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(54) **Diffuser support base for burners and construction method**

Düsenhalter für Brenner und Herstellungsverfahren

Support porte-diffuseur pour brûleurs et procédé de fabrication

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**DE-C- 4 004 102** **FR-A- 1 581 180**  
**GB-A- 1 579 322** **US-A- 3 773 027**

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## Description

### OBJECT OF THE INVENTION

**[0001]** As its name indicates, the invention relates to a base like those used on cooker and cooking top burners to support the diffusers and which are connected to the gas pipe which supplies gas to the burner, as well as the process for constructing the said base.

### BACKGROUND

**[0002]** At present, the diffuser bases used on cooker and cooking top burners are made of cast iron and are therefore porous.

**[0003]** When hot food spills onto the hot base, it becomes stratified on the base and part of the food becomes incrustated on the inside of the pores, preventing the base from coming completely clean using conventional cleaning methods.

**[0004]** GB Patent 1 579 322 refers to gas burner of the kind set forth for domestic appliances in which the intake tube is housed within the body. A flow path is defined in the body by way of which the gas/air mixture leaving the inner end of the tube is directed back towards the outer end of the tube and then towards the inner end again before issuing from jets or flame ports of the burner. The invention relates to gas burners for domestic appliances of the kind in which a gas/air mixture is supplied to jets or flame ports in a burner body through one or more intake tubes and, in use, gas is injected into the intake tube from an injector simultaneously with air being entrained into the gas stream. In this invention burners may be constructed from a ceramic material that applicant do not specify.

**[0005]** US Patent 3 773 027 relates a countertop heating apparatus. This invention refers to a domestic cooking unit with a drip pan, a planar countertop containing at least one opening, and a heating plate located in the opening and to be heated by a gas burner positioned below the heating plate. The drip pan, countertop and heating plate are formed from an infrared transmitting, heat-resistant, nonporous, glass-ceramic material.

**[0006]** The periphery of the heating plate is spaced inwardly from the periphery of the opening to permit flow of combustion products. A plurality of spaced support means extend between the drip pan and the heating plate.

**[0007]** FR Patent 1 581 180 relates a process to manufacture an enameled head-resistant cement. The cement is baked first at 650°C-800°C and later at 1250°C-2000°C. The cement contains SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, CaO, MgO, TiO<sub>2</sub>, Na<sub>2</sub>O and K<sub>2</sub>O.

**[0008]** DE Patent 40 04 102 refers to a ceramic mass, that contains SO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, TiO<sub>2</sub>, MgO, CaO, K<sub>2</sub>O and Na<sub>2</sub>O. This ceramic mass is used to manufacture dishes.

**[0009]** The present invention consist in a diffuser sup-

port base for burners that is characterised in that it is made of a non-porous vitrified refractory material.

**[0010]** The invention refers to a process for obtaining the diffuser support base mentioned characterised in that it is composed of 8 steps :

a) the following components, in the form of atomised powder, are mixed together: silicon dioxide (SiO<sub>2</sub>), aluminium trioxide (Al<sub>2</sub>O<sub>3</sub>), titanium dioxide (TiO<sub>2</sub>), ferrous oxide (Fe<sub>2</sub>O<sub>3</sub>), magnesium oxide (MgO), potassium oxide (K<sub>2</sub>O), calcium oxide (CaO), sodium oxide (Na<sub>2</sub>O), phosphorous (P), and fluoride (F); b) water and olein-based mould release agents are added to the mix, c) the product obtained is selected by sieve testing, d) the chosen product is placed in a mould and pressure applied thereto to shape the base, e) the base obtained thereby is introduced into a hot air chamber and then polished, f) the base is fired at a temperature of about 1000°C, g) the base is glazed, and h) the base is fired again at a temperature of 1350°C.

### DESCRIPTION OF THE INVENTION

**[0011]** To solve these problems, the diffuser support base referred to herein has been uniquely designed in that it is made of non-porous vitrified refractory material in order to reduce food which spills on the hot base from sticking, thereby facilitating subsequent cleaning considerably and enabling the complete elimination of all spilled food since it is burned on the surface of the base rather than inside the pores, as occurs with conventional burners.

