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(54) **Stove to be inserted into an existing fireplace**

Ofen für den Einbau in einen bestehenden Kamin

Poêle encastrable pour cheminée existante

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(56) References cited:

EP-A- 0 985 883 AT-B- 399 388

DE-U1- 8 529 089 FR-A- 2 868 517

US-A- 810 719 US-A- 4 392 479

US-A- 4 442 825 US-A- 5 014 682

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Description

[0001] The present invention concerns a stove to be inserted in a fireplace and, more specifically, a stove to be inserted in a fireplace or similar especially of the type suitable to be fired by solid fuel such as pellets or similar.

[0002] The use of stoves to be inserted in a pre-existing fireplace, and having a metallic structure shaped to be inserted in the space already existing in the fireplace, is widely known. Typically, said structure features a frame that contains the furnace at the front of such frame, and a compartment for containing the solid fuel positioned at the rear of the furnace. A door is provided at the front for access to the furnace. Furthermore, ducts for conveying and extracting the exhausted gases of the combustion, which are typically conveyed towards the outside or into a heating system, are typically housed inside said frame.

[0003] For said types of stoves, to fill or refill the solid fuel to the container, the stove must be taken out from its housing, i.e. the fireplace, to access the fuel container. For this purpose, the stove is designed to be mounted onto sliding guides to facilitate extraction from its housing (i.e. within the fireplace). However, said solution has some drawbacks.

[0004] A first drawback relies in that extraction of said stove from its housing results in an uncomfortable operation due to the weight and overall dimensions thereof. As a consequence the guides on which the stove is mounted have a very limited life due to the weight of the latter.

[0005] A second drawback relies in that during the refilling operation of the container, the stove must be off. Therefore, if the stove has to be refuelled after it has been running, the user has to wait for the temperature of the latter to drop to values that permit said refuelling operation, with consequent loss of time both for the shutting off and the subsequent start up of the stove.

[0006] Another drawback for stoves installed within fireplaces relies in that to allow extraction of the stove from its housing, the same is provided with flexible couplings or joints connected to the ducts for extracting of the exhausted gases. Said joints are inevitably stressed and deformed during the extraction/re-insertion of the stove from/into its housing. This considerably reduces the life and reliability of said flexible joints, consequently increasing running costs.

[0007] As an example of solid fuel containers for stoves, in AT 399 388 B and in US 4,442,825 there is disclosed a fuel container for a stove which is removably mounted onto the top thereof. This arrangement, though being practical has the main drawback to be bulky and entails a certain effort and skill for the user. Further, the same has to be operated while the stove is substantially cold or shutdown, and especially has the main disadvantage of being a separated container for the stove with extra overall sizes.

[0008] Further, in US 4,392,479 there is disclosed a removable chute member for loading solid fuel in a stove,

the same having gripping handles for the handling thereof. This arrangement entails a drawback which consists of a substantially moderate effort and a very low clean operation for the user.

[0009] In US 810719A there is disclosed a stove to be inserted into an existing fireplace, having an opening in the front to supply solid fuel to a hopper which is mounted inside the stove structure.

[0010] Object of the present invention, therefore, is to solve the above drawbacks by providing a solid fuel stove suitable to be inserted in a pre-existing fireplace or similar, which allows refilling of its fuel container during operation of the stove and without interruption and in an easy and reliable manner.

[0011] Another object of the present invention is to provide a solid fuel stove to be inserted in a pre-existing fireplace or similar which can be refuelled without having to extract the whole structure of the stove itself from its housing, making the refuelling operation very easy and comfortable.

[0012] A further object of the present invention is to provide a solid fuel stove to be inserted in a pre-existing fireplace or similar having much longer lasting connection joints for the exhaust gases duct with respect to the exhaust gases duct joints in the stoves of the state of the art.

[0013] Therefore, the present invention provides a solid fuel stove to be inserted in a pre-existing fireplace or similar as claimed in claim 1.

[0014] A detailed description of a preferred embodiment of the solid fuel stove according to the present invention will now be given, provided as a non-limiting example thereof, with reference to the annexed drawings, wherein:

figure 1 is a perspective view of the stove of the present invention in an operative condition;

figure 2 is a perspective view of the structure of the stove in a non-operating condition;

figure 3 is a side elevation and partial sectional view of the solid fuel stove of the present invention in a first operative condition;

figure 4 is a side elevation and partial sectional view of the solid fuel stove of the present invention in a second operative condition; and

figure 5 is a perspective view of the structure of the stove in the operative condition of figure 4.

