Aug. 14, 1934. A. G. SHERMAN 1,970,343

BROILER CONSTRUCTION

Filed June 26, 1930

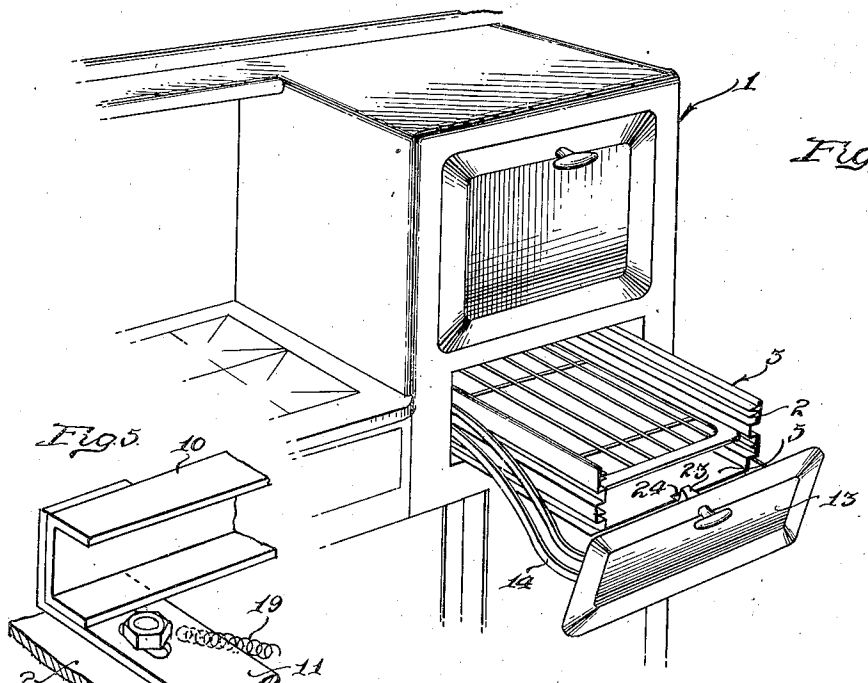


Fig. 1.

Fig. 5.

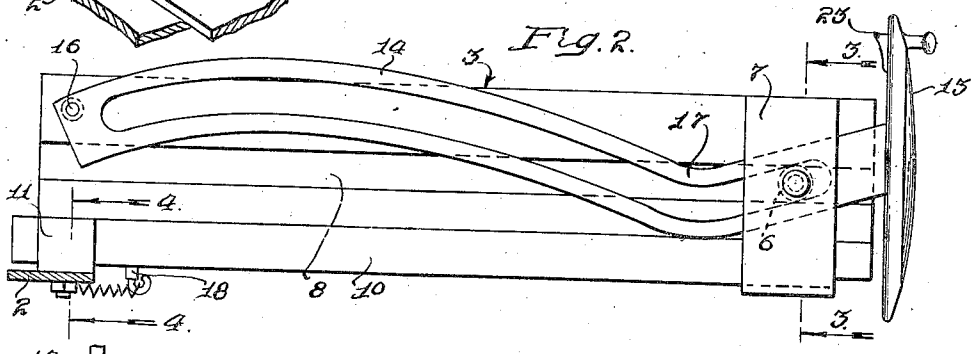


Fig. 2.

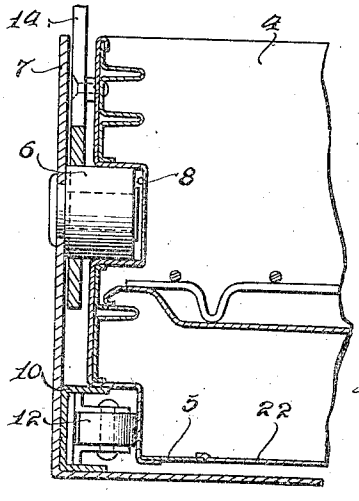


Fig. 3.

