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(56) Documents Cited
GB 0911563 A **US 4803931 A**

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UK CL (Edition O) **F2V VP16 , F4T TGC TGT**
INT CL^6 **F23L 13/00 13/02 13/04**

(54) Air intake control for burners

(57) An air intake control for an oil-fired boiler, wherein a pipe (10) for intake air has an arcuate slot (14) enabling an exterior finger control (24) to turn one of two cutaway plates (18, 22) within the pipe, whereby to adjust the intake of air by varying the overlap of the cut-away sectors of the plates.

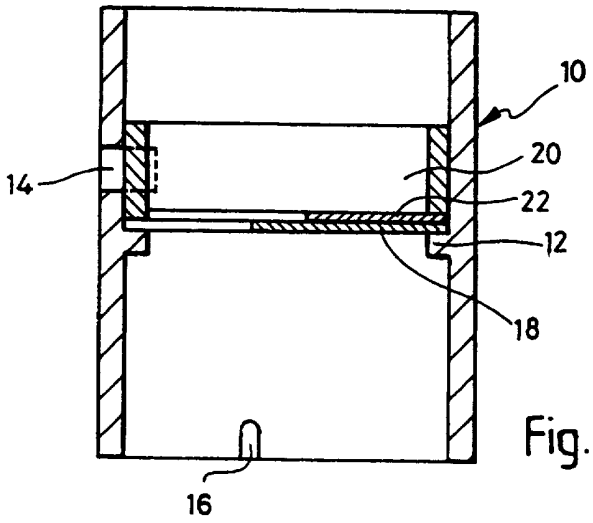

Fig. 1

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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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

