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GB 2238111 A EP 0150516 A1 US 5029519 A
US 3842725 A US 3792698 A

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(54) A gas duct

(57) A gas duct for re-directing vapour emissions produced by a domestic cooking appliance 18 comprises an open-ended duct 11 which is sealably mountable at the duct inlet 12 to the cooking appliance. The duct 11 may be provided with a filter 15 seated within the mouth of the duct outlet 13. The duct may be flexible to facilitate the re-directing of vapour emissions to, for example, a local ventilation system.

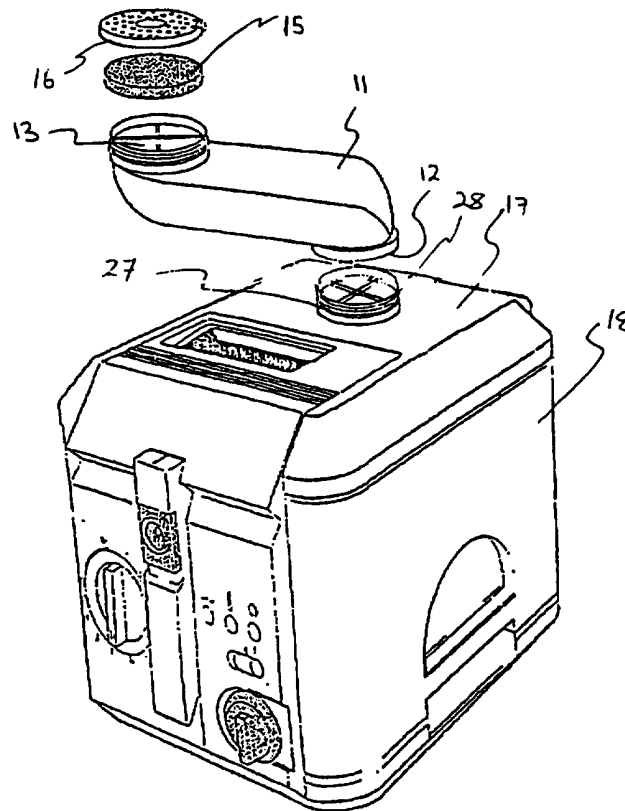


FIGURE 3A

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1995

This print reflects amendment of the request for grant in accordance with Rule 35 of the Patents Rules 1995

