Feb. 3, 1959 A. A. LEICHT ET AL 2,872,559

DESIGN AND ARRANGEMENT OF ELECTRIC HOT-PLATES FOR ELECTRIC OVENS

Filed April 16, 1956

Fig. 1

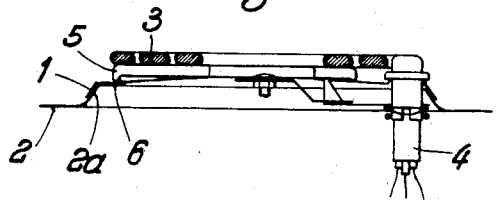


Fig. 2

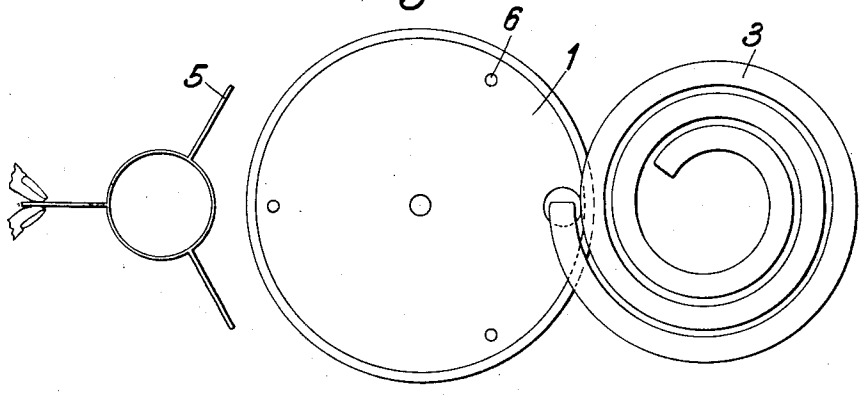


Fig. 3

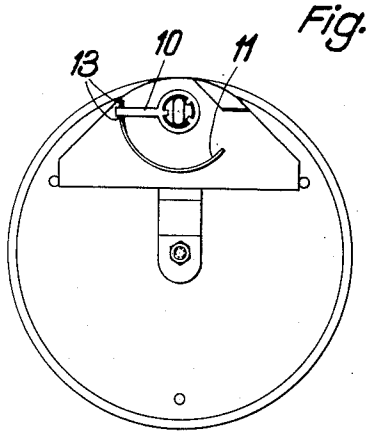
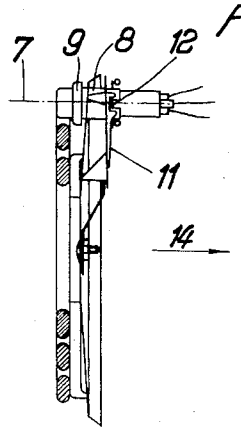


Fig. 4



United States Patent Office

2,872,559

Patented Feb. 3, 1959

2,872,559

DESIGN AND ARRANGEMENT OF ELECTRIC HOT-PLATES FOR ELECTRIC OVENS

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Application April 16, 1956, Serial No. 578,212

1 Claim. (Cl. 219—37)

This invention concerns electric hot-plates.

In the construction of electric ovens, it is generally endeavoured so to design the hot-plates that loss of heat is kept as slight as possible by retention thereof in said plates. For this reason it has already been proposed to incorporate radiation-tube hot-plates in electric ovens, instead of solid or cast hot-plates. Known examples of this construction have the disadvantage, however, that the radiation-plate lies underneath the heating-plate, so that a protector sheet, or a corresponding inner oven-plate is required to catch overflowing cooking materials, and to allow them to be removed. In order to clean the radiation-plate, it is furthermore necessary in such known constructions to arrange for the radiation-plate to be capable of being taken out, or for the heating-element to be adapted to be raised or lowered. To satisfy the need for improvements to be made enabling a hot-plate to be kept clean with less difficulty, it has also been proposed to fashion the hot-plate so that the distance separating the heating element of a radiation-tube hot-plate and the radiation-plate is as great as possible.

In cast hot-plates a better cleansing thereof has certainly recently been made possible by providing a ring all around the hot-plate which is set upwards and hooks over flanges lining the oven aperture, covering the gap between hot-plate and oven-plate. This method of construction has the disadvantage, however, that the circumferential ring which rests in contact with the oven-plate aperture flanges, allows considerable quantities of heat to be led over it from the hot-plate to the oven-plate, whereby its efficiency is reduced because of loss of heat, and, moreover, the efficacy of the oven-switch is unfavourably affected by the high temperature. Furthermore, this is unpleasant for the user in the event of touching the oven-plate, and makes cleaning difficult, because overflowing cooking materials can easily burn hard on to the oven plate.

