

March 15, 1955

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2,704,320

MOVABLE GRIDDLE ATTACHED TO RANGE

Filed Jan. 13, 1951

4 Sheets-Sheet 1

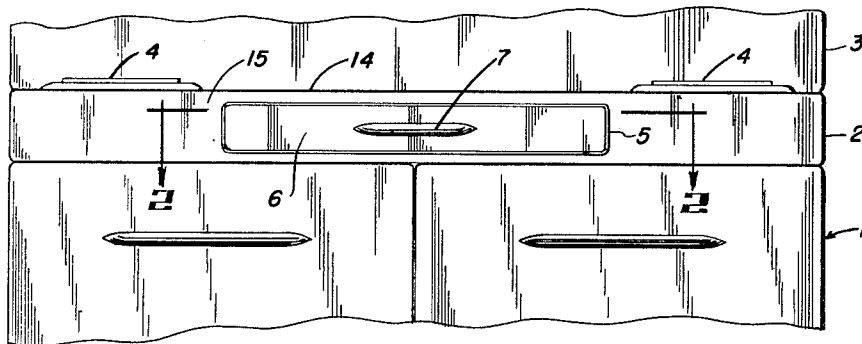


Fig. 1

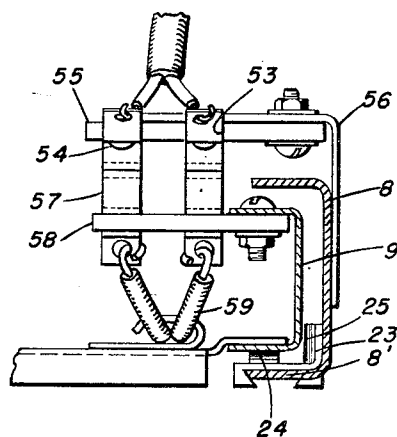


Fig. 5

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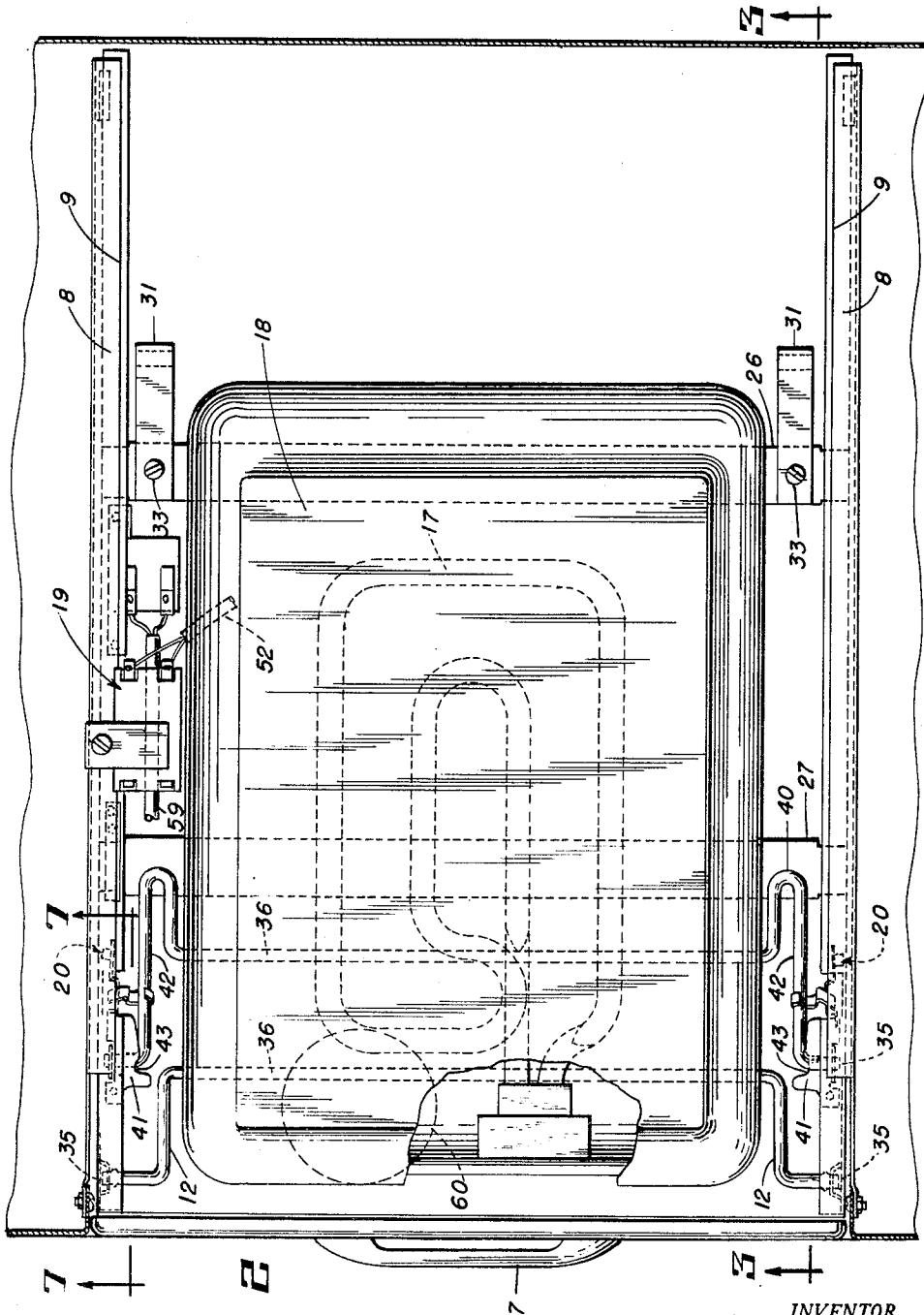
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4 Sheets-Sheet 2



