



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
01.02.2017 Bulletin 2017/05

(51) Int Cl.:
F23K 3/16 (2006.01) **F23B 50/12** (2006.01)
F23G 5/44 (2006.01) **F23G 7/10** (2006.01)

(21) Application number: **15188825.2**

(22) Date of filing: **07.10.2015**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA

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(30) Priority: **31.07.2015 IE 20150219**

(54) **A LID OF AN OUTDOOR BIOMASS BOILER**

(57) Boiler lid (100) is generally rectangular and is provided with a reversible spigot (120) through which biomass fuel is fed into the boiler. The spigot (120) is removably attached to the lid (100) in a first orientation whereby the spigot projects from an upper surface (103) of the lid and in combination with an orifice (132) in the lid is used to deliver fuel into the boiler. In a second orientation, the spigot (120) projects from underneath the lid (100), and in combination with a blanking plate (130), seals the orifice (132) in the lid.

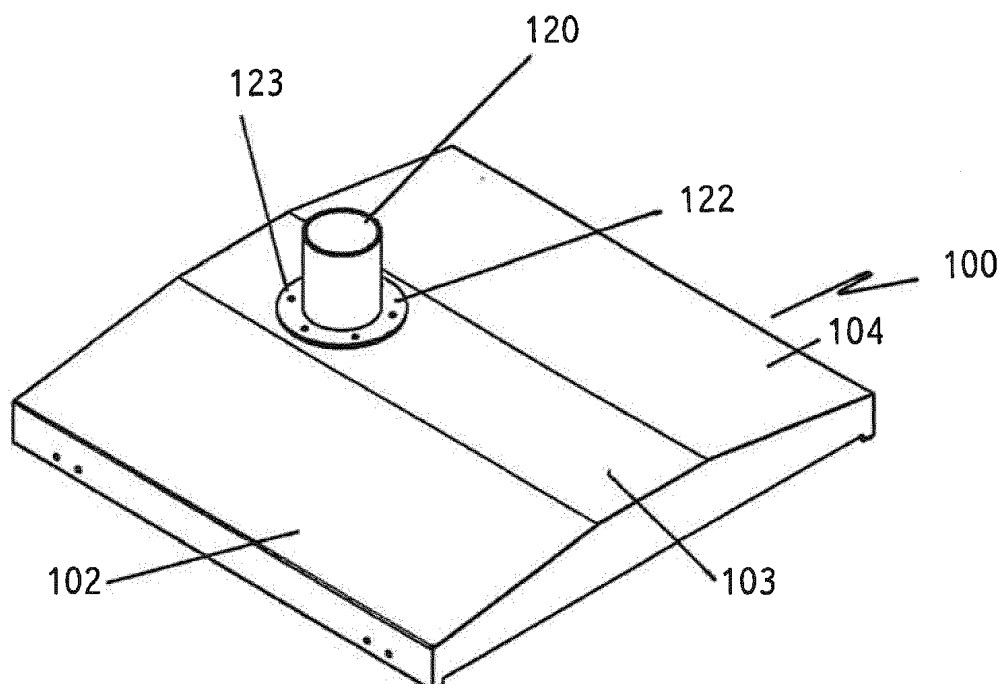


FIGURE 1

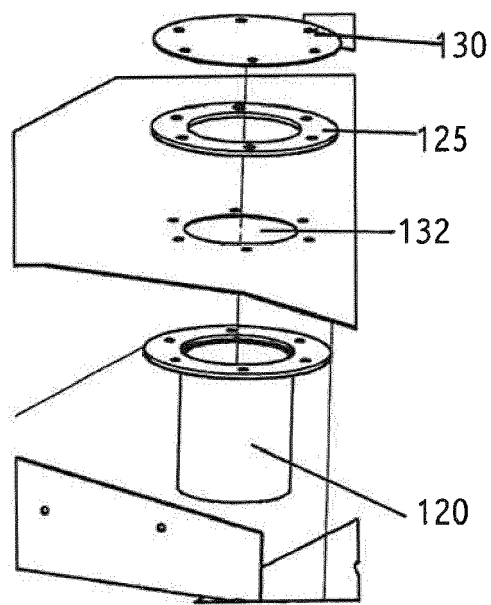


FIGURE 11

Description

[0001] The present invention relates to a lid of a biomass boiler, in particular to a lid which is fitted to an external biomass pellet boiler.

