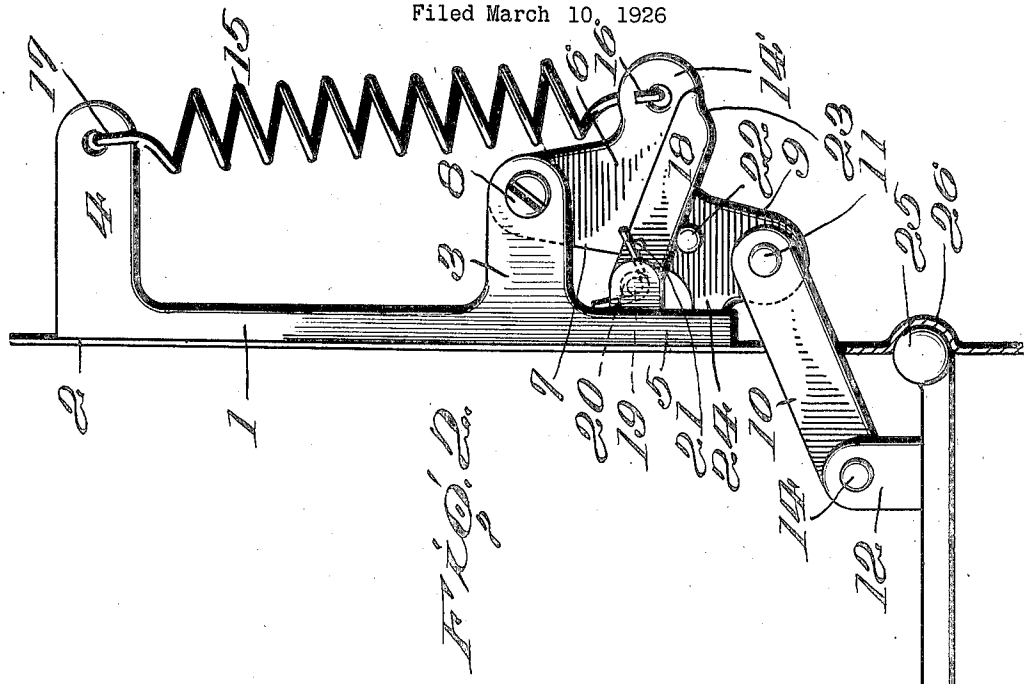


Fig. 2.

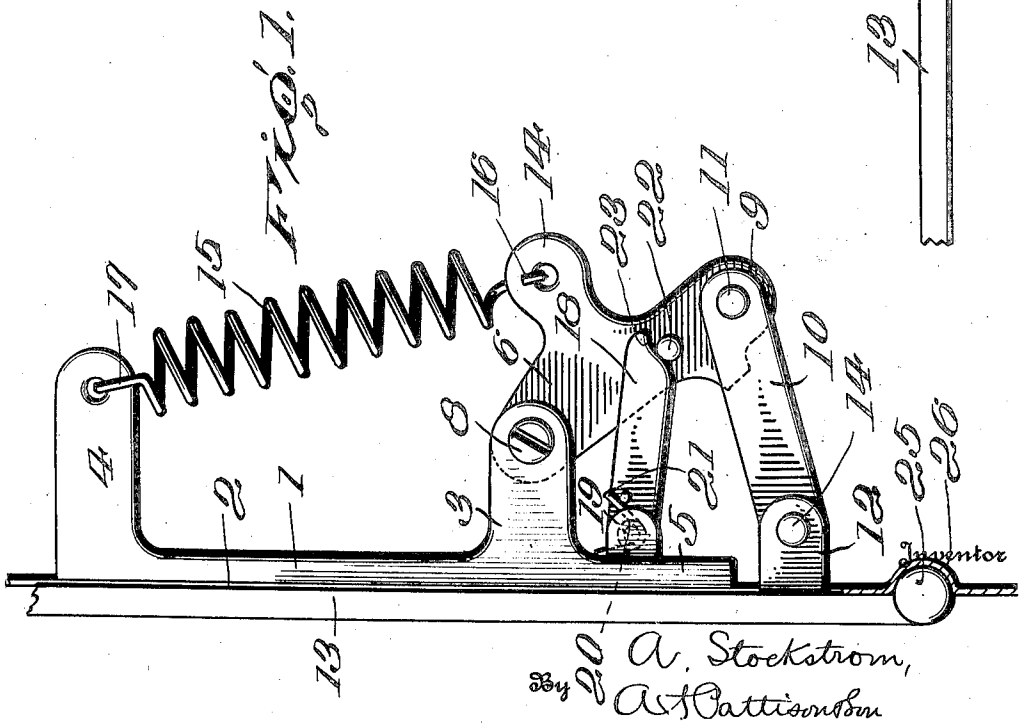


Fig. 1.

