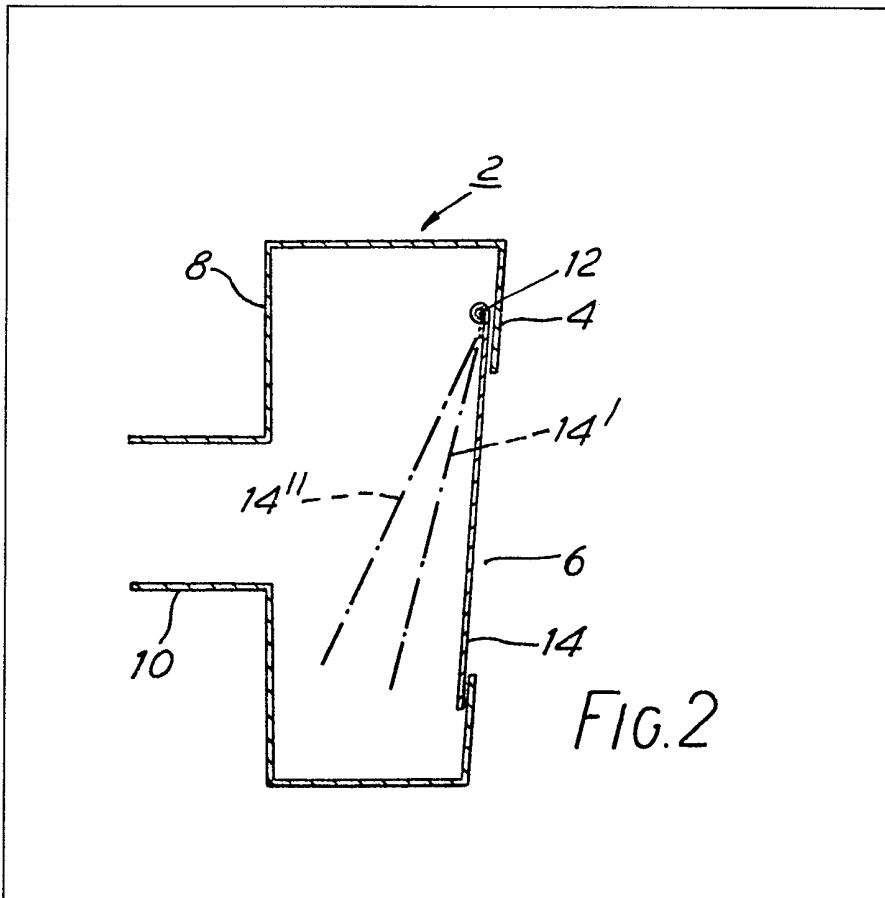


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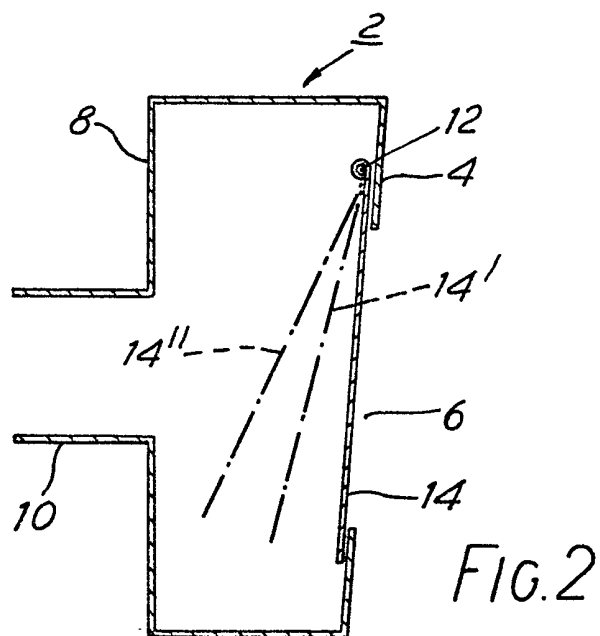
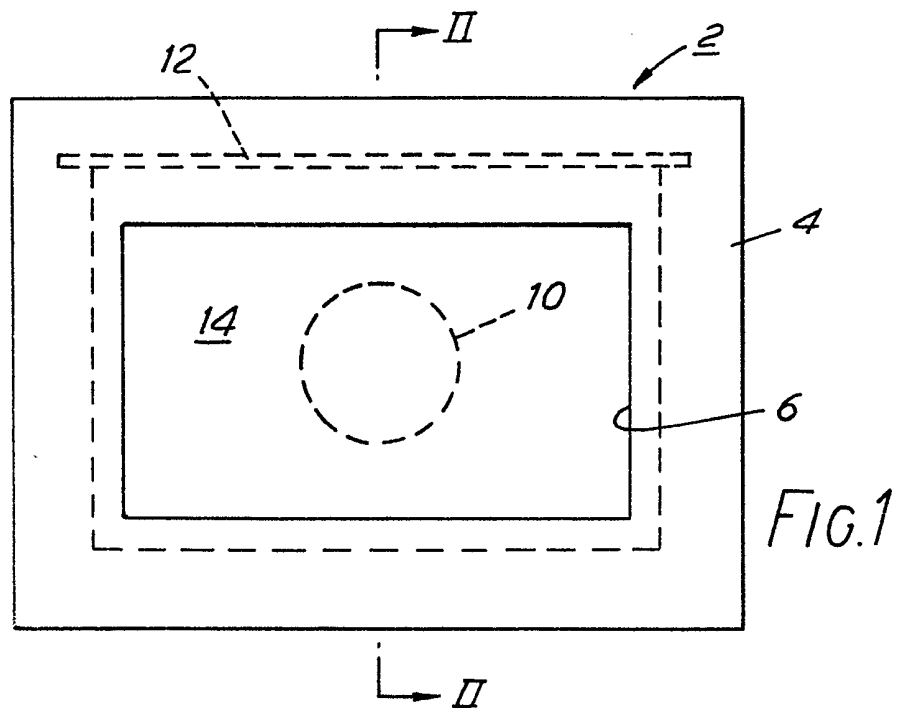
(54) **Device for indicating gas flow in
flue of heating appliance**

