

May 31, 1927.

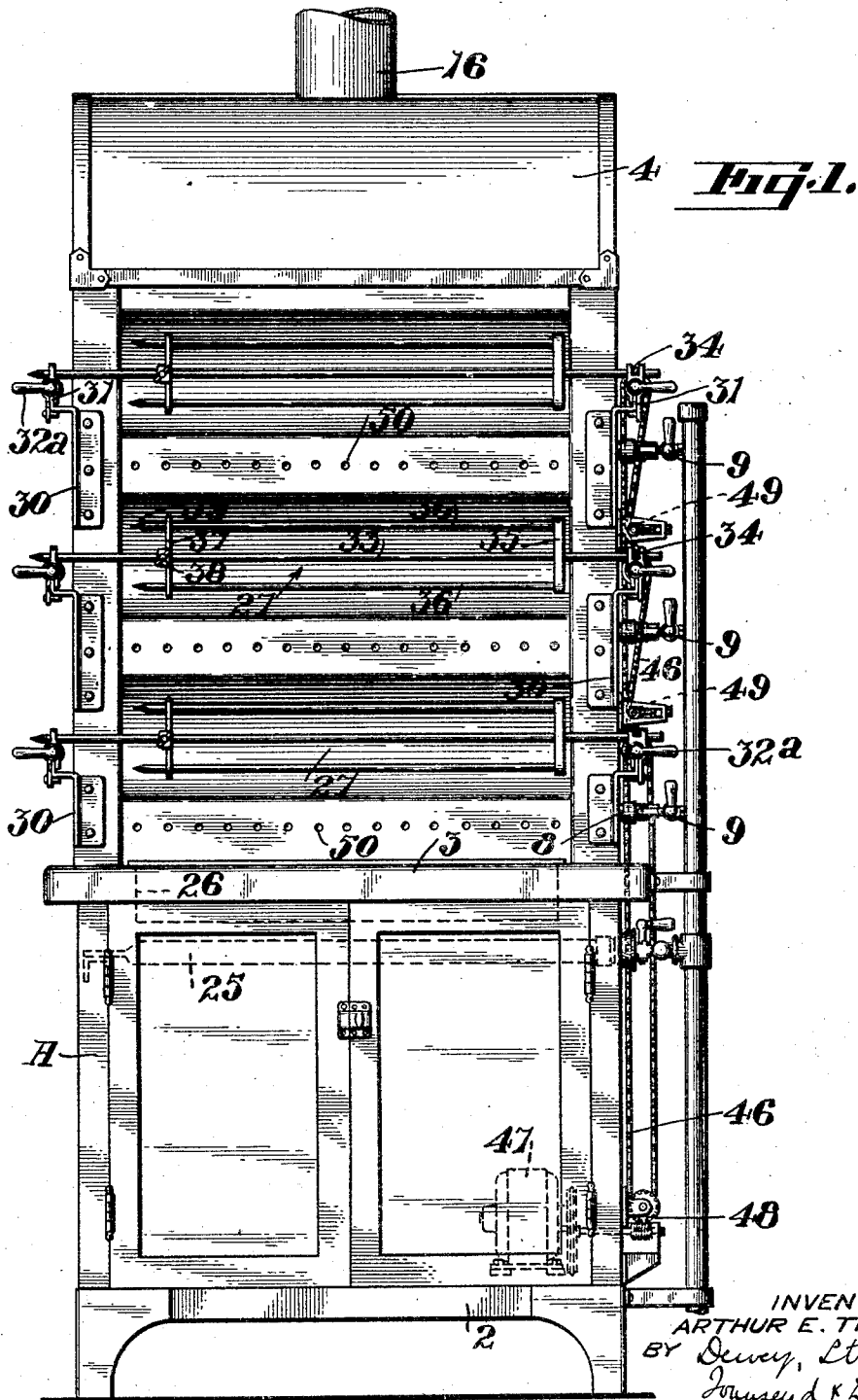
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1,630,644

