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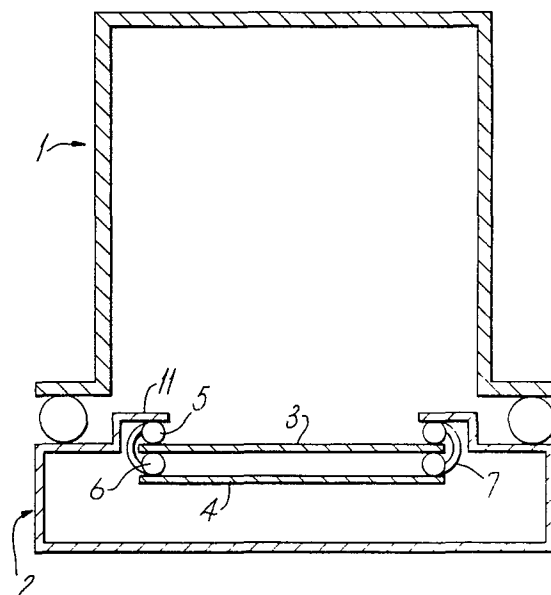
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⑧④ Designated Contracting States: **BE DE FR IT**

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⑤④ **Oven gasket and sealing arrangement, and oven comprising such an arrangement.**

⑤⑦ A gasket arrangement for a two-panel door (2) or observation window of a high temperature oven (1) has, preferably, two gaskets (5, 6) disposed one on each side of one panel (3) of the door (2) or window around its periphery so as to provide a seal between the panels (3, 4) and to allow sealing of the door or window against a further member, for example frame, of the oven. A layer of vapour impermeable material extends between the gaskets so as to prevent escape of fumes from the oven. The gaskets are preferably of glass fibre, and the vapour impermeable material a metallic foil.



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OVEN GASKET AND SEALING ARRANGEMENT

**TITLE MODIFIED**

**see front page**

DESCRIPTION

5           This invention relates to an oven door gasket arrangement and to ovens using the same.

10           The invention finds particular, though not exclusive, application as a double gasket arrangement, which can be used in ovens having a pair of glass observation windows or doors. Such double gasket arrangements are usually fitted so as to dispose respective gaskets in front of and behind an inner glass door that is situated between the oven interior and an outer glass door. One gasket of  
15           the arrangement is positioned to close the inner glass door against part of the oven, e.g. a surrounding part of the metal oven door, and the other gasket is positioned to close the edges of the cavity between the inner glass door and the outer glass door.

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          The present invention provides a gasket arrangement for ovens, comprising at least one gasket and at least one layer of substantially vapour impermeable material arranged so as substantially to prevent fumes generated  
25           within the oven in use from passing through said at least one gasket.

30           The oven member on which the gasket arrangement is to be mounted will generally be a glass door or window. Preferably, the gasket arrangement comprises two of said gaskets, said gaskets being elongate and aligned substantially parallel to each other and connected together so as to be positionable, in use, at an edge of a substantially planar oven member on opposite sides thereof.

The arrangement of the present invention has the advantage that the vapour impermeable layer can be used to keep the fumes out of the cavity between the said oven member and the oven component against which the outer  
5 gasket is pressed. This is particularly advantageous in ovens having a pair of glass windows or doors, wherein the vapour impermeable layer may be arranged to prevent ingress of fumes into the cavity between the two glass windows or doors, thus alleviating a long-standing problem  
10 of contamination between the two glass doors or windows, where cleaning may be difficult or impossible, especially when the windows are fixed in the oven door itself.

Preferably the vapour impermeable layer extends  
15 across the full width of the double gasket arrangement in such a manner as to seal not only the cavity between the glass plates or other oven members, but also the line of contact between the inner glass plate and the surrounding metal of the oven door, thus substantially  
20 preventing the fumes from passing from the oven interior into the interior of the door. It is envisaged that only one or other of these seals may be effected by the impermeable material in some embodiments of the invention, and it is also envisaged that the inner gasket will be  
25 disposed between the glass windows or doors and that the outer gasket will be disposed outside the outer glass window or door. However, it is preferred that at least the cavity between the glass plates be sealed by the impermeable material.