[0015] With reference now to figure 1, said figure illustrates the stove of the present invention in an operative condition.

[0016] According to the invention, a stove 1 is provided and suitable to be fitted in an existing fireplace 2. The stove 1 has a panel door 3 for the access to a furnace 4 where solid fuel such as pellets or similar is burnt. The panel door 3 is provided with a handle 5 and a transparent panel 6 for the inspection and decoration in the known manner. At the upper part of the stove 1 there is provided a region where one or more levers 7 are mounted for the

regulation/control of the air flow. Further, a gripping area 8 of a fuel supply means 9 is provided (better illustrated below).

[0017] With reference now to figures 2 and 3, said figures illustrate the stove of the present invention in a perspective and a partially sectioned side elevation, respectively. As can be seen in the figures, the furnace 4 has an opening 40 for the supply of a solid fuel 41 coming from a container 42 mounted at the rear of the furnace 4. In this way the furnace 4 is automatically fed with the solid fuel in the already known manner.

[0018] With particular reference to figure 3, the arrangement of the container body 42 of the fuel 41 inside the structure of the stove 1 can be seen. More specifically, according to the invention, the container body 42 of the fuel 41 comprises a lower area which communicates with the opening 40 providing access to the furnace 4. Although not shown in the figure, the opening 40 can be provided with automated devices for the shutting of the same and for reasons related to the management of the stove 1 during combustion of the fuel, and for permitting scheduled routine maintenance operations.

[0019] The upper part of the container 42 comprises a connecting part 43 which is shaped as a chute in order to convey the fuel coming from the supply means 9 towards the container 42 (better illustrated below). Further, schematically illustrated by a broken line in figure 3, one or more connection joints 44 for the extraction of the exhausted gases in the already known manner are provided at the top of both the container 42 and the structure of the stove 1. Furthermore, in the lower area of the stove 1 one or more units 45 including devices for the management and control of the stove are provided, in order to provide control during the functioning of the stove 1 in the already known manner. As an example, a unit 45 for controlling a first device for the supply of fuel through the opening 40, a second device for the extraction of the exhausted gases, a third device for detecting the maximum temperature of the furnace 4, etc. can be provided in the stove of the present invention.

[0020] With reference now to figures 4 and 5, said figures show a longitudinal section side view, and in a perspective view of a different operating condition of the stove of the present invention, respectively.

[0021] As can be seen in the figures, the supply means for the solid fuel 41 to the stove 1 comprises a flat chute member 9 fitted in a sliding manner onto the upper part of the stove 1 by means of a pair of guides 90 rendered integral with the structure of the stove 1. More specifically, the flat member 9 is shaped as a chute so that when it is fully extracted from its housing within the stove 1, it is arranged towards the outside and the top of the upper part of the stove 1, and in this condition is connected to the upper part 43 of the container 42, in order to generate a substantially continuous surface for conveying the fuel towards the container 42. In this way, the fuel 41 can be supplied to the stove 1 without the latter having to be off or extracted from its housing or from the fireplace 2.

[0022] As can be easily understood, once the fuel 42 has been supplied to the stove 1, the chute member 9 can be re-positioned in its housing by sliding it on the guides 90 without it interfering with any of the other components of the stove 1.

[0023] The stove 1 of the present invention has numerous advantages. A first advantage relies in that the fuel 42 is supplied without having to interrupt operation of the stove 1 or having to take the latter out of its housing or fireplace 2. Therefore, the sliding guides for support of the same for extraction from the fireplace 2, as in the stoves in the current state of the art, are not necessary, resulting in considerable savings in running costs and times.

[0024] A second advantage relies in that it is no longer necessary to provide a flexible connection member 44 for the extraction of the exhausted gases since the stove 1 does not have to be taken out of its housing. Therefore, according to the invention, the connection member 44 is made of a material which is more suited to a substantially static operation of the same, considerably increasing its life and reliability, and drastically reducing the production costs and maintenance of the stove 1.

[0025] A third advantage relies in that the arrangement of the supplying chute member 9 is such as to make the operation of supplying the fuel 41 to the stove 1 extremely simple and quick. Furthermore, since it is no longer necessary to take the stove 1 out of its housing, this advantageously results in greater cleanliness of the environment surrounding the stove 1.

