



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**18.06.2008 Bulletin 2008/25**

(51) Int Cl.:  
**F24C 15/32 (2006.01)**

(21) Application number: **06025384.6**

(22) Date of filing: **08.12.2006**

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR**  
Designated Extension States:  
**AL BA HR MK RS**

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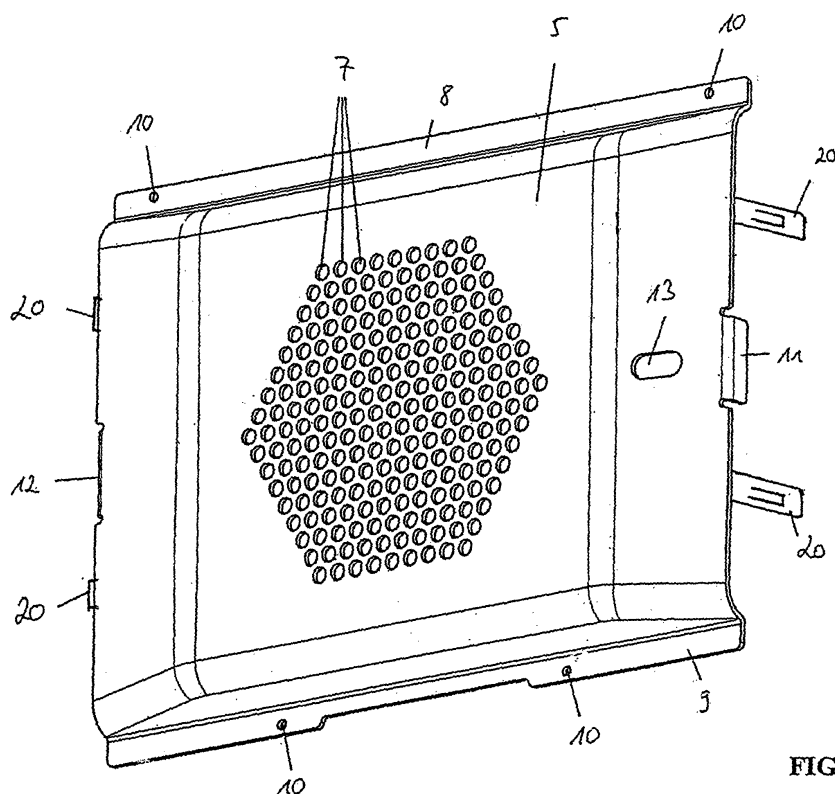
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(54) **Domestic appliance comprising a fan**

(57) The invention concerns a domestic appliance (1) comprising a fan (4) arranged behind a barrier (3) of the domestic appliance (1), which barrier (3) is at least

partially built up by a cover (5, 15, 25), wherein the cover (5, 15, 25) is at least partially made of a transparent material.



**FIG 2**

## Description

**[0001]** The invention concerns a domestic appliance comprising a fan arranged behind a barrier of the domestic appliance.

**[0002]** It is well known that for example a cooker or an oven comprises a cooking chamber with a fan arranged behind the rear panel of the cooking chamber. The rear panel is as a rule a plate, e.g. made of a stainless steel, with holes in the region of the fan for allowing air circulation through the plate. The fan is for example at work in a hot air operation mode or in an air circulation operation mode of the cooker or the oven. Thereby it is possible that the plate is contaminated during cooking of foods in the cooking chamber by fat, oil or something else.

**[0003]** A plate made of stainless steel is sometimes not easily to clean, in particular when the surface is not completely plane. Additionally stainless steel is a expensive material which increases the price for a cooker or an oven.

**[0004]** It is therefore an object of the present invention to propose a domestic appliance as initially mentioned which is at least partially easily to clean and preferably less expensive in production.

**[0005]** This object is inventively achieved by a domestic appliance comprising a fan arranged behind a barrier of the domestic appliance, which barrier is at least partially built up by a cover, wherein the cover is at least partially made of an optical transparent material. The cover is at least partially in such a way made of an optical clear transparent material, that at least partially viewing through the cover is possible. The transparent material is for example a glass which is as a rule easily to clean. Glass is less expensive as stainless steel and comparatively easily to produce. When the cover is made of a transparent material like glass this allows additionally an interesting look at technical components of the domestic appliance at work like the rotating fan or a red glowing heating of the domestic appliances. This is not only interesting for an operator of the domestic appliance but also for a service technician. The service technician can recognize with one look components which work and which not. It is possible that the cover builds the whole barrier of the domestic appliance or that the cover is only a part of the barrier of the domestic appliance.