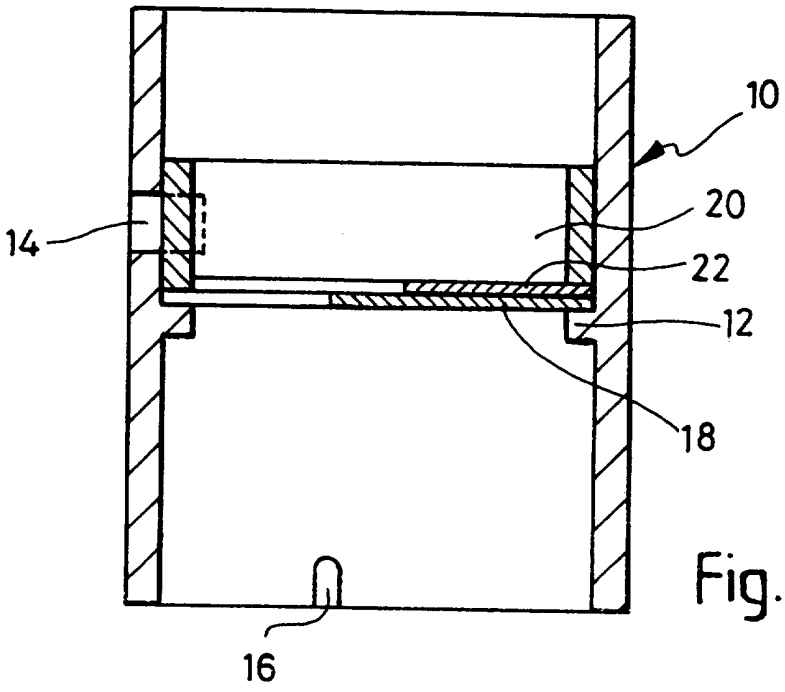

Fig. 1

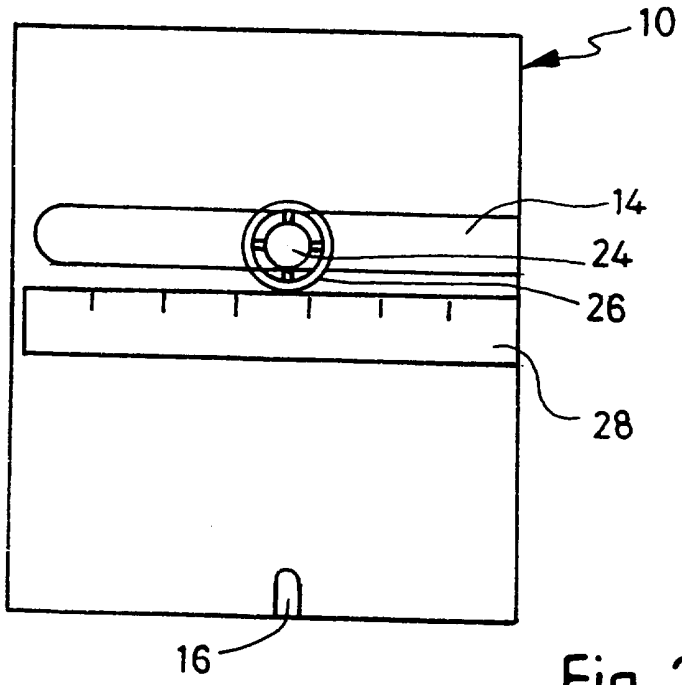

Fig. 2

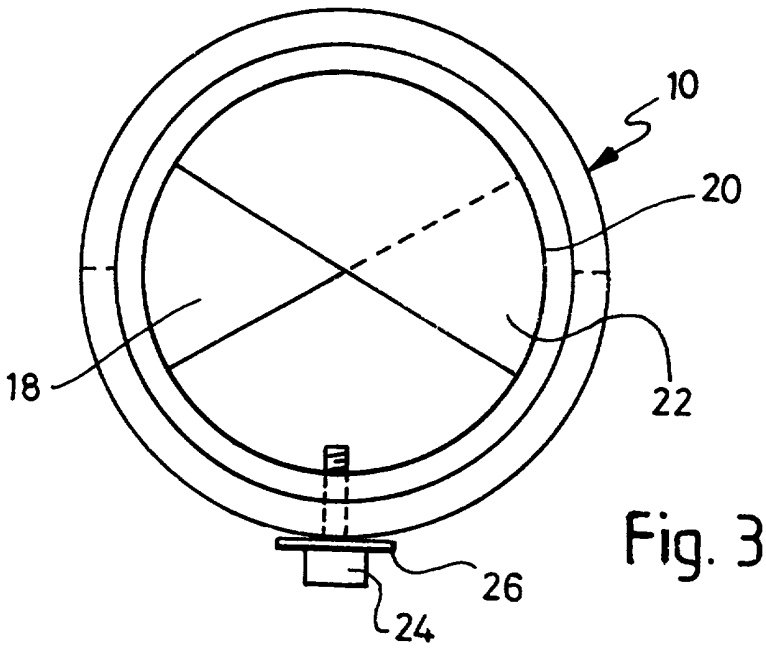

Fig. 3

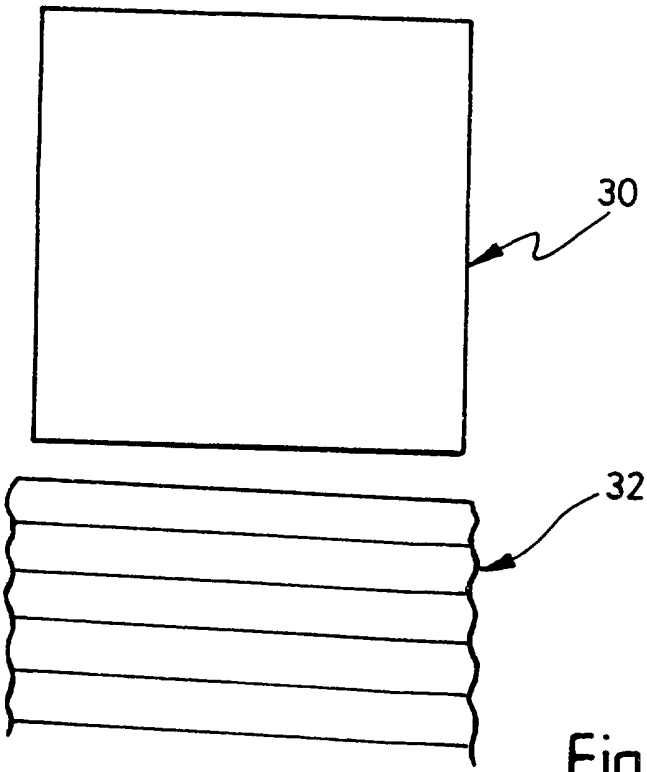

Fig. 4

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Air Intake Control for Burners

This invention relates to an air intake control for burners, and in particular for a fan assisted oil burner.

It is to be preferred to control air intake on the inlet side of the fan in a fan-assisted boiler rather than on the outlet side, for example where the fan driven air enters the combustion chamber. Known inlet-side air intakes are, however, generally awkward to use, involving the use of a pivotally mounted plate displaceable over an aperture or an apertured band movably surrounding an apertured tube.

It is an object of this invention to provide an improved air intake control for a fan assisted oil burner, mountable either at the air entry aperture of the fan housing or in a pipe or tube leading to the air entry aperture.

According to the invention, there is provided an air intake control for a fan assisted oil burner comprising a pipe length containing an arcuate slot in its wall and, behind the slot in the wall, a ring which closes the slot and is rotatable by means of a finger control projecting outwardly from the ring through the slot, the pipe length carrying an internal first plate blocking a part of the internal cross-section of the pipe length and the ring carrying, in a plane adjacent the first plate, a second plate also blocking a part of the internal cross-section of the pipe length, whereby the area of the opening left for passage of air through the pipe length can be varied by movement of the finger control around the arcuate slot.

Preferably the first and second plates each close a sector of the area of the pipe, such as a 180 degrees sector. In the latter case, each plate is of semi-circular shape. The arcuate slot in the pipe length may also extend arcuately for

approximately 180 degrees. The relative angular positioning of the arcuate slot and of the plates is preferably such that adjustment is possible from a position of maximum opening to a position of minimum opening substantially larger than zero. For example the maximum opening may be a 180 degrees sector and the minimum opening approximately a 30 degrees sector.