[0002] A typical biomass pellet boiler is a wood pellet boiler. Some of these boilers can be located outdoors. Normally these boilers have a hopper which will hold significant fuel for a number of days depending on the running hours of the boiler and the capacity of the hopper. This requires the customer to regularly check the amount of fuel in the hopper and replenish the fuel as required.

[0003] This problem can be overcome by having an automatic filling system using an external auger from a bulk hopper or a silo which can hold enough fuel for several months. This system is then fully automatic without the need for regular intervention from the customer to fill the hopper with fuel.

[0004] If the customer wishes to install such a system, the lid of the boiler must be removed and fitted with a replacement lid having a fuel spigot attached. This can be problematic as the correct lid may be not available.

[0005] This object of this invention is to alleviate the above disadvantages.

[0006] The present invention provides a lid of a biomass boiler, the lid having a reversible spigot attached to the lid.

[0007] Advantageously, the spigot is attached to the underneath of the lid which is provided with a fuel feeding orifice and a blanking plate for the orifice is provided on the upper surface of the lid.

[0008] Conveniently, the spigot is removeably attached to the underside of the lid, and is attachable to the upper surface of the lid, when required.

[0009] Ideally, the spigot is removeably attached to the lid in a first orientation, whereby the spigot projects from an upper surface of the lid and in combination with an orifice in the lid is used to deliver fuel into the boiler.

[0010] Preferably, in a second orientation, the spigot projects from underneath the lid, and in combination with a blanking plate, seals the orifice in the lid.

[0011] The invention will hereinafter be more particularly described with reference to and as shown in the accompanying drawings which show by way of example one embodiment of a boiler lid in accordance with the invention.

[0012] In the drawings;

Figure 1 is a perspective view of the boiler lid with a spigot mounted on the outer surface;

Figure 2 is a plan view of the boiler lid;

Figure 3 is a side view of the boiler lid;

Figure 4 is an end view of the boiler lid;

Figure 5 is a perspective view of the boiler lid with a

blanking plate over the spigot mounted on the internal surface of the lid;

Figure 6 is a plan view of the boiler lid;

Figure 7 is a side view of the boiler lid with the spigot mounted on the internal surface;

Figure 8 is an end view of the boiler lid;

Figure 9 is a perspective view of the boiler lid, showing the spigot lid in dotted lines attached to the underside of the lid;

Figure 10 is a perspective exploded view of the components of the boiler lid, and

Figure 11 is an enlarged view of the exploded components of the spigot.

[0013] Referring to the drawings, the boiler lid 100 is generally rectangular in shape and has two sloped upper surfaces 102, 104 and a flat mid-section 103. Mounted on the mid-section 103 is spigot 120 through which biomass fuel is fed into the boiler (not shown). The spigot 120 has a flange 122 having a series of holes 123 to enable the spigot to be secured to the lid with bolts and sealing washers (not shown). A gasket 125 is provided between the flange 122 and the mid-section 103 so as to ensure that no rain or moisture can enter the boiler.

[0014] The boiler lid 100 is supplied normally with the spigot in an inverted position fitted to the underside of the lid as shown in Figures 5 to 11. A blanking plate 130 is secured to the flat mid-section 103 and the gasket 125 is located beneath the blanking plate 130 and seals the opening 132 provided in the lid 100.

[0015] The advantages offered by the invention is that the lid 100 does not have to be modified if the customer requires to fit a spigot to the upper surface of the lid as the spigot is already attached to the underside of the lid where it does not interfere with the normal operation of the boiler. A separate new lid does not have to be attached if a spigot is required to be fitted to the boiler lid.

[0016] It is to be understood that the invention is not limited to the specific details described herein which are given by way of example only and that various modifications and alternations are possible without departing from the scope of the invention as defined in the amended claims.

Claims

1. A lid of a biomass boiler, the lid (100) having a reversible spigot (120) attached to the lid.
2. A lid of a biomass boiler as claimed in Claim 1, in which the spigot (120) is attached to the underneath

of the lid (100) which is provided with a fuel feeding orifice (132) and a blanking plate (130) for the orifice is provided on the upper surface of the lid.