**[0006]** Preferably the transparent material is a temperature-resistant glass or a temperature-resistant plastic material, which is also easily to clean and comparatively low in price.

**[0007]** According to a variant of the invention the glass is pressed glass or borosilicate glass. Pressed glass is easily to produce and allows in a simple way to fabricate a desired form of the cover. Borosilicate glass is very temperature-resistant and chemical-resistant.

**[0008]** The domestic appliance is according to an embodiment of the invention a cooker, an oven or a microwave oven. The barrier of the domestic appliance is thereby the rear panel of a cooking chamber of the cook-

er, the oven or the microwave oven.

**[0009]** Preferably the cover of the rear panel of the cooking chamber is substantially rectangularly. According to a variant of the invention the cover is substantially completely made of the transparent material and comprises holes for air or hot air circulation at least in the region of the fan. But the cover can also according to another variant of the invention comprise a first cover element and a second cover element, wherein the first cover element comprises at least an opening associated to the fan, wherein the opening is provided with the second cover element comprising holes for air or hot air circulation. The second cover element can be clipped to the first cover element. The first and second cover element can also be cemented with each other or otherwise connected with each other.

**[0010]** According to embodiments of the invention the first cover element is substantially made of an optical clear transparent material and the second cover element is substantially made of an optical intransparent material or the first cover element is substantially made of an optical intransparent material and the second cover element is substantially made of an optical clear transparent material.

**[0011]** The opening of the first cover element is as a rule substantially arranged in the centre of the first cover element and preferably substantially roundly, oval or angularly.

**[0012]** The intransparent material is a metal or a metal alloy, in particular a stainless steel. The metal or the metal alloy can be enamelled, nickel-plated or chrome-plated. It is thus possible that the cover of the invention comprises stainless steel but in a minor amount than according to the state of the art.

**[0013]** According to a variant of the invention the transparent material of the cover is printed, in particular printed from behind. Thus the rear side of the cover can be provided with at least one inscription which can be read by an operator and can contain information for the operator for example for positioning a backing tray in the cooking chamber or something else. Because the cover is printed from behind the front side of the cover to the cooking chamber is substantially plane and thus easily to clean. The printed rear side can as a rule not be contaminated by fat, oil, etc. and is not directly exposed to the heat of the cooking chamber.

**[0014]** Preferably the cover is detachably arranged to the barrier. Thereby the cover can be for example put in a dishwasher for cleaning. The cover can be arranged to the barrier with at least one screw. The cover can additionally or alternatively comprise at least one snap-fit for arranging the cover detachably to the barrier, which snap-fit can be made of a metal or of a plastic material.

**[0015]** In particular when the cover is detachably arranged to the barrier the domestic appliance comprises at least one safety device which shuts down at least the fan and/or a heater behind the cover when the cover is detached. The safety device can comprise a safety

switch which is operated when the cover is detached. For example an electrical circuit is opened by the safety switch what is recognized by a control unit of the domestic appliance which shuts the fan and/or a heater down.

**[0016]** Embodiments of the invention are illustrated in the accompanying schematic drawings. It is shown:

FIG 1 a front view of a cooking chamber of a cooker,

FIG 2 the cover of the rear panel of the cooking chamber of the cooker from FIG 1 and

FIG 3, 4 a second and third embodiment of a cover of a rear panel of a cooking chamber.

**[0017]** FIG 1 shows a front view of a cabinet of a domestic appliance which is shown in FIG 1 in a not assembled form. In the case of the on hand embodiment the domestic appliance is a cooker 1 and FIG 1 shows a view of the cooking chamber 2 of the cooker 1.

**[0018]** The cooking chamber 2 comprises a barrier 3 which is the rear panel 3 of the cooking chamber 2. A in FIG 1 schematic observable fan 4 is arranged behind the rear panel 3. In case of the on hand embodiment of FIG 1 the rear panel 3 is partially build up by a cover 5. The cover 5 is arranged to the rear panel 3 with screws 6.

**[0019]** The cover 5 is also shown in FIG 2 in an enlarged drawing. The cover 5 has a substantially rectangular form and is in case of the on hand embodiment substantially completely made of an optical clear transparent, temperature-resistant glass. The cover 5 is in such a way made of an optical clear transparent glass, that viewing through the cover is possible. The cover 5 can for example made of pressed glass or borosilicate glass. The cover 5 can also be made of an other transparent material like a temperature-resistant plastic material.