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In another embodiment, the gasket arrangement comprises three, or more, gaskets, all of which are interconnected by one or more layers of vapour-impermeable material for fume-sealing purposes.

The impermeable layer may itself be the material which physically connects and holds together the gaskets of the arrangement, but it is preferred that the connecting function be performed by a suitable strong and heat resistant web, such as a glass reinforced tape, which may contain adhesive. In the latter case, the gaskets may be attached (preferably by sewing) along the opposite edges of the tape and any adhesive which remains exposed between the gaskets can be conveniently used to assist in attaching the gasket arrangement to the edge of the relevant glass plate. In this preferred arrangement, the impermeable layer may be carried on the surface of the tape which is remote from the adhesive and gaskets and should extend far enough, if necessary partly around the gaskets, to ensure an adequate vapour seal.

The impermeable layer may alternatively be carried on the adhesive surface of the tape, this arrangement having the advantage that the adhesive is protected from direct exposure to the gasketed cavity, thus reducing the risk of any fumes generated by the adhesive at high temperatures contaminating that cavity. The impermeable layer may extend across the adhesive surface underlying the gasket since sewing is preferably used to attach the gaskets firmly to the connecting tape/impermeable material laminate. An alternative arrangement is for the impermeable layer to cover the adhesive where it is not in contact with the gaskets and to wrap around the perimeter of the gaskets so as to leave them in contact with the adhesive where necessary for attachment to the tape. This implies adequate adhesive strength, and adequate flexibility of the impermeable layer, to maintain the gasketing function.

Combinations of impermeable layers on the adhesive and non-adhesive sides of the tape can also be used, and it may be desirable to leave exposed a small central area of adhesive for use in attaching the gasket to the glass panel edge as aforesaid. The preferred gasketing material is glass fibre or ceramic fibre or silica fibre for high temperature ovens in which the present invention is particularly advantageous, and the preferred impermeable material is metallic foil or a layer of vacuum deposited metal.

The gaskets of the arrangement may be connected together by sewing rather than by a tape as referred to above.

Specific embodiments of the invention will now be described by way of example with reference to the accompanying drawing wherein:

Figure 1 shows schematically a horizontal section through an oven having a door incorporating a gasket arrangement according to the present invention;

Figure 2 shows in greater detail the gasket arrangement of Figure 1; and

Figures 3, 4 and 5 show alternative forms of gasket arrangement according to the present invention.

Referring to Figure 1, an oven 1 has a door 2, in which are mounted two glass observation panels 3 and 4. The inner panel 3 is gasketed against the metal oven door surround 11 by an inner gasket 5, which is connected to an outer gasket 6 on the opposite side of the panel 3 by a connecting strip 7. The outer gasket 6 thus provides a gasket closure around the edges of the cavity between the glass panels 3 and 4.

The connecting strip 7 can be seen in more detail in Figure 2, which shows the gaskets 5 and 6 sewn to a layer of adhesive 8 carried by a glass reinforced tape backing 9. A substantially vapour impermeable layer 10 of the gasket arrangement is formed from a metal foil or vapour deposited metal. In Figure 2, the vapour impermeable layer is on the surface of the adhesive tape remote from the adhesive. Figure 3 shows an alternative construction of the gasket arrangement, in which the vapour impermeable layer 10 is disposed on the adhesive surface of the connecting tape, in such a position as to seal at least the cavity between the glass plates against ingress of fumes generated within the oven in use. The arrangement of Figure 3 also reduces the likelihood of adhesive 8 producing fumes within the cavity between the glass panels 3 and 4, while leaving some of the adhesive 8 exposed to assist attachment of the gasket arrangement to the edge of the glass plate.

The alternative gasket arrangement shown schematically in Figure 4 employs only one gasket 12 in combination with vapour impermeable material contained within a connecting strip 13. The further alternative arrangement of Figure 5 has three gaskets 14 interconnected by a single connecting strip 15 incorporating the vapour sealing material.

