Feb. 4, 1936. S. H. HOBSON ET AL 2,029,718

BROILER DRAWER

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Fig. 1

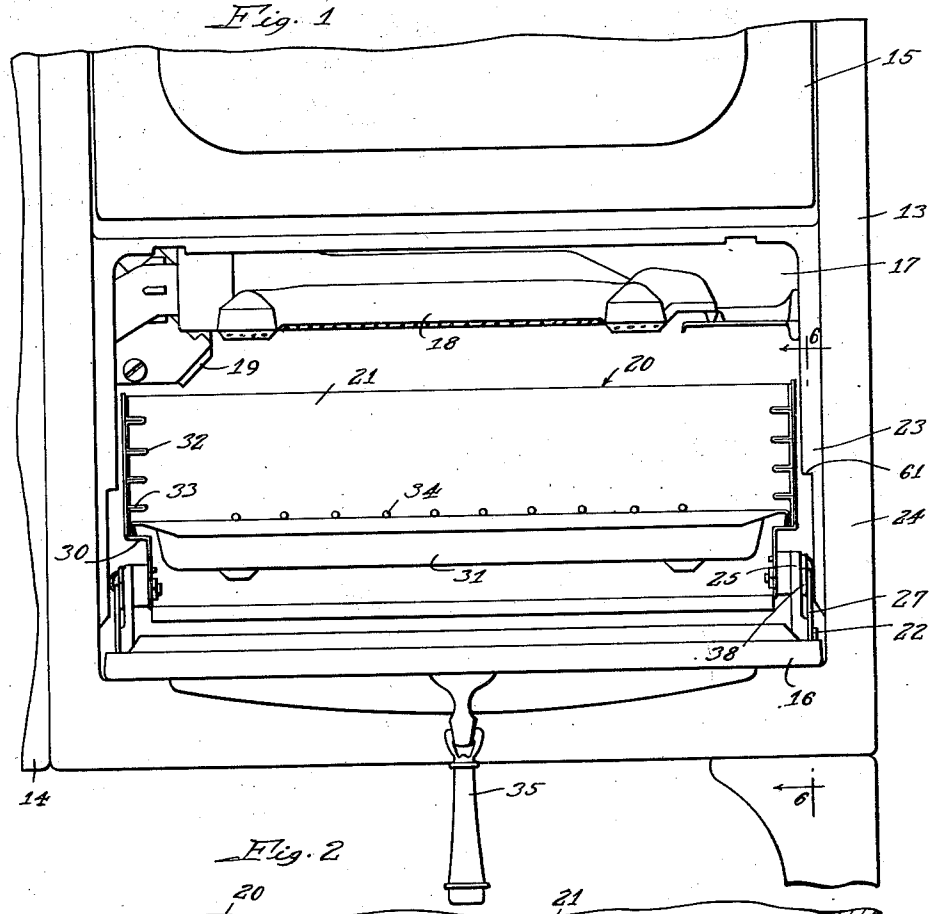


Fig. 2

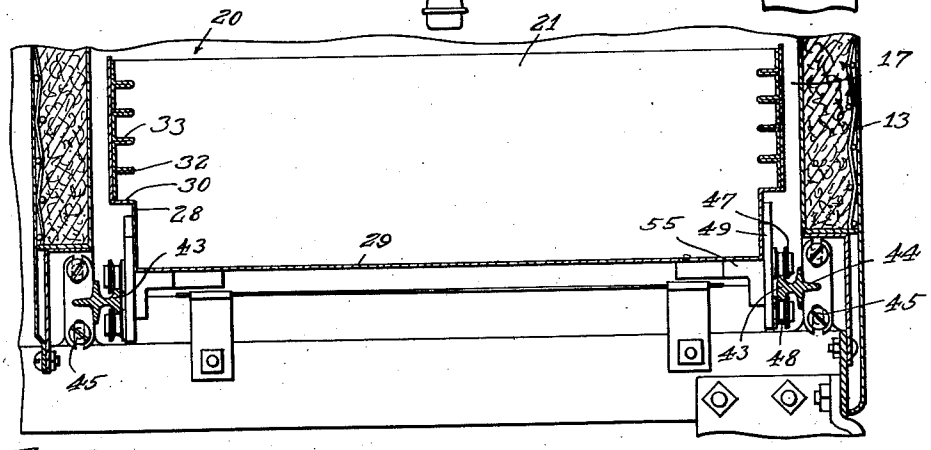
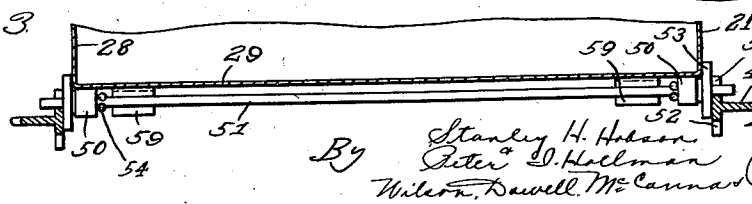


