

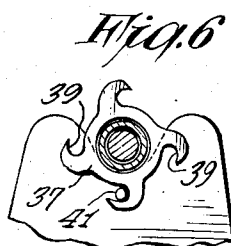
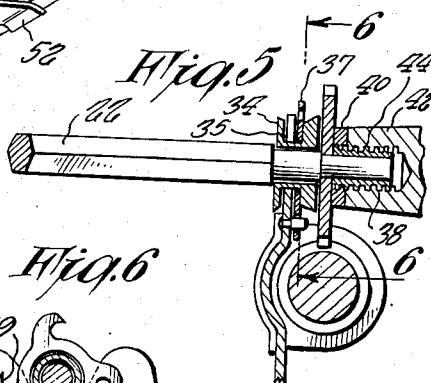
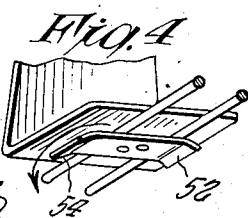
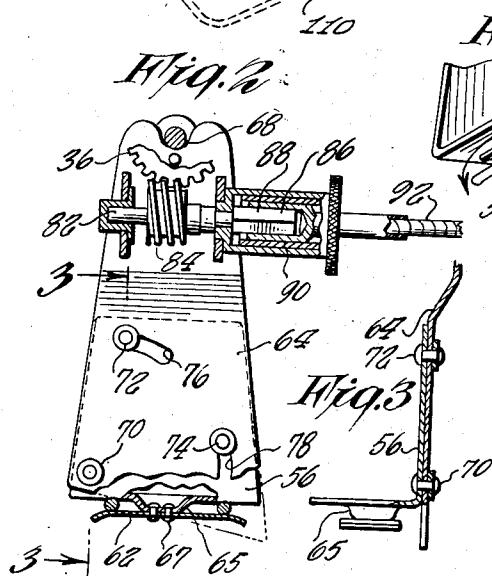
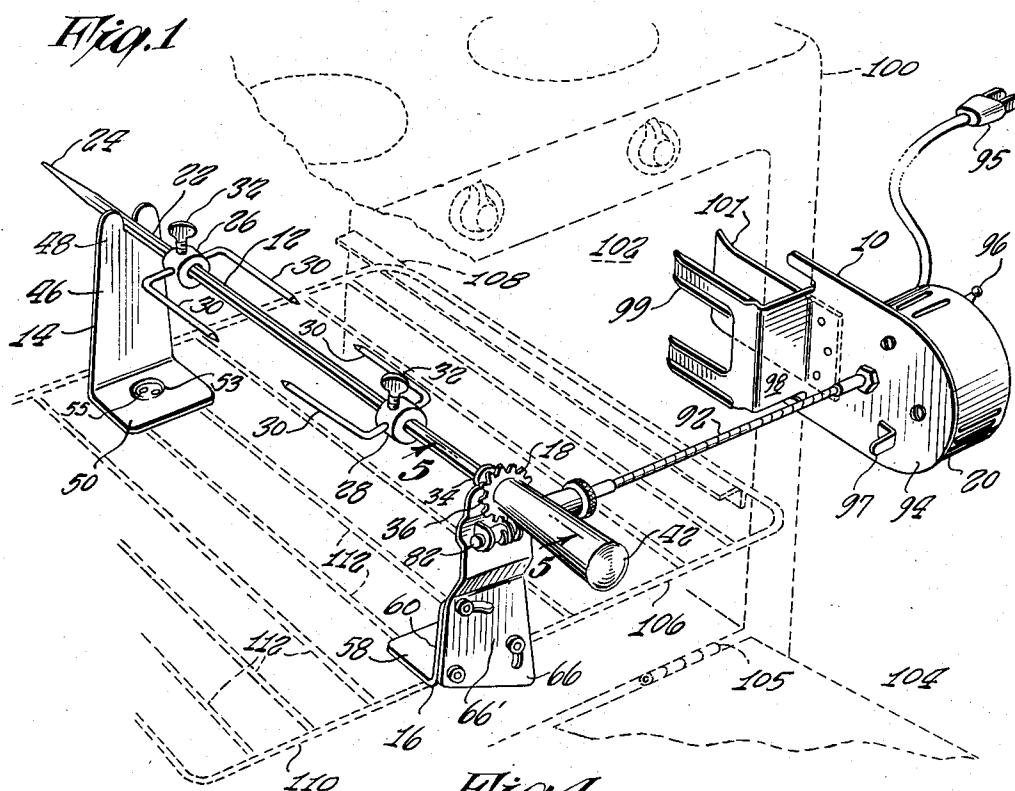
Oct. 6, 1953

J. NISENSEN

2,654,307

COOKING APPARATUS

Filed March 7, 1951



INVENTOR.