**[0020]** The cover 5 comprises adjacent to the fan 4 holes 7 for air or hot air circulation through the cover 5. The holes 7 are arranged in an hexagonal field in adaptation to the form of the fan 4. As can be seen from FIG 2 the cover 5 comprises in the case of the on hand embodiment two flanges 8, 9 provided with holes 10 for the screws 6. The middle part of the cover 5 is lightly arched. On both sides of the cover 5 is respectively a clamp 11, 12 for positioning of the cover 5 on the rear panel 3. Additionally the cover 5 comprises a grasp opening 13 for handling of the cover 5.

**[0021]** Because the cover 5 is made of glass the cover is comparatively easily to produce and to clean. Furthermore an operator or a service technician can see the technical components of the cooker 1 behind the cover 5, for example the fan 4 or an in the figures not shown heater etc.. This has not only an aesthetical aspect. The service technician also can recognize with one look components of the cooker which work or which need a service.

**[0022]** In FIG 3 an alternative embodiment of a cover

15 is shown. A component of the cover 15 which corresponds with a component of the cover 5 has the same reference numeral.

**[0023]** In difference to the cover 5 the cover 15 comprises a first cover element 16 and a second cover element 17. The first cover element 16 comprises in case of the on hand embodiment a round opening 18 substantially arranged in the centre of the first cover element 16. The second cover element 17 is a round disc with substantially the same size as the opening 18 and is attached to the first cover element 16 to cover the opening 18. The second cover element 17 can be clipped or cemented or otherwise attached to the first cover element 16. The second cover element 17 is provided to cover the fan 4.

**[0024]** In case of the on hand embodiment the first cover element 16 is made of an optical clear transparent glass and the second cover element 17 is made of a stainless steel and comprises holes for air or hot air circulation. It is also possible that the first cover element 15 is made of a stainless steel and the second cover element 17 is made of an optical clear transparent glass and comprises holes for air or hot air circulation. The transparent glass can be a temperature-resistant glass, like pressed glass or borosilicate glass, or a temperature-resistant plastics material. In place of stainless steel an other metal or metal alloy which can be enamelled, nickel-plated or chrome-plated can be applied.

**[0025]** FIG 4 shows a further embodiment of a cover 25 which differs from the cover 15 of FIG 3 only in such a way that the holes 7 of the second cover element 17 are arranged in an hexagonal field.

**[0026]** The covers 5, 15 and 25 which are at least partially made of glass can be printed, in particular printed from behind.

**[0027]** Thus when the rear side of the cover 5 or the first cover element 16 is provided with a inscription or symbols these inscription or symbols can be read by an operator. The inscription or the symbols can contain information for the operator for example for positioning a backing tray in the cooking chamber or something else. The covers 5, 15 and 25 can comprise means for fastening a backing tray or other components.

**[0028]** The covers 5, 15 and 25 can comprise as schematically shown in FIG 2 for the cover 5 additionally or alternatively to the screws 6 snap-fits 20 for arranging the cover detachably to the rear plane 3. The snap-fits 20 can be made of a metal or a plastic material and cemented to the cover. The snap-fits 20 work together with respective apertures for the snap-fits 20 of the rear plane 3.

**[0029]** In particular when the covers 5, 15 or 25 are detachably mounted to the rear plane 3 by screws 6 or snap-fits 20 the cooker 1 comprises at least one safety device which shuts down at least the fan 4 and/or a heater when the cover is detached. The safety device comprises a not shown safety switch. For example when the cover is detached a current circuit is opened by the safety switch what is registered by a control unit of the cooker.

Then the control unit makes sure that e.g. the fan and the heater are for example disconnected from a supply voltage. Thus the safety device comprises at least a safety switch cooperating with the control unit of the cooker.