Fig. 3



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BROILER DRAWER

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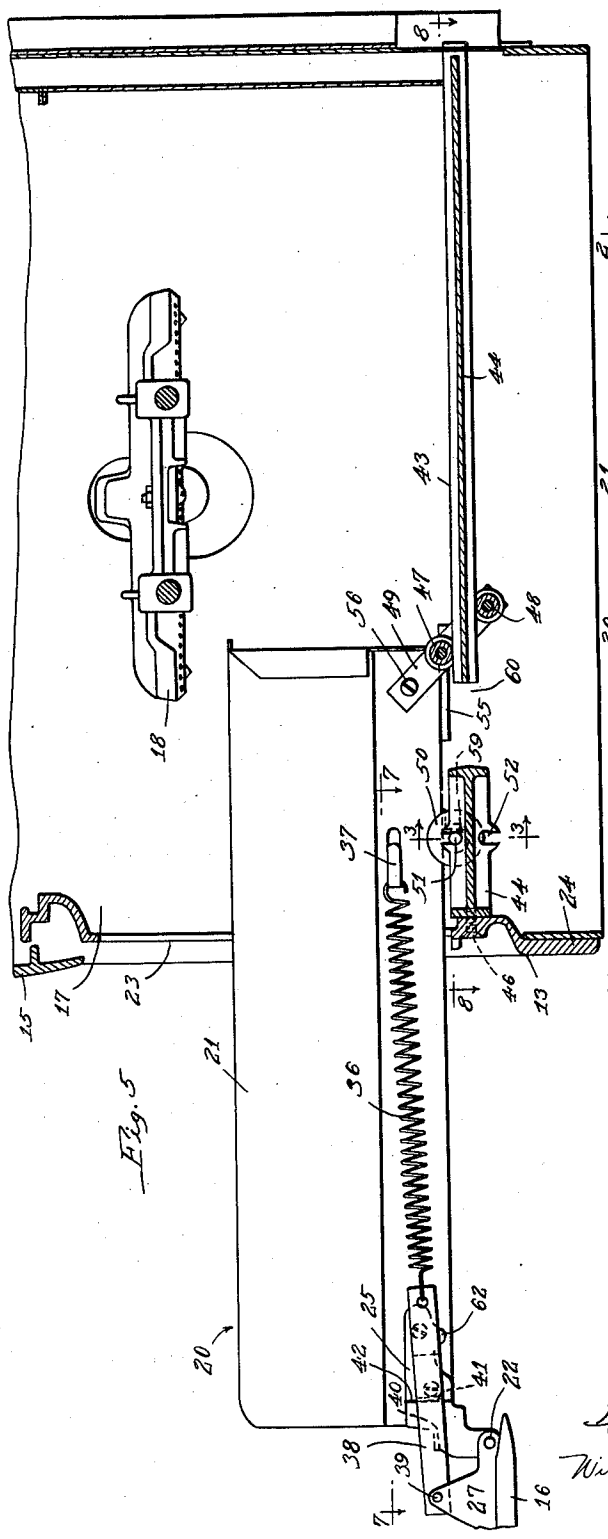


Fig. 5

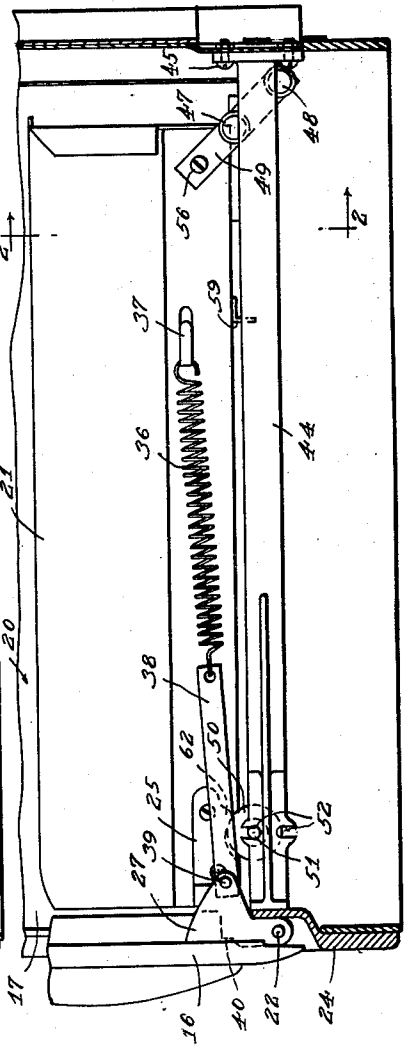


Fig. 4

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BROILER DRAWER

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Fig. 6.