Claims

1. Stove to be inserted into an existing fireplace (2), comprising a main structure (1), a furnace (4) within inside said main structure (1), a door panel (3) for accessing said furnace (4) from the outside, a container body (42) for containing a solid fuel (41) mounted inside said main structure (1) and communicating with said furnace (4), and means (44) for conveying the exhaust gases towards an external outlet, **characterised in that** it further comprises:

- a movable chute member (9) for supplying said fuel (41) to said container body (42) mounted at the upper part (43) of said structure (1) and said container body (42) said member comprising a shaped part (8) to be gripped by a user and for handling thereof and
- guide means (90) for said movable member (9) integrally mounted onto said structure (1),

said member (9) being slidable on said guide means (90) between a first non operative condition, where it is completely contained inside and at the top of said structure (1), and a second operative condition where it is completely extracted from said structure

(1) towards the outside and towards the top of said structure and communicating with the upper part (43) of said container body (42) and suitable to form, when it is in said operative condition, a continuous surface for conveying the fuel towards said container body (42).

2. Stove according to claim 1, further comprising at least one control unit (45) for the full control and the management of said stove.

Patentansprüche

1. Ofen zum Einsetzen in einen existierenden Kamin (2), umfassend einen Hauptaufbau (1), einen Feuerraum (4) im Innern des Hauptaufbaus (1), eine Türplatte (3) zum Zugriff auf den Feuerraum (4) von außerhalb, einen Behälterkörper (42) zur Aufnahme eines festen Brennstoffes (41), der innerhalb des Hauptaufbaus (1) angebracht ist und mit dem Feuerraum (4) in Verbindung steht, und ein Mittel (44) zum Fördern der Abgase in Richtung eines äußeren Auslasses, **dadurch gekennzeichnet, dass** er ferner umfasst: - ein bewegbares Rinnenelement (9) zur Lieferung des festen Brennstoffes (41) an den Behälterkörper (42), das an dem oberen Teil (43) des Aufbaus (1) und dem Behälterkörper (42) angebracht ist, wobei das Element ein geformtes Teil (8) zum Ergreifen durch einen Anwender und zu dessen Handhabung umfasst; und

- ein Führungsmittel (90) für das bewegbare Element (9), das einteilig an dem Aufbau (1) angebracht ist,

wobei das Element (9) an dem Führungsmittel (90) zwischen einem ersten Nichtbetriebszustand, in dem es vollständig innerhalb und an dem oberen Bereich des Aufbaus (1) enthalten ist, und einem zweiten Betriebszustand verschiebbar ist, in dem es vollständig von dem Aufbau (1) in Richtung nach außen und in Richtung des oberen Bereichs des Aufbaus ausgefahren ist und mit dem oberen Teil (43) des Behälterkörpers (42) in Verbindung steht, und, wenn es sich in dem Betriebszustand befindet, geeignet ist, um eine kontinuierliche Fläche zum Fördern des Brennstoffes in Richtung des Behälterkörpers (42) zu bilden.

2. Ofen nach Anspruch 1, ferner mit zumindest einer Steuereinheit (45) für die vollständige Steuerung und das Management des Ofens.

Revendications

1. Poêle à insérer dans une cheminée existante (2), comportant une structure principale (1), un foyer (4) à l'intérieur de ladite structure principale (1), un panneau de porte (3) pour accéder audit foyer (4) depuis l'extérieur, un corps de conteneur (42) pour contenir un combustible solide (41) monté à l'intérieur de ladite structure principale (1) et communiquant avec ledit foyer (4), et des moyens (44) pour acheminer les gaz d'échappement vers une sortie extérieure, **caractérisé en ce qu'il** comporte en outre :

- un élément de goulotte mobile (9) pour fournir ledit combustible solide (41) audit corps de conteneur (42) monté sur la partie supérieure (43) de ladite structure (1) et dudit corps de conteneur (42), ledit élément comportant une partie mise en forme (8) devant être saisie par un utilisateur et destinée à la manipulation de celle-ci, et

- des moyens de guidage (90) pour ledit élément mobile (9) montés d'un seul tenant sur ladite structure (1),

ledit élément (9) pouvant coulisser sur lesdits moyens de guidage (90) entre un premier état de repos, où il est entièrement contenu à l'intérieur de ladite structure (1) et au-dessus de celle-ci, et un second état de fonctionnement, où il est complètement extrait de ladite structure (1) vers l'extérieur et vers le dessus de ladite structure et communiquant avec la partie avant supérieure (43) dudit corps de conteneur (42) et adapté pour former, lorsqu'il est dans ledit état de fonctionnement, une surface continue pour acheminer le combustible vers ledit corps de conteneur (42).