It is an object of the invention, therefore, to satisfy the demand on the one hand for a cooking-plate of the easiest possible construction, and, on the other hand, of greater ease of cleaning, or of a readier condition for staying clean, and also to avoid the disadvantage of loss of heat, as happens with cast hot-plates. According to the present invention, an electric heating element is arranged at a distance above a radiation-plate fixed in turn above an oven-plate, and the radiation plate slopes from the middle towards the edge, for example convexly and has a depending peripheral lip adapted to engage over flanges bordering the oven-aperture, so that overflowing cooking materials immediately run off to the oven-plate.

A hot-plate designed and arranged in this way fulfils first a claim which should be made of every hot-plate, namely that it be constructed as a light radiation-plate with separate reflector, thereby preventing any significant

loss of heat through the transfer of quantities thereof to the oven-plate. Secondly, with such a hot-plate no overflowing materials can reach the interior thereof, as they run off immediately on to the radiation-plate which is inclined towards the edge, and on to the oven-plate, where, as the oven-plate can only be warmed to a limited degree, they do not burn hard on, but remain in an easily removable condition.

The heating elements are preferably constructed so that they move in a horizontal plane, or, as already mentioned, may be raised and lowered. The radiation-plate can also be arranged to be removable, in known manner. These arrangements are advantageous because an occasional polish should be given to the radiation-plate even when it is not soiled by overflowing materials.

The invention will be described further, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 is a side elevation, partly in section, of one hot-plate constructed according to the invention,

Fig. 2 is a plan view of the hot-plate shown in Fig. 1,

Fig. 3 is a reverse plan view, and

Fig. 4 is a further section through the hot-plate.

The hot-plate consists of radiation-plate **1**, a removable transverse support **5** resting on the plate **1** in depression **6** thereof, and a heating element **3**, resting on the transverse support **5**. The radiation-plate **1**, in accordance with the invention, is so constructed as to slope outwards from the middle, and its edge is bent downwards to form a peripheral depending lip. This lip of the radiation-plate **1** fits over a flange **2***a* lining the oven-plate aperture, and its free edge lies above the oven-plate **2**. The radiation-plate **1**, due to this arrangement of the parts, is only slightly warmed by the heating-element **3**, and the oven-plate **2** is likewise exposed only to slight heating. Overflowing cooking materials, run unhindered on to the oven-plate, which is only comparatively warm, so that such materials cannot burn on, and can be easily removed even while the hot-plate is in operation.

The heating element **3** in the embodiment illustrated is movable at its end **4** in a horizontal plane about the axis of revolution **7**, so that the radiation-plate **1** can be exposed ready for cleansing by turning the heating-element (Fig. 2), and taking off the transverse support **5**. The ability of the heating-element **3** to swing is effected by leading the end **4** of the bar through a hollow revolving pin **8**, provided with a covering flange **9**, and fastening said end to the hollow pin in the interior thereof.

On the pin **8** there rests, as can be seen in Figs. 3 and 4, a spring **10** fastened by the pin. This spring, on turning of the heating-element slides upwards on an inclined plane **11** constituting a slideway, which rises constantly with the angle of torsion and follows the turning circle of the spring, the latter resting finally in the service position of the hot-plate in notches **12**, **13** formed in the inclined plane. The heating-element accordingly cannot be moved further inadvertently, as the notch **13** does not permit the spring to go beyond it due to a chance blow or the like, and moreover the heating element **3** is pulled firmly by the spring over the transverse support **5** in the direction **14**, on to the radiation-plate **1**.

By an electric oven as hereinbefore referred to there is to be understood any electrical cooking apparatus wherein is installed one electric hot-plate or several incorporated into one whole plate.

We claim:

A radiation hot-plate with fixed connections, especially for electric ovens, which comprises a circular reflector

plate arranged on top of an oven plate having a circular aperture and a peripheral collar extending upwardly of said aperture, said reflector plate having a downwardly depending peripheral lip adapted to fit over said collar, said reflector plate overlying the circular aperture including the collar, a heating element disposed above said reflector plate, means for supporting said heating element in spaced relationship with said reflector plate, and means for raising and lowering said heating element and for swinging the same away from said reflector plate in a horizontal plane about its connection to the source of supply, said means including a vertical bar adjacent the edge of said reflector plate.

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