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Patented July 27, 1926. 1,594,219

UNITED STATES PATENT OFFICE.

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OVEN-DOOR-OPERATING MECHANISM.

Application filed March 10, 1926. Serial No. 93,656.

This invention relates to certain improvements in oven door operating mechanisms and its primary object is the construction of a simple and efficient means to hold the door closed and to support it in a horizontal position when open.

A further object of the invention is to so construct the mechanism that the door is held in horizontal position by an absolute stop arranged on part of the mechanism whereby it will sustain quite easily any necessary weight.

Another object of the invention is to provide a mechanism that comprises two working parts, the end of one part being pivoted to the stove structure and the opposite end connected by a link with the door and a spring connected with the parts to assist in closing and holding the door closed.

A further object of the invention is the provision of means for holding the door closed whereby more pressure is required to begin the opening of the door.

Other objects of the invention will appear from the following description.

In the drawings:—

Figure 1 is a side elevation of the improved mechanism, the oven door being shown in a closed position.

Figure 2 is a similar view, the oven door and the parts being shown in open positions.

In carrying out the present improvement there is attached to any part of the oven structure at opposite sides of the door opening a suitable vertical member 1. This member may be attached in any convenient manner to the oven structure 2. Preferably made as a part of the member 1 are two inwardly projecting arms 3 and 4, the former being attached to the lower portion of the member 1 while the latter arm extends from its upper end. The member 1 also extends below the lower arm 3 as shown at 5, for a purpose which will presently be explained.

A suitable lever 6 has its upper end 7 pivoted to the arm 3 by a screw or other form of bolt 8, and the lower end 9 of the lever 6 is pivotally connected to the inner end of a link 10 by means preferably of a suitable bolt or other device 11. The outer end of the link 10 is pivotally connected to a member 12 that extends upwardly from the oven door 13 by means of a bolt or other device 14.

Projecting inwardly from the lever 6 intermediate its ends is a suitable perforated arm 14', and a spring 15 has its lower end 16 passing through the perforation while its upper end 17 passes through a perforation made in the arm 4. This spring 15 is normally contracting whereby it is normally pulling upward on the lever 6.

It will be understood that when the lever 6 is in the position shown in Figure 2, the spring is pulling thereon a little to one side of the pivotal point 8, and therefore its pull is not so much on the mechanism as it is in the position of Figure 1 when its arm 14 is substantially in a horizontal line with its pivotal point 8. Therefore the spring does not have as much pulling force on the door in the position of Figure 2 as it does in the position of Figure 1. Furthermore the weight of the door when it is horizontal is considerably more than it is when it is vertical. Owing to these facts the said door will remain in a horizontal position since the spring is not strong enough to pull the door closed.

However for the purpose of aiding the mechanism in holding the door in a horizontal position, and also holding the door in a vertical position, I provide a spring actuated holding finger 18 that has its inner end 19 pivoted to an arm 20 that extends inward from the member 1. A spring 21 is arranged so that it causes a downward tension on the member 18 which causes it to engage a pin 22 that is on the lever 6 when the parts are in the open position of Figure 2, thereby assisting in holding the door in a horizontal position. When, however, the door is closed the beveled or curved end 23 of the member 18 engages the pin 22 whereby this beveled or curved portion serves to substantially lock or hold the door closed, causing a considerable pull to cause the door to open.

From the foregoing it will be observed that the under side of the finger 18 engages the pin 22 when the door is open, and when the door is closed the curved end of the finger 18 engages the pin 22.

No effort has been made in the drawings to show the door 13 of proper cross sectional conformation, nor is any effort made in the drawings to show the proper formation of the oven structure 2. It will be understood, of course, that they will be of the form usually used.

Attention is directed to the fact that the

lever 6 is so constructed that it will strike the lower part 5 of the member 1 when the door is open, thus forming a stop for holding the door in a horizontal position. In the construction here shown the lever preferably has a projection 24 on its inner side preferably near its lower end and this projection abuts against the part 5 of the member 1.

So far as I am aware oven doors have heretofore been provided with various means for supporting them in a horizontal position but the manner here shown of having the inner sides of the lever and member 5 engage and form a positive stop for the door is novel. It will be observed that this stop is positive in its action so that the door will sustain easily any reasonable amount of weight that is placed thereon.