2. Poêle selon la revendication 1, comportant en outre au moins une unité de commande (45) pour la commande complète et la gestion dudit poêle.

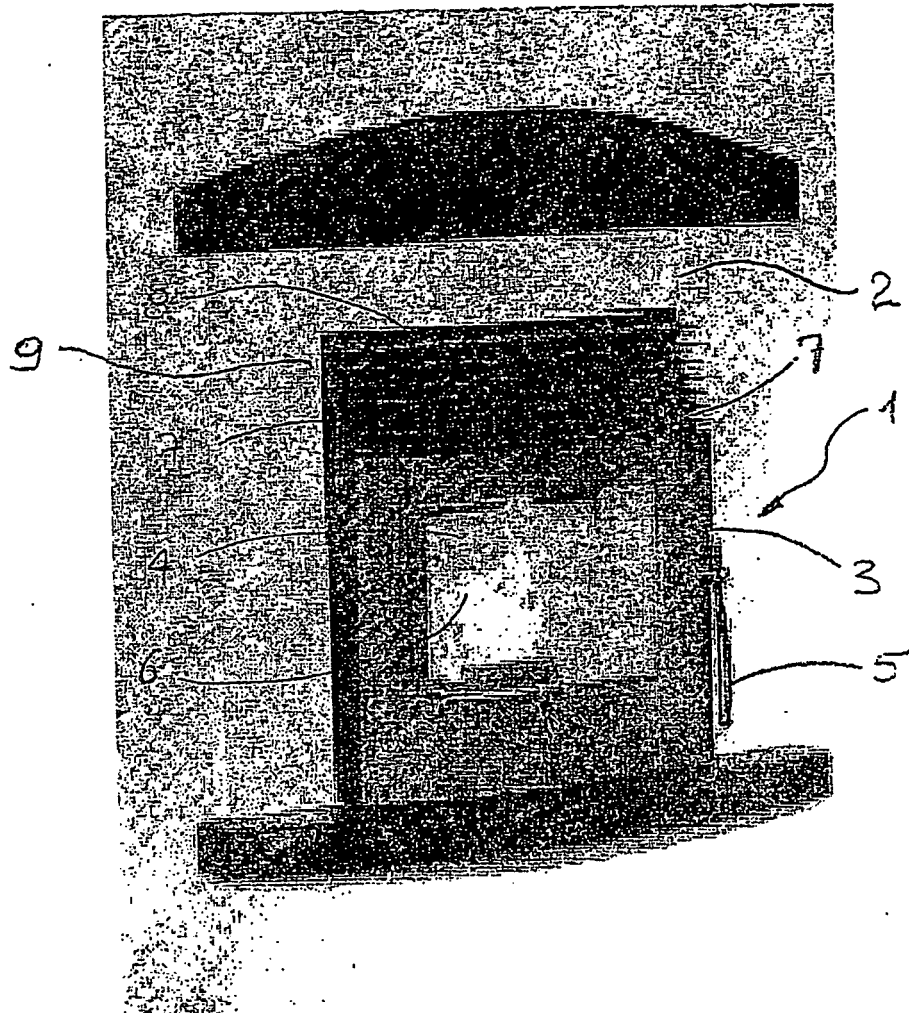