The intake control may be fabricated principally of metal or of plastics material, preferably the latter.

In a preferred arrangement, the pipe length has an internal shoulder or ledge providing a seating for the first plate, on which said first plate is fixed, as by means of a suitable adhesive. The internal ring preferably seats rotatably on the first plate and has its bottom circumferential edge cut away to receive the edge of the second plate, which is conveniently adhesively fixed to the ring. The second plate thus effectively slides over and against the first plate when the ring is rotated.

The outside of the pipe length may conveniently be marked with a scale adjacent the arcuate slot, the finger control serving as an indicator cooperating with the scale. Said finger control may conveniently comprises a threaded bolt and washer, the bolt securing through the slot into a screwthreaded hole in the internal ring.

The invention will now be further described with reference to the accompanying drawings, in which:-

Figure 1 is an axial cross section through the air intake control;

Figure 2 is an elevational view of the air intake control;

Figure 3 is a top view of the air intake control; and

Figures 4a and 4b show parts with which the air intake control may be connected.

First, it should be made clear that although now described with reference to an upright orientation of the device, when fitted the orientation of the device is not of consequence. Commonly, it will be horizontal.

The device illustrated in Figures 1 to 3 comprises a length of cylindrical pipe 10 having an internal shoulder 12, a 180 degrees arcuate slot 14 in its wall, and a cut-out 16 typically used to fix the device to the inlet aperture in the fan housing of a fan assisted oil burner.

Adhesively fixed down on the shoulder 12 is a semi-circular first plate 18 and immediately above this an internal ring 20 is rotatable in the pipe 10. The ring 20 adhesively carries, recessed into its bottom circumferential edge, a semi-circular second plate 22, which thus lies against the first plate but is rotatable relative thereto.