**[0012]** According to the invention, the process used to obtain the base is composed of the following steps: a) the following components, in the form of atomised powder, are mixed together: silicon dioxide (SiO<sub>2</sub>), aluminium trioxide (Al<sub>2</sub>O<sub>3</sub>), titanium dioxide (TiO<sub>2</sub>), ferrous oxide (Fe<sub>2</sub>O<sub>3</sub>), magnesium oxide (MgO), potassium oxide (K<sub>2</sub>O), calcium oxide (CaO), sodium oxide (Na<sub>2</sub>O), phosphorous (P), and fluoride (F); b) water and olein-based mould release agents are added to the mix, c) the product obtained is selected by sieve testing, d) the selected product is placed in a mould and pressure applied thereto to shape the base, e) the base obtained thereby is introduced into a hot air chamber and then polished, g) the base is fired at a temperature of about 1000°C, g) the base is glazed and h) the base is fired again at a temperature of 1350°C.

### DESCRIPTION OF THE DRAWINGS

**[0013]** In order to facilitate an understanding of the invention, a sheet of drawings is attached to this description in which:

- Figure 1 shows a vertical section of a portion of a cooking top, where the base in question can be

seen connected to the gas pipe and supporting a diffuser.

#### PREFERRED EMBODIMENT OF THE INVENTION

**[0014]** As observed in the referenced figures, the base (1) which is part of the cooking top burner (2) is connected to the gas pipe (3) which supplies the gas to the burner and also serves as a diffuser support (4), is unique in that it is made of non-porous vitrified material in order to reduce food from sticking to the hot base during preparation due to the heat produced by the combustion of the gas from the holes in the base (1) and the diffuser (4).

**[0015]** No further description is deemed necessary since any expert in the field will understand the scope of the invention and the advantages derived therefrom.

**[0016]** The terms in which this description has been written shall always be understood in the widest, non-limiting sense, the essential features of the invention being contained in the following claims:

#### Claims

1. Diffuser support base (1) for burners (2) which, being of the type used on cookers and cooking top to support the diffusers (4), is connected to the end of the gas pipe (3) that supplies gas to the burner (2), wherein said diffuser support base (1) is made of non-porous vitrified refractory material.
2. Process for obtaining the diffuser support base (1) mentioned in the preceding claim, **characterised in that** it is composed of the following steps: a) the following components, in the form of atomised powder, are mixed together: silicon dioxide ( $\text{SiO}_2$ ), aluminium trioxide ( $\text{Al}_2\text{O}_3$ ), titanium dioxide ( $\text{TiO}_2$ ), ferrous oxide ( $\text{Fe}_2\text{O}_3$ ), magnesium oxide ( $\text{MgO}$ ), potassium oxide ( $\text{K}_2\text{O}$ ), calcium oxide ( $\text{CaO}$ ), sodium oxide ( $\text{Na}_2\text{O}$ ), phosphorous (P), and fluoride (F); b) water and olein-based mould release agents are added to the mix, c) the product obtained is selected by sieve testing, d) the chosen product is placed in a mould and pressure applied thereto to shape the base (1), e) the base (1) obtained thereby is introduced into a hot air chamber and then polished, f) the base (1) is fired at a temperature of about  $1000^\circ\text{C}$ , g) the base (1) is glazed, and h) the base (1) is fired again at a temperature of  $1350^\circ\text{C}$ .

#### Patentansprüche

1. Diffusorträgerplatte (1) für Brenner (2), entsprechend solche die in Herde und Kochmulden zum Tragen der Diffusore (4) eingesetzt werden, die am Ende der den Brenner (2) mit Gas versorgenden

Gasleitung (3) angeschlossen ist, wobei die genannte Diffusorträgerplatte (1) aus einem feuerfesten verglasten nicht porösen Material besteht.