In the illustrated case, the glass panels are substantially permanently mounted within the door 2, but it is envisaged that the panels 3 and 4 could themselves be doors or windows that are hinged or otherwise movable to form an openable construction, which would nevertheless be gasketed in the same way when the glass doors thus constructed were closed to correspond to the position shown in Figure 1.

Other constructions and combinations of impermeable layers can readily be designed to suit specific constructions. The preferred gasketing material is glass or ceramic or silica fibre for high temperature ovens,  
5 but other materials may be used if desired.

CLAIMS:

1. A gasket arrangement for ovens, comprising at least one gasket and at least one layer of substantially vapour impermeable material arranged so as substantially to prevent fumes generated within the oven in use from passing through said at least one gasket.
2. A gasket arrangement according to Claim 1, comprising two of said gaskets, said gaskets being elongate and aligned substantially parallel to each other and connected together so as to be positionable, in use, at an edge of a substantially planar oven member on opposite sides thereof.
3. A gasket arrangement according to Claim 2, wherein the said gaskets are connected to each other by adhesive tape, and lie substantially parallel to the tape edges.
4. A gasket arrangement according to Claim 3, wherein the said vapour impermeable material is carried either on the surface of the said tape which is remote from the adhesive carrying surface thereof, or is carried on the adhesive of the the said tape.
5. A gasket arrangement according to Claim 4, wherein the said impermeable material extends only part way across the adhesive between the first and second gaskets.
6. A sealing arrangement, comprising a substantially planar door or window member of a high temperature oven, two elongate gaskets secured together and disposed substantially parallel to each other adjacent the edge of said member on respective sides thereof, and at least one layer of substantially vapour impermeable material



arranged so as substantially to prevent fumes generated, in use, within the oven from passing through at least one of said gaskets.

7. A sealing arrangement according to Claim 6, comprising a further substantially planar oven member, wherein said at least one gasket forms a seal around the edge of a cavity formed between said oven members, and wherein the other of said gaskets is adapted to form a seal between said sealed oven members and a further component of the oven.

8. A sealing arrangement according to Claim 6 or 7, wherein said at least one vapour impermeable layer extends from said at least one gasket over said oven member edge and is connected to the other of said gaskets.

9. An oven comprising a gasket arrangement according to any of claims 1 to 5, or a sealing arrangement according to any of claims 6 to 8.

Fig.1.

