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(54) POLYVALENT STOVE

(57) The invention relates to a polyvalent stove that permits the burning of firewood, wood pellets, almond shells, etc. interchangeably, for which a combustion chamber is included inside the body (1) of the stove, formed by a receptacle (8) provided with an upper opening (7) suitable for being partially blocked by an openable grille (9) in order to form a specific space between same and the upper surface of the receptacle (8) for burning the firewood, while, when said grille is removed or lowered, the burning of the remaining types of fuel is permitted in the core of the receptacle (6), without the need for electrical devices or systems.

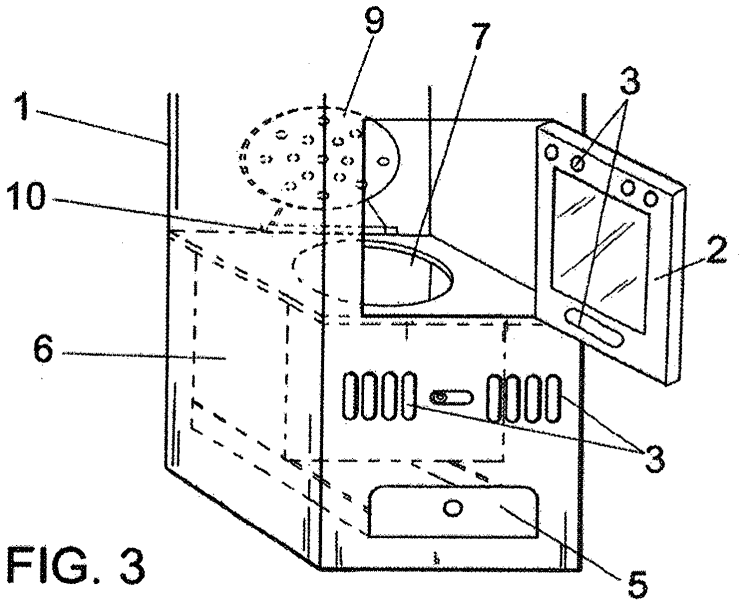


FIG. 3

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Description

Purpose of the invention

[0001] The present invention relates to a polyvalent stove in which the fuel may be firewood or wood pellets, almond shells, olive stones, wood chips, wood shavings, etc. To this end, the stove includes means that enable the combustion of different types of combustible materials.

[0002] The object of the invention is to provide a stove that can work by burning different types of fuel, producing combustion by natural convection, without intervention of electrical means and without need for turbines to force the updraught of smoke, making the stove fully autonomous.

Background of the invention

[0003] Numerous types of stoves are known whose fuel is firewood, but always with a combustion chamber wherein the fuel to be burned is usually only firewood, since if it is replaced by other fuels such as wood pellets, almond shells, etc., then the stove would require modifications that will derive in a completely different stove.

[0004] Additionally, in conventional stoves whose fuel is pellets or similar, combustion requires an electricity supply to light it, in addition to a turbine to force the updraught of smoke.

[0005] The applicant is unaware of the existence of polyvalent stoves with the characteristics of the device described below.

Description of the invention

[0006] The advocated stove has a series of structural peculiarities and characteristics that enables its operation using both firewood as fuel and other types of fuels such as pellets, almond shells, etc., to which end the stove in question, while it may have any appropriate geometric configuration, and a practicable front door, has the peculiarity that it includes a combustion chamber consisting of a receptacle in its interior, which will have one or another configuration, depending on the external configuration of the stove, and whose combustion chamber has a wide upper opening susceptible of having a grille disposed thereupon, as a support for disposing firewood as combustible material thereon, while when said upper opening of the combustion chamber is disposed without the grille, on being removed or lowered, wood pellets, almond shells, wood chips, olive stones, etc., can be introduced in the interior of the receptacle included in said combustion chamber, proceeding with the burning and, therefore, combustion of this type of materials.

[0007] The combustion chamber or receptacle that materialises it has a plurality of grooves that enable the intake of air necessary for combustion, disposing a grille at its base to facilitate the intake of air and outflow of combustion ashes, which are collected in a frontally removable lower tray.

[0008] This combustion chamber or receptacle, strictly speaking, includes small internal air chambers that have a dual function: on the one hand, to mix oxygen with the gases arising from the pyrolysis of the wood, for combustion by gasification and, on the other, to serve as an air chamber so that the combustion is not choked, wherethrough the flame flows when said fuel chamber or receptacle is filled with fuel.