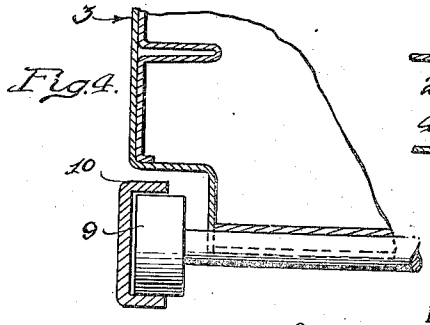


Fig. 4.

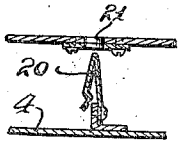


Fig. 6.

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BROILER CONSTRUCTION

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Application June 26, 1930, Serial No. 463,905

15 Claims. (Cl. 126—340)

This application relates to broiler construction and has to do particularly with a novel combination of broiler drawer and broiler door construction, and mechanism for supporting and simultaneously operating the same.

In standard range construction it is customary to locate the broiler compartment underneath the oven compartment and to provide suitable racks and a drip pan for effecting the usual broiling operation. To facilitate handling of the article being broiled and to make the broiler unit accessible, means have heretofore been proposed for making it possible to slide the broiler compartment forwardly of the stove proper.

It is the object of the present invention to provide improved means for making the broiler compartment readily accessible to the user. One of the main features of said improved mechanism embodies the use of a broiler door which is bodily movable relative to the stove and is so supported that it moves outwardly and downwardly about a movable fulcrum. Such movement of the door makes it possible to completely present and make accessible all parts of the broiler compartment.

Another feature of the invention resides in a novel structure for supporting both the broiler compartment, in the form of a movable drawer, and the bodily movable door, such means being so arranged that the broiler drawer is slidable forwardly and horizontally while the broiler door is movable forwardly and downwardly by means of the same supporting and guiding unit. The main result of this construction is that the grasping of the broiler door handle and movement of the same outwardly with the usual door-opening effort will result in the broiler door moving bodily away from the stove front and grdually downwardly so that the entire broiler unit is moved out of the stove frame and so positioned as to render the top and front thereof completely exposed and accessible.

Other features of the invention reside in various details of construction having to do with supporting the unit within the broiler space and for effecting operation of the relative parts, one important specific feature being the removable lower part of the broiler compartment to permit direct heating of the space below the stove when desired.

In the drawing:

Fig. 1 is a perspective view of a standard range showing my novel broiler compartment in substantially extended position with the door unit also approaching its final outward position.

Fig. 2 is a side elevation of the complete broiler unit including the drawer and door.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 2 and showing in part the supporting structure for the front of the broiler compartment.

Fig. 4 is a sectional view on line 4—4 of Fig. 2 and illustrating particularly the guideway and roller construction at the rear portion of the broiler drawer.

Fig. 5 is a fragmentary perspective view illustrating the manner of securing the supporting frame for the broiler unit to the stove frame.

Fig. 6 is a fragmentary sectional view illustrating the arrangement of the back wall of the broiler drawer and the back of the stove casing for resiliently holding the broiler drawer in normal position.

The present invention is particularly applicable to the manner of supporting and moving the broiler unit from standard stove constructions, but it will be understood that the invention could be equally as well adapted to other parts of the stove structure having elements which could be rendered more efficient as to use and operation by moving the same relative to the stove unit so as to openly present certain parts thereof.

In adapting the present invention to standard gas ranges or the like, such as shown at 1 in Fig. 1, such a stove in its normal construction is usually provided with a base frame, and such base frame at the front and rear of the broiler compartment is made use of in the preferred embodiment of the present invention. A portion of the rear frame is shown as at 2, Figs. 2 and 5, and a similar frame is made use of at the front of the broiler compartment.

The broiler unit forming the embodiment of the present invention is formed as a complete movable unit, as best shown at 3 in Figs. 1 and 2. This complete unit is formed of the side walls 2 which are fabricated to provide suitable shelves in place of the ordinary linings of the broiler compartment. Such shelves are best shown in Fig. 3. The remainder of the complete unit is made up of a rear wall 4 and a bottom wall which may be generally designated 5.