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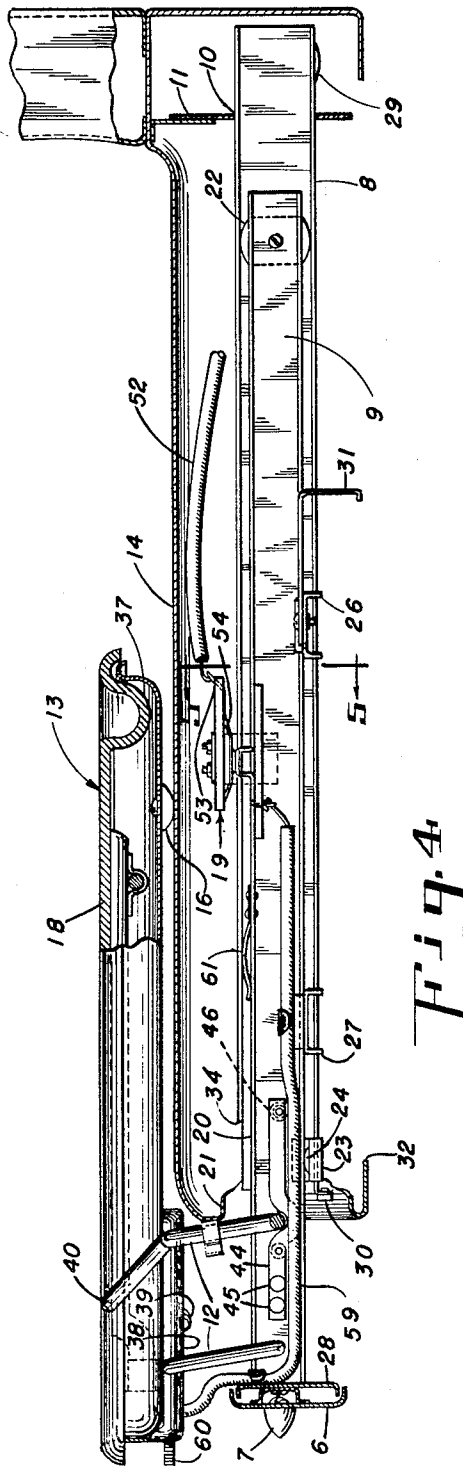
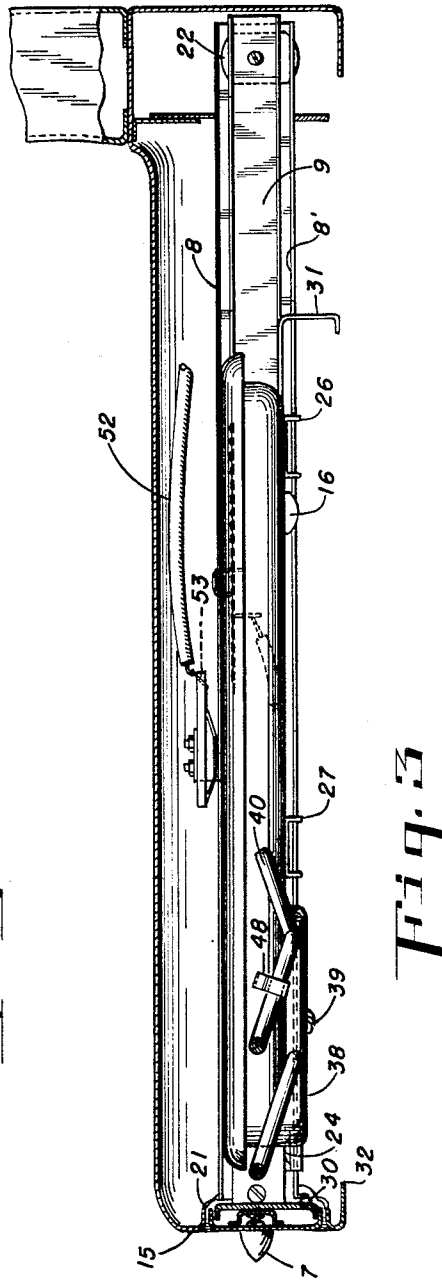
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4 Sheets-Sheet 3