3. A lid for a boiler as claimed in Claim 2, in which the spigot (120) is removeably attached to the underside of the lid, and is attachable to the upper surface of the lid, when required. 5

4. A lid for a biomass boiler as claimed in Claim 1, in which the spigot is removeably attached to the lid (100) in a first orientation, whereby the spigot (120) projects from a upper surface (103) of the lid and in combination with an orifice (132) in the lid is used to deliver fuel into the boiler. 10
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5. A lid of a biomass boiler as claimed in Claim 4, in which in a second orientation, the spigot (120) projects from underneath the lid (100), and in combination with a blanking plate (130), seals the orifice (132) in the lid (100). 20

6. A lid of a biomass boiler as claimed in any one of the preceding claims, in which the lid (100) is generally rectangular in shape, has two sloped upper surfaces (102, 104) and a flat mid section (103) between the sloped upper surfaces (102, 103), the spigot (120) being mounted on the mid section (103). 25

7. A lid of a biomass boiler as claimed in any one of the preceding claims, in which the spigot (100) has a flange (122) provided with a plurality of holes (123) to enable the spigot to be secured to the lid (100) with removeable fasteners, with a gasket (125) being provided between the flange (122) and the lid (100). 30
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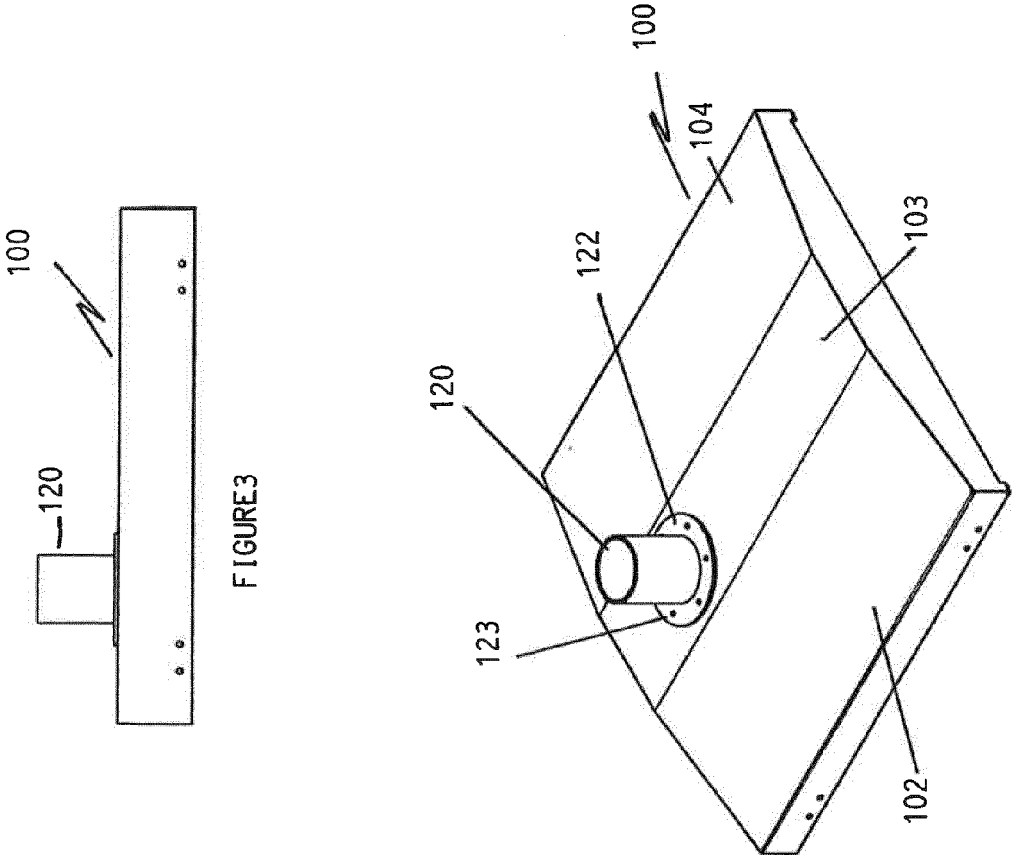