Jules Wiseman

UNITED STATES PATENT OFFICE

2,654,307

COOKING APPARATUS

Jules Nisensohn, Croton-on-Hudson, N. Y.

Application March 7, 1951, Serial No. 214,287

4 Claims. (Cl. 99-421)

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This invention relates generally to cooking apparatus, and more particularly to detachable structure, by means of which a conventional kitchen stove having an oven may be converted into an efficient rotisserie or barbecuing device.

While portable rotisseries are now available for household use, such devices are relatively costly, and oftentimes where the need for such a device is relatively small, this cost becomes prohibitive. In the instant invention, owing to the relative simplicity of structure, a similar cooking effect can be created while utilizing the conventional gas or electric stove present in substantially every kitchen.

It is among the principal objects of the present invention to provide structure of the class described in which the temporary installation on and detachment thereof from the oven compartment of a stove may be a relatively simple matter.

Another object of the invention herein lies in the provision of a rotisserie attachment for stoves in which the attachment thereto and detachment therefrom may be accomplished in an expedient manner without the use of special tools.

A further object of the invention herein lies in the provision of structure which may be relatively foolproof in operation, and in which the component parts thereof may not be accidentally detached when the device is in use.

A feature of the invention lies in the fact that a single size of device may be readily adapted to fit a varying number of sizes of ovens.

Another feature of the invention lies in the fact that when the device is in operation, the skewer element is securely latched to one of the bearing elements in such manner that while it may rotate freely within said bearing element, it cannot become disengaged therefrom until it is desired to remove the same from the oven at the completion of the cooking operation.

A further object of the invention herein lies in the provision of structure of the class described in which the cost of manufacture may be of a relatively low order, with consequent wide sale, distribution and use.

Still another feature of the invention herein lies in the provision of structure which may be readily disassembled after removal from the oven in such manner as to facilitate the storage thereof when not in use. In the instant device, it is possible after disassembly to place all of the components thereof in a box or other container of relatively small dimensions.

These objects and features, as well as other incidental ends and advantages, will become more clearly apparent during the course of the following disclosure, and be pointed out in the appended claims.

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On the drawing, to which reference will be made in the specification, similar reference characters have been employed to designate corresponding parts throughout the several views.

Figure 1 is a view in perspective showing an embodiment of the invention installed in position within the oven compartment of a conventional gas or electric stove ready for the positioning of food upon the skewer element prior to operation.

Figure 2 is an enlarged fragmentary view in elevation, partly in section, and partly broken away to show details of structure of one of the bearing elements which comprises a part of the device.

Figure 3 is a fragmentary vertical sectional view as seen from the plane 3-3 on Figure 2.

Figure 4 is an enlarged fragmentary view in elevation showing the engagement of a bearing element with a portion of the oven structure within which the bearing element is placed, when the device is in operation.

Figure 5 is an enlarged fragmentary sectional view showing details of the skewer element which comprises another part of the device.

Figure 6 is a fragmentary sectional view as seen from the plane 6-6 on Figure 5.

In accordance with the invention, the device, generally indicated by reference character 10 comprises broadly: a skewer element 12, a first bearing element 14, a second bearing element 16, power transmitting means 18 and a prime mover 20.

The skewer element is of generally elongated configuration, including a tubular rod member 22 terminating at one end thereof in a relatively sharp point 24 to facilitate the engagement of meat or other food thereupon. Slidably disposed upon the central portion of the rod member 22 are a pair of opposed food positioning members 26 and 28, each being provided with centrally directed tines 30 and a set screw 32 which assures the rotation of the food should there not be sufficient friction between it and the member 22.

At the driven end of the rod member 22 there is provided a bearing collar 34 which, when engaged with the bearing element 16 prevents any axial movement of the skewer element while the same is being rotated. Riding upon the surface of the groove 35 of the bearing collar 34 and having a relatively loose frictional engagement therewith is a safety lock member 37, generally disk shaped and having a plurality of curved slots 39 engageable with a pin 41 on the bearing element 16 when the skewer element 12 is being rotated, as will be more fully described hereinbelow. Secured to the threaded portion 38 of the rod member 22 is a handle stop member 40 which positions the handle 42 so as to prevent direct engagement with the pinion gear 36, and

to facilitate its removal. The handle 42 may be formed from any suitable material, but is preferably of a material having heat insulating properties, such as wood or the like to enable the skewer element 12 to be removed from the device while in a relatively heated condition. Engagement with the threaded portion 38 is enabled by internal threads 44 disposed within the body of the handle 42. As may be seen on Figure 5, the stop member 40 prevents the pinion 37 from becoming disengaged from the skewer element 12 when the handle 42 is removed, thereby preventing loss of relatively small parts when the device is disassembled.