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4 Sheets-Sheet 4

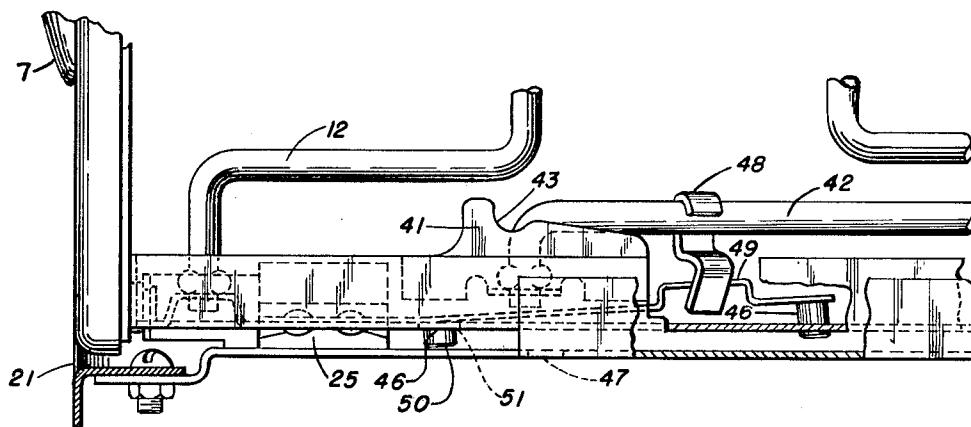


Fig 6

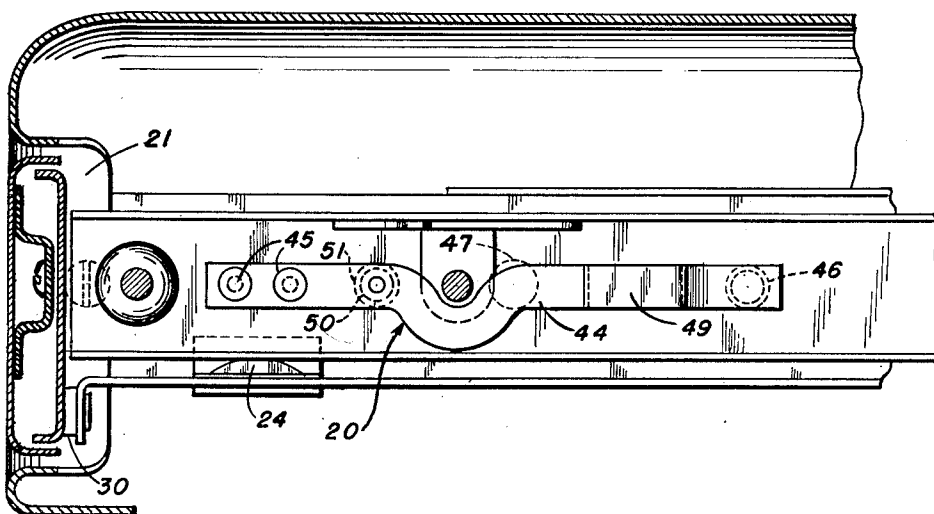


Fig 7

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MOVABLE GRIDDLE ATTACHED TO RANGE

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Application January 13, 1951, Serial No. 205,853

7 Claims. (Cl. 219—37)

The present invention relates to an electric griddle for use with an electric range and relates more particularly to a griddle that is adjustably secured to a range for movement to a plurality of operative and inoperative positions.

Since griddles are very convenient for certain types of cooking, manufacturers have endeavored for years to provide them as components of gas and electric ranges. It is common to arrange the top surface of a range to incorporate a griddle as an integral unit so that it may be covered while not in use. This type of design has a serious drawback since placement of the griddle in the top of the range necessitates a sacrifice of a very considerable working area which housewives are reluctant to devote to a griddle that is only used periodically. Covers have been devised which are flush with the surrounding working surface so that a major portion of the top is available during periods when the griddle is not in use. However, the griddle portion of the working surface obviously has to be cleared completely when the griddle is to be placed in service.

Other constructions have been devised in an attempt to provide a convenient griddle in a range. One design involves a griddle which during periods of use can be placed on the top working surface of the range and which during periods of disuse can be stored within a compartment provided in the range. This particular construction has not met with favor for a number of reasons, including the fact that the unit is inconvenient to store and subject to breakage while being handled.

In view of the foregoing, it is an object of the present invention to provide an electric griddle secured at all times to the range and provided with pivotal attachments whereby the griddle can be moved from an inoperative position within the range to an operative position above its top working surface.