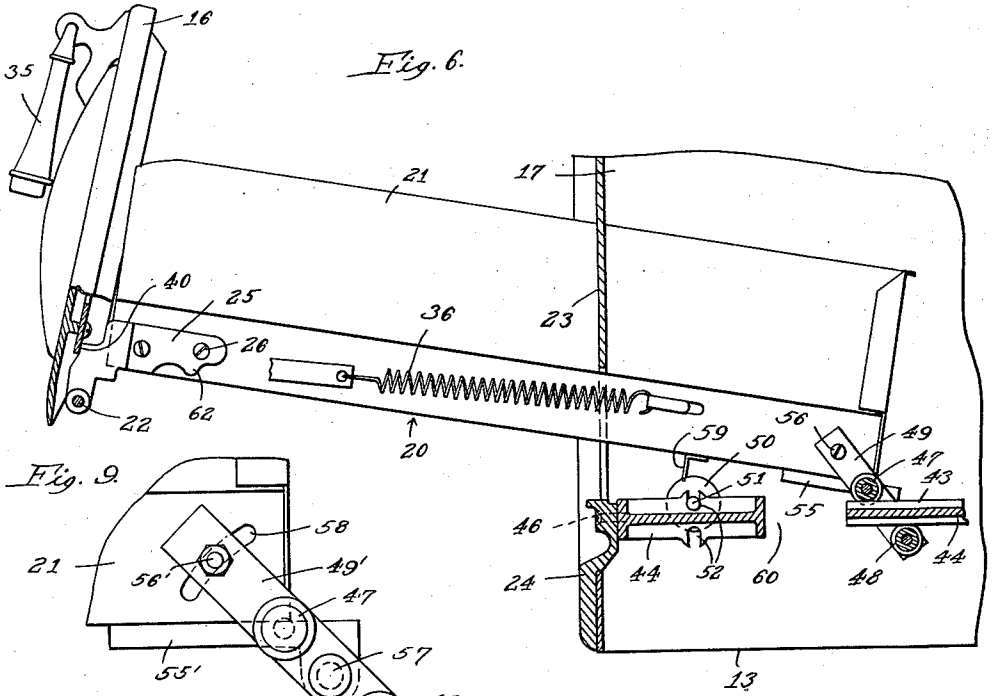


Fig. 9.

Fig. 7.

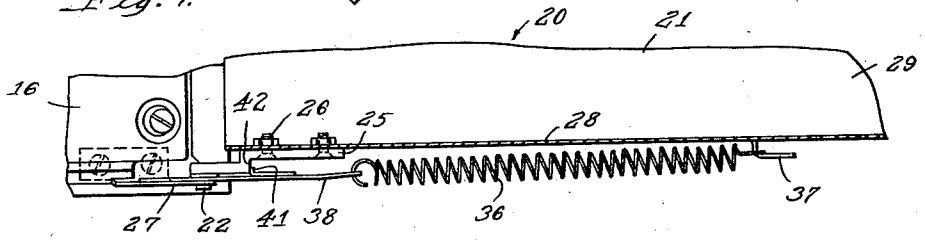
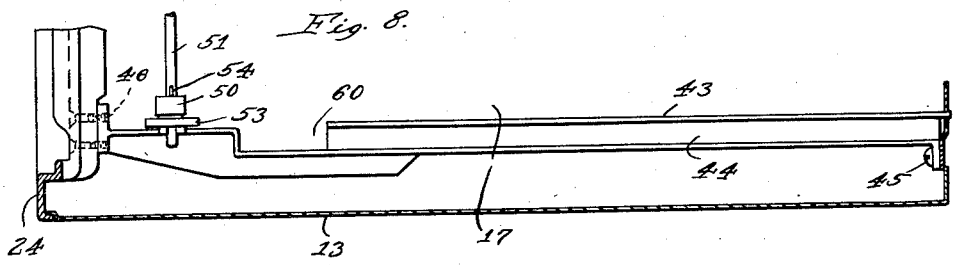


Fig. 8.



