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(54) **Heating pellet-fired stove and thermostove apparatus**

Pellet-befeuerter Heizofen und Heizofen-Apparat

Pôle à pellets et thermo-poêle appareil

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Description

[0001] The present finding concerns heating apparatuses such as pellet-fired stoves and thermo-stoves.

[0002] As is well known, current pellet-fired stoves and thermo-stoves, commonly used, in particular in homes, are parallelepiped in shape, with a substantially square base.

[0003] This configuration with vertical extension is a consequence of the fact that the operating members, substantially represented by the fuel tank, the furnace, the electroventilator for cooling the stove body, the smoke-expulsion motor and the electronic operation control apparatus, are arranged on top of one another.

[0004] Moreover, the base bulk of these types of stoves (for example quoting the most frequent dimensions: base 0.5 m and height 1 m) is often problematic due to the small size of the rooms where they are arranged.

[0005] EP-A-1455136 describes an oven having a pellet burner and a combustion chamber for the pellets. The oven has a combustion chamber to receive solid fuel, in particular wood, which is connected to the pellet burner in such a manner that it serves at least partly as the combustion chamber for the pellets from the pellet store fed by a screw conveyor.

[0006] The preamble of claim 1 is derived from this reference.

[0007] The purpose of the present invention is to make pellet-fired stoves and thermo-stoves that are configured so as to exploit the available space in the best possible way.

[0008] A further purpose of the invention is to make pellet-fired stoves and thermo-stoves, which are aesthetically different to known stoves and thermo-stoves.

[0009] Specifically, the purpose of the present invention is to make pellet-fired stoves and thermo-stoves that can easily be arranged in confined spaces such as corridors and that also constitute a furnishing element.

[0010] Finally, another purpose of the invention is to make pellet-fired stoves and thermo-stoves in which access to the internal components is made substantially easier.

[0011] Such purposes are accomplished by making a stove of the type described above, having the features listed in appended independent claim 1.

[0012] Advantageous embodiments of the present invention are apparent from the dependent claims.

[0013] Constructively, such a purpose is accomplished with a stove in which the three main components, i.e. the fuel-loading tank, the combustion chamber and the smoke aspirator, are each arranged inside a single space and where said three spaces are side-by-side in the horizontal direction when the machine is assembled.

[0014] Again constructively, the aforementioned three spaces can be separable from one another, making a structure of the stove consisting of three distinct modules that can, therefore, be positioned so as to modify their relative position.

[0015] Specifically, by keeping the space/module of

the combustion chamber in a central or intermediate position it is possible to position the module of the fuel loader to the side, for example to the right, of said module, and to position the module with the smoke aspirator to the side, for example to the left; all of this makes it easier to position the stove in the home, said operation being fundamental to be able to heat the home uniformly.

[0016] In practice, a stove is made that has a bulk in which the base width and height dimensions substantially exceed the depth dimension.

[0017] The finding shall be better understood from the description of some possible embodiments thereof, given as a non-limiting example, with the help of the attached tables of drawings, where:

Figs. 1-4 (table I) represent three perpendicular views and a perspective view from the outside of the stove according to the finding;

Figs. 5-6 (table II) represent two perspective views, front and rear respectively, of a first embodiment of the stove according to the finding;

Figs. 7-8 (table III) represent two perspective views, front and rear respectively, of a second embodiment of the stove according to the finding;

Figs. 9-10 (table IV) represent two possible arrangements, on the floor and on a wall respectively, of the stove according to the finding.

[0018] As can be seen in figures 1-4, the stove and thermo-stove according to the invention has a substantially parallelepiped fairing, where three side-by-side spaces, respectively indicated with reference letters A, B and C, can be identified. Moreover, the depth dimension K is substantially smaller than the width and height dimensions.

[0019] Constructively, the three main components of the machine, i.e. the fuel-storage tank, the combustion chamber and the smoke aspirator, obviously as well as other auxiliary devices, necessary for the operation of the machine, are arranged inside each of the three spaces A, B and C.