Briefly stated, the invention comprehends the provision of a pair of stationary rails for guiding movable slides on the forward ends of which are attached crank links. Off-set crank portions of the links are secured to the bottom of a griddle assembly which during periods of disuse may be swung to an inoperative position in the plane of the slides for storage within a cavity provided for this purpose within the range. During periods of use, the griddle assembly may be withdrawn from the range by suitable movement of the slides, and by a subsequent movement of the crank links the griddle assembly may be elevated to a position above the top working surface of the range.

Another object of the present invention is the provision of novel means in combination with a griddle of the type described which permits energization of the griddle during periods of use but which prevents its energization during periods when it is stored within the range.

An important object of the present invention is the provision of a simple linkage system for securing a griddle assembly to a pair of movable slides whereby the griddle assembly may be raised and lowered between operative and inoperative positions.

Another important advantage of the present invention is the provision of means for temporarily locking the griddle assembly in its useable position, whereby undesirable movements of the griddle are prevented during use.

A particularly important object of the present invention is the provision of a griddle attached to a range for

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movement from a stored position within a range to an operative position above the top working surface of the range, in which operative position a minimum part of the working surface is used for supporting the griddle.

Another advantage of the invention is that means are provided for thermostatically regulating the temperature of the griddle in order to facilitate cooking thereon.