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BROILER DRAWER

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Fig. 10

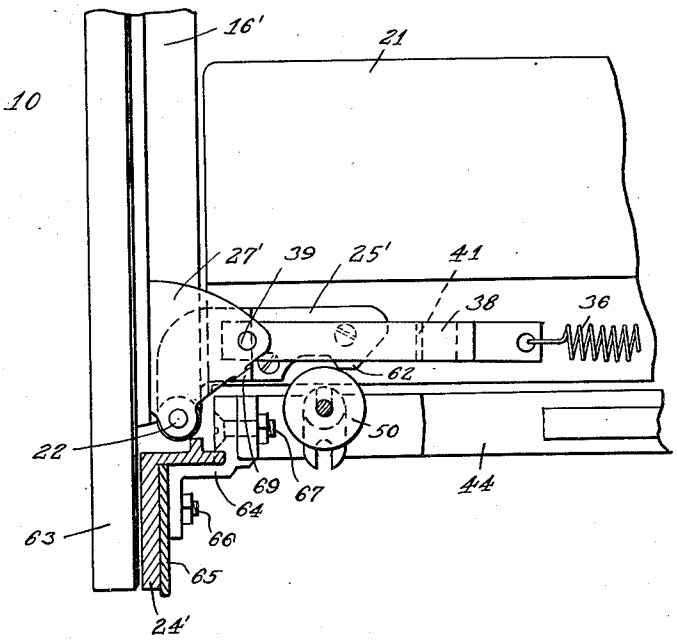


Fig. 11

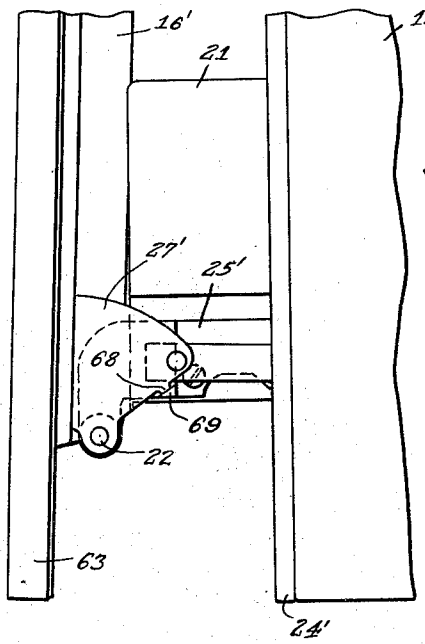
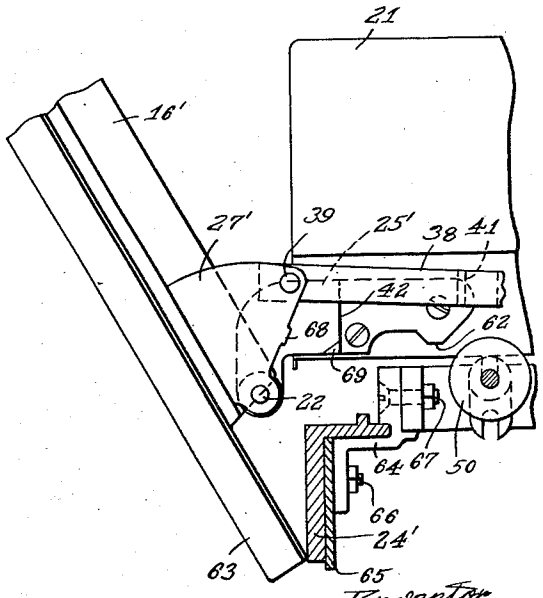


Fig. 12.



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Patented Feb. 4, 1936 2,029,718

UNITED STATES PATENT OFFICE

2,029,718

BROILER DRAWER

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Application January 13, 1932, Serial No. 586,286

16 Claims. (Cl. 45—77)

This invention relates to drawer structures generally, and more particularly a broiler drawer for stoves and ranges.

The principal object of our invention is to provide a broiler consisting of an open front drawer slidable into and out of the oven by means of the broiler door hingedly mounted on the front end of said drawer. This construction has many advantages, among them being that the door when down serves as a shelf on which to place the platter to receive the broiled meat, and, as the door can be let down without thereby pulling out the pan, it is possible to broil or toast with the door open, which is something many housewives prefer because it permits watching the food during the broiling or toasting without repeatedly opening and closing the door.

Another object is to provide a broiler of the type mentioned which runs on rollers fitting on tracks provided therefor in the oven at opposite sides thereof. This makes for smooth and easy operation, and the operation is practically noiseless. By the provision of rollers operable along the bottom of the tracks, adequate support is provided for the drawer when pulled out. The lower rollers are preferably adjusted to slight clearance with respect to the tracks so as to come into play when the drawer is pulled out a certain distance, without tipping or lurching of the pan.

Still another object consists in so constructing the broiler that it is removable from the oven as a unit for cleaning. This also greatly facilitates the matter of assembling at the factory.

A further object consists in the provision of simple and effective means for keeping the broiler door tightly closed under conditions where there might otherwise be a tendency for the drawer to drift out.

These and other objects will appear in the course of the following detailed description, in which reference is made to the accompanying drawings, wherein—

Figure 1 is a fragmentary front view of the oven section of a gas stove with the broiler door opened to give a view of the interior of the broiling oven;

Fig. 2 is a vertical cross-section through the oven showing the broiler in section on the line 2—2 of Fig. 4;

Fig. 3 is a transverse sectional detail of the broiler taken on the line 3—3 of Fig. 5;

Fig. 4 is a longitudinal section through the oven showing the broiler entirely in side elevation and in closed position;

Fig. 5 is another longitudinal section through the oven showing the broiler in side elevation and pulled out, and showing the track on the near side in longitudinal section;

Fig. 6 is a longitudinal section in the plane of the line 6—6 of Figure 1 showing the broiler in side elevation and tilted up as in the act of removing or inserting the same in the oven;

Fig. 7 is a horizontal sectional detail of the broiler taken on the line 7—7 of Fig. 5, the same being removable from the oven;

Fig. 8 is a horizontal sectional detail of the oven with the broiler removed, taken on the line 8—8 of Fig. 5;

Fig. 9 is a side view of the rear end of the broiler showing a modified construction as to the mounting of the rollers on the drawer;

Fig. 10 is a view somewhat similar to Fig. 4 showing a broiler of slightly modified construction, and

Figs. 11 and 12 are views showing different positions of the broiler.