[0020] In an embodiment of the invention (see figs. 5-6), the compartment, wholly indicated with reference numeral 10, which comprises the combustion chamber with the main smoke passage, the ash collection drawer, the heat exchanger and the inspection openings, is inserted in the central space A; the compartment, wholly indicated with reference numeral 20, which comprises the fuel storage tank, the loading opening and the device (Archimedean screw) for transporting the pellets into the furnace is inserted in the space B; the compartment, wholly indicated with reference numeral 30, which comprises the smoke aspirator, complete with its support and the flue for the smoke coming from the combustion chamber, is inserted in the space C.

[0021] In a second embodiment (see figs. 7-8), without affecting the central space A, the side space B, in addition to containing the compartment 20 (pellet loader), is also used to contain the compartment 30.1 (smoke aspirator) that is advantageously positioned below the aforementioned compartment 20.

[0022] In this way the space C, remaining empty, becomes a "technical space" intended to contain other accessory components of the stove.

[0023] In particular, with this constructive solution, in thermo-stoves, i.e. stoves intended to feed a central heating system, the equipment, such as the valves, the pumps and the other devices that regulate the operation of the system, is inserted in the space C, with undoubted economic advantages.

[0024] Finally, the invention foresees that the stove and thermo-stove according to the invention, thanks to the special arrangement of its main internal components, has one of the three bulk dimensions, i.e. the depth, substantially small (for example 250 mm) for which reason the stove or thermo-stove can be placed up against a wall of a small room without problems of bulk (see fig. 9).

[0025] Again thanks to the aforementioned low bulk, the stove or thermo-stove, equipped with suitable fittings, can be positioned hanging on a wall, to thus act as an innovative furnishing element (see fig. 10) in addition to being a low-bulk heating apparatus.

Claims

1. Heating pellet-fired stove and thermostove apparatus comprising a substantially parallelepiped fairing (100) inside which three spaces (A, B, C) arranged side-by-side and aligned in the horizontal direction are defined, said spaces (A, B, C) comprising a central space (A) and side spaces (B, C), wherein the main components of the apparatus, i.e. a fuel-loading tank compartment (20), a combustion chamber compartment (10) and a smoke aspirator compartment (30) are arranged inside said spaces (A, B, C); **characterized in that:**

- the central space (A) houses the combustion chamber compartment (10) comprising a combustion chamber with a main smoke passage, an ash collector drawer, a heat exchanger and inspection openings;
- one side space (B) houses the fuel-loading tank compartment (20) comprising the fuel storage tank, an opening for loading and a device for transporting the pellets into the furnace; and
- the other side space (C) houses the smoke aspirator compartment (30) comprising a smoke aspirator complete with its support and a flue for the smoke coming from the combustion chamber, whereby the apparatus has a bulk in which the depth dimension (K) is substantially smaller

that the width and height dimension of the entire apparatus.

2. Heating apparatus according to one or more of the previous claims, **characterised in that** it can be positioned suspended, possibly applied to a wall, to act as low-bulk furnishing elements.

Patentansprüche

1. Mit Pellets betriebener Heizofen und Heizofengerät, die eine im Wesentlichen parallelepipedische Auskleidung (100) aufweisen, in welcher drei Räume (A, B, C), die nebeneinander eingerichtet und in der horizontalen Richtung gefluchtet sind, definiert sind, wobei die Räume (A, B, C) einen zentralen Raum (A) und Seitenräume (B, C) aufweisen, wobei die Hauptbestandteile des Geräts, nämlich ein Brennstoffladetankfach (20), ein Brennkammerfach (10) und ein Rauchgasansaugfach (30) innerhalb der Räume (A, B, C) eingerichtet sind, **dadurch gekennzeichnet, dass:**

- der zentrale Raum (A) das Brennkammerfach (10) aufnimmt, das eine Brennkammer mit einem Hauptrauchgasdurchgang, eine Aschensammellade, einen Wärmeaustauscher und Inspektionsöffnungen aufweist;
- ein Seitenraum (B) das Brennstoffladetankfach (20) aufnimmt, das den Brennstofflagerungstank, eine Öffnung zum Laden sowie eine Vorrichtung zum Transportieren der Pellets in den Feuerraum aufweist; und
- der andere Seitenraum (C) das Rauchgasansaugfach (30) aufnimmt, das einen Rauchgasansauger komplett mit seinem Träger und einem Feuerzug für den Rauch, der von der Brennkammer kommt, aufweist,

wobei das Gerät eine Größe hat, bei der das Tiefenmaß (K) wesentlich kleiner ist als das Breiten- und das Höhenmaß des gesamten Geräts.