The novel features that are considered characteristic of the invention are set forth in the appended claims; the invention itself, however, both as to its organization and method of operation, together with additional objects and advantages thereof, will best be understood from the following description of a specific embodiment when read in conjunction with the accompanying drawings in which:

Fig. 1 shows to a reduced scale a front elevational view of an electric range incorporating the novel griddle which is indicated in its stored position within the range;

Fig. 2 is a plan view showing the griddle assembly in its stored position within the range, the figure also showing the position of the associated links and electric switch;

Fig. 3 is a longitudinal sectional view taken on plane 3—3 of Fig. 2 showing the corresponding positions of the griddle assembly and associated components when stored within the range;

Fig. 4 is a longitudinal sectional view taken on a plane corresponding to plane 3—3 showing the griddle in its operative position above the top working surface of the range;

Fig. 5 is a cross-sectional view taken on plane 5—5 of Fig. 4 showing the construction and arrangement of the electric switch through which the griddle is energized;

Fig. 6 is a plan view showing to an enlarged scale a spring loaded detent associated with the griddle slides, the figure showing the position which the detent assumes when the griddle is stored within the range; and

Fig. 7 is a cross-sectional view taken on plane 7—7 of Fig. 2 showing in elevation the details of the detent mechanism.

General arrangement

With particular reference to Fig. 1 the present invention is shown associated with an electric range, generally designated 1, having a top panel 2 behind and above which is disposed a backguard 3. Electric surface heating units 4 may be disposed in top panel 2 in a conventional manner for use in heating pots and other utensils placed thereon. An opening 5 is formed in the front face of top panel 2 which surrounds a front panel 6 of the griddle when in its stored position. A handle 7 is secured to panel 6 and may be grasped to withdraw the griddle from the range to move it from its inoperative stored position shown in Figs. 2 and 3 to its operative position shown in Fig. 4.

With particular reference to Figs. 2, 3 and 4 it will be noted that the present invention incorporates a pair of spaced stationary guide rails 8 with which cooperate a pair of longitudinally movable slides 9. Both the guide rails and slides preferably have channel-shaped cross sections and are nested within one another as indicated in Fig. 5. The right hand ends (as indicated in Figs. 3 and 4) of the guide rails are engaged with holes 10 provided in structural member 11 disposed within the interior of the range. To the left hand ends of the slides 9 are pivotally secured crank links 12 which may be swung manually through approximately 130 degrees from the position indicated in Fig. 3 to the position indicated in Fig. 4, whereby a griddle assembly, generally designated 13, may be raised to a position above the top working surface 14 of the range.

The griddle assembly may be removed from its stored position, indicated in Fig. 3, by grasping handle 7 and pulling it toward the left thereby causing slides 9 to move to the left in guided relationship with rails 8. This movement is stopped when the right hand edge of the griddle assembly 13 is disposed completely to the left of front face 15 of the range after which links 12 may be rotated manually to raise the griddle assembly to a position above top working surface 14. After being moved to this position, handle 7 may be thrust to the right (as viewed in Figs. 3 and 4) thereby moving

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the griddle assembly to its operative position above working surface 14.

During periods of use, the griddle assembly is supported in position by crank links 12 and friction shoes 16 which bear against surface 14 and support the right hand end of the griddle assembly.

As shown in Fig. 2 the griddle assembly incorporates an electric heating element 17 which generates sufficient heat to make possible cooking operations on griddle plate 18 of the griddle assembly. It will be obvious to those skilled in the art that means must be provided to prevent energization of the heating element while the griddle assembly is stored within the range. A novel spring loaded switch, generally designated 19, is provided for this purpose and will be described more fully hereinafter. It is important to note that switch 19 is constructed and arranged to permit energization of heating element 17 only when the griddle assembly is in its operative position.

A pair of spring loaded detents, generally designated 20, are secured to slides 9 and cooperate with guide rails 8 to lock the griddle assembly in its operative position above the range, thereby preventing undesirable shifting of the griddle during cooking operations.

Details of supporting elements

The main structural support for the entire griddle mechanism is provided by guide rails 8 which are supported at their right hand ends in openings 10 as has been described. At their left hand ends, the guide rails are bolted to an interned flange 21 formed integrally with front face 15 of top panel 2. Flange 21 is elongated in contour and defines an opening 5 through which the griddle assembly is moved when shifted between its operative and inoperative positions.