Similar reference numerals are applied to corresponding parts throughout the views.

Referring first to Figs. 1–8, and mainly to Figure 1, the numeral 13 designates the oven section next to the cooking top section 14 of a gas range of table-top design, that is to say, one in which the top of the oven section is in substantially the same plane as the cooking top. 15 is the door for the baking oven, and 16 the broiler door. The latter is shown opened so as to give a view of the interior of the broiling oven 17. 18 is the burner in said oven, and at 19 there is indicated the end of an automatic lighter for said burner. The broiler for the oven 17 is designated generally by the numeral 20 and consists of an open-ended drawer 21 having the broiler door 16 hingedly mounted as at 22 on the open front end and adapted to cooperate with the door jamb 23 on the front frame 24 of the oven section to serve as a closure for the oven. The drawer 21 is of sheet metal construction but has cast brackets 25 bolted as at 26 to the side walls thereof at the front end providing trunnions 22 thereon for reception in brackets 27 bolted to the inside of the door. The side walls 28 of the drawer are preferably formed in one piece with the bottom 29 and are bent outwardly to form ledges 30 on which the rim of the broiler pan 31 is adapted to fit in its lowermost position. Racks 32, formed from separate pieces of sheet metal crimped longitudinally at spaced intervals to provide other ledges 33 above and parallel with the ledge 30, are fastened in any suitable way to the side walls 28, as by spot welding. This

makes for sturdy and economical construction. The broiler pan with its usual grid **34** is, of course, adapted to be slid in or out through the open front end of the drawer when the door is down, as shown in Figure 1, and can be set on any selected pair of ledges to secure the desired elevation with reference to the burner **18**. The drawer is slidable into and out of the oven in a manner presently to be described in detail, by means of the broiler door **16**, a handle for which is shown at **35**. This greatly simplifies matters in placing meat or other foods in the pan for broiling or toasting, and facilitates removing the same by reason of its not being necessary to reach into the hot oven or to get hold of the hot pan to slide it out. In other words, there is no danger whatever of getting burned. Furthermore, when the door is down, as shown in Figure 1, it serves as a good support for a platter onto which the food is to be transferred from the pan, and, of course, the door reaches out beyond the pan, not under the pan as in the case of the ordinary broiler, so that it is not the least bit awkward to transfer the food. The door is counterbalanced by a pair of coiled tension springs **36**, one on each side of the drawer, which have their inner ends attached to hooks **37** struck out from the sheet metal side walls **28** of the drawer, and have their other ends attached to links **38** pivotally connected as at **39** to the brackets **27** on the back of the door. The springs prevent the door from dropping, but on the other hand, do not have sufficient tension to make the door close with a jar. In other words, it is preferred to have the springs of just enough tension to substantially counterbalance the door in any position, whether fully opened or in an intermediate position. The door in closing strikes shoulders **40** on the brackets **25** (see Fig. 6) so that the drawer can be slid into the oven by means of the door. When the door is opened fully, a lug **41** provided on the inside of each of the links **38**, comes into abutment with a rearwardly facing shoulder **42** on the brackets **25**, whereby to rigidly support the door in the open position so that a platter can be placed thereon safely.

The broiler drawer **21** runs on rollers for smooth, easy and quiet operation. Tracks **43** are provided on rails **44** extending lengthwise of the oven at opposite sides of the drawer and bolted as at **45** to the rear oven wall, and as at **46** to the front frame **24**. Upper and lower rollers **47** and **48** are mounted on a pair of brackets **49** on opposite sides of the drawer at the rear end thereof, and are adapted to run along the top and bottom of the tracks **43**. The rollers are flanged so as to prevent side-play, and guide the drawer for a straight run. A pair of drawer-supporting rollers **50** are mounted on a cross rod **51** received in slots **52** provided in the front end of the rails **44**, and these rollers have enlarged rims **53** adapted to fit against the sides of the drawer, as best appears in Fig. 3, to cooperate with the rollers **47** and **48** in preventing side-play and guiding the drawer for a straight run. Ears are struck out from the rod next to the rollers **50**, as appears at **54**, to hold the parts in place. As the drawer is pulled out, it naturally finds support on the rollers **47** and **50** until it is out so far that the projecting portion overbalances the rest of the drawer, at which time the rollers **48** serve by engagement with the tracks **43** from the bottom to prevent tilting. The rollers **48** are set to a slight clearance with respect to the tracks **43** so as to come into play only when the drawer is pulled out a certain distance, and since the clearance of these rollers is so slight, there is no lurch at the time they come into play. The brackets **49** are illustrated in Figs. 4–6 as rigidly supported on brackets **55** fastened to the bottom of the drawer at opposite sides, and as fastened by means of bolts **56** to the side walls. However, adjustable brackets **49'** may be provided, as shown in Fig. 9, pivoted as at **57** on brackets **55'** and clamped by means of bolts **56'** entered in arcuate slots **58** provided in the side walls of the drawer. This permits nicely adjusting the rollers so that there will be the proper clearance between the rollers **48** and the tracks **43** for the rollers **48** to come into play smoothly. In passing, attention is called to the fact that there are two slots **52** in the front end of each of the rails **44**, directly above one another and at the same distance from the longitudinal center line of the rail. This, coupled with the fact that the right and left hand rails are otherwise of identical form, permits use of a rail interchangeably either on the right or left hand side of the oven.