As here shown, the lower edge of the door is provided with a ball-shaped bearing 25 that fits in an inwardly curved portion 26, thereby making it possible to readily attach and detach the door from the outer end of the link 10 for any desired purpose. It forms a very simple manner of hinging the lower edge of the door to the oven structure.

I desire it understood that modifications in the construction here shown may be made without departing from the spirit of the invention, so long as such modifications are within a fair interpretation of the appended claims.

It will be apparent from the foregoing description and disclosure that the holding finger 18 may be omitted without affecting the scope of the remaining part of the mechanism herein described.

What I desire to secure and claim by Letters Patent of the United States is:—

1. A door operating mechanism comprising a door, a lever having one end pivotally supported and a link having its respective ends connected to the opposite end of the lever and to the door, the parts operating as described.

2. A door operating mechanism comprising a door, a lever having one end pivotally supported, a link having its ends respectively connected with the opposite end of the lever and with the door, and a spring connected with the lever for normally pulling the parts to closed position.

3. A door operating mechanism comprising a door, a lever having one end pivotally supported, a link having its ends respectively connected to the lever and to the door, the lever adapted to act to hold the door in a horizontal position.

4. A door operating mechanism comprising a structure having a door opening, a lever having one end pivotally supported by the said structure, a door adapted to swing on said structure, and a link having its ends connected respectively to the lower end of the link and to the door, and a spring acting to move the parts to closed position.

5. A door operating mechanism comprising a structure having a door opening, a door hinged at the lower side of said opening, a vertical lever having its upper end pivotally supported to the structure above the door hinge, and a link having its ends respectively connected to the lower end of the lever and to the door, and a spring acting on the lever to move the parts to closed position.

6. An oven door operating mechanism comprising a structure having a door opening, a door hinged at the lower side of the opening, a dependent lever having its upper end pivotally connected with the structure, a link having its inner end pivotally connected with the lever above the door opening, and its outer end pivotally connected with the door exterior to the said opening and a spring acting to move the parts to closed positions.

7. An oven door operating mechanism comprising a structure having a door opening, a door hinged at the lower side of the said opening, a lever having its upper end pivotally connected with the said structure, a link having its inner end connected with the lever above the said opening and its outer end operatively connected with the door exterior to the said opening when the door is open, and the lever abutting against the structure when the door is open, for the purpose described.

8. An oven door operating mechanism comprising a structure having a door opening, a door having its lower edge hinged to the said structure, a depending lever having its upper end pivotally supported by the structure, a link having its inner end pivotally connected with the lower portion of the lever and its outer end pivotally connected with the door exterior to the opening when the door is open, the lever having a projection engaging the structure and forming a stop to hold the door in a horizontal position.

9. An oven door operating mechanism comprising a structure having a door opening, a door having its lower edge hinged to the structure, a member connected to the structure at one side of the opening and having an inwardly extending arm, a depending lever having its upper end pivotally connected with the said member, and a link having its inner end connected to the lower portion of the lever and its outer end pivotally connected to the door exterior to the said opening when it is open, the lever and the supporting member in engagement for supporting the door in a horizontal position.

10. An oven door operating mechanism comprising a structure having a door opening, a member connected to the structure to

one side of the opening, the said member having an inwardly extending arm, a lever having its upper end pivotally connected with the arm, a link having its inner end connected with the lower portion of the lever and its outer end pivotally connected with the door, a spring connected with the lever and acting to pull the parts to closed position, the supporting member and the outer side of the lever engaging and forming a stop for the purpose described.

11. A door operating mechanism comprising a hinged door, a lever having its upper end pivotally supported, a link pivotally connecting the lower end of the lever with the said door, and a spring actuated finger adapted to have its end act on the lever for holding the parts in their closed positions.

12. An oven door operating mechanism comprising a structure having a door opening, a member secured to one side of the said opening, a depending lever having its upper end pivotally connected with the supporting member, a link having its ends respectively connected to the lower end of the lever and to the door, a spring acting to move the parts to closed position and a spring actuated finger coacting with the said lever to have its outer end engage a part of the lever to hold the parts in closed positions.

13. A mechanism for closing oven doors comprising a structure having a door opening, a door hinged to the structure, a member secured to the structure at one side of the opening, a lever having its upper end pivotally connected to the supporting member, the lever having a lateral projection, a spring actuated member engaging the said projection, a link having its ends connected respectively to the lower end of the lever and to the door, the spring acting on the lever to tend to move the parts to closed position, and a spring actuated finger having its outer ends shaped to engage the lateral projection when the parts are in closed position.

In testimony whereof I hereunto affix my signature.

ARTHUR STOCKSTROM.