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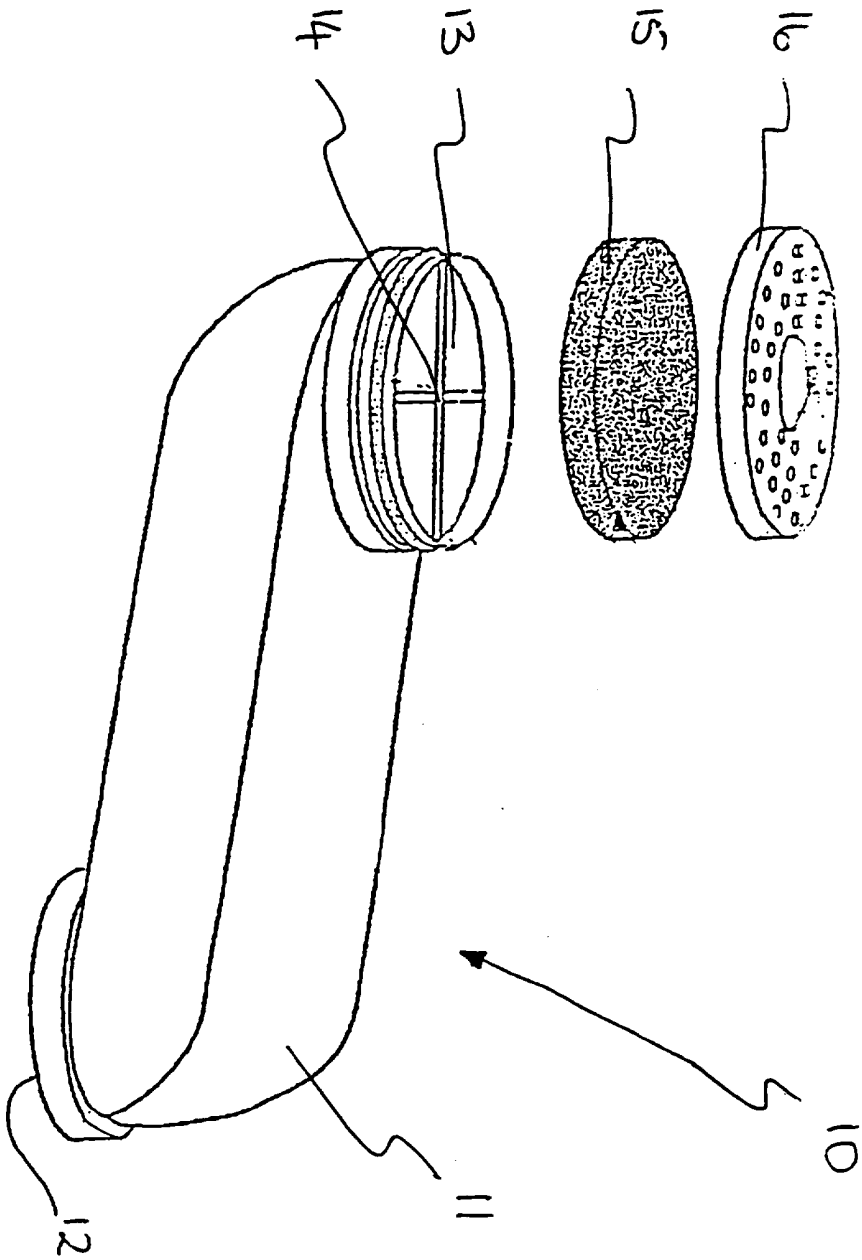