The outward movement of the broiler drawer is arranged to be limited by engagement with the cross rod **51** of lugs **59** fixed on and projecting downwardly from the bottom of the drawer (see Figs. 3 and 5). The rails **44** are made so that the tracks **43** terminate short of the front end, leaving gaps **60**. The tracks extend far enough forward so that the rollers **47** and **48** will not run off before the lugs **59** come into engagement with the cross rod **51**, as clearly appears in Fig. 5. However, if the drawer is simply tilted up enough to make the lugs **59** clear the top of the cross rod **51**, the drawer can be pulled out farther to run the rollers off the tracks into the gaps **60**, whereupon the drawer can, of course, be withdrawn from the oven. The door jamb **23** is cut away, as indicated at **61** in Figs. 1 and 6, so that the rollers will clear the front frame in the removal or insertion of the drawer. The fact that the broiler is removable as a unit naturally is a great advantage in the matter of cleaning the same. It also facilitates assembling of the stove at the factory.

We shall now describe a simple and effective means which we have provided for keeping the broiler door neatly closed under conditions where the broiler might otherwise tend to drift out of the oven. Small projections **62** are provided on the bottom of the door hinge brackets **25** and adapted to ride over the tops of the rims **53** of the rollers **50** as the broiler is pushed home in the oven. That is to say, the front end of the broiler drawer is raised slightly upon engagement of the projections **62** with the rims **53**, and as soon as the projections have passed a dead center position with respect to the rollers, the drawer comes down under its own weight, thereby locking itself against outward movement by virtue of engagement of the projections **62** more or less behind the rollers. The door **16**, as clearly appears in Fig. 6, is inclined inwardly by reason of the location of the stop shoulders **40** on the brackets **25**, so that as the broiler is pushed home in the oven, the door first comes into contact at the top with the door jamb **23** at about the same instant that the projections **62** ride onto the rollers **50**. Then, as the projections **62** ride past dead center positions on the rollers, the bottom of the door is brought in toward the jamb. This construction, simple as it is, is still very effective and positively prevents the drawer from drifting out of the

oven due to some slight imperfection in the assembling of the stove, or due to the stove being set so that it is not quite level. The construction obviously makes it unnecessary to provide a spring clip or latch of some kind to lock the door.

In the stove above described, the door jamb is formed at the bottom to provide clearance for the lower edge of the door so that the door can be swung down while the broiler is all the way in. The objection to that construction is that an opening is left below the broiler door, as clearly appears in Fig. 4. Certain designs of stoves are constructed with a view to having all parts on the front of the stove flush with one another for neatness in appearance and ease in cleaning. In stoves of that design, a door, such as that shown at 16' in Figs. 10–12, is provided. Notice that the door front in this case extends down well below the pivot trunnions 22, as at 63. The front frame 24' is completely concealed by the marginal portions of the door when the latter is closed, the bottom portion 63 serving to cover up the lower portion of the frame, as appears in Fig. 10. The front frame 24' does not have a door jamb like the jamb 23 of the frame 24, and for that reason a bracket 64 is provided fastened to the base band 65, as at 66, to provide a place for fastening the front end of the track rail 44, as by bolts 67. The door 16' is hingedly mounted on the front end of the drawer 21 in much the same way as the door 16, namely, by brackets 25' bolted to the sides of the drawer at the front end and providing the trunnions 22 for reception in holes in the brackets 27' fastened to the back of the door 16'. A link 38, pivotally connected to the bracket 27' at 39, has connection with a spring 36 for counter-balancing the door so that the latter will not drop down accidentally, and on the other hand, will not close with a jar, but can be placed in practically any position intermediate the fully closed and opened positions. The door is shown in an intermediate position in Fig. 12, and it will be observed that, unlike the other broiler above described, the drawer 21 is pulled out slightly in the opening of the door 16' to the extent shown. The swinging down of the door is limited by the engagement of the lug 41 on the link 38 with the shoulder 42 on the bracket 25'. The movement of the door in the opposite direction is limited by the engagement of the portion 68 on the bracket 27' with a lateral projection 69 on the bracket 25'. In this case, as in the other, the door is inclined inwardly slightly by reason of the location of the stops 69, so that the door will strike at the top first as the broiler is pushed home into the oven. At about the same instant that the top of the door strikes the front frame 24', a projection 62 on each of the brackets 25' rides onto the rollers 50, and as they ride past a dead center position on the rollers as previously described, the bottom of the door is drawn inwardly toward the front frame, thereby yieldingly locking the broiler in the oven against drifting.