#### Reference numerals

#### [0030]

- 1 cooker
- 2. cooking chamber
- 3 barrier, rear plane
- 4 fan
- 5 cover
- 6 screw
- 7 hole
- 8 flange
- 9 flange
- 10 hole
- 11 clamp
- 12 clamp
- 13 grasp opening
- 15 cover
- 16 first cover element
- 17 second cover element
- 18 opening
- 20 snap-fit
- 25 cover

#### Claims

- 1. Domestic appliance comprising a fan (4) arranged behind a barrier (3) of the domestic appliance (1), which barrier (3) is at least partially built up by a cover (5, 15, 25), wherein the cover (5, 15, 25) is at least partially made of a transparent material.
- 2. Domestic appliance according to claim 1, wherein the transparent material is a temperature-resistant glass or a temperature-resistant plastic material.
- 3. Domestic appliance according to claim 2, wherein the glass is pressed glass or borosilicate glass.
- 4. Domestic appliance according to at least one of the claims 1 to 3, which is a cooker (1), an oven or a microwave oven.
- 5. Domestic appliance according to at least one of the claims 1 to 4, wherein the barrier is the rear panel (3) of a cooking chamber (2).
- 6. Domestic appliance according to at least one of the claims 1 to 5, wherein the cover (5, 15, 25) is substantially rectangularly.

- 7. Domestic appliance according to at least one of the claims 1 to 6, wherein the cover (5) is substantially completely made of the transparent material and comprises holes (7) for air circulation in the region of the fan (4).
- 8. Domestic appliance according to at least one of the claims 1 to 6, wherein the cover (15, 25) comprises a first cover element (16) and a second cover element (17), wherein the first cover element (16) comprises at least an opening (18) associated to the fan (4), wherein the opening (18) is provided with the second cover element (17) comprising holes (7) for air circulation.
- 9. Domestic appliance according to claim 8, wherein the first cover element (16) is substantially made of a transparent material and the second cover element (17) is substantially made of intransparent material or wherein the first cover element (16) is substantially made of a intransparent material and the second cover element (17) is substantially made of transparent material.
- 10. Domestic appliance according to claim 8 or 9, wherein the opening (18) is substantially arranged in the centre of the first cover element (16).
- 11. Domestic appliance according to at least one of the claims 8 to 10, wherein the opening (18) is substantially roundly, oval or angularly.
- 12. Domestic appliance according to at least one of the claims 9 to 11, wherein the intransparent material is a metal or a metal alloy, in particular a stainless steel.
- 13. Domestic appliance according to claim 12, wherein the metal or the metal alloy is enamelled, nickel-plated or chrome-plated.
- 14. Domestic appliance according to at least one of the claims 1 to 13, wherein the transparent material of the cover is printed, in particular printed from behind.
- 15. Domestic appliance according to at least one of the claims 1 to 14, wherein the cover (5, 15, 25) is detachably arranged to the barrier (3).
- 16. Domestic appliance according to at least one of the claims 1 to 15, wherein the cover (5, 15, 25) is arranged to the barrier (3) with at least one screw (6).

17. Domestic appliance according to at least one of the claims 1 to 16, wherein the cover (5, 15, 25) comprises at least one snap-fit (20) for arranging the cover (5, 15, 25) detachably to the barrier (3).

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18. Domestic appliance according to claim 17, wherein the snap-fit (20) is made of a metal or of a plastic material.

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19. Domestic appliance according to at least one of the claims 15 to 18, which comprises at least one safety device which shuts down at least the fan (4) and/or a heater when the cover (5, 15, 25) is detached.

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20. Domestic appliance according to claim 19, wherein the safety device comprises a safety switch which is operated when the cover (5, 15, 25) is detached.