ROTARY ROASTING RANGE

Filed Oct. 30, 1923

3 Sheets-Sheet 1



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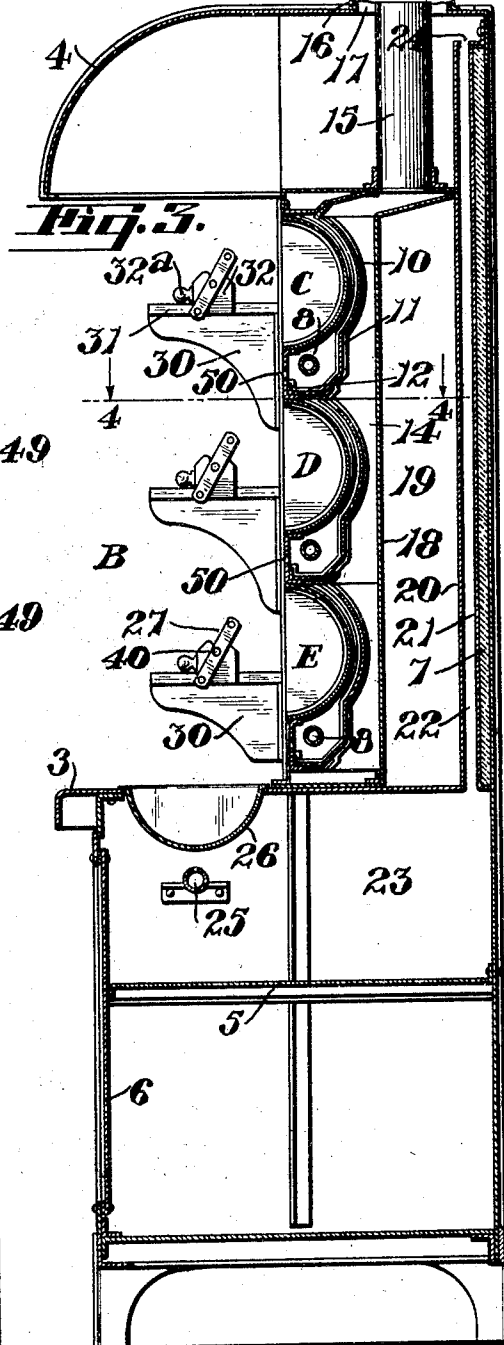
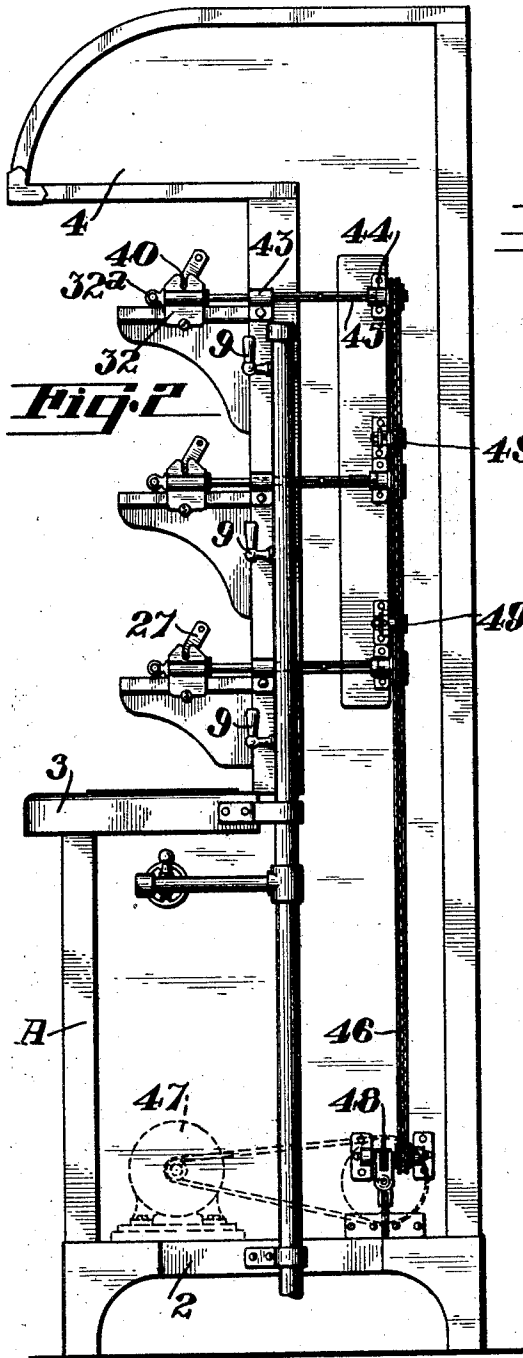
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Fig. 4.