Figure 1

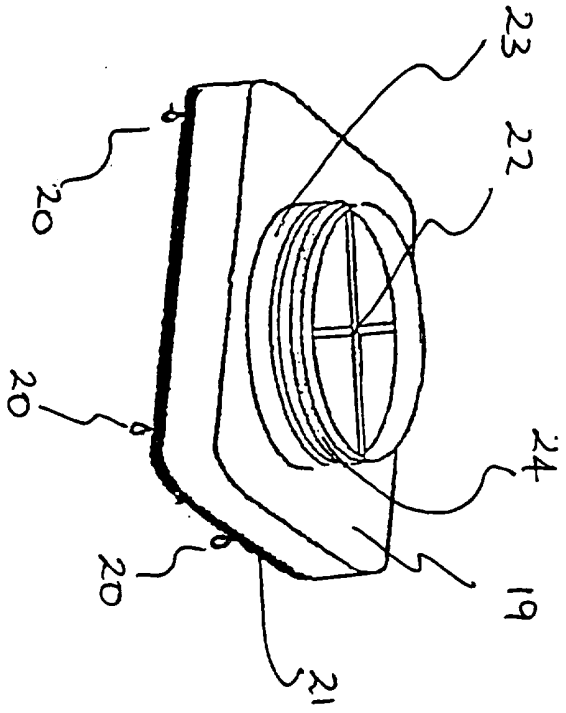


FIGURE 2A

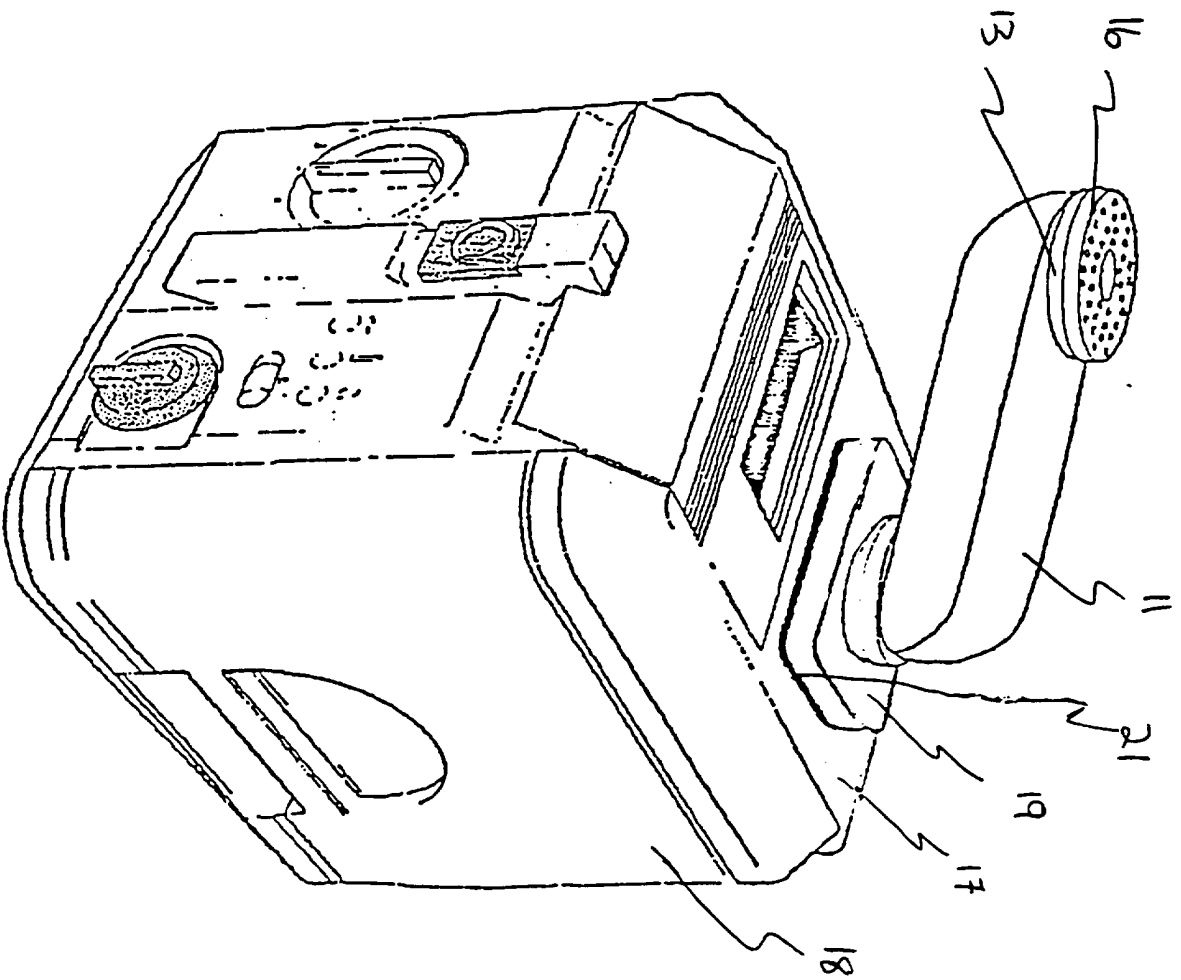


FIGURE 2B

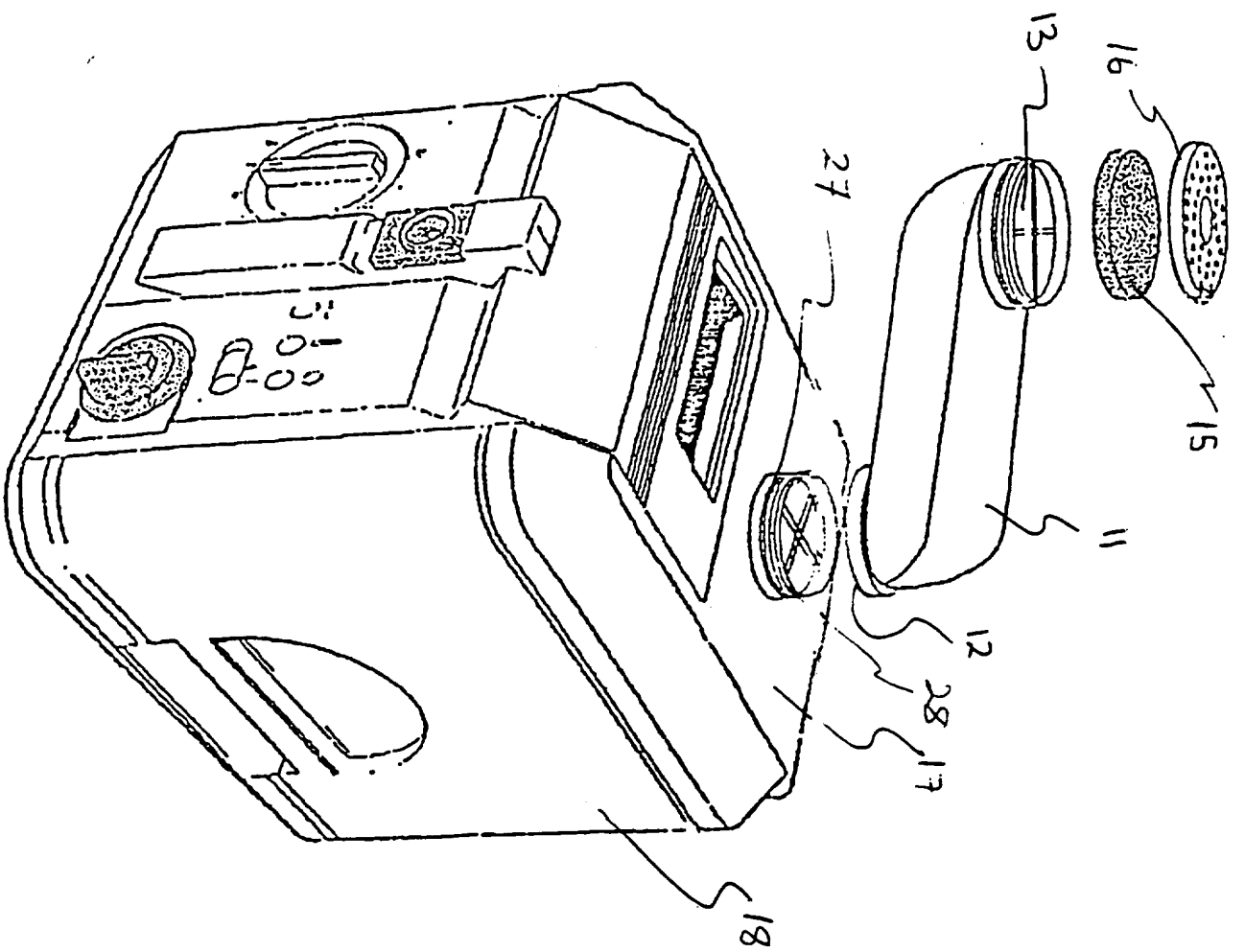


FIGURE 3A

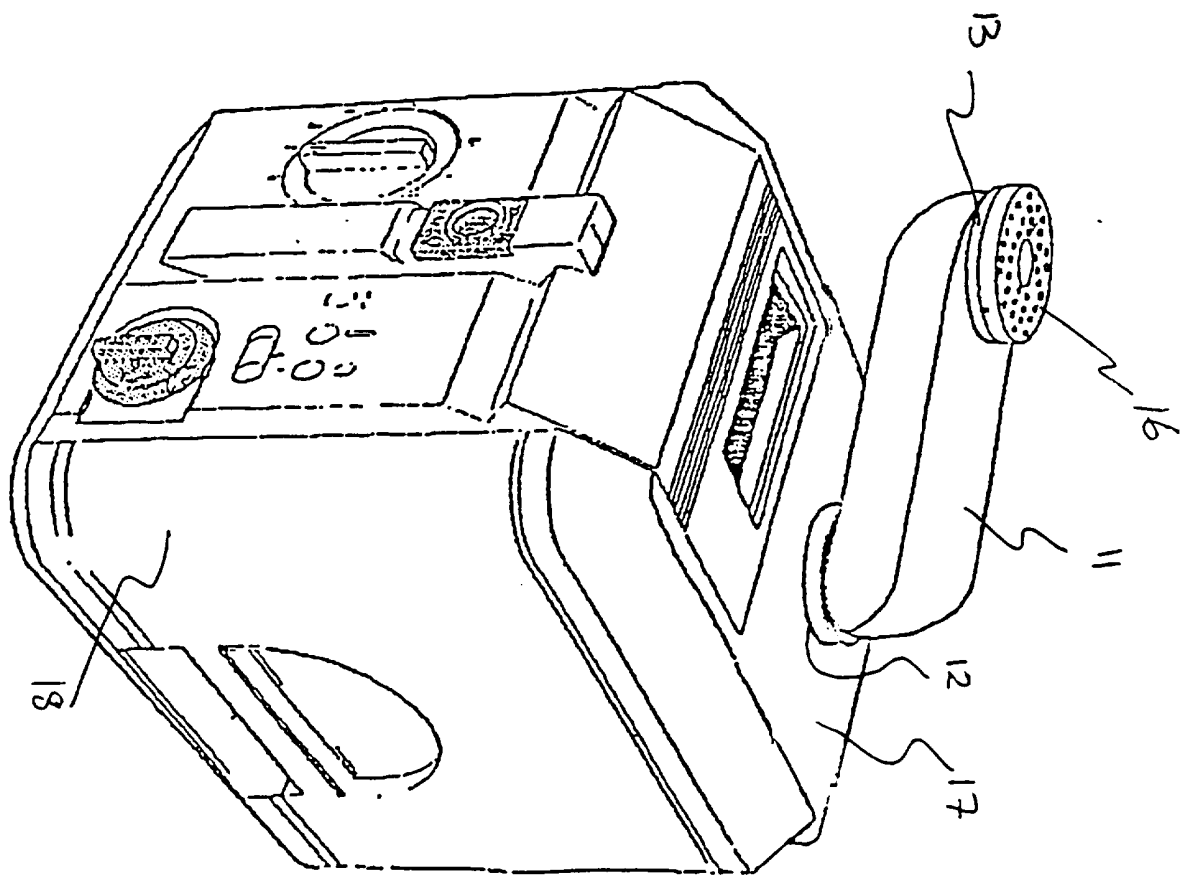


FIGURE 3B

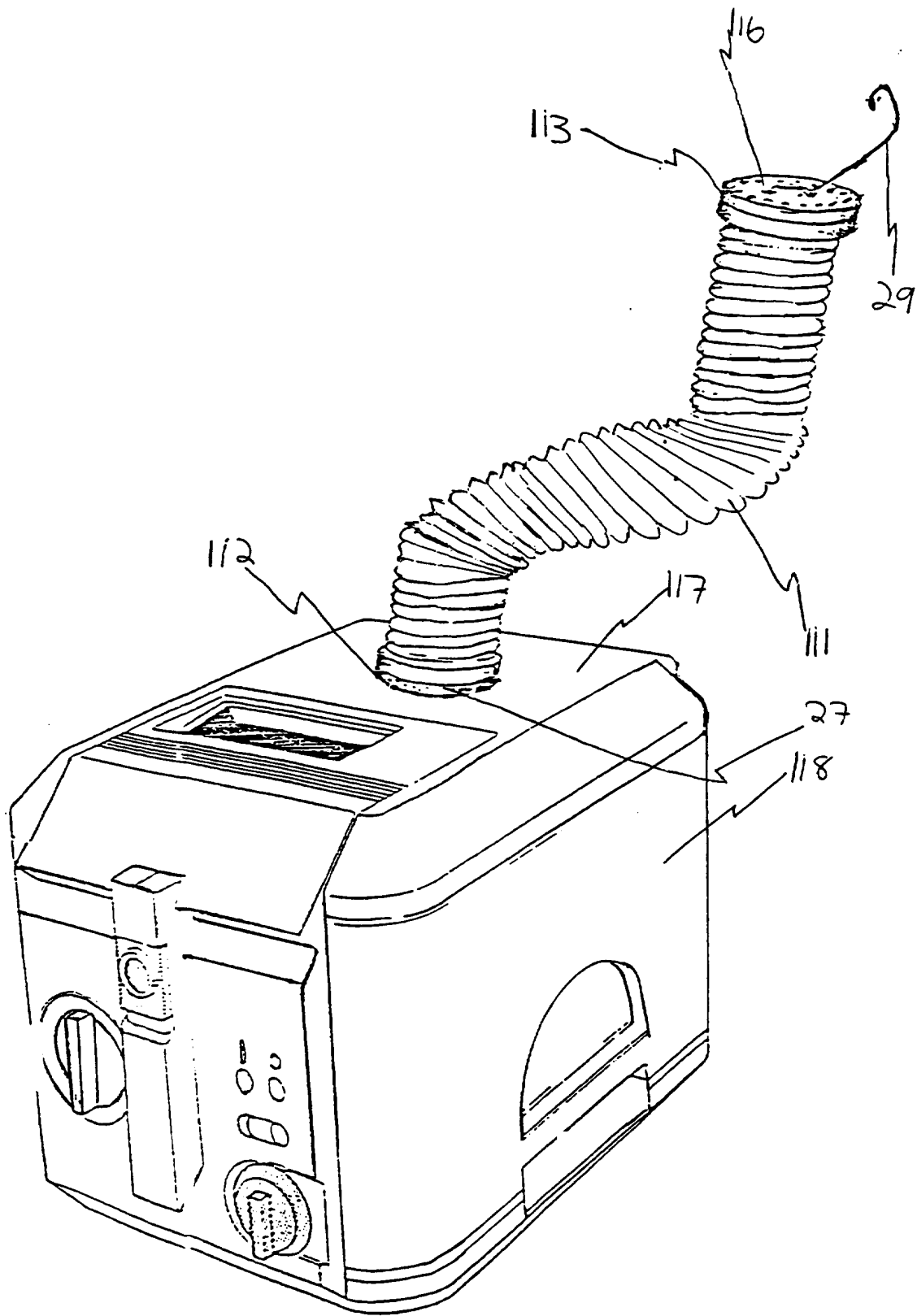


FIGURE 4

A GAS DUCT

The present invention relates to a gas duct. In particular, the invention relates to a gas duct for re-directing vapour emissions produced by a domestic cooking appliance, for example, an electric cool wall safety fryer, a steamer or the like.