[0009] The arrangement and characteristics of said combustion receptacle or chamber causes the combustion of pellets, almond shells, fruit stones, etc., to burn differently to the manner in which they burn in conventional stoves.

[0010] That is, the combustion of this type of fuels other than firewood is performed by burning the gas produced during pyrolysis, burning the gasification of the wood, due to which the flame always appears on the upper part of the combustion receptacle or chamber where the pellets are housed, while said pellets are consumed inside the combustion receptacle or chamber, such that it is filled when the pellet has been fully consumed and a ember bed of two or three centimetres remains at the bottom of the combustion chamber, opening the front door, which shall preferably be made of glass, and introducing pellets once again in the combustion receptacle or chamber, whereupon the combustion is initiated again on its own in the form of gasification.

[0011] Therefore, one of the essential characteristics of the stove of the invention with the aforementioned characteristics is that of making it possible to burn different types of materials such as firewood, pellets, olive stones, etc., in the form of gasification inside the stove itself, giving rise to very high yields without need for electricity or complicated devices to operate it.

Description of the drawings

[0012] In order to complement the description made below and with the object of helping to better understand the characteristics of the invention, in accordance with a preferred embodiment thereof, said description is accompanied, as an integral part thereof, by a set of drawings where, in an illustrative and non-limiting manner, the following has been represented:

fig. 1 shows a representation corresponding to a front perspective view of a polyvalent stove carried out in accordance with the object of the invention;

fig. 2 shows a front view of a part of the stove represented in the preceding figure, showing the interior after opening the corresponding practicable door, and in whose interior a grille leaning on the receptacle that constitutes the combustion chamber in its interior is shown, in order

for the stove to use firewood as fuel;

fig. 3 shows a view such as that of the preceding figure, but in this case with the grille raised with respect to the combustion receptacle or chamber, to allow the burning of pellets, almond shells, etc., in said combustion receptacle.; and

figs. 4 and 5 show perspective views of the exterior of the combustion receptacle or chamber and of the interior thereof, respectively.

Preferred embodiment of the invention

[0013] As shown in the preceding figures, the stove of the invention, embodied as shown by a rectangular or quadrangular prismatic body, although it may have other appropriate configurations, has a body (1) that includes a front and practicable door (2), preferably made of glass, with air inlets (3) for combustion.

[0014] The corresponding smoke vent (4) is disposed on the upper part. The smoke vent (4) can be disposed both on the upper part and at the rear of the stove, since it varies in accordance with the use given to the upper part of the stove, wherein a hot plate, an oven, a coil for heating water, etc., can be introduced, while a frontally removable tray (5) is included at the bottom, envisaged for receiving the ashes produced in the combustion.

[0015] In the interior of the body (1) of the stove, a combustion chamber consisting of a receptacle (6) having an upper opening (7) and a grille (8) at the base thereof, such that said upper opening (7) may be clear to make it possible to introduce pellets, almond shells, etc. therein, as combustion materials, or be blocked by means of a grille (9) that may be independent, i.e. removable, or be mounted in a swinging manner with respect to pivoting means (10), as shown in figures 2 and 3.

[0016] That is, when the grille (9) is in the blocking position of the opening (7), said grille (9) with the upper surface of the combustion chamber or receptacle (6) consists of a bed for firewood that will be burned as combustion material, while when the grille is removed or swung back, almond shells, pellets, etc., can be introduced therethrough and burned in the core of the combustion chamber or receptacle (6), which has internal air chambers (11) for mixing gasification oxygen and also including air inlets (12) for facilitating the burning of the combustible material, avoiding the generation of unburned material.

Claims

1. A polyvalent stove which, consisting of a body (1) having a front practicable door (2), preferably made of glass, and a frontally removable lower tray (5) for receiving the ashes generated during the combustion, **characterised in that** it comprises a combustion chamber formed by a receptacle (6) disposed in the interior of the body (1) of the stove, said receptacle (6) having an upper opening (7) for introducing pellets, almond shells, olive stones and similar materials, and the corresponding burning thereof in the interior of the receptacle (6), said upper opening (7) being susceptible of being partially blocked by a practicable grille (9), to form a specific space between it and the upper surface of the receptacle (6) for burning the firewood.