(57) A device for indicating gas flow in

the flue of heating appliance comprises a hollow box-like body member (2) adapted to be secured immediately above an associated heating appliance such that the interior of the body member (2) is in communication with the flue of the appliance. The front face (4) of the body member tapers slightly from top to bottom of the body member (2) inwardly of said member and has an aperture (6) formed centrally therein. A light-weight flap member (14) is mounted in the body member (2) to be pivotal about a horizontal axis (12) located in the upper regions of the body member (2) closely adjacent the front face (4) between a normal rest position covering and substantially closing the aperture (6) and a displaced position (14', 14'') within the body member (2), the extent of displacement being dependent upon the rate of flow of gases in the flue and the suction effect created thereby.



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SPECIFICATION

Device for indicating gas flow in flue of heating appliance

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This invention relates to a device for indicating gas flow in the flue of a heating appliance, and has particular application in the indication of when the flue from, for example, a gas fire or smokeless fuel

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appliance is partially or totally blocked. The number of instances, particularly in domestic residences, of the chimneys or flues of gas or solid fuel fired heating appliances becoming partially or totally blocked has recently increased to alarming

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values. It will be appreciated that the consequences of a chimney becoming blocked can be fatal, there being no indications to persons in the associated room that the condition exists.

With the current desirability to save fuel, the public

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has become more conscious of the necessity for draught-proofing the individual rooms of domestic residences. In certain cases, however, there is tendency towards over-thorough draught-proofing, resulting in an inadequate supply of fresh air entering

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a room in which a heating appliance is operating. Again the consequences of such a situation can be fatal to the occupants of such a room.

It would be desirable to be able to provide a device

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which could indicate to an occupant whether the flue or chimney of a heating appliance was partially or totally blocked, or whether there was an inadequate supply of fresh air to a room containing such a

appliance. According to the present invention there is pro-

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vided a device for indicating gas flow in the flue of a heating appliance, the device comprising a hollow, box-like body member the interior of which is adapted to communicate into the flue of the ap-

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pliance, a front face of said body member having formed herein an aperture, and a light-weight flap member mounted within the body member to be pivotal about a horizontal axis between a normal rest

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position, into which it is urged by gravity, covering said aperture in the front face of the body member and a displaced position angularly spaced from said

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normal position, the arrangement being such that, with no gas flow up the flue of the heating appliance, the flap member remains in its normal position closing the aperture, and, with gas flow up the flue,

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said flow displaces the flap member from its normal position by an amount dependant upon the rate of flow of the flue gases. Such a device can be mounted immediately above a gas fire or similar heating appliance with the

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interior thereof in communication with the flue from the appliance. With the appliance off, the flap member assumes its normal rest position. With the appliance on and flue gases flowing normally therefrom, the flap member, which is preferably of metal

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foil, adopts its fully displaced, or open, position due to the suction effect created by the flow or flue gases. In the event of a partial blockage in the chimney or flue, the rate of flow of flue gases is reduced with a consequential reduction in the suc-

sion effect on the flap member. Thus said member

adopts a position intermediate the fully open and the rest position indicative of the degree of blockage.

With a complete blockage and the appliance on, the flap member remains in its normal rest position.

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If the room containing the appliance is so well draught-proofed that ventilating air cannot enter the room, eventually no combustion air will be present to constitute flue gases from the appliance when it is lit and the flap member will again remain in its

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normal rest position closing the aperture and indicating a potentially dangerous situation.

Conveniently the body member is of generally rectangular configuration having a rear face from which projects a hollow tubular extent adapted to interconnect the interior of the body member with the flue of the appliance.

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Preferably the front face of the body member tapers inwardly of the body member from the top to the bottom thereof whereby the lower edge of the

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aperture is positioned inwardly of the upper edge of said aperture, the horizontal axis about which the flap member pivots being located closely adjacent the upper regions of said front face of the body

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member whereby the lower edge of the flap member suspended from said axis abuts the lower regions of the body member below the lower edge of the aperture.