Slides 9 are nested within guide rails 8 as indicated in detail in Fig. 5. Secured to the right hand ends of the slides 9 are plastic shoes 22 which provide silent, wear-resistant faces for engaging the flanges 8' of guide rails 8.

A second means of support is provided between the guide rails and slides by plastic shoes 23 which are secured to the guide rails near their left hand ends, each shoe 23 being provided with crowned bearing blocks 24 and 25 positioned for engagement with the adjacent faces of slides 9.

Through the use of plastic shoes, smooth engagement of the parts is ensured and the griddle assembly may be moved to various positions by the application of a very small force to handle 7.

The spaced slides 9 are held rigidly apart by cross braces 26 and 27 as well as by front panel 6 which is provided at its rear with a structural member 28 to which the left hand extremities of the slides are anchored.

In order to ensure that front panel 6 lies flush with the front face of the range when the griddle is stored, a depression 29 is provided in the right hand ends of the guide rails. When the griddle is moved to its stored position, the lower portions of shoes 22 fall into depressions 29. Simultaneously structural member 28 comes into bearing engagement with rubber bumpers 30 secured to the forward ends of the guide rails.

Withdrawal of the slides 9 from the interior of the range is limited by means of a stop member 31 secured to and depending from cross brace 26. Engagement of the stop member with edge 32 of flange 21 positively prevents any further movement of the slides out of the range interior. It will be noted that stop member 31 is bolted, as at 33, to the cross brace. Should it be necessary to detach the griddle mechanism from the range, it is possible to do so by pulling slides 9 to their extreme outward position determined by stop member 31 bearing against edge 32. While so positioned, bolts 33 may be removed, thus making possible additional movement of the slides 9 out of the range. The upper flanges of the guide rails terminate at 34 to facilitate passage of shoes 22 over bearing blocks 24.

As indicated in Fig. 2, links 12 are generally U shaped, being associated at ends 35 with the left hand portions of slides 9. The off-set crank portions 36 of the crank links support the bottom side of pan 37 which is one component of griddle assembly 13. Portions 36 of the crank links are held adjacent to the bottom face of the pan by a supplementary pan 38 which may be bolted thereto, as at 39.

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The links may be swung from the position shown in Fig. 3 to that indicated in Fig. 4. To facilitate such manual movement, handles 40 are formed integrally with one of the crank links. A cam plate 41 is secured to each slide 9 which deflects a leg 42 of the adjacent crank link thereby storing within the links sufficient energy to cause them to spring into notches 43 releasably locking the griddle assembly against swinging movement when in its elevated position. These cam plates are shown in detail in Figs. 6 and 7.

It should be noted that the cam plates 41 are positioned so that the crank links pass slightly over their vertical dead center positions which favor stable support of the griddle assembly.

When the griddle is to be moved from the inoperative to the operative positions, slides 9 are withdrawn from the range as has been described; thereafter, handles 40 are grasped and crank links 12 are rotated from the position of Fig. 3 to that of Fig. 4, during the latter part of which movement arms 42 come into engagement with and become locked with cam plates 41. After the crank links have been thus secured in position, slides 9 are again moved into the range. The griddle assembly simultaneously passes over the top of the range with shoes 16 bearing against surface 14. When thus positioned for use, the griddle is only partially supported on the top working surface thereby conserving its area for the support of cooking utensils and other articles. Furthermore, the griddle assembly is positioned relatively forwardly of the front vertical face of the range which is convenient and facilitates use of the griddle.

Detent locking mechanism

It has been found from actual experience that some means should be provided to maintain the griddle assembly in a fixed position relative to the range during its use. Failure to do so may permit undesirable shifting movements of the griddle assembly in the course of cooking operations, such as those which involve scraping on griddle plate 18.