2. Heizgerät nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** es hängend, eventuell an eine Wand anliegend positioniert werden kann, um als Lieferelemente mit geringer Größe zu wirken.

Revendications

1. Appareil de chauffage du type poêle et thermo-poêle à pellets, comprenant un profilage substantiellement parallélépipédique (100), dans lequel sont définis trois espaces (A, B, C) agencés côte à côte et alignés dans la direction horizontale, lesdits espaces (A, B,

C) comprenant un espace central (A) et des espaces latéraux (B, C), dans lequel les principaux composants de l'appareil, c'est-à-dire un compartiment de réservoir de remplissage de combustible (20), un compartiment de chambre de combustion (10) et un compartiment d'aspiration de fumée (30) sont agencés à l'intérieur des espaces (A, B, C); **caractérisé en ce que:**

- l'espace central (A) héberge le compartiment de chambre de combustion (10) comprenant une chambre de combustion avec un passage de fumée principal, un tiroir de collecte de cendres, un échangeur de chaleur et des ouvertures d'inspection;
- un espace latéral (B) héberge le compartiment de réservoir de remplissage de combustible (20) comprenant le réservoir de stockage de combustible, une ouverture pour le remplissage et un dispositif pour le transport des pellets dans la fournaise; et
- l'autre espace latéral (C) héberge le compartiment d'aspiration de fumée (30) comprenant un aspirateur de fumée complet avec son support et un conduit pour la fumée venant de la chambre de combustion,

où l'appareil possède un volume dans lequel la dimension de profondeur (K) est substantiellement inférieure à la dimension de largeur et de hauteur de l'appareil entier.

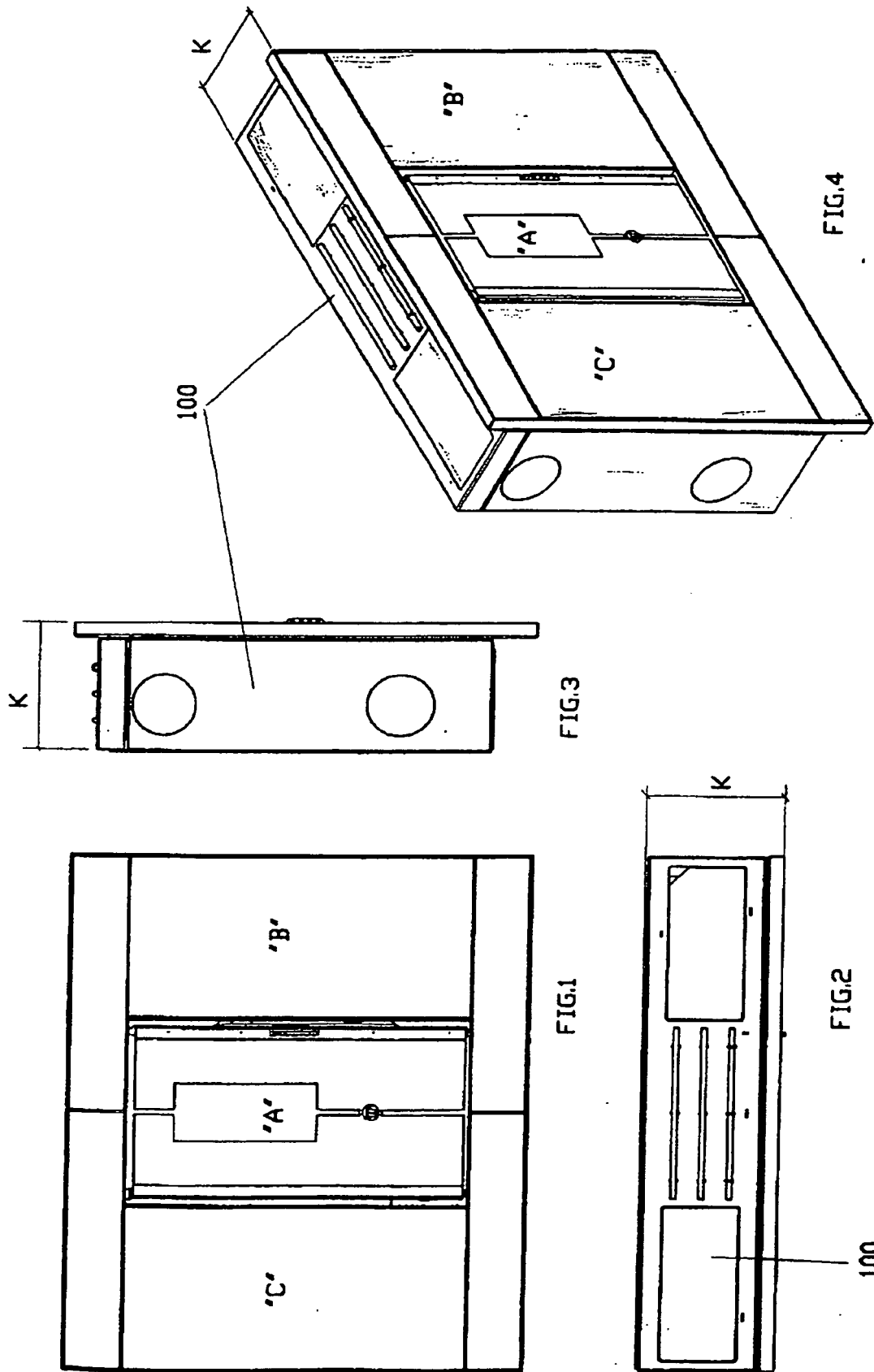
2. Appareil de chauffage selon une ou plusieurs des revendications précédentes, **caractérisé en ce qu'il** peut être installé suspendu, éventuellement appliqué à un mur, pour fonctionner comme un élément de ameublement peu encombrant.