By way of example only, an embodiment of the invention will now be described in greater detail with reference to the accompanying drawings in which:

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Figure 1 is a front view of a device according to the invention, and

Figure 2 is a section on the line II-II of *Figure 1*.

Referring to the drawings, the illustrated device comprises a hollow, substantially box-like body member 2 of sheet metal having a front face 4 in which is formed a rectangular aperture or window 6.

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The body member may be typically 10cms wide by 7.5cms high by 1.5cms deep (average) with the aperture typically 7cms wide by 4cms high.

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The front face 4 of the body member 2 tapers inwardly of the body member from top to bottom whereby the depth of the device is smaller at the bottom than the top for reasons which will become apparent.

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The vertical rear face 8 of the body member 2 has formed thereon a tubular extension 10 communicating into the hollow interior of the body member 2.

A horizontal axle 12 extends across the upper

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regions of the interior of the body member 2 adjacent the front face 4, the upper edge of a light-weight flap member 14 of metal foil being mounted to said axle 12 whereby the flap member 14 is suspended from the axle to be freely pivotal thereabout.

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The flap member 14 adopts the normal rest position shown in full lines in *Figure 2* with its lower edge abutting the lower regions of the front face 4 of the body member just below the lower edge of the aperture 6 because of the tapering nature of said front face 4 and the effects of gravity. In said position, the aperture 6 is substantially closed by the flap member 14.

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The flap member 14 is pivotal about the axle 12 from said rest position towards displaced positions

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such as those shown at 14' and 14" in Figure 2.

In use, the described device is secured in position immediately above an associated appliance to be monitored, with the extension 10 communicating
5 into the flue from the appliance or being extended to communicate into said flue.

With the appliance inactive, there are no gases flowing up the flue and the flap member 14 remains in its normal rest position.

10 On switching on the appliance, and with a normal flow of flue gases from the appliance up a clear flue, a suction effect is created on the flap member 14 due to the stream of gas flowing past the tubular
15 extension 10, the extent of said suction being dependent upon the rate of flow of the flue gases. Thus, under normal operating conditions, the flap member is displaced to a fully open position 14" and a visual indication is given of a clear flue.

In the event that the flue is partially blocked, the
20 passage for the flue gases will be restricted and the rate of flow of said gases will drop accordingly. The suction effect on the flap member 14 will be reduced and said member 14 will only be displaced partially towards its fully open position, typically to the
25 position indicated at 14'. Thus a visual indication that a potentially dangerous situation is arising is given by virtue of the position of the flap member 14.

If the flue is totally blocked, there can be no gas flow past the tubular extension 10 and therefore no
30 suction effect on the flap member 14 which remains in its normal rest position closing the aperture 6. This will clearly indicate to a user that the appliance should be switched off immediately.

It will be appreciated that the device according to
35 the invention gives a visual indication of the rate of flow of the flue gases from an associated appliance, which, in turn, is normally indicative of the state of the flue. However, if a room housing an appliance is so well draught-proofed as to exclude the ingress of
40 ventilating air, the consequences may be that, even though the flue is clear, there is no flow of flue gases from the appliance because of the lack of oxygen to effect normal combustion of said gases. In such a case, the flap member 14 will remain in its normal
45 rest position closing the aperture 6.

Thus, if the flap member 14 fails to move, or returns to its normal rest position when the appliance is lit, the fault may be due to a blocked flue or to excessive draught-proofing.

50 The invention provides a device of simple design, and that is easy and cheap to manufacture and install but which can be a life-saver by giving a visual indication of a potentially fatal situation associated with heating appliances such as gas fires, smokeless
55 fuel heaters, boilers and the like.

CLAIMS

1. A device for indicating gas flow in the flue of a
60 heating appliance, the device comprising a hollow, box-like body member the interior of which is adapted to communicate into the flue of the appliance, a front face of said body member having
65 formed therein an aperture, and a light-weight flap member mounted within the body member to be

pivotal about a horizontal axis between a normal rest position, into which it is urged by gravity and covering said aperture in the front face of the body member, and a displaced position angularly spaced
70 from said normal position, the arrangement being such that, with no gas flow up the flue of the heating appliance, the flap member remains in its normal position closing the aperture, and with gas flow up the flue, said flow displaces the flap member from its
75 normal position by an amount dependent upon the rate of flow of the flue gases.

2. A device as claimed in claim 1 in which the body member is of generally rectangular configuration having a rear face from which projects a hollow
80 tubular extent adapted to interconnect the interior of the body member with the flue of the appliance.

3. A device as claimed in claim 1 or claim 2 in which the front face of the body member tapers inwardly of the body member from the top to the
85 bottom thereof whereby the lower edge of the aperture is positioned inwardly of the upper edge of said aperture, the horizontal axis about which the flap member pivots being located closely adjacent the upper regions of said front face of the body
90 member whereby the lower edge of the flap member abuts the lower region of the body member below the lower edge of the aperture.

4. A device as claimed in any one of claims 1 to 3 in which the flap member is formed from metal foil.

95 5. A device for indicating gas flow in the flue of a heating appliance substantially as described with reference to and as illustrated by the accompanying drawings.

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