Jan. 29, 1935. R. R. McLEOD 1,989,284

HOT PLATE

Filed Dec. 19, 1932

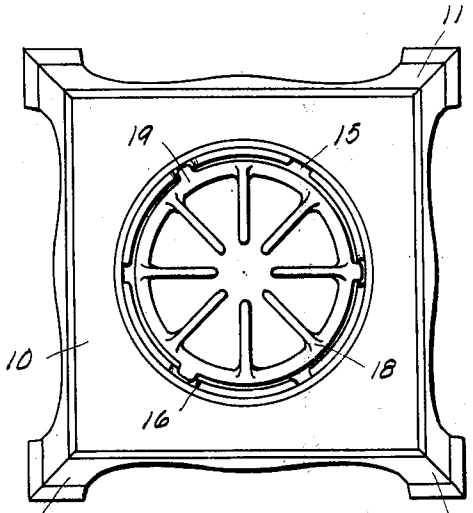


Fig. 2.

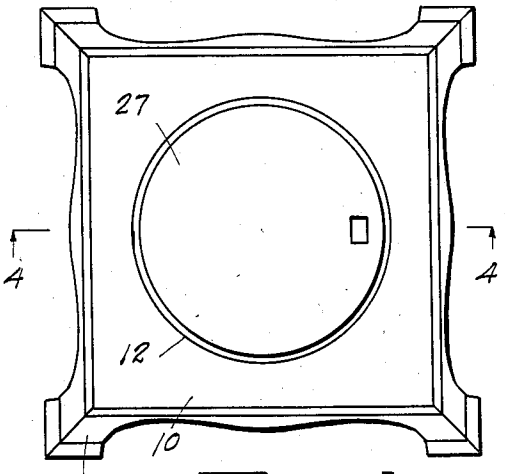


Fig. 1.

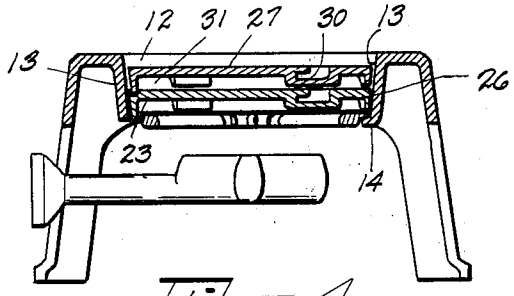


Fig. 4.

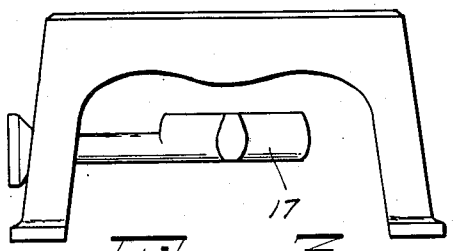


Fig. 3.

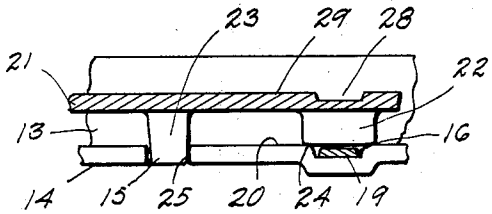


Fig. 6.

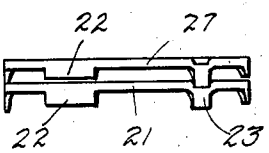


Fig. 5.

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HOT PLATE

Robert Raymond McLeod, Oakland, Calif.

Application December 19, 1932, Serial No. 647,895

4 Claims. (Cl. 126—214)

This invention is a hotplate and is specially directed to a hotplate for use with coffee brewers and for other purposes where heat resistant glass utensils are used and a uniform and medium heat is required. Where glassware is used in heating liquids, it is quite important that the entire surface of the heating medium be of a uniform temperature to prevent as much as possible unequal expansion in various parts of the glass utensil.

Hotplates as at present supplied, consist of two varieties, one in which the heat is applied directly to the utensil, and the other in which the heat is applied through an interposed plate. Where the heat is supplied directly from the unit, very unequal heating is provided as the hottest zone is usually directly over any point of heat, and in the consideration of a gas burner, a great many points of intense heat are provided, one for each point of flame and being located at the tip of the oxidizing cone, and as the different jets are of various lengths, even these tips do not all come within the same distance from the element being heated. Where a plate is interposed between the flame and the object being heated, a more uniform heat is provided, however, there will be considerable variation in the temperature at different parts of the plate.

My invention contemplates a hotplate which is heated almost exclusively through the medium of heated air and not by conduction or direct action of the heating unit thereon.

The main object of the invention therefore, is to provide a hotplate with a uniformly heated top throughout its entire area so that all parts of the top will be maintained at the same temperature.

Another object of the invention is to provide a hotplate which has a minimum of bodily contact with the supporting means so as to minimize the transference of heat by conduction to the hotplate.

A further object of the invention is to provide a hotplate with replaceable grid, shield and hot top, and to provide these elements with retaining means to prevent rotation thereof so that the elements will be maintained in relative position when in use.

A still further object of the invention is to provide a hot top and a shield which are identical in structure and therefore replaceable one for the other.

Other objects and advantages of the invention will become apparent as the following description is read on the drawing forming a part of this specification, and in which similar reference characters are used to designate similar parts throughout the several views, of which:

Fig. 1 is a plan view of the invention.

Fig. 2 is a view similar to Fig. 1 except with the hot top and the shield removed and showing the grid in position.

Fig. 3 is a side elevation of the invention.

Fig. 4 is a section taken on line 4—4 of Fig. 1.

