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STOVE AND ADJUSTABLE PLATES FOR THE OVENS THEREOF
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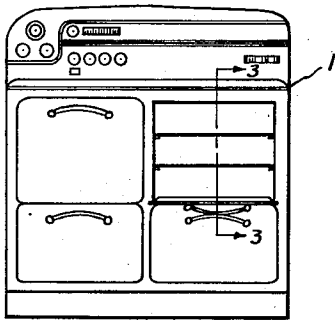


FIG. 1

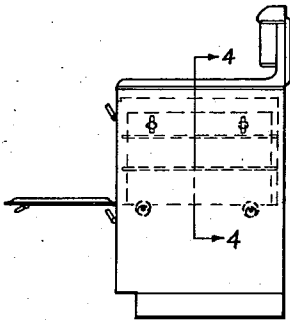


FIG. 2

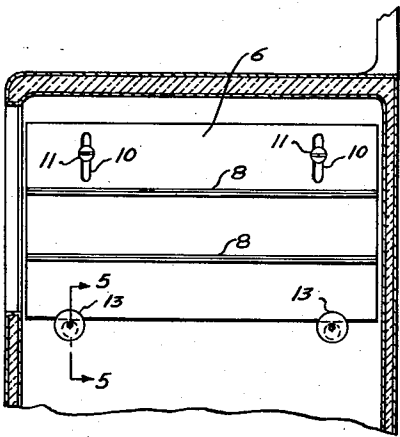


FIG. 3

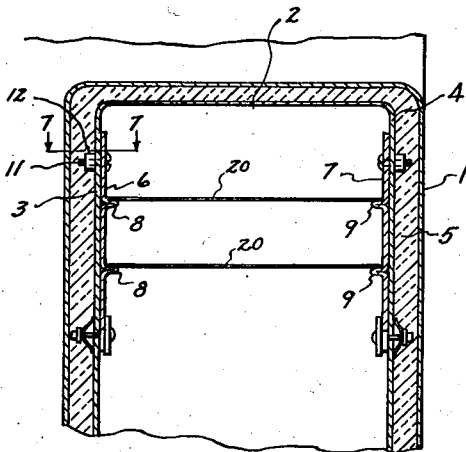


FIG. 4

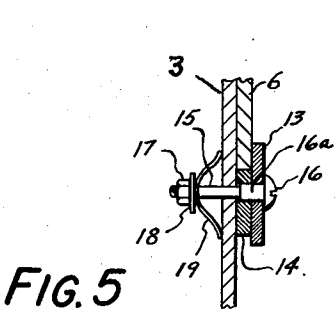


FIG. 5

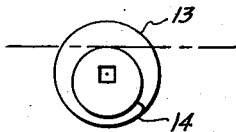


FIG. 6

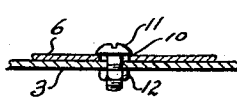


FIG. 7

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UNITED STATES PATENT OFFICE

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STOVE AND ADJUSTABLE PLATES FOR THE
OVEN THEREOF

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14 Claims. (Cl. 126—337)

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My invention relates to stoves and more particularly to ovens provided with adjustable plates having ribs for supporting slidable racks or trays.

It is now well known that the floors in many buildings, such as in homes or apartments are not level which is generally due to the uneven settling of the building after it is erected. When stoves are installed in the kitchens of such buildings, it is therefore apparent that unless some provision is made to level the stoves, they will assume the same inclination as the floor upon which they rest and consequently the ovens of such stoves will also be inclined.

In constructing stoves at the present time, it is the practice to provide a side plate on each interior side of the oven, each of which is provided with inwardly extending supports or ribs upon which the opposite edges of trays or racks slide. Stove manufacturers arrange the supports or ribs on one plate so that each support will be in horizontal alignment with a support on the opposite plate. When the stove is installed upon a floor that is inclined in a direction between the opposite ends of the stove, however, the supports on one side of the oven will be above the corresponding supports on the opposite side and racks or trays having their opposite edges supported by the ribs will be inclined. It will also be apparent that if the floor on which the stove is placed is inclined from the front to the rear of the stove, the racks or trays supported by the ribs will also be inclined in a like direction.