The bearing element 14 may be formed from planar metallic stock, and includes a vertically disposed supporting portion 46 having an arcuate bearing surface 48 within which a portion of the rod member 22 turns. A horizontally disposed mounting portion 50 includes a resilient engagement member 52 having cam portions 54 to facilitate engagement with the rods 112 which comprise a part of the grate 106, which grate is usually a part of the conventional stove 100. The engagement member 52 is permanently secured to the mounting portion 50 upon a cup-like depression 53 by suitable means such as the rivets 55, the depression 53 forming the clearance necessary to accommodate the rods 112 when the same are engaged.

The bearing element 16 provides similar support for the opposite end of the skewer element 12, and in addition provides means whereby power from the prime mover 20 is transmitted to the skewer element 12. It includes a supporting member 56 having a horizontal portion 58 and a vertical portion 60. The engagement member 62 is similar to the engagement member 52, and is mounted upon the cup-like depression 65 by rivets 67.

The pivotal member 64 is preferably formed from a single stamping to include a downwardly extending portion 66 and an upper portion 66'. The entire pivotal member 64 is rotatably secured to the supporting member 56 by the nut and bolt 70. Another pair of nuts and bolts 72 and 74 ride in the arcuately shaped slots 76 and 78, so that the portion 66 may be made to clear the grate 106 when required. A portion of the metallic stock from which the element 16 is formed is punched outwardly to form a bracket 80 which bracket serves to support the power transmitting means 18.

The means 18 includes a shaft 82 upon which there is mounted a worm gear 84 which meshes with the pinion gear 36 when the skewer element 12 is positioned upon the bearing elements 14 and 16. The shaft 82 forms a part of a frictionally engaged coupling 86 which may be of a type in which interlocking parts having polygonal cross sections are engaged. Thus, there is provided a plug member 88 which is insertable into a socket member 90, the last mentioned member being joined to a flexible shaft 92 which extends from the prime mover 20.

The prime mover 20 is preferably in the form of a fractional horse power electric motor mounted within a casing 94. An electrical plug 95 carries current to switch means 96 whence the motor is started and stopped. The casing 94 is secured to a resilient clamp 98 having bifurcated clamp members 99 and 101 which are adjustable to engage an edge of the stove 100 when the device is installed. Also extending from the casing is a door stop member 97 engageable with a por-

tion of the oven door 104 to prevent the same from interfering with the shaft 92 to prevent its rotation.

As has been mentioned, the device 10 is engageable with a wide variety of kitchen stoves, an example being shown in dash lines on Figure 1 and indicated generally by reference character 100. Such stoves are usually provided with an oven 102 which when used for baking purposes is closed by the door 104. Disposed within the oven are a pair of grate support members one of which is shown at 108, which serves to position the grate 106 at a suitable distance from the bottom of the oven. The grate is generally made from welded steel rods to include the rods 112, and is bounded by the peripheral member 110. When installing the device the bearing element 14 is engaged between two rods 112 by slipping the member 52 through the space between the adjoining rods after which a twist through 90° in either direction will engage the element securely. The bearing element 16 is installed in a somewhat similar manner, the pivotal member 64 being first rotated in a counterclockwise direction as seen on Figure 1 to enable the portion 66 to clear the peripheral member 110. The element 16 is, of course, mounted at the outermost edge of the grate 106 to enable the flexible shaft 92 to properly connect with the prime mover 20. After the engagement of the member 62, the pivotal member 64 is rotated in a clockwise direction to the position shown on Figure 1 wherein the extended portion 66 overlaps the peripheral member 110. In this position, the bearing element 16 cannot be removed from engagement with the grate 106 without first rotating the pivotal member 64 in a counterclockwise direction after which it must be twisted about a vertical axis. This structure prevents the entire device from becoming disaligned or disengaged from the stove 100 during the barbecuing operation. The prime mover 20 together with the attached flexible shaft 92 are then engaged, the clamp 98 being tightened upon the side wall of the stove 100, and the shaft 92 being engaged at the coupling 86. The skewer element 12 is then engaged with the meat or other food to be cooked in a well known manner; the positioning members 26 and 28 serving to center the food upon the rod member 22. In positioning the skewer element 12 upon the bearing elements 14 and 16, the bearing collar 34 is so engaged that the pin 41 which is mounted upon the pivotal member 64 may engage one of the slots 39. This will simultaneously position the pinion gear 36 into engagement with the worm 84, and the safety lock member 37 may then be rotated in a counterclockwise direction as seen on Figures 1 and 6 to seat the pin 41 at the end of one of the slots 39. Should the user, through inadvertence, forget to securely lock the skewer element 12 to the bearing element 16 by this means, upon starting the prime mover 20, the friction existing between the member 37 and the rod member 22 will accomplish the same result. Once the pin 41 has become fully seated, the member 37 will ride about the rod member 22 while always maintaining the pin 41 in the position shown on Figure 6 with respect to one of the slots 39. At this point the handle 42 is detached from the skewer element 12 by rotating in a counterclockwise direction as seen on Figure 1, in order to provide clearance for the closing of the door 104 about the hinges 105 to the point where a portion of the inner surface of the door contacts the

member 97, at which point further inward motion is prevented. The oven 102 is then started in a normal manner, after which the switch 96 is closed to rotate the skewered food impaled upon the element 12.