Fig. 5 is a fragmentary side view of the hot plate and shield.

Fig. 6 is a fragmentary view of the encompassing wall and flange with the shield supported thereon.

The invention consists of a frame 10 provided with legs 11, the frame having an opening 12 in the top and a depending continuous wall 13 encompassing the opening 12, this depending wall having an inwardly turned flange 14 for supporting the various elements of the hot plate. This flange is provided with recesses 15 and depressions 16, three depressions and three recesses being preferably provided, and being equi-angularly spaced.

The device may be provided with a burner 17 of any desired type or for utilizing any kind of fuel, but shown as a gas burner. The device may have the legs 11 omitted, and in this manner can be placed directly over the burner of a standard gas or electric range, and is therefore not limited to use only with a heating unit.

A grid 18 is freely and removably supported on the flange 14, the grid preferably having three ears 19 which are receivable within the depressions 16, the tops of the ears being disposed below the top surface 20 of the flange 14, the three ears providing three-point suspension and thereby preventing any tendency toward rocking. The purpose of this grid is to receive the heat from the heating unit and retain this heat, and tending to provide more uniform heating of the hotplate.

The shield 21 is supported on the flange 14, this shield having a plurality of support members, the legs 22 and lugs 23, the legs 22 being of sufficient width to span the depressions 16 but having only a small contact surface 24 on each side of the depression. The lugs 23 also function as aligning members to prevent rotation of the shield and to retain the legs 22 in proper position relative to the depression 16 so as to maintain a minimum area of contact between the legs 22 and the flange 20, the lugs 23 being normally out of contact with the walls 25 of the recesses 15, the recesses and depressions being so formed that the periphery 26 of the shield is retained out of contact but in close relation to the wall 13 so as to prevent conduction

of heat between the periphery of the shield and the wall.

The top or hotplate 27 is formed identical to the shield 21 and is replaceable therewith. The lugs 23 are received in depressions 28 formed in the top surface of the shield 21 adjacent the periphery and the support members 23 being of sufficient length so that when the lugs rest in the depressions 28, the legs 22 will clear the top surface 29 of the shield 27. The upper plate 27 also has depressions 28 formed therein, the shield and the plate being identical in construction throughout.

A dead air space is provided between the shield 21 and the top plate 27, the encompassing wall 13 fitting closely to, but not touching the periphery of these two plates, the lugs 23 having a relatively sharp bottom edge and being comparatively narrow, thereby providing a minimum area of bodily contact with the shield 21 so as to minimize the transference of heat by conduction to the hotplate. The grid, shield and hotplate are all freely removable from the frame, and are provided with hook receiving recesses 30 by which the individual elements may be removed.

It will be noted that the hotplate is heated almost exclusively by means of the interposed heated air in the space between the two plates, and that this space together with the encompassing wall, practically forms a dead air space and in this manner, and due to the fact that there is substantially no heat transferred by conduction, the entire top surface of the hotplate is maintained at a uniform temperature irrespective of the amount of heat applied by the heating unit. The periphery of the plate being out of contact with the wall and the substantially knife-like edges of the lugs 23 having a very small amount of contact prevents hot spots in the hotplate.

Having described an operative device, it will be understood that variations in the construction and arrangement of parts which are consistent with the appended claims may be resorted to without detracting from the spirit or scope of the invention or sacrificing any of the advantages thereof.

I claim:

1. A hot plate comprising a frame having a flat top formed with an opening therethrough and a depending wall about said opening terminating in an inturned supporting flange provided with a plurality of spaced depressions and a plurality of spaced recesses, alternately arranged, a grid in said opening having radial ears supported in said depressions, and a shield having a flat top of less diameter than said depending wall and spaced therefrom, a plurality of legs arranged to span said depressions depending from said shield, and a plurality of lugs dependent from said shield and arranged to enter said recesses.

2. A hot plate comprising a frame having a flat top formed with an opening therethrough and a depending wall about said opening terminating in an inturned supporting flange provided with a plurality of spaced depressions and a plurality of spaced recesses, alternately arranged, a pair of flat-topped shields supported in superposed relation in said opening of less diameter than said depending wall and spaced therefrom, each said shield having a plurality of supporting legs arranged to support the shield upon said flange, and a plurality of lugs intermediate said legs, respectively, of greater lengths than said legs and terminating in knife edges, said lugs being engageable in said recesses and adapted to support the uppermost shield upon the subjacent shield.

3. A hot plate comprising a frame having a flat top formed with an opening therethrough and a depending wall about said opening terminating in an inturned supporting flange provided with spaced recesses, a pair of superposed flat-topped shields in said opening of less diameter than said depending wall and spaced therefrom, each said shield having a plurality of evenly spaced legs adapted to support the shield upon said flange, each said shield having a plurality of evenly spaced lugs intermediate said legs, said lugs having greater lengths than said legs and terminating in knife edges adapting the lugs to enter said recesses and to support the upper shield upon the upper surface of the subjacent shield.

4. A hot plate comprising a frame having a flat top formed with an opening therethrough and a depending wall about said opening terminating in an inturned supporting flange provided with spaced recesses, a pair of superposed shields supported in superposed relation in said opening of less diameter than said depending wall and spaced therefrom, each said shield having a plurality of depressions in its upper surface, a plurality of legs depending from each said shield to support the lowermost shield upon said flange, and a plurality of lugs on said shield spaced between said legs and arranged to enter said flange-recesses and said shield-depressions in the lower and upper positions of the shields, respectively, said lugs having knife-edges at their ends.

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