For this reason detents, generally designated 20, are provided secured to slides 9. Each detent comprises a strip of spring steel or comparable material 44 riveted at one end, as at 45, to the left hand portions of the slides 9. The opposite ends of spring members 44 carry projecting pins 46 adapted for engagement with holes 47, formed in guide rails 8. Holes 47 are so positioned on the guide rails that pins 46 may be forced into engagement therewith when the griddle assembly is in its operative position indicated in Fig. 4.

Pins 46 can not be forced into engagement with holes 47 until the griddle assembly is raised to its elevated position because of pawls 48, secured to and projecting from arms 42 in position to engage with offset portions 49 of spring members 44. When pawls 48 are engaged with portions 49, pins 46 are held in their retracted positions out of engagement with holes 47. Once the griddle is raised to its elevated position, pins 46 are free to engage holes 47 whenever in juxtaposition therewith.

In order to release pins 46 from holes 47 to permit movement of the griddle from its position of use to its stored position, spring members 44 are deflected inwardly by pressure manually applied to buttons 50 secured to the spring members and projecting outwardly through holes 51 provided in slides 9. After the detents have been disengaged by pressure applied to buttons 50, the griddle mechanism may be moved to the left until the griddle assembly is positioned completely forwardly of the range; thereafter, the griddle assembly may be lowered by force manually applied to handles 40. As the griddle assembly descends pawls 48 engage portions 49 of the spring members, thus rendering the detents inoperative and permitting movement of the entire mechanism toward its stored position without opposition.

Electrical circuit

Electrical energy for energizing heating element 17 is supplied through cable 52 which is electrically connected to resilient contacts 54. These contacts preferably are secured to an insulating block 55 supported by a bracket 56 attached to one of the guide rails 8. The contacts may be riveted to the insulating block and may engage slots 53 formed within the block to prevent lateral shifting.

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Electrical energy is transferred from contacts 54 to a set of movable resilient contacts 57 secured to an insulating block 58 which is attached to one of the slides 9. Energy from contacts 57 is transferred to the griddle heating element by thermally and electrically insulated cable 59.

If desired a thermostatic control may be provided, as at 60, within pan 37 in thermal contact with griddle plate 18. Inasmuch as the thermostat does not per se constitute a part of this invention, the details thereof will not be described herein.

A particular advantage of the resilient contacts, as provided in the present invention, is that energization of the associated heating element only is possible when the griddle assembly is in its position of use. While in all other positions, the resilient contacts are out of engagement and the electric circuit is broken. It should be recognized that this is an important feature inasmuch as energization of the heating element while the griddle assembly is stored would cause serious damage.

It is recognized that means other than switch 19 may be employed, if desired, provided that some measure is taken to ensure that the circuit will not be energized when the griddle is stored within the range. If this precaution is taken, cable 52 may extend directly to heating element 17.

As a protective measure, it is considered advisable to provide a resilient ground connection 61 secured to a guide rail 8 or elsewhere on the frame of the range and engaging slide 9. Such a resilient ground connection precludes injury to the user of the griddle should the wiring become defective and a short develop between the wiring and the griddle.

From the foregoing description of a preferred embodiment of my invention, it will be apparent that a novel and highly useful griddle has been provided which is attached at all times to the main body of a range and which may be moved from an inoperative stored position within the range to an operative position above the top working surface of the range. It will be apparent that the structure provided is both convenient and safe to use and that every precaution has been taken to prevent undesirable shifting of the griddle while in use.

Having described a preferred embodiment of the present invention, I claim:

1. A mechanism including a griddle for use above the top working surface of a range and adapted for storage during periods of disuse within the range, said mechanism comprising a plurality of guides secured within the range, slide means disposed in guiding relationship with said guides for movement into and out of the interior of said range; a plurality of crank links pivotally secured to the outboard ends of said slide means; and an electrically heated griddle assembly pivotally attached to the crank portions of said links whereby said griddle assembly may be raised from a stored position adjacent said slide means to a raised cooking position above the level of the top working surface of the range.