The complete unit 3 is in the present instance supported on each side by two rollers and a guideway. The rollers for supporting the front end of the unit may be designated 6 and are supported on a member 7 which is preferably U shape in formation. It is this U shaped member which is secured to the front frame of the stove. Each side wall 2 of the unit 3 is provided with

a longitudinal groove 8 adapted to receive the supporting roller 6 at each side thereof. The rear rollers 9 are supported on the bottom of the unit 3 as best shown in Fig. 4, and are adapted to run within a U shaped guideway 10. This guideway 10 forms a permanent part of the frame unit and connects the rear cross frame 11 with the front cross frame and U shaped member 7. In other words, the guideways 10 and the members 7 and 11 form a rectangular structure which is removably but rigidly supported by the stove frame. A direct result of this structure is that it not only permits an original, easy assembly but also makes it possible to install a broiler unit of the present type in any standard stove construction.

A guiding roller 12 is positioned within the channel member 10, and at the front end thereof so as to take up any side sway when the unit is moved forwardly.

The broiler door may be designated 13 and is designed to be supported entirely by the broiler unit 3. This is accomplished by providing a long slotted arm 14 which slot consists of a peculiarly shaped camway 15, the purpose of which will be later described. The end of this arm is pivoted as at 16 to the side of the broiler wall with the result that the broiler door 13 and arm 14 move as an integral unit about the fulcrum 16.

The slot or camway 15 in the arm 14 is designed to receive the rollers 6 at each side of the U member 7 with the result that as the broiler drawer is moved outwardly, supported and guided by the roller members, the arm 14 will be guided and also supported by the roller member 6. Such roller members 6, at each side of the unit, therefore serve as joint-supporting and rolling members for the broiler door and the broiler drawer. The front end of the camway 15 is slightly upturned, as best shown in Fig. 2, with the result that the door will be held in closed position when this upturned part of the arm is forced past the roller 6 in moving the door inwardly. The rear portion of the camway 15 is designed to present a smooth curve with the result that as the roller 6 passes the lowermost point 17 in the camway the door will gradually move downwardly relative to the front end of the broiler drawer. It will thus be seen that the door will be given a vertical oscillating movement relative to the front end of the movable drawer, both movements being controlled by a single member which is the roller 6.

The bottom of the unit 3 is preferably provided with a suitable hook 18 adapted to receive the ends of suitable coil springs 19 which may be secured to the cross frame member 11, or at other points, the main purpose of such springs being to prevent the entire unit from being opened too fast or reaching the end of its movement with a jar, in other words, an equalizing effect. The back wall of the broiler drawer is also provided with a suitable wedge spring member 20, and the rear portion of the stove is provided with a vertical slot 21 adapted to receive this spring member 20. Such spring member is preferably formed to provide a notch, as best shown in Fig. 6 so that the entire unit will be held in closed position by cooperation between the spring member 20 and the vertical slot 21. Only slight pressure is required to open the door and the broiler drawer against action of spring 20, but such spring is sufficient to normally and positively hold the unit in closed position.

The bottom wall 5 of the broiler drawer is preferably provided with a removable closure member 22. This closure member may be readily removed by moving the broiler unit outward so that, in case it is desired to use the broiler of the stove to heat the room, such closure member, together with the drip pan may be readily removed with the result that the heat from the broiler will be directed downwardly towards the floor.

The door 13 is preferably provided with a centering lug or member 23 which is designed to cooperate with a suitable opening or guide 24 formed in the front end of the broiler unit 3. It will be obvious that as the door 13 is bodily lowered that this guide 23 will cooperate with the member 24 so that the door is steadied and held against vibratory movement, otherwise the long arms 14 might tend to make the door sway back and forth with possible damage resulting from rough handling.

The operation of the device is apparent from the above description of the general construction. It will be obvious that as the handle of the door 13 is gripped to open the same that the plain outward movement thereof will cause the entire drawer unit to move outwardly on its roller units, the door being carried by the broiler unit but obviously moved therewith. As the roller members 6 are fixed it will be obvious that the door will first be moved slightly upwardly and then gradually lowered with a long sweep so that the door is moved downwardly relative to the front of the broiler drawer. At its extreme position the door will be low enough to completely expose the front and top of the broiler drawer, and the same member centered in such lowermost position to prevent side sway. Thus by merely opening the door the entire broiler unit will be rapidly expelled forward to present the contents thereof to the view of the operator. The entire unit may be rapidly closed or may be left in open position as long as desired.