Upon completion of the cooking operation, the switch 96 is opened, permitting the device to come to a stop. Upon the opening of the door 104 and allowing hot gases to escape, the handle 40 is reengaged by rotation in a clockwise direction, after which the entire skewer element 12 may be turned by the handle in a slightly counterclockwise direction to permit the safety lock member 37 to become disengaged from the pin 41. The entire skewer element 12 may then be lifted bodily by the handle 42 to permit the food to be slid from the rod member 22. Since at the time the handle 42 is being reengaged, the skewer element 12 is securely locked to the bearing element 16, the reengagement may be made by using only one hand, it being impossible for the rod member 12 to slide from engagement with either bearing element 14 or 16.

It may thus be seen that I have invented novel and highly useful improvements in cooking apparatus in which there is provided a simple and convenient attachment structure which may be readily engaged with the conventional kitchen stove to convert the oven portion thereof into an efficient rotisserie or barbecue. The device is substantially foolproof in operation, thus affording the ultimate in safety to the user. Additionally it may be manufactured at a very low cost and can with minor modification be adapted to practically any kitchen stove. The device is conveniently installed and removed in a matter of moments, and the skewer element may be positioned or disengaged with great facility.

I wish it to be understood that I do not consider the invention limited to the exact details of structure shown and set forth in the specification, for obvious modifications will occur to those skilled in the art to which the present invention pertains.

I claim:

1. A bracket element for use in conjunction with a cooking device having a grate including parallel grate rods, and adapted to be positioned in resilient engagement between a pair of said grate rods, said bracket element comprising: a bearing surface, a mounting portion and an engagement member; said mounting portion and said engagement member having an effective dimension greater than the distance between said pair of grate rods; said engagement member being fixed upon said mounting portion in parallel relationship thereto at the central parts thereof, whereby said central parts may be positioned between said pair of grate rods and portions of the opposing surfaces of said mounting portion and said engagement member may be positioned to engage said grate rods therebetween.

2. A bracket element for use in conjunction with a cooking device having a grate including parallel grate rods, and adapted to be positioned in resilient engagement between a pair of said grate rods, said bracket element comprising: a bearing surface, a mounting portion and an engagement member; said mounting portion and said engagement member having an effective dimension greater than the distance between said pair of grate rods; said engagement member being fixed upon said mounting portion in parallel relationship thereto at the central parts thereof, whereby said central parts may be positioned be-

tween said pair of grate rods and portions of the opposing surfaces of said mounting portion and said engagement member may be positioned to engage said grate rods therebetween; said engagement member having cam portions to facilitate engagement with said grate rods.

3. A bracket element for use in conjunction with a cooking apparatus having a grate including parallel grate rods and a peripheral grate member, and adapted to be positioned in engagement between a pair of said grate rods, said bracket element comprising: a supporting member including a horizontal mounting portion and a vertical portion; an engagement member fixed upon said horizontal mounting portion in spaced parallel relationship thereto, at the central parts thereof; said horizontal mounting portion and said engagement member having an effective dimension greater than the distance between said pair of grate rods; a pivotal member rotatably secured to said vertical portion of said supporting member, and having a downwardly extending portion, the lowermost end of which extends below said horizontal portion of said support member; whereby said central parts may be positioned between said pair of grate rods and portions of the opposing surfaces of said horizontal portion and said engagement member may be positioned to engage a pair of grate rods therebetween; said pivotal member being movable to simultaneously engage a portion of said peripheral grate member.

4. A bracket element for use in conjunction with a cooking apparatus having a grate including parallel grate rods and a peripheral grate member, and adapted to be positioned in engagement between a pair of said grate rods, said bracket element comprising: a supporting member including a horizontal mounting portion and a vertical portion; an engagement member fixed upon said horizontal mounting portion in spaced parallel relationship thereto, at the central parts thereof; said horizontal mounting portion and said engagement member having an effective dimension greater than the distance between said pair of grate rods; a pivotal member rotatably secured to said vertical portion of said supporting member, and having a downwardly extending portion, the lowermost end of which extends below said horizontal portion of said support member; whereby said central parts may be positioned between said pair of grate rods and portions of the opposing surfaces of said horizontal portion and said engagement member may be positioned to engage a pair of grate rods therebetween; said pivotal member being movable to simultaneously engage a portion of said peripheral grate member; and means to limit the path of motion of said pivotal member.

JULES NISENSEN.

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