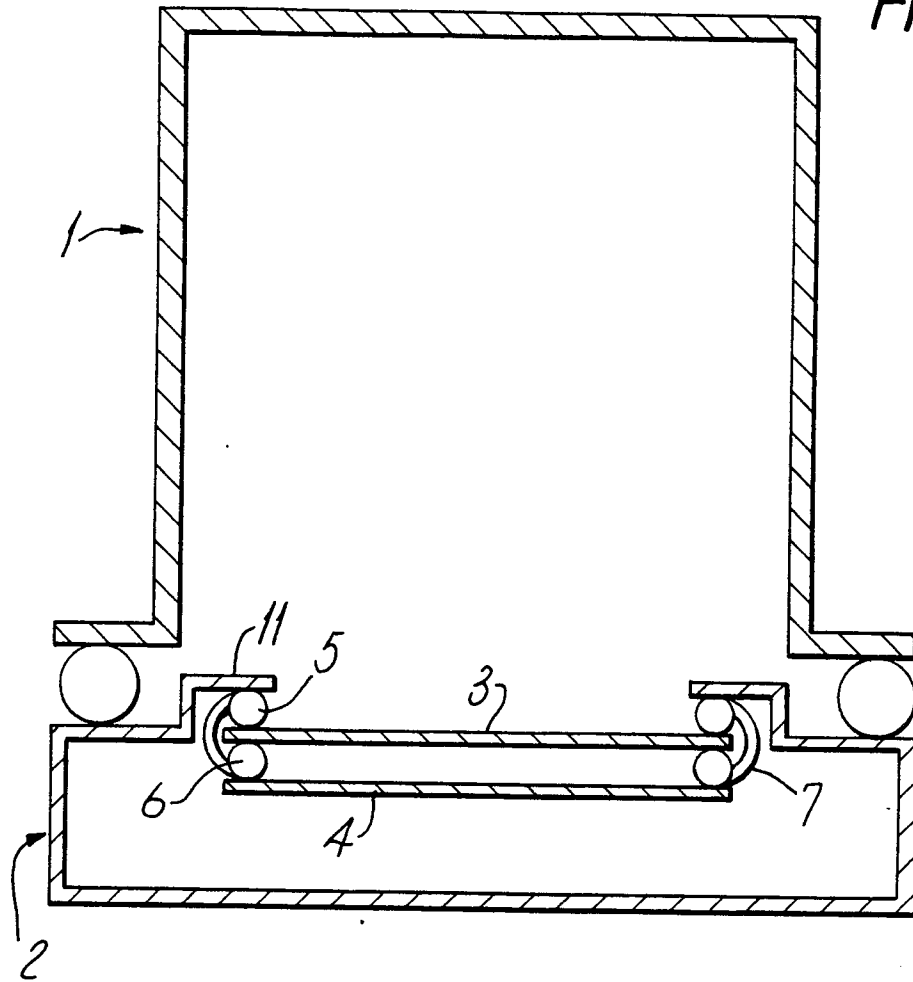


Fig.2.

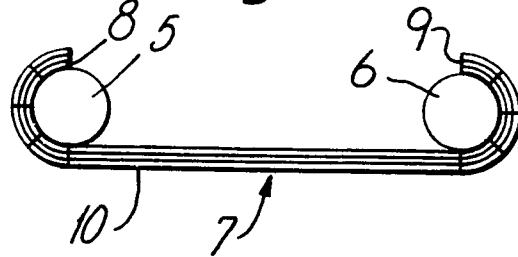


Fig.3.

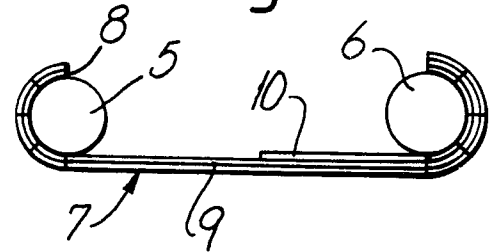


Fig.4.

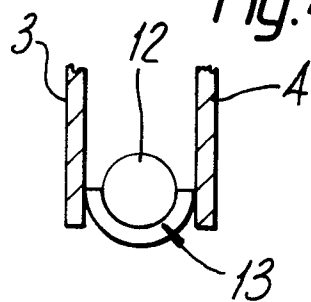
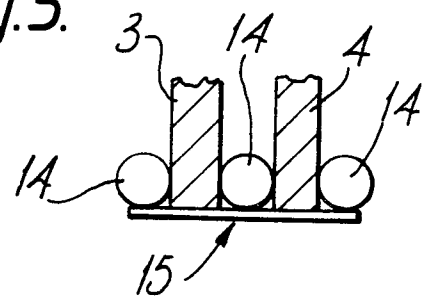


Fig.5.





European Patent  
Office

# EUROPEAN SEARCH REPORT

0029357  
Application number  
EP 80 30 4097

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	<u>US - A - 3 219 026</u> (LARKIN) * Column 1, lines 47-68; figure 3 *	1-4, 6-9	F 24 C 15/04
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X	<u>US - A - 3 228 388</u> (MILLS) * Column 2, lines 24-42; figure 3 *	1,2, 6-9	
	--		
X	<u>US - A - 3 384 072</u> (DAVIS) * Column 2, lines 36-55; columns 3,4, claim 1; figures 3,4 *	1,2, 6,9	TECHNICAL FIELDS SEARCHED (Int. Cl.)
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X	<u>FR - A - 2 258 513</u> (ROSIERES) * Pages 3, lines 26-31; figure 2 *	1,2,9	F 24 C H 05 B
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A	<u>US - A - 3 200 812</u> (LARKIN)		
A	<u>US - A - 3 408 785</u> (KOCHANOWSKI)		
A	<u>GB - A - 1 021 629</u> (MILLS)		
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			CATEGORY OF CITED DOCUMENTS
			X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
			&: member of the same patent family, corresponding document
<input checked="" type="checkbox"/> The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 16-02-1981	Examiner VANHEUSDEN