5 According to the present invention there is provided a gas duct for re-directing vapour emissions produced by a domestic cooking appliance, the gas duct having an inlet; an outlet; and means for sealingly mounting the gas duct on the domestic cooking appliance, the outlet
10 of the gas duct being laterally displaced, in use, relative to the inlet of the gas duct.

 Preferably, the gas duct is integral with the domestic cooking appliance. Alternatively, the gas duct
15 may be separable from the domestic cooking appliance and, in that event, the sealingly mounting means includes means for reversibly mounting the gas duct on the domestic cooking appliance.

20 More preferably, the gas duct is adapted for pivotable movement so that, in use, the outlet of the gas duct may be located adjacent a local ventilation system.

25 Embodiments of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

30 Figure 1 is an exploded perspective view of a first embodiment of a gas duct according to the invention for re-directing vapour emissions;

Figure 2A is a perspective view of a sealingly mounting means, or interfacing component, for the gas duct of Figure 1 of the drawings;

5 Figure 2B is a perspective view of the gas duct of Figure 1 of the drawings attached to a conventional electric cool wall safety fryer;

10 Figure 3A is an exploded perspective view of the gas duct of Figure 1 of the drawings as an integral part of a conventional electric cool wall safety fryer;

15 Figure 3B is a perspective view of the gas duct of Figure 3A as an integral part of a conventional electric cool wall safety fryer; and

20 Figure 4 is a perspective view of a second embodiment of a gas duct according to the invention for re-directing vapour emissions.