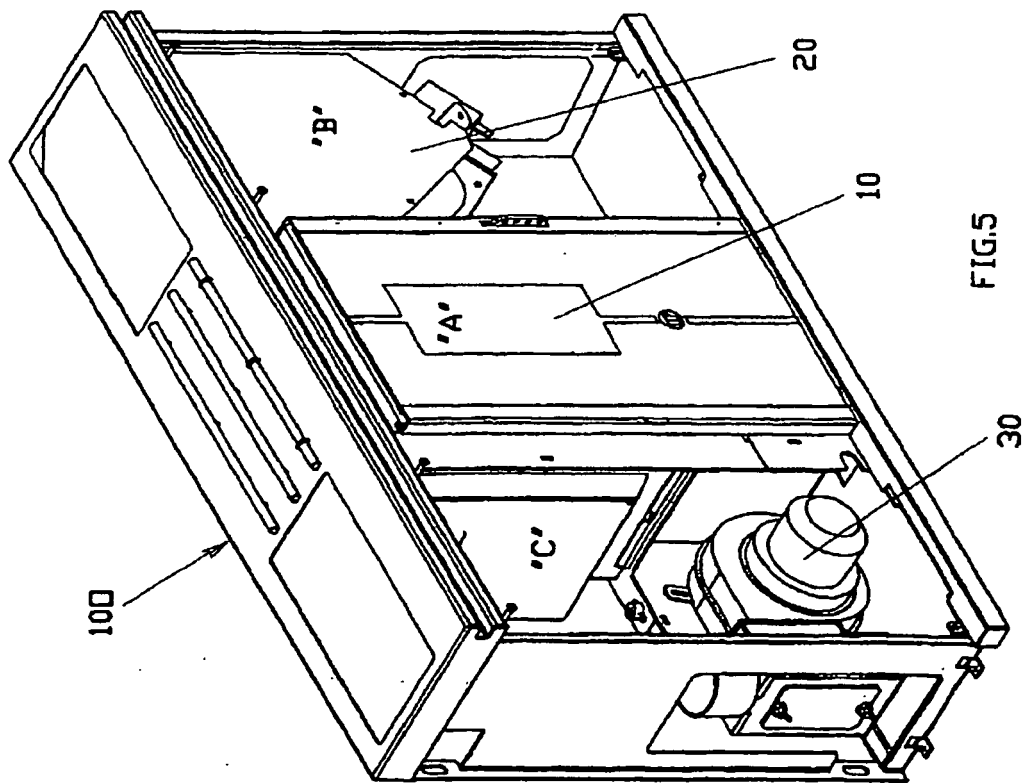
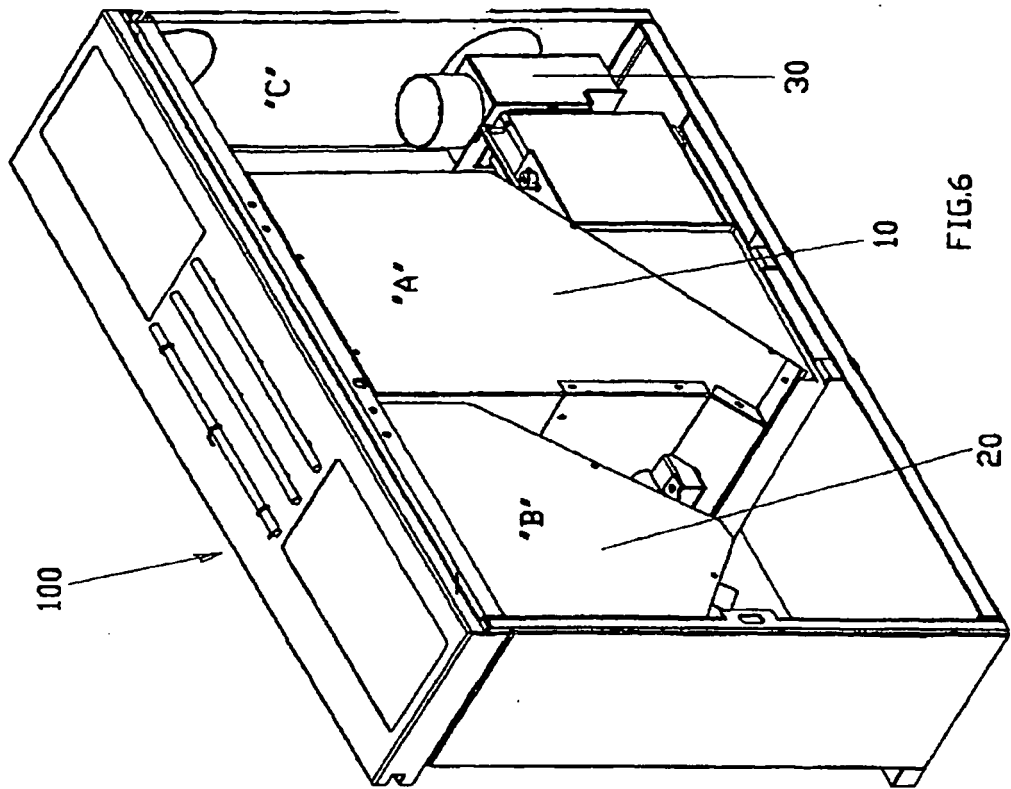