What I claim is:

1. In a cooking range, a broiler construction positioned beneath an oven and comprising a housing open at one end, a broiler unit of the drawer type slidably mounted in said housing, said broiler drawer having an open top and front and a plurality of pairs of guides mounted on the sides, a forwardly slidable grid element adapted to be mounted upon any selected pair of guides, arm members having the extreme ends thereof pivotally mounted to the sides of the drawer and adjacent the rear thereof, and a broiler door rigidly supported to the front end of said arms whereby said door is moved bodily up and down across the open end of said broiler drawer as said broiler drawer is moved inwardly and outwardly.

2. In a stove of the character described, a broiler compartment, a broiler unit of the drawer type slidably mounted in said compartment and movable through an opening therein, a grid element carried by said slidable drawer unit and adapted to be supported at different heights relative to the oven, a broiler door, arms carrying said broiler door and having the extreme rearward ends thereof pivotally mounted on said broiler drawer at a point adjacent the rear end thereof whereby said door is moved downwardly and upwardly to cover or uncover the front of said drawer simultaneously with the inward and outward movemer of said broiler drawer, said

door remaining substantially vertical during its movement across the open end of said drawer.

3. In a stove of the character described, a broiler unit of the drawer type comprising a plurality of pairs of vertically spaced transverse guide members, a forwardly slidable grid element adapted to be supported on any selected pair of guide members, a broiler door pivotally supported at the rear of the drawer and movable bodily relative to the front of the stove and the broiler drawer to clear any position of the grid element, and means rendered operative by the outward movement of the broiler drawer for positively moving the door downwardly.

4. In a stove of the character described, a broiler unit of the drawer type comprising a door, an arm for pivotally mounting the door on the drawer, a plurality of pairs of vertically spaced transverse guide members, a forwardly slidable grid element adapted to be supported on any selected pair of guide members, means rigidly carried by the stove frame for supporting the drawer and door, and a single means cooperating with said arm and drawer for assisting in supporting and guiding both the drawer and the door during said outward movement.

5. In a stove of the character described, a broiler unit of the drawer type comprising a door, an arm for pivotally mounting the door on the drawer, a plurality of pairs of vertically spaced transverse guide members, a forwardly slidable grid element adapted to be supported on any selected pair of guide members, said door and drawer movable outwardly as a unit, and a single means cooperating with said arm and drawer for assisting in supporting and guiding both the drawer and the door during said outward movement, and for moving said door and drawer relative to each other.

6. In a stove of the character described, a broiler unit of the drawer type comprising a door, an arm for pivotally mounting the door on the drawer, a plurality of pairs of vertically spaced transverse guide members, a forwardly slidable grid element adapted to be supported on any selected pair of guide members, means rigidly carried by the stove frame for supporting said drawer and door, said drawer and door movable outwardly as a unit, and a single means for assisting in supporting and guiding both the drawer and the door during said outward movement, and for moving said door and drawer relative to each other during said outward movement.

7. In a stove of the character described, a broiler unit of the drawer type comprising a door, an arm for pivotally mounting the door on the drawer, a plurality of pairs of vertically spaced transverse guide members, a forwardly slidable grid element adapted to be supported on any selected pair of guide members, said drawer and door movable outwardly as a unit, and a single means cooperating with said arm and drawer for assisting in supporting and guiding both the drawer and the door during said outward movement, and for moving said door and drawer relative to each other during said outward movement.

8. In a stove of the character described, a broiler unit of the drawer type comprising a slidable broiler drawer, a plurality of pairs of guides mounted on the sides of the drawer, a forwardly slidable grid element adapted to be supported on any selected pair of guide members, a broiler door pivotally mounted to the rear of the broiler drawer by means of a slotted arm, and a member stationarily mounted on the stove and operating in said slot of said arm for positively moving the door up and down relative to the drawer when the drawer is moved inwardly and outwardly and for assisting in supporting the drawer in its horizontal movement.