2. Verfahren zur Herstellung der im vorherigen Anspruch genannten Diffusorträgerplatte (1) **dadurch gekennzeichnet, daß** es folgende Schritte umfasst: a) Mischen der folgenden Bestandteile in Form von Zerstäubungspulver: Siliziumdioxid ( $\text{SiO}_2$ ), Aluminiumtrioxid ( $\text{Al}_2\text{O}_3$ ), Titandioxid ( $\text{TiO}_2$ ), Eisen (III) oxid ( $\text{Fe}_2\text{O}_3$ ), Magnesiumoxid ( $\text{MgO}$ ), Kaliumoxid ( $\text{K}_2\text{O}$ ), Calciumoxid ( $\text{CaO}$ ), Natriumoxid ( $\text{Na}_2\text{O}$ ), Phosphor (P) und Fluor (F); b) Zugabe von Wasser und einem Trennmittel auf Oleinbasis zum Gemisch, c) Auswahl des enthaltenen Produktes durch Korngrößenverteilung, d) Einführung des ausgewählten Produktes in einer Form und Ausüben von Druck, um die Platte (1) zu verformen, e) Einführung der dabei erhaltenen Platte (1) in einer Heißluftkammer und anschließendes Polieren, f) Brennen der Platte (1) bei einer Temperatur von etwa  $1000^\circ\text{C}$ , g) Glasieren der Platte (1), und h) erneutes Brennen der Platte (1) bei einer Temperatur von  $1350^\circ\text{C}$ .

#### Revendications

1. Base (1) porte-diffuseur pour brûleurs (2) qui, étant du type de celles employées dans les cuisinières et des tables de cuisson pour supporter les diffuseurs (4), est connectée à l'extrémité du conduit (3) qui fournit le gaz au brûleur (2), dans laquelle la-dite base (1) porte-diffuseur est conformée dans un matériel réfractaire vitrifié et non poreux.
2. Procédé pour l'obtention de la base (1) porte-diffuseur mentionnée dans la revendication antérieure, **caractérisé en ce qu'il** comprend les étapes suivantes: a) le mélange, sous forme de poudre atomisée, des composés suivants: dioxyde de silice ( $\text{SiO}_2$ ), trioxyde d'aluminium ( $\text{Al}_2\text{O}_3$ ), dioxyde de titane ( $\text{TiO}_2$ ), oxyde ferrique ( $\text{Fe}_2\text{O}_3$ ), oxyde de magnésium ( $\text{MgO}$ ), oxyde de potassium ( $\text{K}_2\text{O}$ ), oxyde de calcium ( $\text{CaO}$ ), oxyde de sodium ( $\text{Na}_2\text{O}$ ), phosphore (P) et fluor (F); b) l'addition au mélange d'eau et de démoulants à base d'oléines, c) la sélection du produit obtenu par granulométrie, d) l'introduction du produit sélectionné dans un moule et l'application de pression sur ce dernier, dans le but d'obtenir la conformation de la base (1), e) le séchage de la base (1) obtenu dans une chambre à air chaud et le postérieur polissage de celle-ci, f) la cuisson de la base (1) à une température d'environ  $1000^\circ\text{C}$ , g) l'émaillage de la base (1) et h) la cuisson finale de la base (1) à une température de  $1350^\circ\text{C}$ .

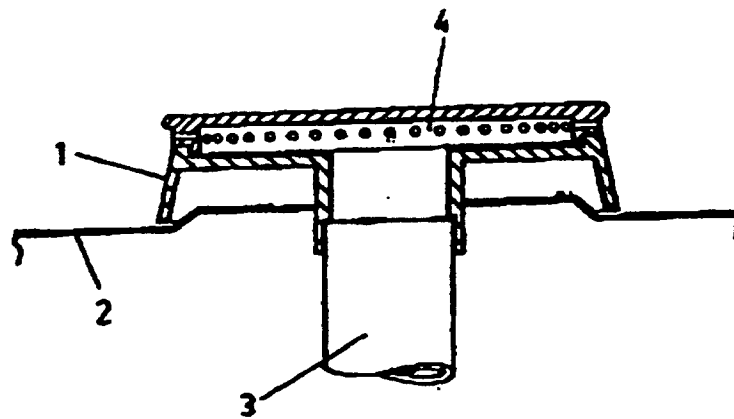


FIG. 1