The positions of the shoulder 12 and thus of the ring 20 above it, relative to the arcuate slot 14, are such that the ring closes the slot. However, a finger control, in the form of a bolt 24 carrying a washer 26, projects through the slot 14 to engage into a screwthreaded hole in the ring. Tightening of the bolt fixes the ring in position. However, when the bolt is untightened, it is usable to rotate the ring 20 within the pipe 10, thereby rotating the second plate 22 relative to the first plate 18, thus varying the cross-sectional area of the pipe which is open for passage of air through the pipe. Conveniently, the open area may be variable from a maximum of a 180 degrees sector down to a minimum of a 30 degrees sector.

On the outside of the pipe 10, it is convenient to provide a scale 28 with which the finger control 24, 26 cooperates.

The air intake control above described may be made principally of metal or of plastics material, preferably the latter.

Figure 4 shows a stub pipe 30 which may be pushed into the air intake control to enable the fitting of a corrugated flexible hose 32 (Figure 4b). Alternatively, a larger diameter hose may fit directly to the device. It will thus be apparent that the device can be fitted in a hose leading to the fan housing air inlet aperture, instead of fitting directly to the fan housing at said aperture.

Claims

1. An air intake control for a fan assisted oil burner comprising a pipe length containing an arcuate slot in its wall and, behind the slot in the wall, a ring which closes the slot and is rotatable by means of a finger control projecting outwardly from the ring through the slot, the pipe length carrying an internal first plate blocking a part of the internal cross-section of the pipe length and the ring carrying, in a plane adjacent the first plate, a second plate also blocking a part of the internal cross-section of the pipe length, whereby the area of the opening left for passage of air through the pipe length can be varied by movement of the finger control around the arcuate slot.

2. An air intake control according to claim 1, wherein the first and second plates each close a sector of the area of the pipe.

3. An air intake control according to claim 2, wherein each sector is a 180 degrees sector.

4. An air intake control according to claim 3, wherein each plate is of semi-circular shape.

5. An air intake control according to any of claims 1 to 4, wherein the arcuate slot in the pipe length extends arcuately for approximately 180 degrees.

6. An air intake control according to any of claims 1 to 5, wherein the relative angular positioning of the arcuate slot and of the plates is such that adjustment is possible from a position of maximum opening to a position of minimum opening substantially larger than zero.

7. An air intake control according to claim 6, wherein the maximum opening is a 180 degrees sector and the minimum opening approximately a 30 degrees sector.

8. An air intake control according to any of claims 1 to 7, wherein the intake control is fabricated principally of plastics material.

9. An air intake control according to any of claims 1 to 8, wherein the pipe length has an internal shoulder or ledge providing a seating for the first plate, on which said first plate is fixed, as by means of a suitable adhesive.

10. An air intake control according to claim 9, wherein the internal ring seats rotatably on the first plate and has its bottom circumferential edge cut away to receive the edge of the second plate, which is adhesively fixed to the ring.

11. An air intake control according to any of claims 1 to 10, wherein the outside of the pipe length is marked with a scale adjacent the arcuate slot, the finger control serving as an indicator cooperating with the scale.

12. An air intake control according to claim 11, wherein said finger control comprises a threaded bolt and washer, the bolt securing through the slot into a screwthreaded hole in the internal ring.

13. An air intake control substantially as hereinbefore described with reference to the accompanying drawings.

The Patent Office

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Application No:	GB 9614876.2	**Examiner:**	R F Pharoah
Claims searched:	1-13	**Date of search:**	13 October 1997

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): F4T: TGC,TGT; F2V: VP16

Int Cl (Ed.6): F23L: 13/00,13/02,13/04

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 0911563 A	(RANSMARK) see page 2 lines 8-29	1,6
X	US 4803931 A	(CARSON) see column 2 line51-60	1,6

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
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.
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