FIG. 1

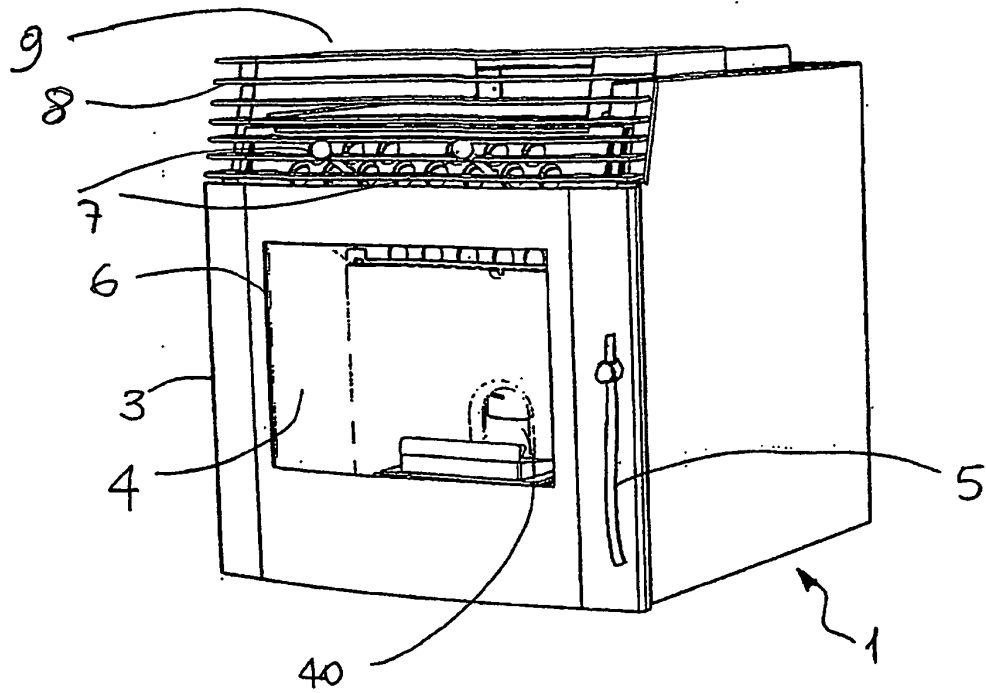


FIG. 2

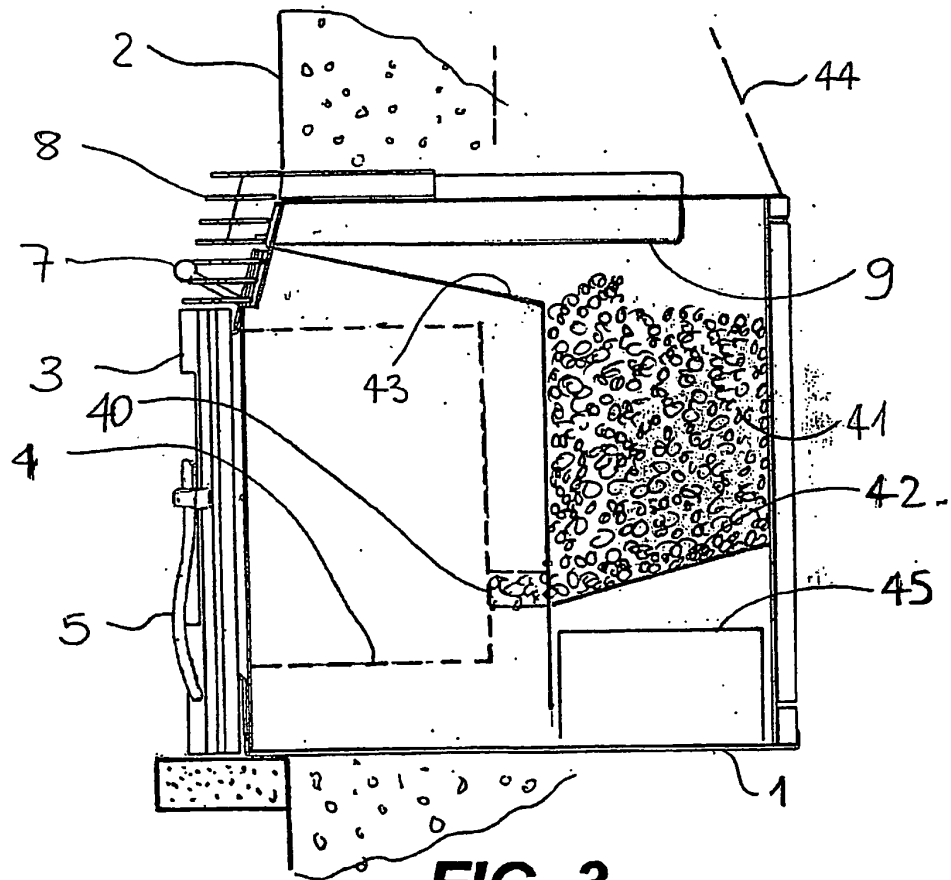


FIG. 3

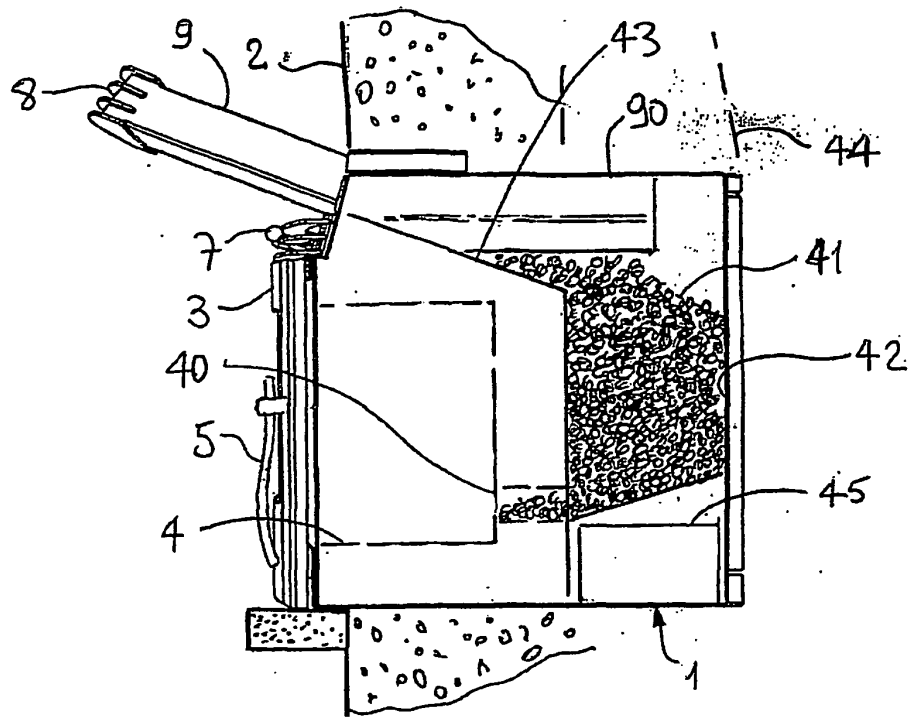


FIG. 4