The inclination of the racks or trays in an oven, however, causes much annoyance to the house wife in baking pies, cakes, or even bread, because the filling or batter for such goods, is generally in the form of a more or less viscous liquid which seeks its own level and because of the inclination of the racks or trays, the upper portion of goods being baked assumes an inclined position with respect to the bottom portion which is annoying to fastidious housekeepers. In goods, such as custard pies, which are baked in shallow pans and in which the filling flows freely, the inclination of the racks or trays is particularly annoying because the filling may overflow the walls of the pans and fall into contact with the hot walls of the oven where it readily carbonizes and is difficult to remove.

To maintain the stove in a level position, attempts have been made to raise a portion of the stove and insert a support below the raised portion. Such practice, however, is unsanitary because dirt or other extraneous material collects below the raised portion of the stove and is difficult to remove.

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It is an object of the present invention to provide side plates in an oven which plates are adjustable vertically and angularly so that ribs or supports for the slidable trays or racks may be maintained in a level position from the front to the rear of the oven and so that racks or trays supported on oppositely disposed ribs may be maintained level, irrespective of the inclination of the floor between the opposite ends of the stove.

Another object of my invention is to provide improved means for adjusting each of the side plates of the oven of a stove, independently of the other side plate so that the ribs or supports on which the oven racks or trays slide may be maintained in the same horizontal plane.

A further object of my invention is to provide improved means whereby one or both side plates of an oven may be adjusted relative to the side wall of the oven on which it is supported and means whereby such side plates may be maintained in their adjusted positions.

My invention will be better understood by reference to the accompanying drawings in which:

Fig. 1 is a front elevational view of a stove;

Fig. 2 is an end elevational view of the stove shown in Fig. 1;

Fig. 3 is a cross sectional view on a plane passing through the line 3—3 of Fig. 1, looking in the direction of the arrows;

Fig. 4 is a cross sectional view on a plane passing through the line 4—4 of Fig. 2, looking in the direction of the arrows;

Fig. 5 is a cross sectional view on a plane passing through the line 5—5 of Fig. 3, as viewed in the direction of the arrows;

Fig. 6 is a detail view of the eccentric shown in Fig. 5; and

Fig. 7 is a cross sectional view on the plane of line 7—7 of Fig. 4, looking in the direction of the arrows.

While the improvements provided by my invention may be incorporated in the ovens of stoves of any desired type, as illustrated in the drawings, a stove 1 is shown containing the usual oven 2 which is provided with oppositely disposed side walls 3 and 4 and which are insulated from the outer stove wall by suitable insulation 5, and arranged adjacent the opposite side walls of the oven, are side plates 6 and 7. The side plates may be of any desirable form and I do not desire to be limited in this respect. As illustrated, each of the side plates is formed of a sheet of metal, having a plurality of inwardly bent portions forming supports or ribs 8 and 9, respectively, with each of the supports 8 being arranged opposite to one of the supports 9.

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In accordance with my invention, means are provided to secure each side plate to the wall of the oven so that it may be adjusted upwardly or is permitted to descend under its own weight and to secure and hold the plate in its adjusted position. Any suitable means for securing the plate to the adjacent side wall of the oven may be utilized. Preferably, however, means are provided for securing each side plate to one of the oven walls that will guide the movement of the side plate secured thereto. Each of the plates may for instance, be adjustably supported and secured to one of the side walls of the oven at its bottom portion and guided at its opposite edges in suitable guides or slideways formed on the oven wall. As illustrated in the drawings, each of the side plates is provided with a pair of spaced slots 10 and the plate is adjustably held in engagement with side wall 3 or 4 of the oven by means of bolts 11 having shanks spaced from the opposite side walls of the respective slot through which each extends as shown more particularly in Fig. 7 and ends which may be threaded directly into threaded apertures in the oven wall 3 or into an interiorly threaded nut 12 welded or otherwise secured to the oven wall.