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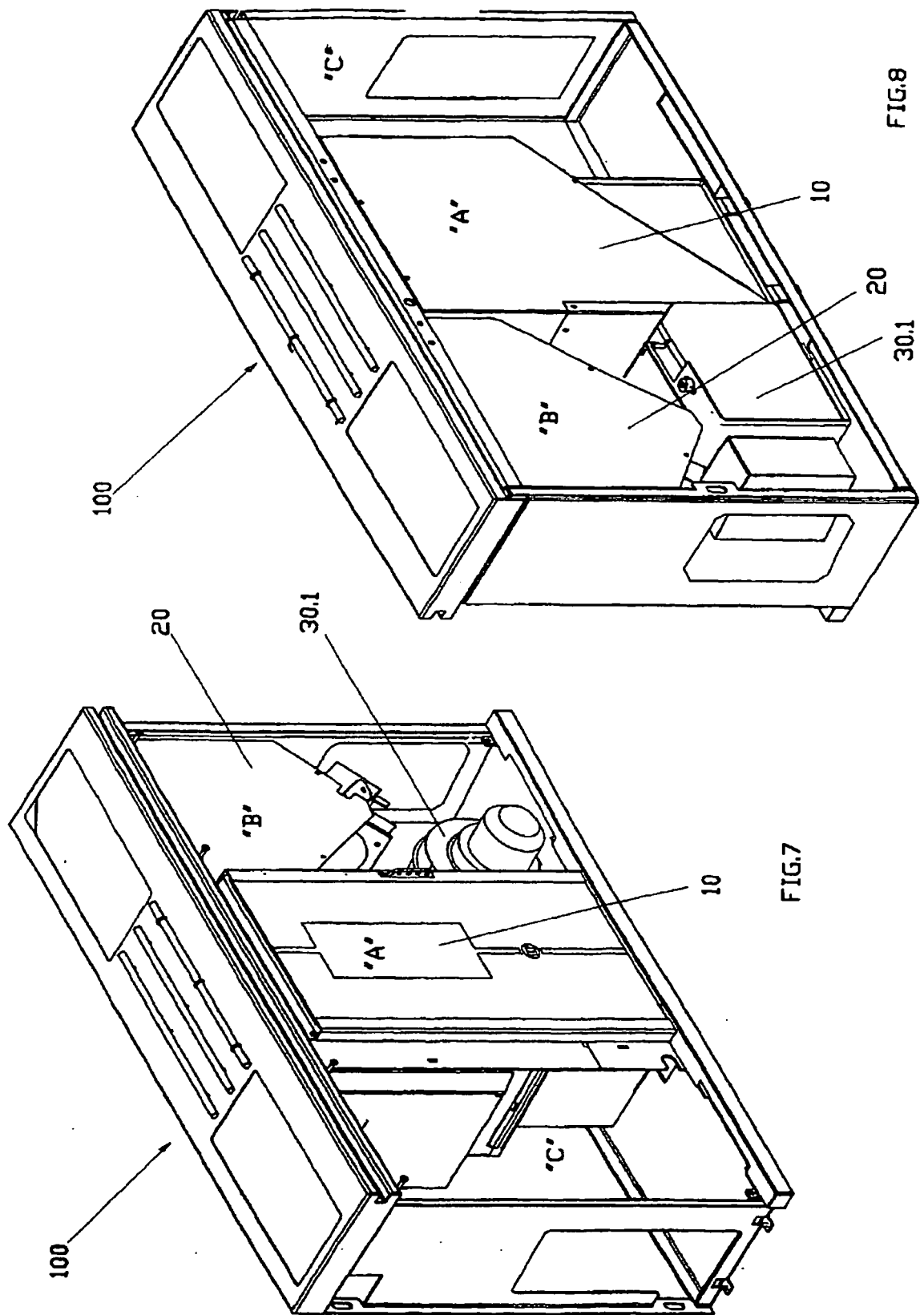