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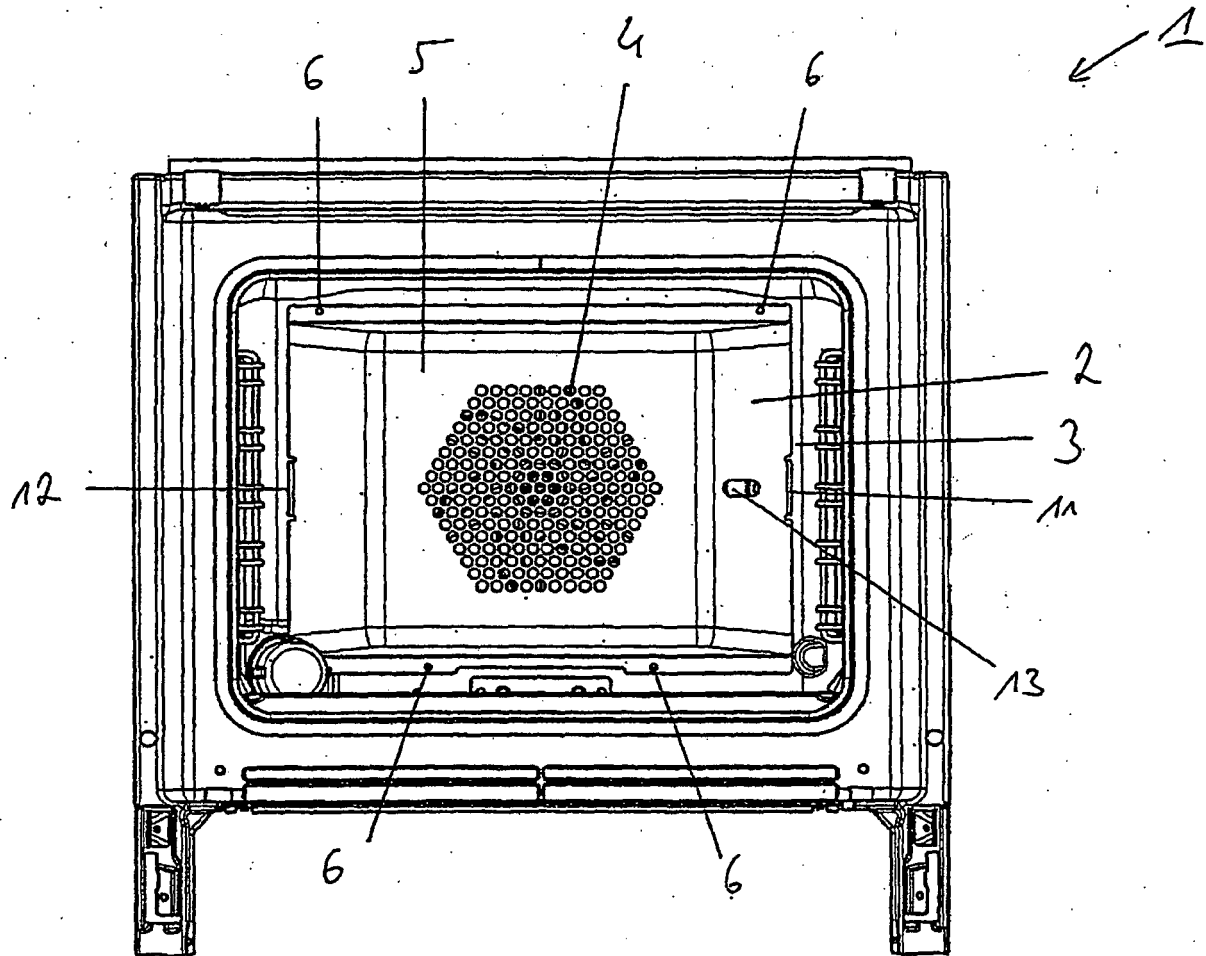