FIGURE 1

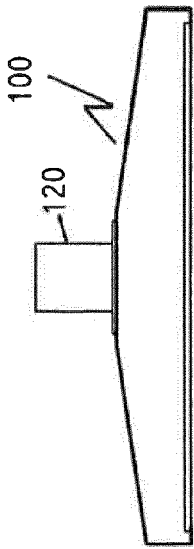


FIGURE 3

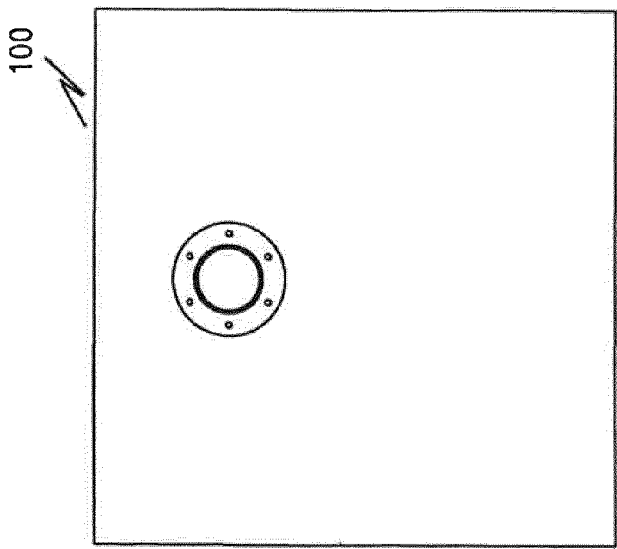


FIGURE 2

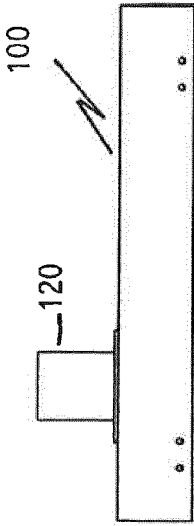


FIGURE 4

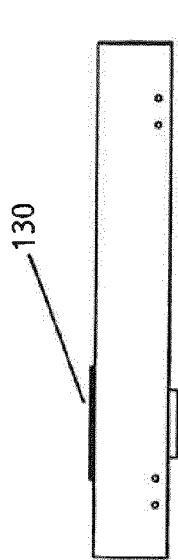


FIGURE 7

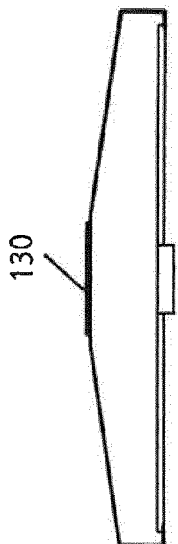


FIGURE 8

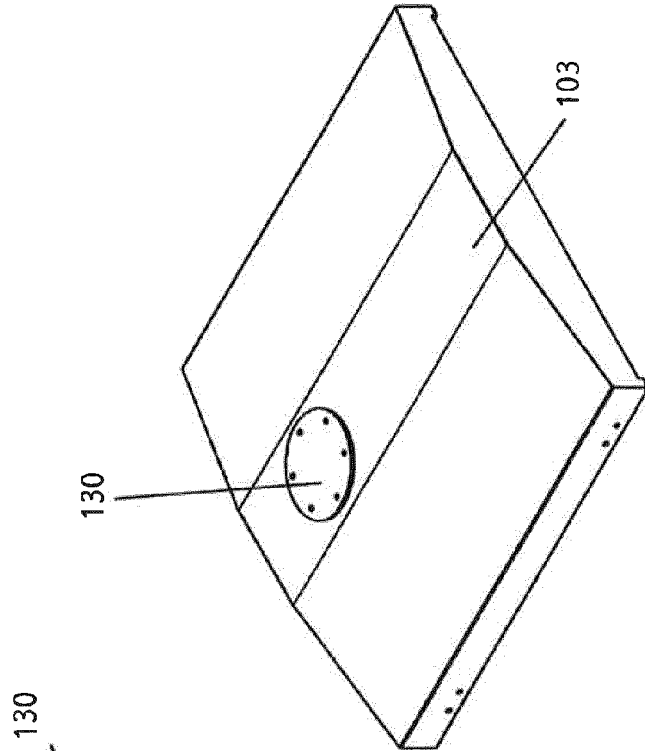


FIGURE 5

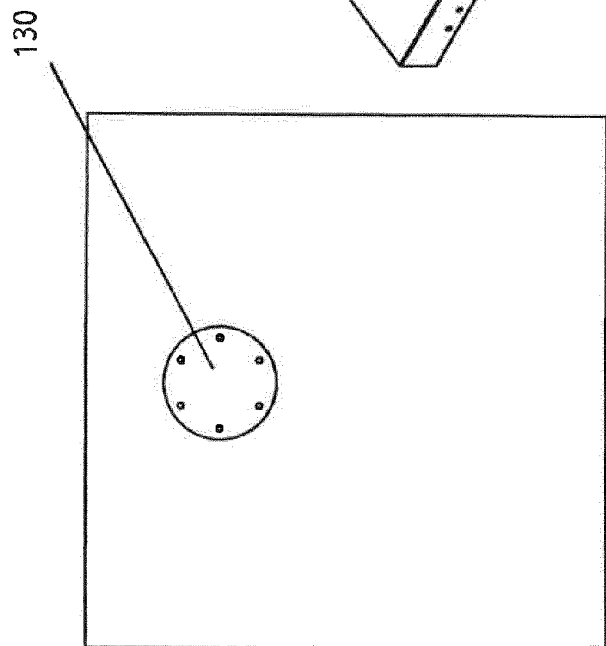


FIGURE 6

FIGURE 5

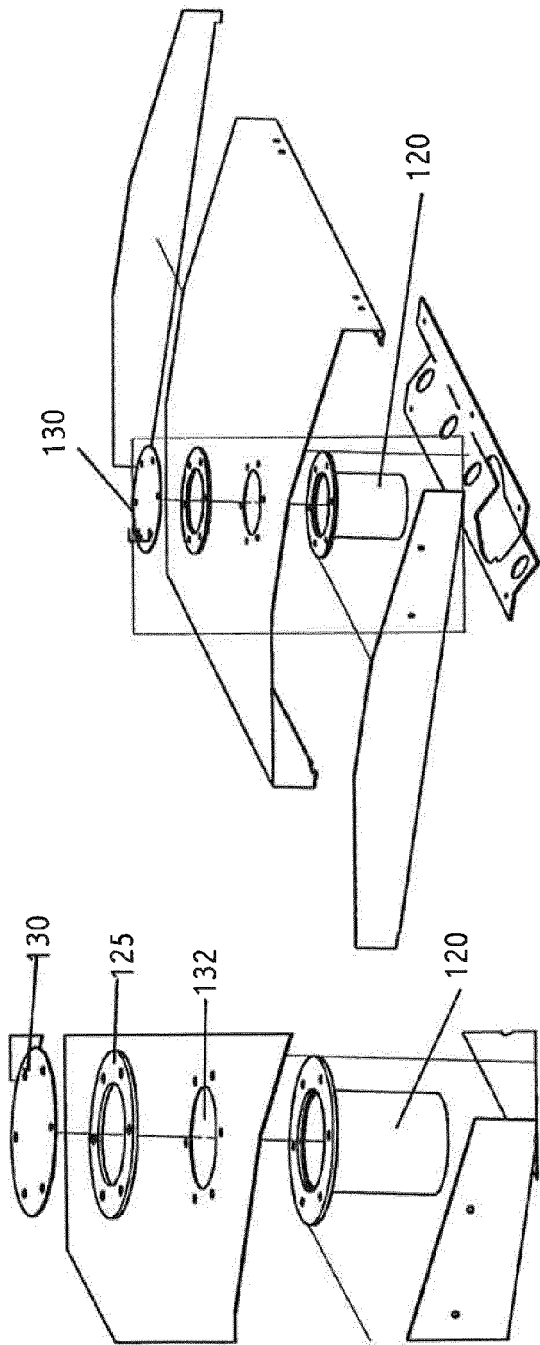


FIGURE 10

FIGURE 11

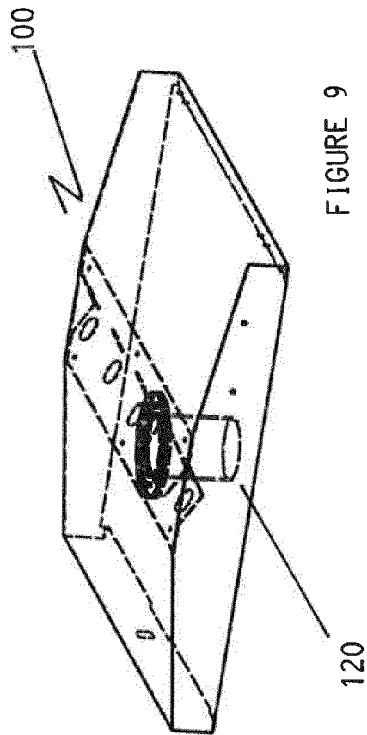


FIGURE 9



EUROPEAN SEARCH REPORT

Application Number
EP 15 18 8825

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A	KR 2010 0008811 U (YOUNG KEUN [KR]) 6 September 2010 (2010-09-06) * figures 1-4 *	1	F23K F23B F23G F23J
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 19 August 2016	Examiner Gavriliu, Costin
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	

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 15 18 8825

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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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