2. The polyvalent stove, according to claim 1, **characterised in that** the combustion chamber or receptacle (6) has internal air chambers (11) having a mixture of gasification oxygen in the combustion of pellets, almond shells and other similar materials, in addition to openings corresponding to air inlets (12) to favour the combustion.

3. The polyvalent stove, according to claim 1, **characterised in that** the grille (9) that blocks or clears the opening (7) of the combustion chamber or receptacle (6), is independent and removable with respect to said receptacle (6).

4. The polyvalent stove, according to claim 1, **characterised in that** the grille (9) for blocking or clearing the opening (7) of the combustion chamber or receptacle (6) is mounted in a swinging manner with respect to said receptacle (6).

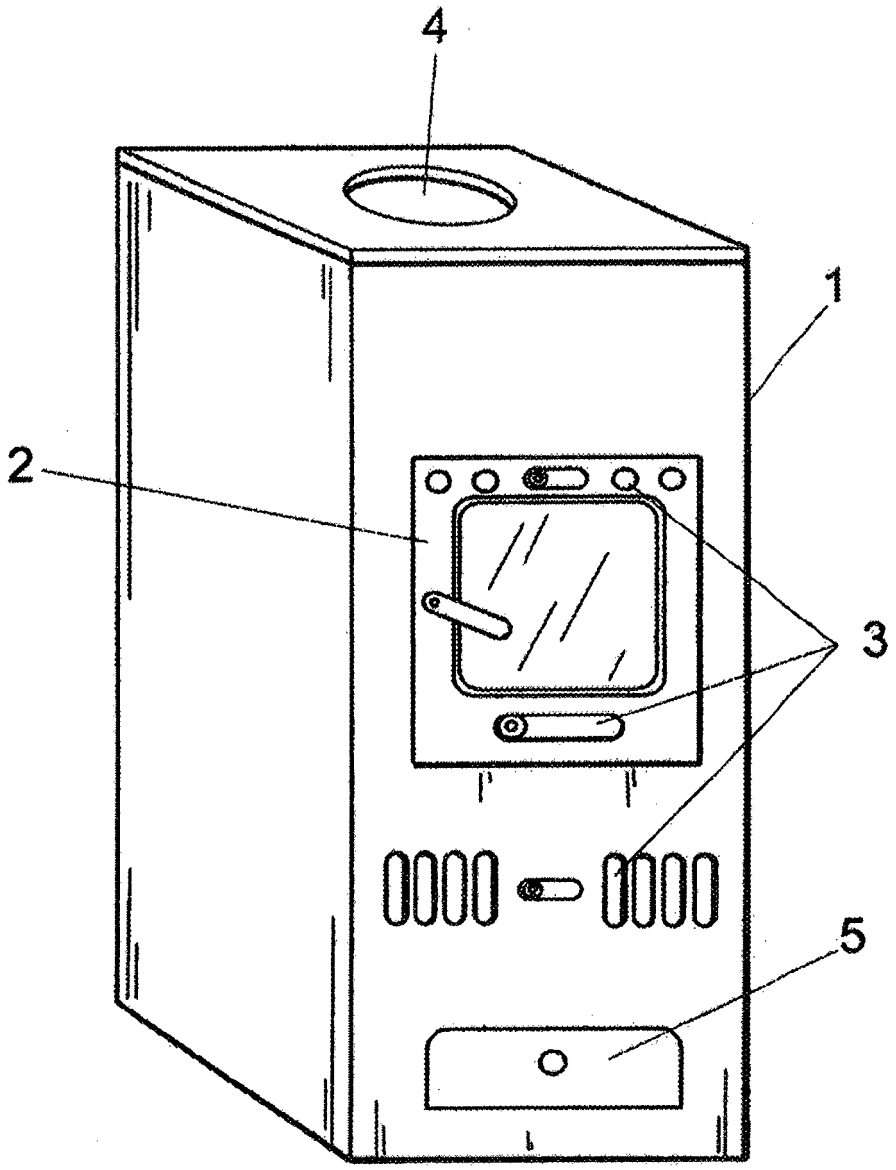


FIG. 1

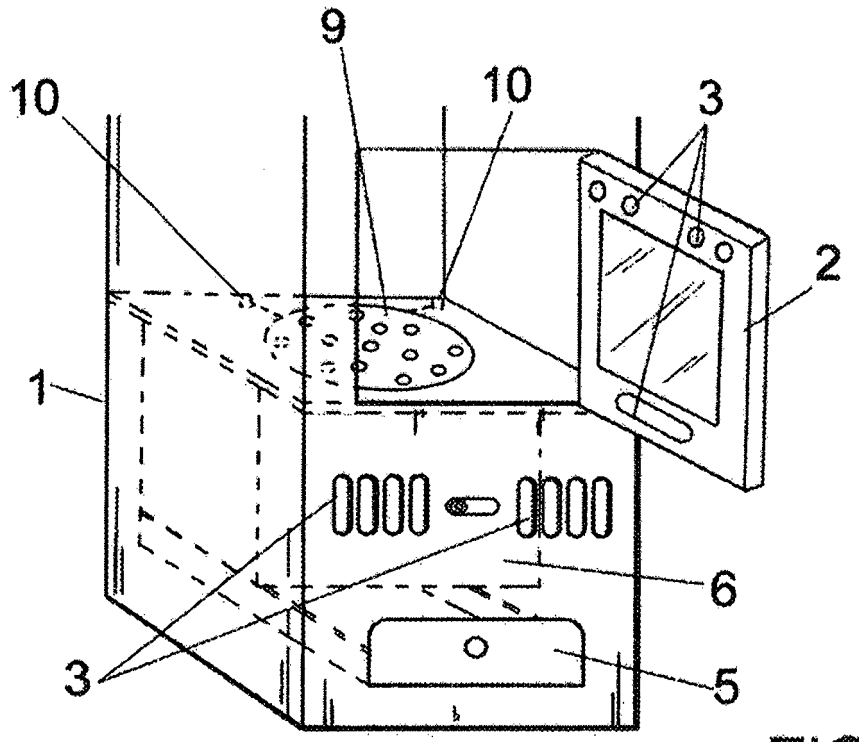


FIG. 2

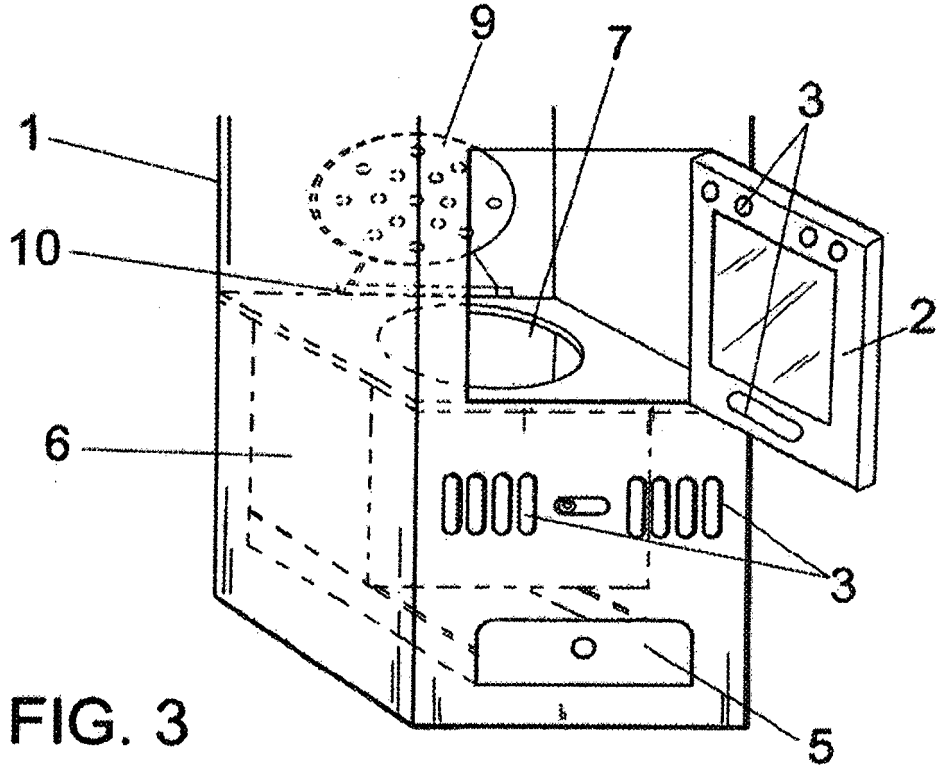


FIG. 3

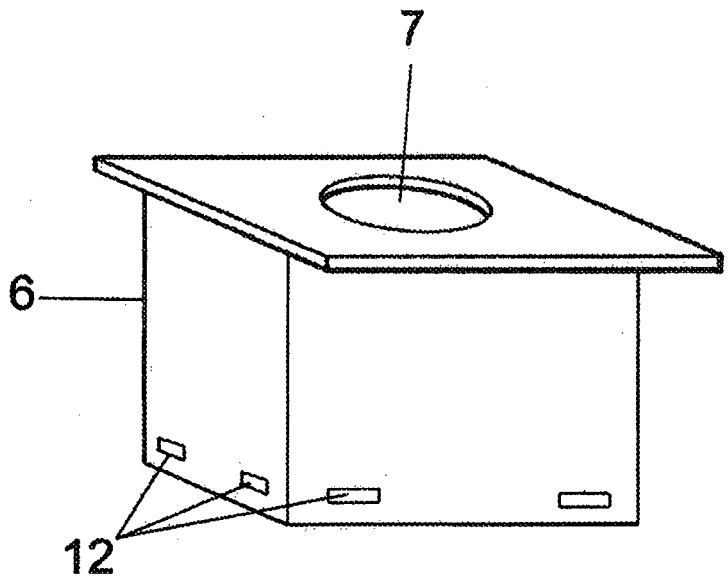


FIG. 4

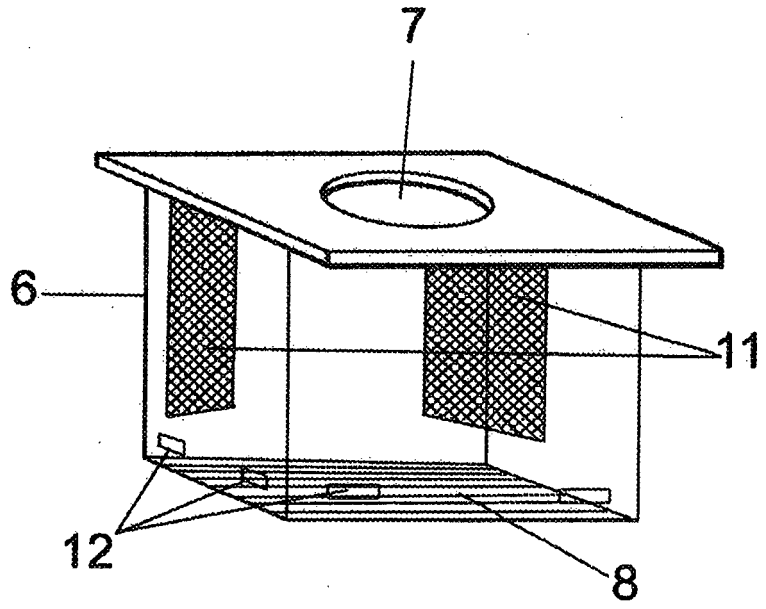


FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2015/070273

A. CLASSIFICATION OF SUBJECT MATTER

F24B1/08 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
F24B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, INVENES

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CA 2047099 A1 (WALSH ROGER C) 16/01/1993, pages 2, 3, 6.	1-3
A	FR 1042384 A (DIETRICH & COMPAGNIE DE) 30/10/1953, figures.	1, 2
A	WO 8103057 A1 (HELLZEN J) 29/10/1981, figure 1.	1, 4
A	EP 0026150 A1 (OLMOTTI HUMBERT MARIN) 01/04/1981, the whole document.	1

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
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"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other documents , such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
24/08/2015	**(02.09.2015)**
Name and mailing address of the ISA/ OFICINA ESPAÑOLA DE PATENTES Y MARCAS Paseo de la Castellana, 75 - 28071 Madrid (España) Facsimile No.: 91 349 53 04	Authorized officer J. Celemín Ortiz-Villajos Telephone No. 91 3495493

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/ES2015/070273

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
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FR1042384 A	30.10.1953	NONE	
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Form PCT/ISA/210 (patent family annex) (January 2015)