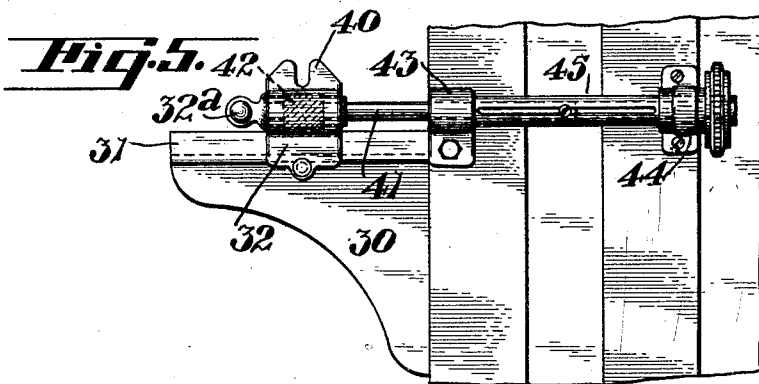
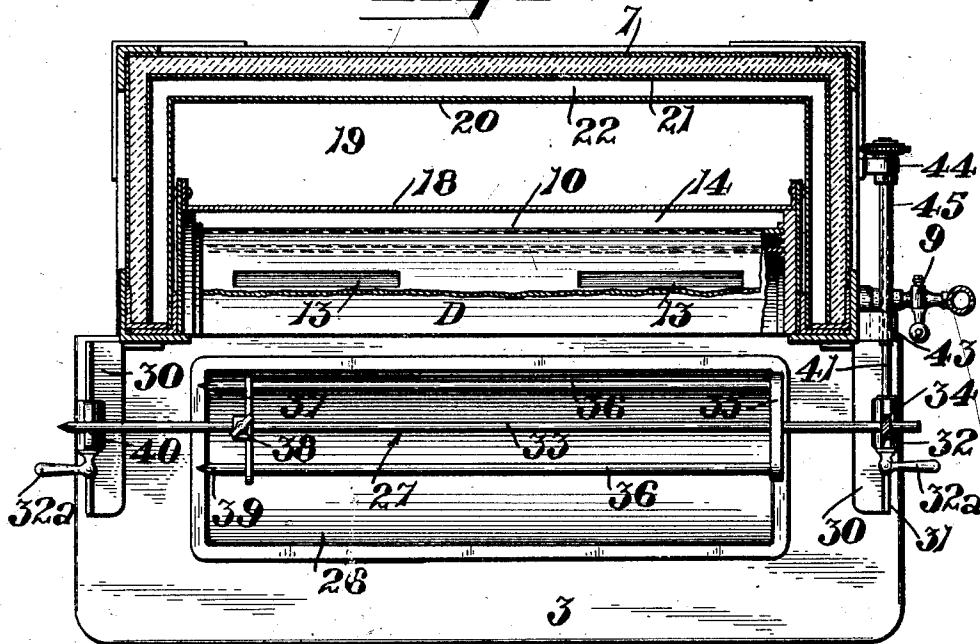
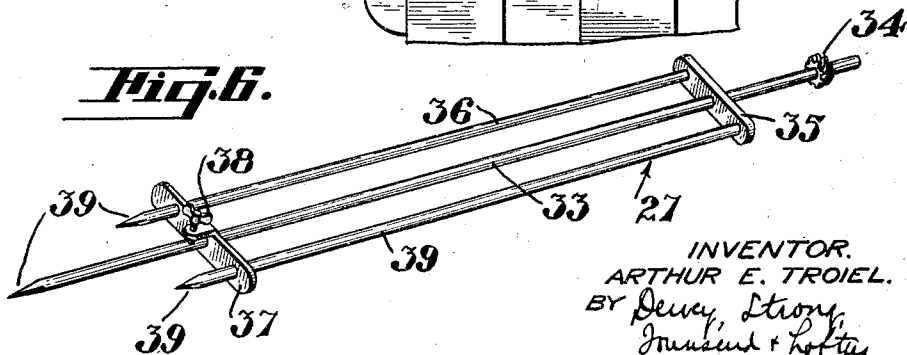


Fig. 6.