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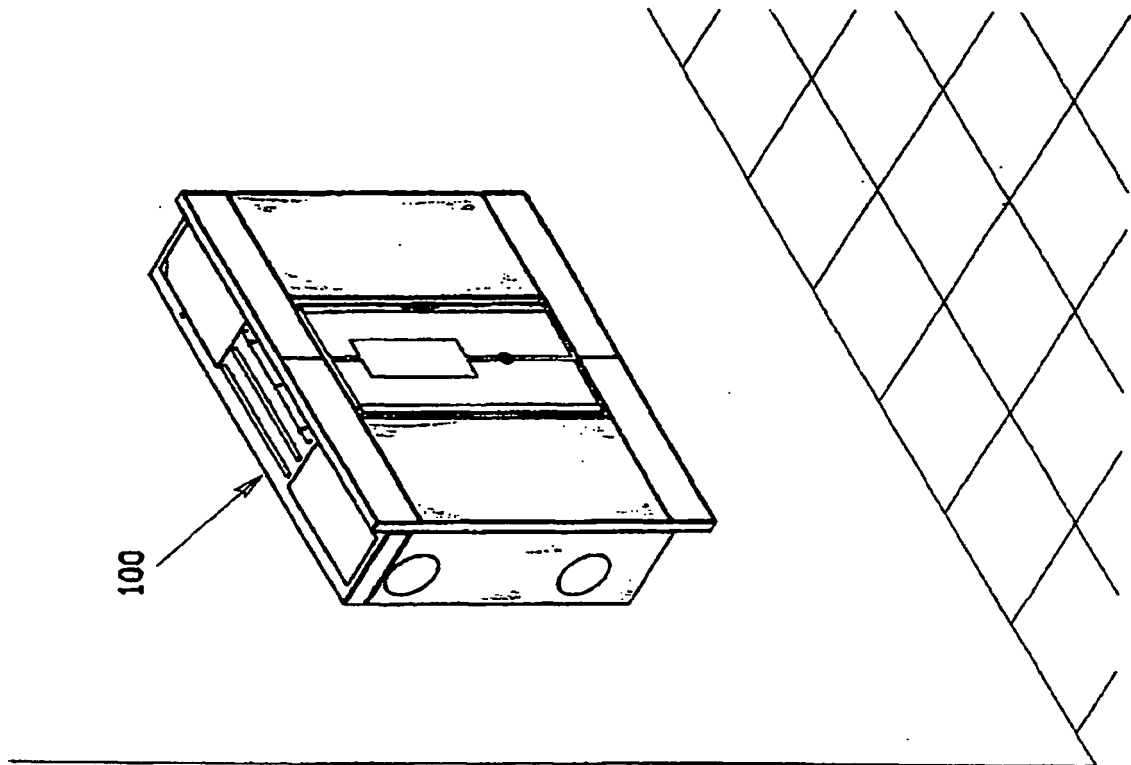