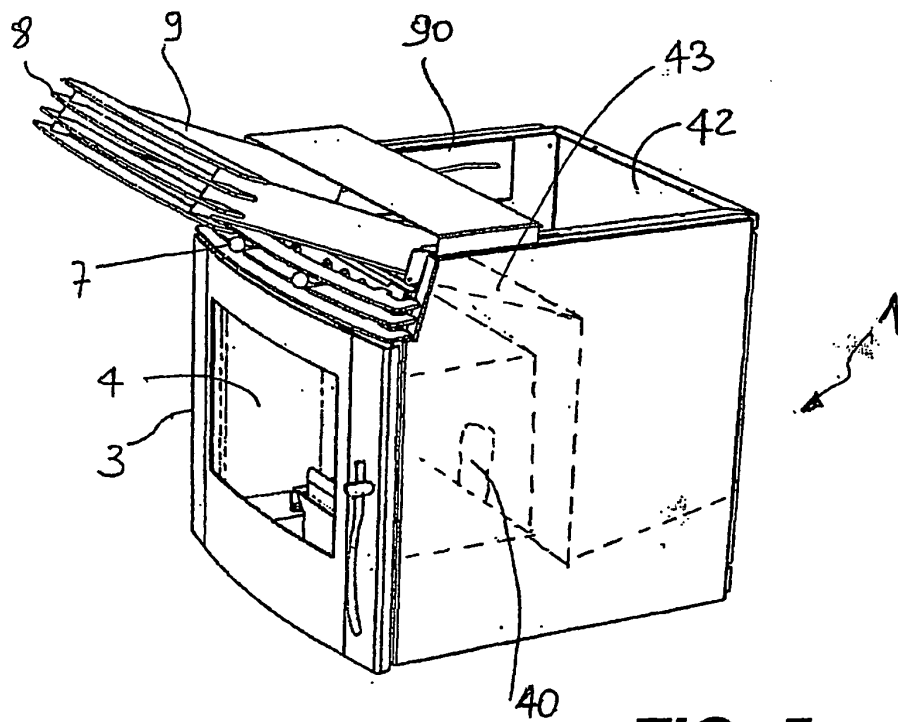


FIG. 5

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- AT 399388 B [0007]
- US 4442825 A [0007]
- US 4392479 A [0008]
- US 810719 A [0009]