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ROTARY ROASTING RANGE.

Application filed October 30, 1923. Serial No. 671,723.

This invention relates to a roasting range, and especially to a rotary type of range for roasting birds, fowl, etc.

The object of the present invention is to
 5 generally improve and simplify the construction and operation of ranges of the character described; to provide a range in which the article to be roasted will be continuously and slowly rotated on a spit while being
 10 roasted; to provide means whereby the article to be roasted will be exposed to radiant heat only, thereby eliminating the danger of imparting unsavory flavors, etc.; to provide a concave or semi-circular shaped heat
 15 radiating plate, one side of which is heated by a gas flame or other suitable means, while the other side serves the function of projecting the heat in the form of radiating rays; to provide a range structure which
 20 permits a number of heat radiating plates to be disposed one above the other and each to be individually heated and operated; and further, to provide means for adjusting the rotating spit to and away from the heat
 25 radiating plates.

One form which my invention may assume is exemplified in the following description and illustrated in the accompanying drawings, in which—

30 Fig. 1 is a front view of the roasting range.

Fig. 2 is an end view.

Fig. 3 is a central vertical longitudinal section.

35 Fig. 4 is a horizontal section taken on line 4—4, Fig. 3.

Fig. 5 is an enlarged detail view of one of the adjustable bearings whereby the spits are supported.

40 Fig. 6 is a perspective view of one of the roasting spits.

Referring to the drawings in detail, and particularly to Figs. 1, 2 and 3, A indicates in general a range, 2 the base thereof, 3 the upper plate of the range, and 4 the hood. The range is provided with an interior frame of suitable construction such as indicated at 5, and this is covered with sheet iron or a like material such as shown at 6, which
 45 is covered with an insulating material such as shown at 7 wherever required. Formed in the front face of the range is an offset

generally indicated at B, and disposed in the forward face of the offset are a series of heating plates generally indicated at C, 55 D and E. These plates are semi-circular in cross-section as shown, and they extend from end to end of the range as illustrated in Fig. 1.

The heating plates may be constructed of 60 cast-iron, steel or like material, and they are so arranged that they will be heated from the rear side when in operation; the heat absorbed being projected in the form of radiating rays so as to prevent smoking, 65 smudging, or burning of the articles to be roasted. Each heating plate is in this instance heated by a gas burner such as shown at 8; a perforated elongated tube being disposed below each heating plate to which 70 gas is supplied by an ordinary gas cock such as shown at 9. The tubes or burners 8 are disposed below the heating plates and the flame of each burner will thus strike the lower side of each plate and will then be de- 75 flected and directed upwardly, and around each plate, thus applying the heat in a most efficient manner, and furthermore, permitting each plate to absorb the greatest amount of heat. 80

To maintain the flame of each burner in close contact with the heating plate, a rear shield is provided as shown at 10. This shield is curved to conform with the curve of the heating plate, and the lower end is 85 vertically disposed as at 11 and then inturned at the bottom as at 12 to form a closed furnace chamber. The upper curved end of each shield or plate 10 is provided with two or more elongated openings 13, 90 as shown in Figs. 3 and 4, and these openings are provided to permit a free escape of the products of combustion; the openings 13 being in communication with a vertically disposed flue 14 formed rearwardly of the 95 plates 10, the flue having ample capacity to take care of the discharging gases or products of combustion.

The upper end of the flue terminates in a pipe 15, which in turn enters a final discharge stack 16. This stack is of larger 100 diameter than the pipe 15 and as such forms an annular exit 17 for steam and vapors collected in the hood 4. The flue 14 is

formed by an intermediate partition plate 18 and this is insulated by the formation of a dead air space such as shown at 19, this space being formed between the partition plate 18 and an intermediate partition plate 20. Further insulation is obtained by covering the rear plate 21 of the range with asbestos or like material.

A second flue is formed between the plate 20 and the insulated rear plate 21 as indicated at 22. The lower end of this flue communicates with the lower chamber of the range indicated at 23 and the upper end communicates with the hood and the stack 16 by means of a series of perforations such as shown at 24.

A gas burner 25 is disposed in the lower chamber of the range and it is placed directly below a drip pan such as shown at 26; this pan being supported by the upper plate 3 of the range, and it is so positioned as to collect the drippings from the articles being roasted. These articles are carried by ordinary roasting spits such as indicated at 27; there being three employed in the present instance as three heating plates are provided. In other words, there is one roasting spit for each heating plate.