25 Referring now to the drawings wherein similar numerals have been used to indicate like parts, there is shown a gas duct generally indicated at 10 according to the invention for re-directing vapour emissions. The gas duct 10 comprises an open-ended duct 11 formed, for example, from PVC. In use, the gas duct 10 lies in a substantially horizontal plane in such a way that its first open end, an inlet 12, faces substantially downwards and its second open end, an outlet 13, faces substantially upwards. Typically, the gas duct 10 may be 300-400 mm in length with a 100-150 mm cross-sectional width. The internal surfaces of the gas duct 10 are preferably smooth to reduce the collection of condensation and to facilitate cleaning.

A filter support 14, which comprises two non-parallel bars traversing the outlet 13, is provided so that a filter 15 may be seated within the mouth of the outlet 13. A filter lid 16 is fitted to the outlet 13 to enclose the filter 15 within the mouth of the outlet 13.

Figure 2B shows the duct 11 of the gas duct 10 attached to the lid 17 of an electric cool wall safety fryer 18 by means of an interfacing component 19. An example of such a fryer is that manufactured by Morphy Richards.

Figure 2A shows the separable sealingly mounting means, or interfacing component, 19. The component 19 has a substantially square base with rounded corners and a cylindrical neck 23 projecting from the base. It will, of course, be appreciated that the base may have any suitable shape.

The interfacing component 19, typically formed from PVC, is attached to the existing outlet or vent (not shown) in the lid 17 by any conventional means, for example spring clips 20 projecting from the base for reversibly mounting the gas duct 10 according to the invention on the domestic cooking appliance. A sealing means or rubber gasket 21 is provided around the periphery of the base so that the join between the lid 17 and the interfacing component 19 is effectively sealed against vapour emissions. A filter support 22, similar to the support 14 described above, is provided in the neck 23 so that a filter (not shown) may be placed in the neck 23 of the interfacing component 19 if desired.

An internal annular groove (not shown) on the duct 11 clips over an annular ridge 24 formed on the neck 23. This method of attachment allows the duct 11 to pivot through 360° in a horizontal plane about the interfacing component 19 and to be detached from the interfacing component 19, as desired.

Figures 3A and 3B show a gas duct 10 according to the invention, in which the interfacing component 19 is integrally formed with the lid 17 of the fryer 18. A neck 27, similar to the neck 23 described above, projects from the lid 17 and an annular ridge 28, similar to the ridge 24 described above, projects from the neck 27. An internal annular groove (not shown) on the duct 11 clips over the ridge 28, in use, so that the duct 11 is able to rotate about the neck 27 through 360° in a horizontal plane and to be detached from the neck 27 as desired.

Referring now to Figure 4 of the drawings, there is shown a second embodiment of a gas duct according to the invention generally indicated at 110. The gas duct 110 comprises an open-ended flexible duct 111 having an inlet 112 and an outlet 113. A filter (not shown) may be provided either adjacent the inlet 112 or the outlet 113. The outlet 113 is provided with connecting means, in the form of a hook 29, to reversibly secure the outlet 113 adjacent a local ventilation system, for example, a ventilation hood, extractor fan or open window.

A blow fan unit (not shown) may be provided in communication with either the gas duct 11 of Figures 1-3 or the gas duct 111 of Figure 4. Such a blow fan unit is arranged and adapted to blow gas along the gas duct

11 or 111, in the direction of the outlet 13 or 113. Such a blow fan unit is detachable, to allow the gas duct 10 or 110 according to the invention to be cleaned as desired.