9. In a stove of the character described, a broiler unit of the drawer type comprising a slidable broiler drawer, a plurality of pairs of guides mounted on the sides of the drawer, a forwardly slidable grid element adapted to be supported on any selected pair of guide members, a broiler door pivotally mounted to the rear of the broiler drawer by means of a slotted arm, and a member stationarily mounted on the stove and operating in said slot of said arm for positively moving the door up and down relative to the drawer when the drawer is moved inwardly and outwardly and for assisting in supporting the drawer in its horizontal movement, the degree of oscillatory movement of the door being such as to completely disclose the front end of the drawer when the unit is in outermost position.

10. In a stove of the character described, a broiler unit of the drawer type comprising a broiler drawer mounted for horizontal movement forwardly of the stove, a door pivotally mounted to said drawer and movable downwardly to uncover the front of the drawer, the bottom of said drawer being removable when the drawer is in forward position whereby to permit the downward radiation of heat units through the opening caused by said removed member when the drawer is in closed position.

11. In a range of the character described, a broiler drawer slidable forwardly of the range and having an open front to permit removal and replacement of a broiler grid element, a broiler door pivotally carried by the drawer, and means for positively and automatically moving the door up and down relative to the open end of the drawer when said drawer and door are moved inwardly and outwardly as a unit relative to the range, said means actuating the door during the entire movement of the drawer.

12. In a stove of the character described, a broiler unit of the drawer type comprising a slidable broiler drawer, a plurality of pairs of guides mounted on the sides of the drawer, a forwardly slidable grid element adapted to be supported on any selected pair of guide members, a broiler door pivotally mounted to the rear of the broiler drawer by means of a slotted arm, and a member stationarily mounted on the stove and operating in said slot of said arm for positively moving the door up and down relative to the drawer when the drawer is moved inwardly and outwardly.

13. In a cooking range, a broiler construction positioned beneath an oven and comprising a housing open at one end, a broiler unit of the drawer type slidably mounted in said housing, said broiler drawer having an open top and front and a plurality of pairs of guides mounted on the sides, a forwardly slidable grid element adapted to be mounted upon any selected pair of guides, arm members having the extreme ends thereof pivotally mounted to the sides of the drawer and adjacent the rear thereof, a broiler door rigidly supported to the front end of said arms whereby said door is moved bodily up and down across the open end of said broiler drawer as said broiler drawer is moved inwardly and outwardly, and means for positively and automatically moving the door up and down in direct

synchronism with the inward or outward movement of the drawer.

14. In a cooking range, a broiler construction positioned beneath an oven and comprising a housing open at one end, a broiler unit of the drawer type slidably mounted in said housing, said broiler drawer having an open top and front and a plurality of pairs of guides mounted on the sides, a forwardly slidable grid element adapted to be mounted upon any selected pair of guides, arm members having the extreme ends thereof pivotally mounted to the sides of the drawer and adjacent the rear thereof, a broiler door rigidly supported to the front end of said arms whereby said door is moved bodily up and down across the open end of said broiler drawer as said broiler drawer is moved inwardly and outwardly, and means cooperating with said arms for moving the door to and holding the door in substantial normal horizontal position relative to the housing opening just before the drawer reaches its innermost position.

15. In a cooking range, a broiler construction positioned beneath an oven and comprising a housing open at one end, a broiler unit of the drawer type slidably mounted in said housing, said broiler drawer having an open top and front and a plurality of pairs of guides mounted on the sides, a forwardly slidable grid element adapted to be mounted upon any selected pair of guides, arm members having the extreme ends thereof pivotally mounted to the sides of the drawer and adjacent the rear thereof, a broiler door rigidly supported to the front end of said arms whereby said door is moved bodily up and down across the open end of said broiler drawer as said broiler drawer is moved inwardly and outwardly, means for positively and automatically moving the door up and down in direct synchronism with the inward or outward movement of the drawer, and means cooperating with said arms for moving the door to and holding the door in substantial normal horizontal position relative to the housing opening just before the door reaches its innermost position.

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