The roasting spits are continuously rotated while an article is being roasted, and it may furthermore be stated that the roasting spits may be adjusted to and away from the heating plates so as to obtain the best results possible. The manner of rotating the spits and of adjusting them with relation to the heating plates will now be described.

Secured on each side of the range are bearing brackets such as indicated at 30. They are arranged in pairs and their upper faces are provided with tracks such as shown at 31. Slidably mounted on each track is a bearing member 32, and supported by the bearing members are the roasting spits proper. The spits are identical in construction and they are perhaps best illustrated in Figs. 1 and 6. Each spit consists of a central rod 33, on one end of which is secured a spiral gear pinion 34. Also secured on the rod is a stationary, permanent head member 35, and secured thereto is a pair of rods 36. Slidably mounted on the opposite end of the rod is a head 37, and adapted to secure the same is a set screw 38. The head 37 is perforated to receive the ends of the rods 36 and the head may thus be moved into or out of engagement with the rods to permit the insertion of articles to be roasted. The rods are all pointed as shown at 39 and it is thus a simple matter to secure the roasts as it will only be necessary to pass the rods through the same. The central rod 33 forms the main support and it is this rod that is supported by the bearings 32. The rod is, however, free to be lifted with relation to these bear-

ings and the bearings are therefore fork-shaped or slotted at their upper ends to permit the rods 33 to be readily lifted out or replaced; the forked or open ends of the bearings 32 being shown at 40.

Journalled in each of the bearings 32, disposed on one side of the range, is a shaft 41, and secured on each of said shafts is a spiral driving gear 42. Journalled on the same side of the range in bearings such as shown at 43 and 44 are tubular shafts 45. The shafts 41 are adapted to telescope with relation to the shafts 45, and a splined connection is formed between the same, thus permitting the bearings 32 and the shafts 41 to be moved to and away from the heating plates without breaking the driving connection between the tubular shafts 45 and the shafts 41. The shafts 45 are all driven in unison by an endless sprocket chain 46, this chain being in turn driven by an electric motor 47 and a reduction worm drive such as shown at 48. The shafts 45 are each provided with sprocket gears, over which the chain 46 passes, and idlers are disposed intermediate the sprocket wheels so as to maintain the chain in engagement therewith, the idlers being illustrated at 49. It can thus be seen that all of the spits will be rotated in unison and that a fairly slow rotary movement will be transmitted. This is of considerable importance as each roast will in this manner be uniformly heated and roasted as all parts thereof will be equally exposed to the heating plates, in front of which they are disposed.

In actual operation it might be stated that the range has been particularly designed for the purpose of roasting chickens. Therefore, if it is desired to roast one or more chickens, it will only be necessary to remove one of the spits, this being accomplished by merely lifting it out of its supporting bearings 32. The chickens are passed over the rods one by one until a suitable number have been placed on the spit. The adjustable head 37 is then moved back to support the pointed ends of the rods 36 and the spit is replaced.

We will assume that the gas burner has been started and that the heating plate is so hot as to radiate heat. If this is the case it will only be necessary to start the electric motor, and it will thus be seen that all of the spits will be slowly and continuously rotated. If only one spit is in operation, the other two burners will not be lighted, the only burner in operation being the one disposed below the heating plate which is in use and the burner indicated at 25 which will maintain the drip or basting pan in a hot condition. The spits will continue to rotate until the chickens are roasted and the spit which is in operation may be moved to and away from the plate as the

roasting operation proceeds. For instance, if it is desired to brown the chickens quickly and form an exterior coat which will retain the juices, it is best to adjust the bearings 32 so that the spits will be placed fairly close to the heating plate. A quick and intense heat is in this manner applied at the beginning of the roasting operation, and if it is then desired to slowly roast the chickens during the remaining period, it is only necessary to pull the bearings 32 away from the heating plates so as to reduce the amount of heat applied. This can be readily accomplished as each bearing is provided with a handle such as shown at 32^a. These handles are grasped in unison and the bearings 32 may thus be moved to and away from the heating plates to assume any position desired; this being accomplished without interrupting the rotating movement of the spits as the telescoping and splined connection between the shafts 41 and 45 will permit continuous rotation without interruption.