The lower portion of each plate is resiliently secured to its adjacent oven wall by any suitable means. As illustrated in the drawings, a pair of spaced washers 13 are provided, each having an angularly-shaped opening and interposed between each washer and the inner oven wall is an eccentric 14 also provided with a similar angularly-shaped opening. Each washer 13 and eccentric 14 are secured to the oven wall by means of a bolt 15 having a head provided with means to receive a suitable tool for rotating the bolt, such as slot 16, and an angularly-shaped portion 16a arranged adjacent its head to extend through the washer 13 and eccentric 14. As illustrated, the shank of bolt 15 extends through an aperture in the oven wall 3 and is provided with a threaded end to receive a nut 17. Arranged beneath each nut 17 is a washer 18 and interposed between the oven wall 3 and each washer 18 is a spring 19 which yieldingly maintains eccentric 14 in engagement with the oven wall and washer 13 in engagement with the lower edge of plate 6.

When bolts 11 are threaded into engagement with nuts 12, it is apparent that plates 6 and 7 will be maintained in their set position. When it is desired to adjust plate 6 or 7, bolts 11 are threaded outwardly from the oven wall and the plates may be adjusted by hand or any convenient means. As illustrated eccentrics 14 are provided which may be rotated to raise or permit the respective plates to descend. The eccentrics beneath each plate are each rotated in such direction that supports 8 on plate 6 and supports 9 on plate 7 may be maintained level. Because the shanks of bolts 11 are spaced from the opposite sides of slots 10, it will also be apparent that one of the eccentrics below each plate may be rotated to a greater extent than the other eccentric under the same plate to maintain the front and rear portions of supports 8 and 9 level. When this position is attained, bolts 11 are threaded inwardly to maintain the plates in their adjusted position. Additional adjustments may of course be made from time to time if the floor upon which the stove rests should assume a different inclination or if the stove is installed in the kitchen of a different building or apartment.

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The opposite plate 7 is secured to the oven wall 4 and is adjustable in the same manner as plate 6 and in this connection it may be stated that if supports 8 and 9 are out of horizontal alignment because wall 4 is higher than wall 3, they may be brought to such position that racks or trays 20 may be maintained level, either by raising plate 6 or permitting plate 7 to descend. To maintain the racks or trays 20 in the proper position, alignment is preferably secured by raising one of the side plates approximately half the distance necessary to properly align the racks and by lowering the other side plate a like amount. Plate 7 may also be adjusted angularly in the same manner as plate 6 so that ribs or supports 9 may be maintained level irrespective of the inclination of the stove from its front to its rear portion.

The insulating material 5 arranged between the oven walls and the outer wall of the stove is formed of a fibrous material, such as mineral wool, and serves to thermally insulate springs 19 while permitting bolts 15 and nuts 17 to turn the desired amount to rotate eccentrics 14 for the purpose of adjusting the respective plates. It will also be noted that the heads of bolts 15 and 11 are accessible from the interior of the oven so that plates 6 and 7 may be easily adjusted by women or unskilled workmen.

What I claim is:

1. A stove provided with an oven having interior oppositely disposed side walls, a first plate arranged adjacent one of said side walls and having a slot extending substantially vertically therein, a second plate arranged adjacent the other side wall of said oven, each of said plates being provided with one or more rack supports, means for maintaining each of said plates in such position relative to its adjacent wall that each rack support on one plate is in horizontal alignment with a rack support on the opposite plate to maintain a rack having its opposite edges resting upon oppositely disposed rack supports on said plates in a level position when said stove rests upon a level surface, and the means for supporting the first plate adjacent the oven wall including an eccentric arranged below the first plate and a member having a threaded portion extending through the slot in the first side plate and threaded into the adjacent oven wall, said threaded member being adjustable inwardly from the first side plate to provide a guide when said eccentric is rotated, and means accessible from the interior of said oven for receiving a tool to rotate said eccentric to gradually adjust the first plate relative to the second plate to position its rack supports horizontally opposite to the rack supports on the second plate when said stove rests on an inclined surface.