2. In an electric range the griddle for attachment to a range comprising guide means secured within the interior of the range, slide means in engagement with said guide means for guided movements into and out of the range, swingable links each secured at one end to said slide means, a griddle assembly movably secured to the other ends of said swingable links whereby said griddle assembly may be withdrawn from the range and raised and lowered in position, said griddle assembly comprising a cooking surface and heating means adjacent said surface, and means for automatically energizing said heating means when said griddle assembly and slide means are withdrawn from the range.

3. In an electric range having a top working surface beneath which is provided an internal cavity, a griddle mechanism comprising rigid horizontal rails fixedly secured within the cavity of the range, rigid slides horizontally movable into and out of the cavity in guiding relationship with said rails, a griddle assembly, a linkage system pivotally securing said griddle assembly to said slides, said linkage system being disposed near the outboard ends of said slides, said linkage system being capable of manipulations to raise said griddle assembly from a lower stored position to a raised position of use, the raised position of said griddle assembly being above the level of the top working surface, means connected to said griddle assembly for supporting one end of said assembly on the top work-

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ing surface of the range when said griddle assembly is in its raised position, means for releasably locking said linkage system and slides in position when said griddle assembly is in its position of use disposed above and in part resting upon the top working surface, a heating element within said griddle assembly, and an electric switch in circuit with said heating element and operated by movement of said slides whereby said heating element is capable of energization only when said slides are extended from the range.

4. In an electric range having a top working surface beneath which is provided an internal cavity, a griddle mechanism comprising rigid horizontal rails fixedly secured within the cavity of the range, rigid slides horizontally movable into and out of the cavity in guiding relationship with said rails, a griddle assembly, a linkage system pivotally securing said griddle assembly to said slides, said linkage system being disposed near the outboard ends of said slides, said linkage system being capable of manipulations to raise said griddle assembly from a lower stored position to a raised position of use, the raised position of said griddle assembly being above the level of the top working surface, means connected to said griddle assembly for supporting one end of said assembly on the top working surface of the range when said griddle assembly is in its raised position, means for releasably locking said linkage system and slides in position when said griddle assembly is in its position of use disposed above and in part resting upon the top working surface, a heating element within said griddle assembly, an electric switch in circuit with said heating element and operated by movement of said slides whereby said heating element is capable of energization only when said slides are extended from the range, and thermostatic control means in circuit with said heating element to regulate the operating temperature of said griddle assembly.

5. A mechanism including a griddle for use above the top working surface of a range and adapted for storage during periods of disuse within the range, said mechanism comprising a plurality of guides secured within the range, slide means disposed in guiding relationship with said guides for movement into and out of the interior of said range; a plurality of crank links pivotally secured to the outboard ends of said slide means; a griddle assembly pivotally attached to the crank portions of said links whereby said griddle assembly may be raised from a stored position adjacent said slide means to a raised position above the level of the top working surface of the range; an electric heating element within said griddle assembly; and in circuit with said heating element an electric switch operated by movement of said slides for energizing said heating element during periods of use.

6. In combination in a range having a plurality of surface burners mounted in a top working surface beneath which is provided an internal cavity, a griddle installation comprising guide means secured within the cavity of the range, slide means in engagement with said guide means for guided movements into and out of the interior of the range, a griddle assembly, electrical heating means for said griddle assembly, a thermostatically controlled circuit for energizing said electrical heating means, and swingable links interconnecting said slide means and said griddle assembly whereby it may be withdrawn from the range cavity and be raised from a lowered inoperative position to a raised position of use, said griddle assembly with said heating means comprising an accessory cooking surface supplementing the surface burners of the range.

7. In combination in a range having a plurality of surface burners mounted in a top working surface beneath which is provided an internal cavity, a griddle installation comprising guide means secured within the cavity of the range, slide means in engagement with said guide means for guided movements into and out of the interior of the range, a griddle assembly, electrical heating means for said griddle assembly, an electrical circuit for energizing said electrical heating means, and swingable links interconnecting said slide means and said griddle assembly whereby it may be withdrawn from the range cavity and be raised from a lowered inoperative position to a raised position of use, said griddle assembly with said heating means comprising an accessory cooking surface supplementing the surface burners of the range.

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