By applying the heat in the manner here shown, it is obvious that a palatable and savory roast will be obtained as the roast will not be tainted by odors of the gas, nor will it become smoked or smudged as the gas merely heats one side of the plate, while the heat employed for roasting is radiated from the opposite side thereof. By bending the heating plates so as to form a semi-circle, a large area is provided and a high concentration of heat can be obtained.

By forming a separate furnace chamber below each heating plate, it is possible to dispose one heating plate above the other as shown, and while three are here illustrated it is obvious that the number may be increased or decreased as desired.

The air to support combustion is admitted partially through the valves 9 and partially through perforations or openings 50 formed in the forward face of the range; these openings being best illustrated in Figs. 1 and 3, and being in communication with each burner 8 or, in other words, with the furnace chamber in which the burners are mounted. Ample air is in this manner admitted to support combustion and as large discharge openings are formed at the upper ends of the shields or plates 10, it can be seen that a free discharge of the products of combustion is permitted. All the discharge openings communicate with the common flue 14 and a free escape of the products of combustion is thus permitted.

While certain features of the present invention are more or less specifically illustrated, I wish it understood that various changes in form and proportion may be resorted to within the scope of the appended claims. I similarly wish it understood that the materials and finish of the several parts

employed may be such as the experience and judgment of the manufacturer may dictate or various uses may demand.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. In a range of the character described, an elongated horizontally disposed plate, said plate being substantially semi-circular in cross-section and having its concave side open, unobstructed and exposed to the atmosphere, and means for applying a gas flame to the convex side of the plate so that heat may be conducted and radiated to an article to be roasted which is placed in front of the convex side of the plate.

2. In a range of the character described, an elongated horizontally disposed heating plate, said plate being substantially semi-circular in cross-section and placed on edge to assume a vertical position with its concave side exposed to the atmosphere, a gas burner disposed below the convex side of the plate and adapted to direct its flame against the plate, a furnace chamber formed rearwardly of the burner and the convex side of the plate and adapted to direct the flame upwardly and around the plate, and means for supporting an article to be roasted in front of the concave open side of the plate so that it will be subjected to radiant heat only.

3. In a range of the character described, a plurality of elongated horizontally disposed heating plates, said plates being substantially semi-circular in cross-section and having their concave sides open and unobstructed and said plates being disposed one above the other and interspaced with relation to each other, a furnace chamber disposed below each plate, each furnace chamber being extended upwardly and around the rear convex side of each plate, a burner in each furnace chamber and below each plate, means for admitting air to each furnace chamber, and a common discharge flue in communication with the upper end of each furnace chamber.

4. In a range of the character described, a plurality of elongated horizontally disposed heating plates, said plates being substantially semi-circular in cross-section and having their concave sides open and unobstructed and said plates being disposed one above the other and interspaced with relation to each other, a furnace chamber disposed below each plate, each furnace chamber being extended upwardly and around the rear convex side of each plate, a burner in each furnace chamber and below each plate, means for admitting air to each furnace chamber, and means permitting a free discharge of products of combustion from the upper end of each furnace chamber.

5. In a range of the character described,

an elongated heating plate, a pair of bracket arms one adjacent each end thereof and extending outwardly from the plate, a pair of bearing members one on each bracket arm and slidably mounted to move to and away from the heating plate, a roasting spit, a central shaft therein and adapted to be supported by the bearings, a telescoping splined shaft journaled at right angles to the spit shaft and one end of the telescoping shaft being also journaled in one of the bearings supporting the spit shaft, a driving connection formed between the spit shaft and the telescoping shaft, and means for rotating the telescoping shaft.

6. In a range of the character described, an elongated heating plate, a pair of bracket arms one adjacent each end thereof and extending outwardly from the plate, a pair of bearing members one on each bracket arm and slidably mounted to move to and away from the heating plate, a roasting spit, a central shaft therein and adapted to be supported by the bearings, a telescoping splined shaft journaled at right angles to the spit shaft and one end of the telescoping shaft being also journaled in one of the bearings supporting the spit shaft, a gear secured on the telescoping shaft, a gear adapted to intermesh therewith and secured on the spit shaft, and means for rotating the telescoping shaft.

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