FIG. 10

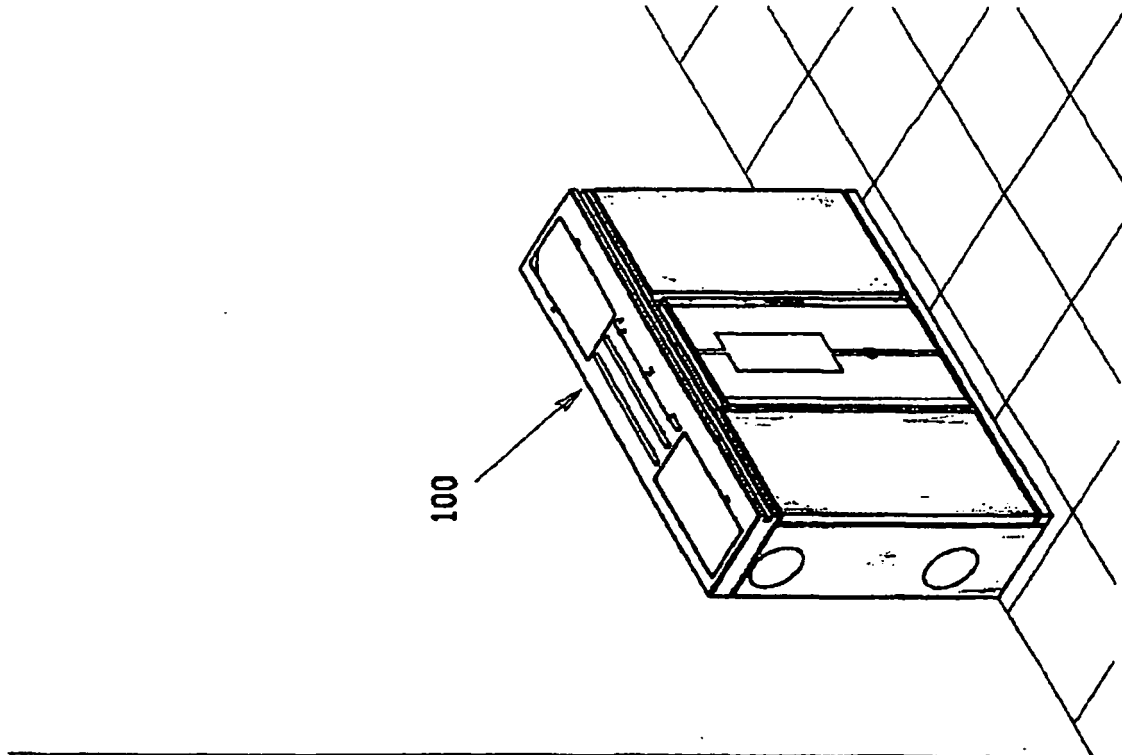


FIG. 9

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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