FIG 1

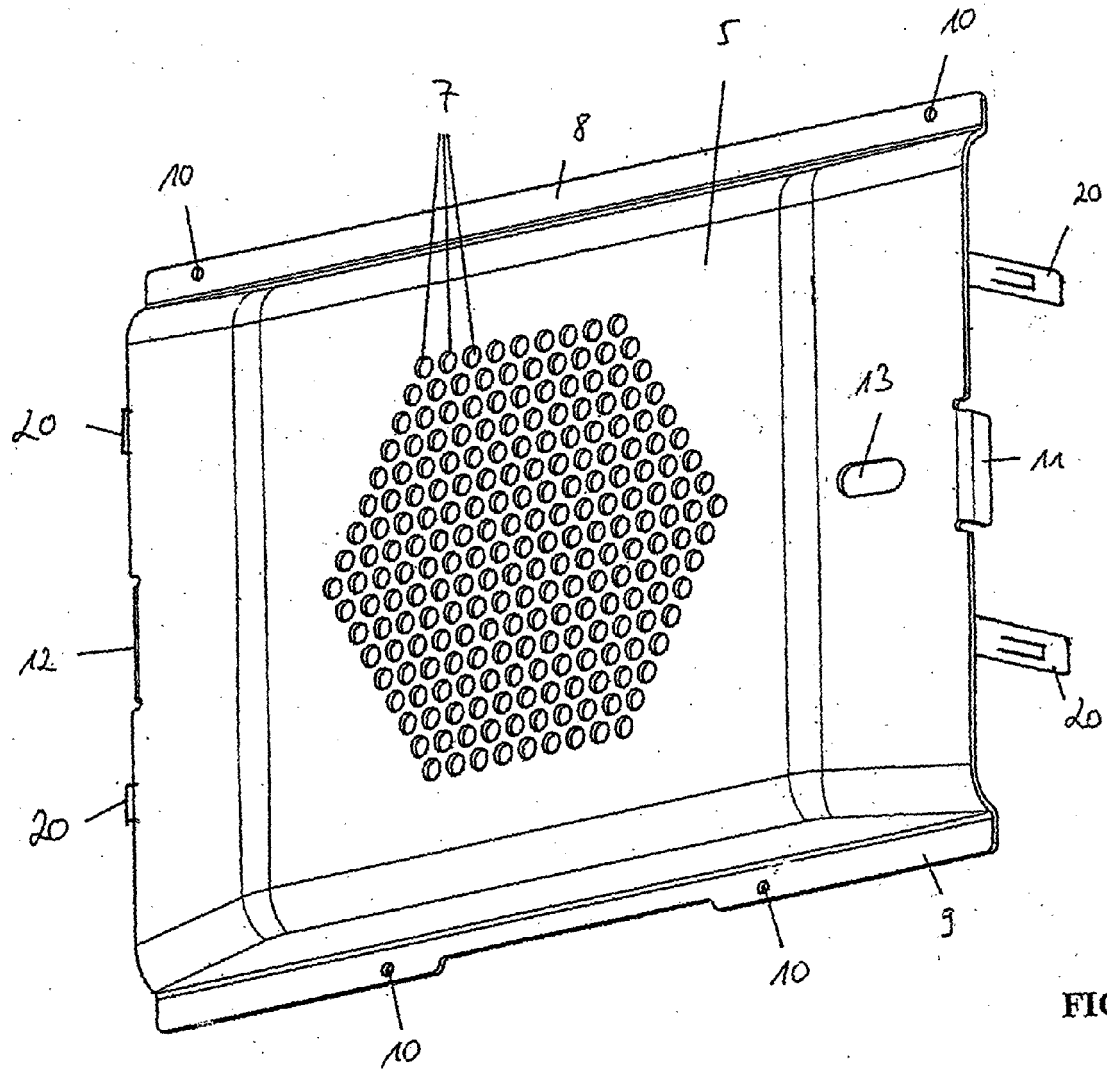


FIG 2

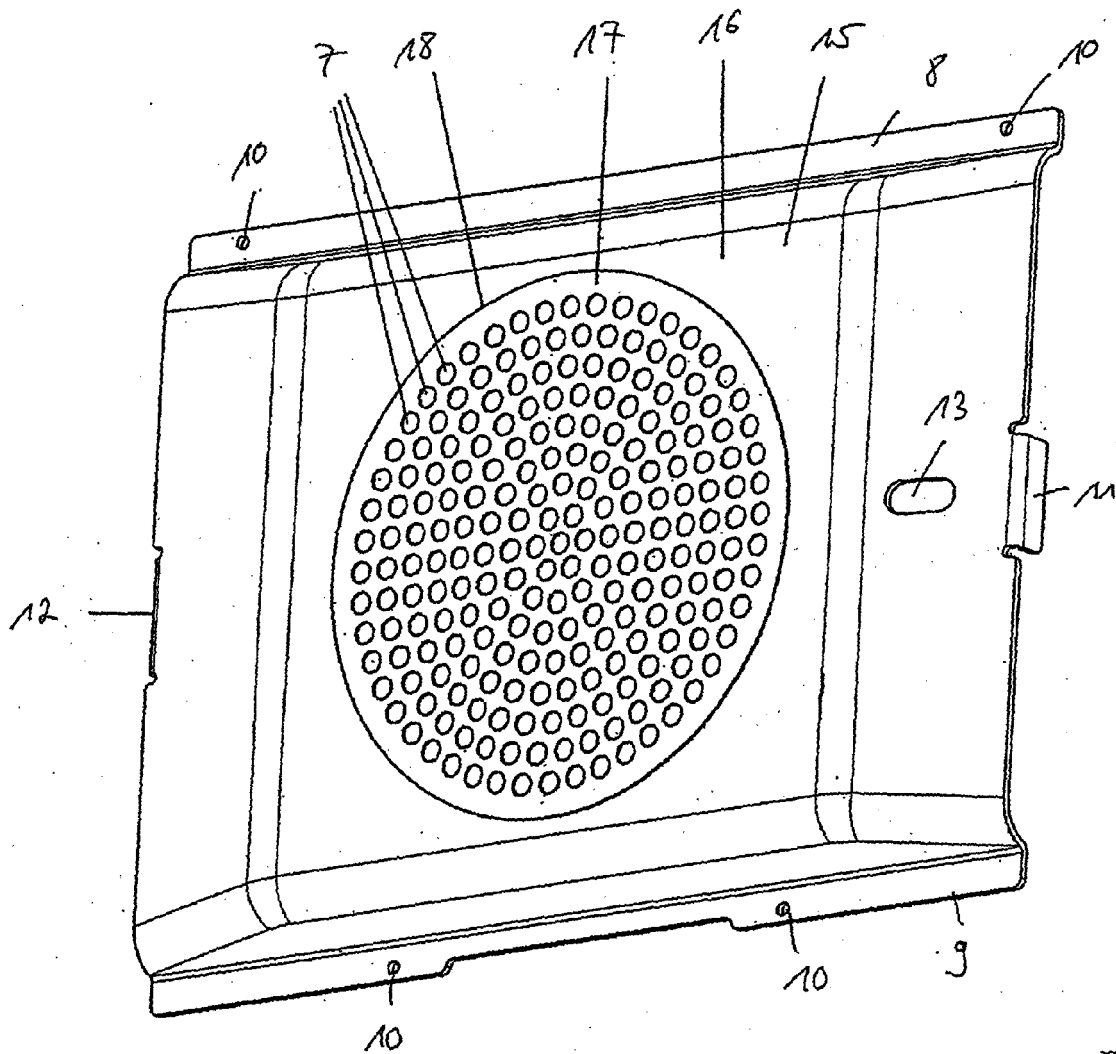


FIG 3



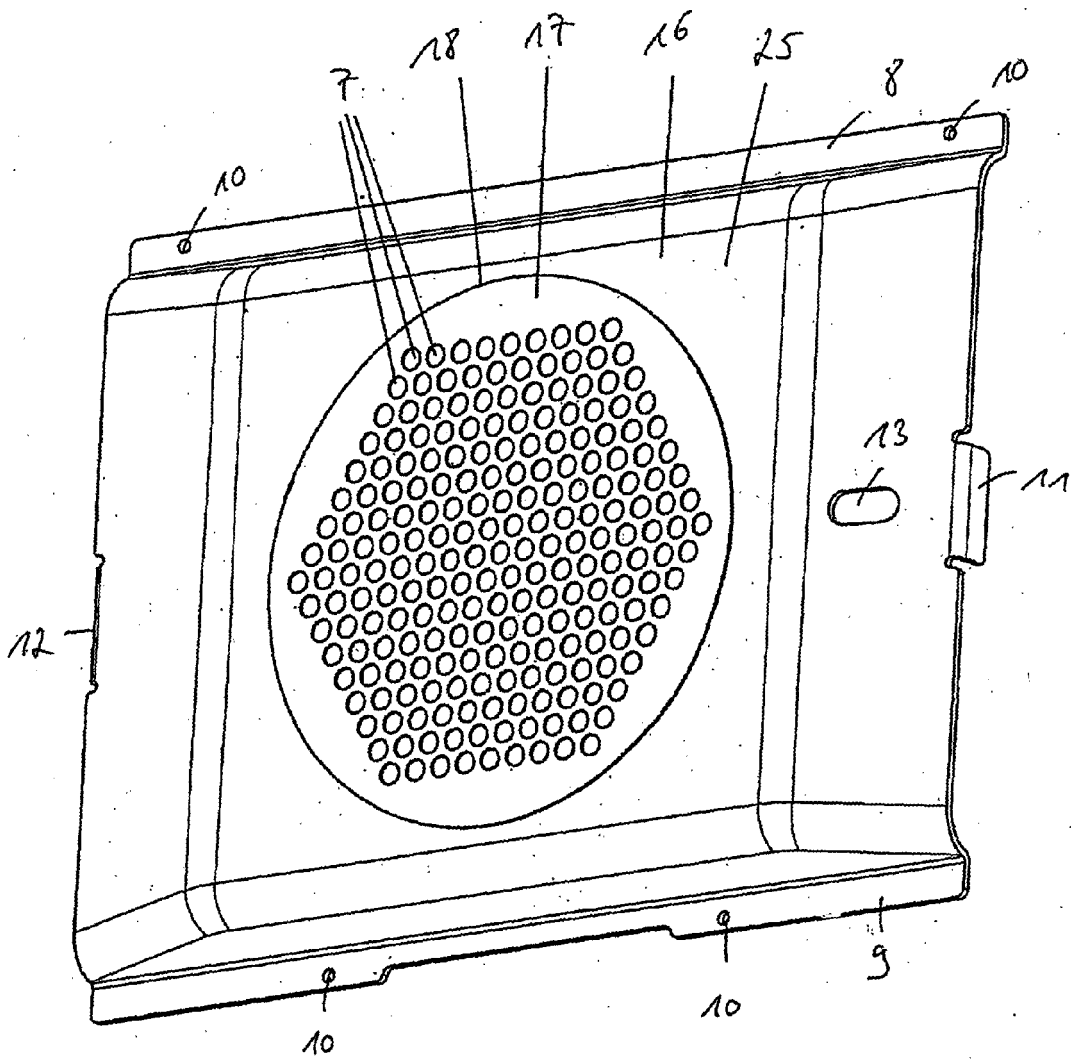


FIG 4



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## EUROPEAN SEARCH REPORT

Application Number  
EP 06 02 5384

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2006/122118 A (ADAMSKI JOSEPH R [US]) 16 November 2006 (2006-11-16)	1,2,4-18	INV. F24C15/32
Y	* page 3, line 5 - line 17 * * page 8, line 18 - page 9, line 16; figures *	3,19,20	
X	GB 2 286 455 A (STOVES LTD [GB] STOVES PLC [GB]) 16 August 1995 (1995-08-16) * page 6, line 28 - line 34 * * page 7, line 28 - page 8, line 4; figures 2,3 *	1,2,4,5,15	
X	US 6 831 255 B1 (LEVI DAVID E [US] ET AL) 14 December 2004 (2004-12-14) * column 3, line 23 - line 33 * * column 4, line 4 - line 15; figures *	1,2,4,6,15	
X	US 4 262 183 A (SMITH PETER H ET AL) 14 April 1981 (1981-04-14) * column 2, line 67 - column 3, line 2; figures *	1,4,7	TECHNICAL FIELDS SEARCHED (IPC)