It is believed the foregoing description conveys a good understanding of all of the objects and advantages of our invention. The appended claims have been drawn so as to cover all legitimate modifications and adaptations.

We claim:

1. In a drawer structure, a drawer disposed in a drawer compartment, roller means forwardly located in said compartment and adapted to have the drawer rest thereon for movement into and out of the compartment, a track disposed lengthwise of the compartment in the same horizontal plane with the roller means and terminating behind and in spaced relation to the aforesaid roller means, and roller means rearwardly located on the drawer and movable vertically through the space in front of the track so as to be operable along the top and bottom of the track, whereby to support the drawer in any operative position with respect to the compartment, said roller means being adapted to run off the front end of the track when the drawer is moved forwardly to a certain position, whereby to permit removal of the drawer from the compartment.

2. In a drawer structure, a drawer disposed in a drawer compartment, guide means in said compartment whereon the drawer is arranged to run in its movement into and out of the compartment, roller means forwardly located in said compartment serving as an anti-friction support for the drawer to run upon in its movement into and out of said compartment, said roller means including a cross rod providing a mounting therefor, there being a downward projection rearwardly located on the drawer and arranged to come into engagement with said cross rod to limit the outward movement of the drawer, said projection being arranged to pass over said rod when the drawer is raised, whereby to permit removal of the drawer from the compartment, and catch means forwardly located on the drawer and arranged to ride over and behind said roller means when the drawer is moved all the way into the compartment, whereby to releasably lock the drawer in said compartment.

3. In a drawer structure, a drawer disposed in a drawer compartment, coacting main guiding and supporting means on the drawer and in the compartment, a pair of rollers forwardly located in said compartment for engagement with the bottom of the drawer at opposite sides thereof to serve as secondary supports, said rollers having enlarged rims for engagement with the sides of the drawer to hold the same against side play in its movement into and out of the compartment, and catch means on at least one side of the drawer forwardly located so as to encounter the rim of the roller on that side of the drawer when the drawer is moved all the way into said compartment, said catch means being arranged to ride over and behind said rim, whereby to releasably lock the drawer in the compartment.

4. A structure as set forth in claim 3 including a cross rod serving as a mounting for the rollers, and a stop projection rearwardly located on the bottom of the drawer and arranged to come into engagement with said rod to limit outward movement of the drawer.

5. In a drawer structure, a drawer disposed in a drawer compartment, a pair of rails extending lengthwise of said compartment at opposite sides thereof, each of said rails having a track provided thereon on the rearward portion terminating near the front end of the rail and having a front portion spaced from the front end of said track, whereby to leave a gap between the front portion of the rail and the end of the track, a pair of top and bottom rollers rearwardly mounted on the drawer at each side thereof, said rollers being arranged to run along the top and bottom of the tracks on said rails, the bottom rollers being entered beneath the tracks through the aforesaid gaps when the drawer is entered in said compartment, and a drawer support on the front portion of each of said rails.

6. A structure as set forth in claim 5 including a bracket for each pair of top and bottom rollers mounted on the side of the drawer and reaching downwardly and rearwardly therefrom, whereby to locate the top roller of the pair forwardly with respect to the bottom roller.

7. A structure as set forth in claim 5 including a bracket for each pair of top and bottom rollers mounted on the side of the drawer and reaching downwardly and rearwardly therefrom, whereby to locate the top roller of the pair forwardly with respect to the bottom roller, the bottom roller being disposed on said bracket so that it has a predetermined clearance with reference to the track, the top rollers serving to cooperate with the rollers on the front portions of the rails to support the drawer until the same is moved forwardly to a predetermined point whereupon the bottom rollers assume the support and cooperate with the front rollers.

8. A structure as set forth in claim 5 including a bracket for supporting each pair of top and bottom rollers, said bracket reaching downwardly and rearwardly from the side of the drawer whereby to locate the top roller forwardly with respect to the bottom roller, means for pivotally supporting the bracket on the drawer for angular adjustment, whereby to adjust the bottom roller to a desired clearance with reference to the bottom of the track, and means for fastening the bracket to the drawer in adjusted position.

9. A structure as set forth in claim 5 including a bracket for supporting each pair of top and bottom rollers, means for pivotally supporting the bracket on the drawer for angular adjustment whereby to adjust the bottom roller to a desired clearance with reference to the bottom of the track, and means for fastening the bracket to the drawer in adjusted position.

