

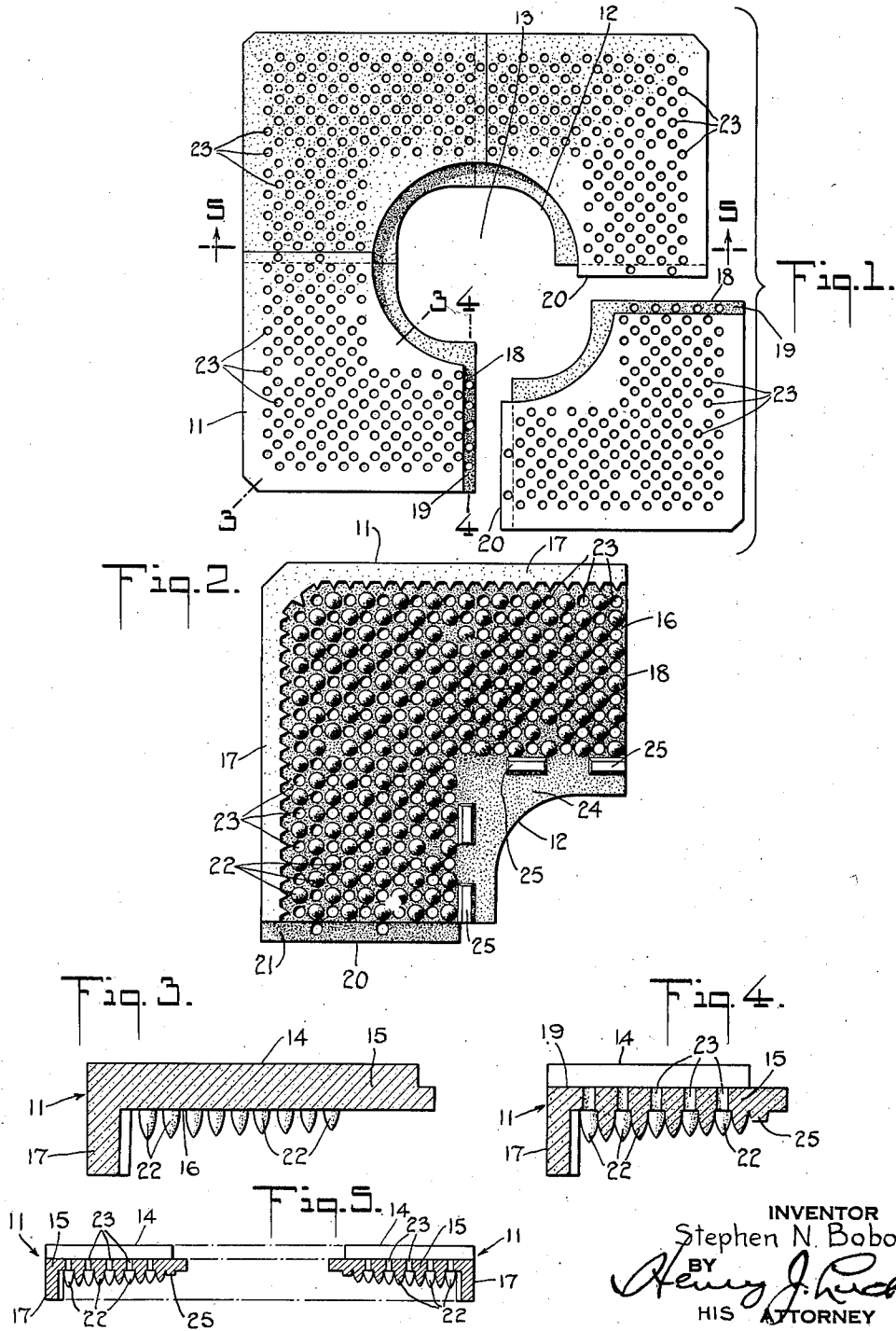
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CERAMIC BURNER UNIT FOR BROILERS

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CERAMIC BURNER UNIT FOR BROILERS

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My present invention relates to burners, and more particularly to an improved burner for food broiling devices.

In food broiling devices, it is essential for proper broiling that an even heat over the entire surface of the food being broiled by heat be radiated from the broiler. This is essential in order that the food being cooked shall be evenly broiled throughout.

In my present invention, I have devised a broiler in which the fuel of a gaseous nature is evenly burned and is distributed over the entire face of the broiler in such a way that an even heat is radiated from the face of the broiler throughout practically its entire area. There are no "cool spots" and also there are no "hot spots." The production of either cool spots or hot spots results in uneven radiation from the surface of the burner with consequent unevenness of pattern of the heat on the surface of food being broiled.

The broiler comprises essentially a metallic burner, through which gaseous fuel is fed and burned, and a radiator of preferably ceramic incombustible material. The radiator is composed of a plurality of individual elements preferably symmetrically arranged about the periphery of the metallic burner.

An important feature of my invention, therefore, is an improved radiator for broilers in which an even radiation of the heat from the incandescent surface is produced.

Another feature of my invention is an improved means for ventilating the broiler to maintain the burner element thereof at a relatively low temperature.

A further feature of my invention is an improved broiler element in which the radiating surfaces contribute to produce an even pattern of heat on the food being broiled.

Other features will appear as the description of the invention progresses.

In the accompanying drawing illustrating an embodiment of my invention:

Fig. 1 is a top plan view of an assembly of elements constituting a radiator and with one of the elements separated from the others;

Fig. 2 is a bottom plan view on an enlarged scale of one of the elements illustrated in Fig. 1;

Fig. 3 is a sectional elevation taken on the line 3-3 of Fig. 1;

Fig. 4 is a sectional elevation taken on the line 4-4 of Fig. 1, and

Fig. 5 is a section on the line 5-5 of Fig. 1.