2. A stove provided with an oven having interiorly oppositely disposed side walls, a plate arranged adjacent each side wall, each of said plates being provided with one or more rack supports, means for maintaining each of said plates in such position relative to its adjacent side wall that each rack support on one plate is arranged in horizontal alignment with a corresponding rack support on the oppositely disposed plate to maintain a rack having its edges resting upon oppositely disposed rack supports on said plates in a level position when said stove rests on a level surface, said means including an eccentric arranged below each plate, a washer arranged adjacent each eccentric engaging the inner mar-

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gin of its respective plate, and means for maintaining said eccentric below its respective plate and said washer in engagement with its respective plate which means is accessible from inside the oven for rotating each eccentric to gradually adjust and maintain each plate in a position in which the rack supports on one plate are in horizontal alignment with the corresponding rack supports on the opposite plate when said stove rests on an inclined surface.

3. In an oven having inwardly arranged oppositely disposed side walls, a first plate arranged adjacent one of the side walls of said oven and being provided with a pair of spaced elongated slots and a second plate arranged adjacent the opposite side wall of said oven and being provided with a pair of spaced elongated slots, each of said plates being provided with rack supports with each of the rack supports on the first plate cooperating with a rack support on the second plate to form a support for the opposite edges of a rack or tray, means for securing each of said plates to the oven wall adjacent thereto including two bolts connected to each adjacent oven wall, one of said bolts extending loosely through one of said slots and the other bolt extending loosely through the other slot of each plate, means for angularly adjusting each of said plates including a pair of spaced eccentrics arranged below each plate, means associated with said eccentrics for preventing outward movement of the lower edge of each plate from its adjacent side wall, each of the eccentrics associated with each plate being adjustable from inside of said oven independently of the other eccentric to adjust said plates angularly and to adjust one of said plates vertically relative to the other plate, and each of said bolts being adjustable inwardly from its respective side wall to serve as a guide during the adjustment of said plates.

4. In an oven having interior oppositely disposed side walls, a plate arranged adjacent each side wall, each of said plates being provided with one or more rack supports, means for maintaining each of said plates in such position relative to its adjacent wall that each rack support on one plate is in horizontal alignment with a rack support on the opposite plate to maintain a rack having its opposite edges resting upon corresponding rack supports in a level position when said stove rests on a level surface, said maintaining means for at least one of said plates being movable to a second position and at least one of said plates, together with its rack supports, being gradually adjustable relative to its adjacent side wall when said movable maintaining means is in its second position to position its rack supports horizontally opposite to the corresponding rack supports on the opposite plate when said stove rests on an inclined surface, and the maintaining means for the adjustable plate being effective when again moved to its first position to maintain the adjustable plate in its adjusted position.

5. In a stove provided with an oven having interior oppositely disposed side walls, a plate arranged adjacent each side wall, each of said plates being provided with one or more rack supports, means for maintaining each of said plates in such position relative to its adjacent wall that each rack support on one plate is in horizontal alignment with a corresponding rack support on the oppositely disposed plate to maintain a rack having its opposite edges resting upon corresponding rack supports in a level position when said stove rests upon a level surface, and means

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for gradually adjusting one of said plates, together with its rack supports, relative to its adjacent side wall to position its rack supports in horizontal alignment with corresponding rack supports on the opposite plate to maintain said rack in a level position when said stove rests on an inclined surface and said adjusting means being effective in maintaining the adjustable plate in its adjusted position.

6. In a stove provided with an oven having interior oppositely disposed side walls, a plate arranged adjacent each side wall, each of said plates being provided with one or more rack supports, means for maintaining each of said plates in such position relative to its adjacent wall that each rack support is in a level position and is in horizontal alignment with a corresponding rack support on the oppositely disposed plate to maintain a rack having its opposite edges resting upon corresponding oppositely disposed rack supports in a level position when said stove rests upon a level surface, said maintaining means for each of said plates being movable to a second position, and each of said plates, together with its racks, being angularly adjustable when said maintaining means is in its second position so that racks resting upon oppositely disposed corresponding rack supports may be maintained level when said stove rests upon a surface inclined from its front portion to its rear portion and said maintaining means being effective when moved to its first position to maintain each of said plates in its adjusted position.