10. A structure as set forth in claim 5 wherein the rails are constructed so as to be interchangeable with one another, the front portion of each rail being constructed to provide two places thereon for mounting a front roller to serve as the drawer support in either one of two positions accordingly as the rail is used on the right or left hand side of the compartment.

11. In a drawer structure, a drawer disposed in a drawer compartment, a pair of rails extending lengthwise of said compartment at opposite sides thereof, each of said rails having a track provided thereon on the rearward portion terminating near the front end of the rail and having a front portion spaced from the front end of said track, whereby to leave a gap between the front portion of the rail and the end of the track, a pair of top and bottom rollers rearwardly mounted on the drawer at each side thereof, said rollers being arranged to run along the top and bottom of the tracks on said rails, the bottom rollers being entered beneath the tracks through the aforesaid gaps when the drawer is entered in said compartment, and a roller on the front portion of each of said rails, said rollers being arranged to have the bottom of the drawer ride thereon for anti-friction support.

12. In a drawer structure, a drawer compartment having vertical side walls, a drawer disposed in said compartment for back and forth movement relative to said walls, a door on the front end of the drawer serving as a closure for the compartment, the drawer being open at the front end for entry and removal therefrom of objects, the lower portion of the drawer being narrow enough to provide spaces between the drawer and the side walls for door hinges and drawer guides, hinges disposed in said spaces and mounted on the outside of the drawer for hingedly mounting the door thereon, and guide means also disposed in said spaces between the drawer and the side walls of the compartment for supporting the drawer in its movement into and out of the compartment, the upper portion of the drawer being wider and reaching over the hinges and guide means to substantially the full width of the compartment, whereby to provide the desired storage space for racks and the like.

13. In a drawer structure, a drawer disposed in a drawer compartment, a pair of rails extending lengthwise of said compartment at opposite sides thereof, each of said rails having a track provided thereon on the rearward portion terminating near the front end of the rail and having a front portion spaced from the front end of said track, whereby to leave a gap between the front portion of the rail and the end of the track, a pair of top and bottom rollers rearwardly mounted on the drawer at each side thereof, said rollers being arranged to run along the top and bottom of the tracks on said rails, the bottom rollers being entered beneath the tracks through the aforesaid gaps when the drawer is entered in said compartment, and a roller on top of the front portion of each of said rails for engagement with the bottom of the drawer for anti-friction support thereof, the aforesaid rails being constructed so as to be interchangeable with one another, the front portion of each rail being constructed to provide two places thereon for mounting a front roller in either one of two positions accordingly as the rail is used on the right or left hand side of the compartment.

14. In a drawer structure, a drawer compartment having vertical side walls, a drawer of substantially the same width as the compartment disposed in said compartment for back and forth movement relative to said side walls, the lower portion of said drawer being reduced in width enough to provide spaces between the side walls of the drawer and the side walls of the compartment for drawer guides, guide means disposed in said spaces between the drawer and the side walls of the compartment for supporting the drawer in its movement into and out of the compartment, a door on the front end of the drawer, hinges for the door on the front end of the reduced lower portion of the drawer, the reduction in width also defining longitudinal ledges on the inside of said side walls to support a pan or the like spaced from the bottom of the drawer, and means providing a plurality of other vertically spaced longitudinal supporting ledges on the side walls of the drawer above said first mentioned ledges.

15. In a drawer structure, an open front drawer disposed in a drawer compartment, a door hinged at its bottom to the front end of the drawer and arranged to serve as a closure for the compartment as well as the front end of the drawer, spring means urging the door to swing inwardly to close the drawer, the door being hinged on the drawer so that its upper end will come into abutment first with a wall on the front end of the compartment in the closing of the drawer, coacting guiding and supporting means on the drawer and in the compartment including a pair of rollers forwardly located in said compartment for engagement with the bottom of the drawer at opposite sides thereof, and catch means on at least one side of the drawer located so as to encounter

the roller on that side of the drawer when the drawer is moved all the way into said compartment, the catch means being arranged to ride over and behind the roller simultaneously with the engagement of the top of the door with the wall at the front end of the compartment, whereby to releasably lock the drawer in the compartment with the door held in engagement with the wall on the front end of the compartment under tension of its coacting spring means.

16. In a drawer structure, a drawer disposed in a drawer compartment, roller means forwardly located in said compartment and adapted to have the drawer rest thereon for movement into and out of the compartment, a track disposed lengthwise of the compartment in the same horizontal plane with the roller means and terminating behind and in spaced relation to the aforesaid roller means, roller means rearwardly located on the drawer and movable vertically through the space in front of the track so as to be operable along the top and bottom of the track, whereby to support the drawer in any operative position with respect to the compartment, said roller means being adapted to run off the front end of the track when the drawer is moved forwardly to a certain position, whereby to permit removal of the drawer from the compartment, and catch means forwardly located on the drawer and arranged to ride over and behind the first roller means when the drawer is moved all the way into the compartment, whereby to releasably lock the drawer in said compartment.

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