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In use, fumes and vapours produced during frying, which would normally be released into the environment through an outlet in the fryer lid, are captured by the duct 11. These vapour emissions are preferably filtered either at the inlet 12 or at the outlet 13 of the gas duct 10 or both and are re-directed along the length of the duct 11. Typically the duct 11 should be rotated relative to the fryer, so that fumes and vapours emerging from the outlet 13 are either collected by a ventilation hood or an extractor fan or are directed out an open window or the like.

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Whilst the invention has been described primarily in relation to its applicability for re-directing vapour emissions produced by an electric cool wall safety fryer, it will be appreciated that the invention also has applicability for all domestic cooking appliances which generate steam or other vapours, for example, food steamers or the like.

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The invention is not limited to the embodiments described herein which may be modified or varied without departing from the scope of the invention.

Claims

1. Relates to a gas duct for redirecting vapour emissions produced by domestic cooking appliances such as electrical cool wall safety fryers or electrical steamers or the like. The said vapour emissions will be redirected through the length of the gas duct and towards the air intake of an extractor fan ventilation system which is situated in a hood above the cooker / hob.
2. A cool wall safety fryer as claimed in claim 1 and where the said cool wall safety fryer includes a cylindrical neck projecting from the fryer lid or a cylindrical neck from the fryer filter lid to enable a gas duct as claimed in claim 1 to be attached or detached as desired from the said cylindrical neck.
3. A gas duct as claimed in claims 1 and 2 and by incorporating an internal annular groove on the gas duct to be compatible with an annular ridge on the said cylindrical neck as claimed in claim 2 so that the gas duct can rotate through 360 degrees in a horizontal plane, the said annular ridge being of material which will seal against vapour emissions and allow the gas duct to rotate and be attached or detached as required.
4. A gas duct as claimed in claims 1, 2 and 3 and the cylindrical neck as claimed in claims 2 and 3 will incorporate a filter support so that a permanent, removable, washable filter may be seated within the mouth of the outlet of the gas duct or within the mouth of the outlet of the cylindrical neck as claimed in claims 2 and 3.
5. A gas duct as claimed in claims 1, 2, 3 and 4 will incorporate a filter lid with holes or slots to enable vapour emissions to be released upwards towards an adjacent cooker hood fan ventilation system. The filter lid may be permanent or removable.
6. A gas duct and filter support or filter lid may be all in one unit or separable or in two halves for manufacturing purposes.
7. A gas duct as claimed in claims 1, 2, 3, 4, 5 and 6 and including a separable sealingly mounting means or interfacing component with a base which incorporates a cylindrical neck as claimed in claims 2, 3 and 4. The said interfacing component can be attached to existing outlet or vents, holes or slots in the cool wall safety fryer lids.
8. A sealingly means or rubber gasket is provided around the periphery of the base of the interfacing components. Therefore, the join between the existing fryer lid and the interfacing component is effectively sealed against vapour emissions.
9. The method of attachment of the interfacing component to the existing lid is by any conventional means, for example, spring clips projecting downward from the interfacing component base, the spring clips will be compatible with existing fryer outlets vents, holes or slots in the safety fryer lid.
10. A gas duct as claimed in claims 1, 2, 3, 4, 5 and 6 and the interfacing component as claimed in claim 7 maybe all one unit or separable and any part of the cool wall safety fryer lid may have an integral cylindrical neck projecting from the said fryer lid and the cylindrical neck to be compatible with the gas duct as claimed in claims 1- 6.



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Claims searched:

Examiner: Paul Makin
Date of search: 25 April 1996

**Patents Act 1977
Search Report under Section 17**

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK Cl (Ed.O): A4D (D7, D11)
Int Cl (Ed.6): A47J 27/04, 36/38, 37/12
Other: Online : WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2238111 A (CHUEN-FONG FU) Whole document	1 at least
X	EP 0150516 A1 (ITT INDUSTRIES) Whole document	1 at least
X	US 5029519 (BOYEN) Whole document	1 at least
X	US 3842725 (SANO) See duct 13	1 at least
X	US 3792698 (POTTINGER) Whole document	1 at least

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Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.