7. In a stove provided with an oven having interior oppositely disposed side walls, a plate arranged adjacent each side wall, each of said plates being provided with one or more rack supports, means connected to one side wall and engageable with the plate adjacent thereto and second means connected to the other side wall and engageable with the plate adjacent thereto for maintaining each of said plates in such position relative to their adjacent walls that each rack support on one plate is in horizontal alignment with a corresponding rack support on the oppositely disposed plate to maintain a rack having its opposite edges resting upon oppositely disposed rack supports on said plates in a level position when said stove rests upon a level surface, at least one of said maintaining means being movable inwardly from the side wall to which it is connected to a second position to provide a guide for the adjustable plate adjacent thereto, and the plate adjacent the movable maintaining means, together with its rack supports, being gradually adjustable when its maintaining means is in its second position to position its rack supports horizontally opposite to the corresponding rack supports on the opposite plate when said stove rests on an inclined surface, and said movable maintaining means being movable outwardly to its original position to maintain the adjustable plate in its adjusted position.

8. In a stove provided with an oven having interior oppositely disposed side walls, a plate arranged adjacent each side wall, each of said plates being provided with one or more rack supports, means engageable with each plate and connected to the side wall adjacent thereto for maintaining each of said plates in such position relative to its adjacent side wall that each rack support on one plate is in horizontal alignment with a corresponding rack support on the oppositely disposed plate to maintain a rack having its edges resting upon oppositely disposed rack

supports on said plates in a level position when said stove rests upon a level surface, said maintaining means for each plate being movable inwardly relative to its adjacent side wall to a second position, means for angularly adjusting each of said plates, together with its rack supports, when the maintaining means for each plate is in its second position so that the rack resting upon oppositely disposed corresponding rack supports will be maintained in a level position when said stove rests upon a surface inclined from its front portion to its rear portion, and the maintaining means for each plate being movable outwardly to its original position to maintain each plate in its adjusted position.

9. In a stove provided with an oven having interior oppositely disposed side walls, a plate arranged adjacent each side wall, each of said plates being provided with one or more rack supports, and at least one of said plates being adjustable and provided with an elongated slot, means extending through the slot of the adjustable plate and connected to the side wall adjacent thereto for maintaining the adjustable plate in such position relative to its adjacent side wall that each rack support on the adjustable plate is in horizontal alignment with a rack support on the oppositely disposed plate to maintain a rack having its opposite edges resting upon corresponding rack supports in a level position when said stove rests upon a level surface, said maintaining means for the adjustable plate being movable inwardly to a second position, and the plate provided with the elongated slot, together with its rack supports, being gradually adjustable to position its rack supports horizontally opposite to the corresponding rack supports on the opposite plate to maintain said rack in a level position when said stove rests upon an inclined surface when said maintaining means is in its second position, and said maintaining means being effective as a guide during adjustment of the adjustable plate and being movable outwardly to its original position to maintain the adjustable plate in position after adjustment.

10. In a stove provided with an oven having interior oppositely disposed side walls, a plate arranged adjacent to each of said walls, each of said plates being provided with one or more rack supports, means engageable with each plate and connected to the side wall adjacent thereto for maintaining each of said plates in such position relative to its adjacent wall that each rack support on one plate is in horizontal alignment with a corresponding rack support on the oppositely disposed plate to maintain a rack having its opposite edges resting upon oppositely disposed rack supports on said plates in a level position when said stove rests on a level surface, each of said maintaining means being movable inwardly to a second position and each of said plates being adjustable angularly when its maintaining means is in its second position so that racks resting on oppositely disposed corresponding rack supports may be maintained level when said stove rests upon a surface inclined from its front portion to its rear portion and at least one of said plates being adjustable substantially vertically relative to its side wall when its maintaining means is in its second position to maintain said rack in a substantially level position when said stove rests upon a surface that is inclined between its opposite ends and each of said maintaining means being movable outwardly to its original position to maintain said plates in their adjusted position.