X	GB 345 006 A (EDWIN JUELSON) 19 March 1931 (1931-03-19) * page 2, line 58 - line 62; figures *	1	F24C
Y	GB 1 417 333 A (GLAVERBEL) 10 December 1975 (1975-12-10) * page 2, line 99 - line 112 *	3	
Y	DE 10 2004 058390 A1 (BSH BOSCH SIEMENS HAUSGERAETE [DE]) 14 June 2006 (2006-06-14) * paragraphs [0007], [0012] *	19,20	
	-/--		
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 27 June 2007	Examiner Verdoodt, Luk
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.02 (P04C01)



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# EUROPEAN SEARCH REPORT

Application Number  
EP 06 02 5384

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	EP 0 833 110 A1 (BOSCH SIEMENS HAUSGERAETE [DE] BSH BOSCH SIEMENS HAUSGERAETE [DE]) 1 April 1998 (1998-04-01) * abstract *	1	
A	DE 44 13 252 A1 (LICENTIA GMBH [DE]) 19 October 1995 (1995-10-19)	1	
			TECHNICAL FIELDS SEARCHED (IPC)
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 27 June 2007	Examiner Verdooldt, Luk
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 06 02 5384

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
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27-06-2007

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 2006122118	A	16-11-2006	NONE	
GB 2286455	A	16-08-1995	EP 0733862 A1	25-09-1996
			US 5568803 A	29-10-1996
US 6831255	B1	14-12-2004	CA 2475129 A1	11-03-2005
US 4262183	A	14-04-1981	BR 8006167 A	07-04-1981
			CA 1152573 A1	23-08-1983
GB 345006	A	19-03-1931	NONE	
GB 1417333	A	10-12-1975	AU 5267973 A	29-08-1974
			BE 795926 A1	27-08-1973
			CA 1014013 A1	19-07-1977
			CH 569246 A5	14-11-1975
			DE 2310084 A1	06-09-1973
			DK 141869 B	07-07-1980
			FR 2174589 A5	12-10-1973
			IT 977892 B	20-09-1974
			JP 1091273 C	31-03-1982
			JP 48101412 A	20-12-1973
			JP 56036136 B	21-08-1981
			NL 7302772 A	04-09-1973
			NO 132426 B	04-08-1975
			SE 412282 B	25-02-1980
DE 102004058390	A1	14-06-2006	NONE	
EP 0833110	A1	01-04-1998	DE 19640237 A1	02-04-1998
			ES 2186828 T3	16-05-2003
			PL 322292 A1	14-04-1998
DE 4413252	A1	19-10-1995	NONE	