Referring to the drawing, 10 designates a broiler radiator composed of elements 11 ar-

ranged in interlocking relation with respect to each other to thereby define a substantially square radiator 10.

Each of the elements 11 is substantially rectangular in form, and with one corner cut away on the curve 12 so that, when the elements 11 are assembled to form a complete radiator 10, there is produced by the cut away corners 12 a substantially rectangular opening 13 through which extends the metallic burner for supplying heat to the broiler. The top face of the elements 11, or that face visible in Figure 1, lies in a plane as indicated by the reference numeral 14 (see Fig. 3). The body of the elements are of substantial thickness as indicated by the reference numeral 15. The lower face of the body of the elements lies in a plane parallel to the plane in which lies the face 14, such plane being designated by the reference numeral 16 (see Fig. 3). Around two sides of the elements 11 and on the sides remote from the cut away portion 12, the body 15 has formed integral therewith a depending apron 17 of suitable length. The apron 17 thus extends around two sides of each of the elements 11, so that when the elements 11 are assembled together to form the radiator 10, there is a skirt which extends all around the edge of the radiator.

One edge of the elements 11, as the edge 18, is rabbeted on the upper surface, as indicated by the reference numeral 19. The diagonally opposite edge 20 is rabbeted on the lower face as indicated by the reference numeral 21, for association with the rabbet 19. The interengagement of the rabbets 19 and 21 tend to build of the separate units 11 a substantial radiator 10, as shown in Figure 1.

Formed integral with the body 15 of the elements 11 and depending downwardly from the under face 16 thereof are radiating points 22. Preferably, for ease in manufacture, the radiating points 22 are symmetrically spaced, as clearly shown in Figure 2. Further, the radiating points 22 gradually decrease in length as the cut away corners 12 are approached. The body 15 of the elements 11 is provided with a plurality of perforations 23, there being practically as many perforations 23 as there are points 22. The perforations 23 are for the purpose of obtaining a sufficient flow of air through the elements 11 to maintain perfect combustion of the gaseous fuel.

Referring to Figure 2, it will be noted that the radiating points 22 and perforations 23 are symmetrically arranged in a zone or zones parallel to the depending apron 17, thus leaving an an-

gular portion 24 of the under face 16 of the elements 11 practically free. Arranged on such angular portion 24 and formed integral with the body 15 of the elements 11 are spaced members 25. Such members are utilized for positioning and spacing the metallic gas burner above referred to and not shown. Preferably, such metallic burners are provided with spaced supporting means, one of such supporting means being arranged to cooperate with one of the members 25. The space between the supporting members of the metallic burner cooperates with the space between the members 25 to provide a passage permitting the free flow of air between the metallic burner and the burner elements 11, thereby insuring the metallic burner against overheating, with its consequent tendency to warp. A metallic burner of the type referred to herein is described and claimed in the co-pending application of Henry Nunn Christmas, Serial No. 252,055, filed January 21, 1939.

As above stated, when the elements 11 are assembled together with the rabbets 19 and 21 interengaging, there is formed a substantially rectangular radiator 10, depending on the shape of the burner elements 11, and with a substantially rectangular passage 13 therethrough, and through which may extend the entrance end or portion of the metallic burner to be associated therewith. The members 25 position the metallic burner element, and the gaseous fuel as it is fed through the metallic burner and, ignited, throws a flame in a plane substantially perpendicular to the axis thereof, or substantially parallel to the under face 16 of the radiator 10. The difference in height of the radiating points 22 from the center to the periphery of the radiator permits the flame to reach every radiating point 22, with the result that the radiating points 22 are evenly heated. Also, the angle of the plane in which lies the tops of the radiating points 22 insures that the heat will be radiated downwardly and toward the center of the radiator 10 in such manner that there is no cold spot formed on the broiling surface directly under the metallic burner. The above will be apparent from an inspection of Fig. 5.

The material of which the burner units 11 is made is preferably a ceramic or equivalent material which has the faculty of becoming incandescent and radiating the heat therefrom without the danger of melting of the material. In other words, the material is fire-proof material.

Whereas I have described my invention by reference to specific forms thereof, it will be understood that many changes and modifications may be made without departing from the spirit of the invention.

I claim:

1. In an improved radiating unit for broilers, an element of incombustible ceramic material provided with a cut-away portion at one corner thereof and with rabbets on adjacent sides and extending to the outer periphery of the element, a skirt portion extending around the remaining two adjacent sides, the surface of the element enclosed by the depending skirt having a plurality of radiating points and with the spaces between the radiating points provided with perforations extending through the body of the element.

2. In an improved radiating unit for broilers, an element provided with a cut-away portion at one corner thereof and with rabbets on adjacent sides and extending to the outer periphery of the element, a skirt portion extending around the remaining two adjacent sides, the surface of the element enclosed by the depending skirt having a plurality of radiating points with the spaces between the radiating points provided with perforations extending through the body of the element, and a plurality of burner spacing elements formed integral with the element and on the same surface thereof as the radiating points.

3. An improved broiler radiating element, comprising a flat body of inert incombustible material of a ceramic nature, said body having a plain upper face, said body having formed integral therewith and extending downwardly from the bottom face thereof and about two adjacent sides of the body depending skirts, said body having formed integral therewith and on its under face a plurality of symmetrically arranged downwardly depending radiating points, the lengths of which increase gradually as the skirt portion is approached, to thereby have the tips of the radiating points lying in a plane at an angle to the lower face of the body, means formed integral with the body for positioning a gaseous burner in predetermined position with relation thereto, and means for permitting the interengagement of a plurality of elements to form a symmetrical broiler unit from a plurality of such elements.

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