11. In a stove provided with an oven having interior oppositely disposed side walls, a plate arranged adjacent to each side wall, each of said plates being provided with one or more rack supports, means engageable with each plate for supporting each of said plates in such position relative to its adjacent side wall that each rack support on one plate is in horizontal alignment with a rack support on the opposite plate to maintain a rack having its opposite edges resting upon corresponding rack supports in a level position when the stove rests upon a level surface and the supporting means engageable with at least one of said plates being gradually movable to adjust the plate supported thereby, together with its rack supports, to a second position to position its rack supports horizontally opposite to the corresponding rack supports on the opposite plate when said stove rests on an inclined surface, and means for guiding the adjustable plate during its adjustment.

12. In a stove provided with an oven having interior oppositely disposed side walls, a plate arranged adjacent to each side wall, each of said plates being provided with one or more rack supports, means engageable with each plate for supporting each of said plates in such position relative to its adjacent side walls that the rack support on one plate is in horizontal alignment with a rack support on the opposite plate to maintain a rack having its opposite edges resting upon corresponding rack supports in a level position when said stove rests upon a level surface, at least one of said supporting means being an eccentric arranged below the plate supported thereby and upon which eccentric the plate rests, said eccentric being rotatable to gradually adjust the position of the plate with which it is associated to a second position to position its rack supports opposite to the rack supports on the opposite plate when said stove rests on an inclined surface, and means for guiding the adjustable plate during adjustment.

13. In a stove provided with an oven having interior oppositely disposed side walls, a vertically movable plate arranged adjacent to each side wall, each of said plates being provided with one or more rack supports which are movable therewith, a pair of eccentrics, one of which is arranged beneath and supports one plate and the other of which is arranged beneath and supports the other plate, said eccentrics each being settable in a position to maintain each of said plates in such relation to its adjacent side wall that the rack support on one plate is in horizontal alignment with the rack support on the opposite plate to maintain a rack resting upon corresponding rack supports in a level position when said stove rests upon a level surface, and each of said eccentrics being rotatable to adjust the plate resting thereon to a second position so that said rack supports may be maintained in horizontal alignment with each other when said stove rests on an inclined surface, and means for guiding each of said plates during adjustment.

14. In a stove provided with an oven having interiorly oppositely disposed side walls, an angularly and vertically movable plate arranged adjacent each side wall, each of said plates being provided with one or more rack supports which are movable therewith, two pairs of eccentrics, one pair of eccentrics being arranged in spaced relation below one of said plates and serving as a support therefor and the other pair of eccentrics being arranged in spaced relation below the other

plate and serving as a support therefor, said eccentrics being settable in such position that the rack support on one plate is in horizontal alignment with the rack support on the opposite plate to maintain a rack resting upon corresponding rack supports in horizontal position when said stove rests upon a level surface, and each of said eccentrics being rotatable to adjust said plates to second positions in which the rack supports are in horizontal alignment when said stove rests upon an inclined surface, and means for guiding each of said plates during adjustment.

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REFERENCES CITED

The following references are of record in the file of this patent:

Number
743,933
975,107
1,070,509
1,390,809
1,896,307
1,916,509
1,955,884
2,090,353
2,240,144
2,315,053
2,420,173
2,466,360

Name	Date
Ruth et al.	Nov. 10, 1903
Ayer et al.	Nov. 8, 1910
Allen	Aug. 12, 1913
Mott et al.	Sept. 13, 1921
Hatch	Feb. 7, 1933
Hammer	July 4, 1933
Lange	Apr. 24, 1934
Hokanson	Aug. 17, 1937
Mills	Apr. 29, 1941
Hallock	Mar. 30, 1943
Hall	May 6, 1947
Bittney	Apr. 5, 1949

FOREIGN PATENTS

Number	Country	Date
171,010	Great Britain	Nov. 10, 1921
419,553	Great Britain	Nov. 14, 1934

UNITED STATES PATENTS