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(54) PORTABLE SMOKELESS STOVE

(57) Disclosed is a portable smokeless stove (1), including a combustion cylinder (11), a separating net (15) and first ventilation holes (11a). The combustion cylinder (11) is provided with an accommodating chamber with upper and lower openings, and the accommodating chamber can accommodate a fire source; the separating net (15) is provided in the accommodating chamber and can carry the fire source; and the first ventilation holes (11a) are provided at upper and lower ends of the combustion cylinder (11), each of the first ventilation holes (11a) is distributed along a circumferential direction of the combustion cylinder (11) and communicated with the accommodating chamber, and the first ventilation hole (11a) at the lower end is underneath the separating net (15).

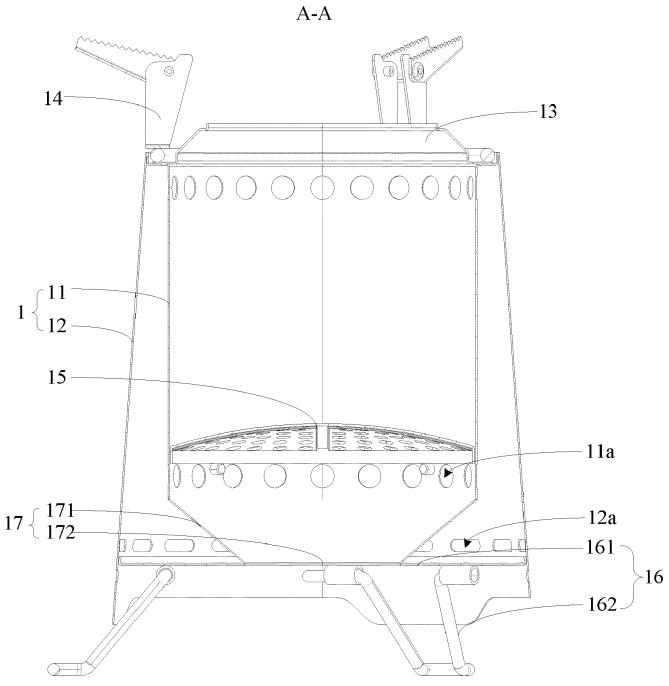

FIG. 2

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Description

TECHNICAL FIELD

[0001] The present application relates to the technical field of stoves, and in particular to a portable smokeless stove.

BACKGROUND

[0002] Stoves are mainly used in daily life for cooking and/or for heating.

[0003] Some stoves provide heat by burning woods, charcoals or other combustibles, but smoke is generated when the combustion materials cannot be fully burned. Especially when used indoors, the smoke cannot be diffused immediately when the air circulation is not good and will be inhaled by users, which causes some negative effects.

SUMMARY

[0004] The main purpose of the present application is to provide a portable smokeless stove, aiming to improve the combustion effect of the combustion material in the stove and reduce the smoke.

[0005] In order to achieve the above objective, the portable smokeless stove provided by the present application includes a combustion cylinder, a separating net and first ventilation holes.

[0006] The combustion cylinder is provided with an accommodating chamber with upper and lower openings, and the accommodating chamber can accommodate a fire source;

the separating net is provided in the accommodating chamber and can carry the fire source; and
first ventilation holes are provided at upper and lower ends of the combustion cylinder, each of the first ventilation holes is distributed along a circumferential direction of the combustion cylinder and communicated with the accommodating chamber, and the first ventilation hole at the lower end is underneath the separating net.

[0007] In an embodiment, the portable smokeless stove further includes: an cover movably provided on the combustion cylinder;
the cover is provided with a flame gathering port communicated with the accommodating chamber of the combustion cylinder.

[0008] In an embodiment, the portable smokeless stove further includes a bracket movably provided on one side of the cover facing away from the combustion cylinder.

[0009] In an embodiment, the portable smokeless stove further includes: a supporting frame;
the supporting frame includes a supporting platform and a supporting leg movably provided on the supporting platform, and one side of the supporting platform facing away from the supporting leg is connected to one side of the combustion cylinder facing away from the bracket.

[0010] In an embodiment, a connecting column is provided on one side of the supporting platform facing away from the combustion cylinder, and one end of the supporting leg is provided with a connecting rod rotatably provided in the connecting column; and
the supporting frame is provided with a storage state and a supporting state; when in the storage state, the supporting leg fits with the supporting platform, and a supporting angle formed between the supporting leg and the supporting platform is 0 degree; when in the supporting state, a free end of the supporting leg is away from the supporting platform, and the supporting angle formed between the supporting leg and the supporting platform is not 0 degree.

[0011] In an embodiment, the portable smokeless stove further includes: an outer cylinder sleeved on a periphery of the combustion cylinder;
a bottom of the outer cylinder is provided with a supporting block along a circumference of the cylinder wall, a sidewall of the outer cylinder is provided with a plurality of second ventilation holes, and each of the second ventilation holes is distributed along a circumference of the outer cylinder and is communicated with the accommodating chamber.

[0012] In an embodiment, an upper opening of the outer cylinder gradually expands toward a lower opening of the outer cylinder.

[0013] In an embodiment, an inner wall of the combustion cylinder is provided with a plurality of bosses integrally fixed on the inner wall of the combustion cylinder, and the separating net is provided on the bosses.

[0014] In an embodiment, the portable smokeless stove further includes: a collecting base movably provided on the side of the supporting platform facing away from the supporting leg;
the collecting base includes a supporting wall and a collecting bottom plate connected to the supporting wall, one end of the supporting wall away from the collecting bottom plate is connected to a bottom of the combustion cylinder, and the collecting bottom plate is provided on the side of the supporting platform facing away from the supporting leg and is

configured to collect a soot and/or other combustibles. The portable smokeless stove in the present application includes a combustion cylinder, a separating net and first ventilation holes. The upper and lower ends of the combustion cylinder are provided with openings and are enclosed to form the accommodating chamber. The separating net is provided at the bottom of the accommodating chamber of the combustion cylinder. The charcoals or other combustibles ignited are provided on the separating net through the opening at the upper end. Since the first ventilation hole is underneath the separating net, the air near the first ventilation hole is quickly sucked in during combustion. Since the air around the separating net will expand during combustion and the air pressure will increase, the air will go up, and the smoke can be discharged through the first ventilation hole to form an airflow direction, which can improve the combustion effect of the combustion material in the stove and reduce the smoke.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] In order to illustrate the technical solutions in the embodiments of the present application or in the related art more clearly, the following briefly introduces the accompanying drawings required for the description of the embodiments or the related art. Obviously, the drawings in the following description are only part of embodiments of the present application. For those skilled in the art, other drawings can also be obtained according to the structures shown in these drawings without any creative effort.

FIG. 1 is a schematic three-dimensional structural view of a portable smokeless stove according to an embodiment of the present application.

FIG. 2 is a sectional view at A-A in FIG. 1.

FIG. 3 is a schematic structural view of the portable smokeless stove according to an embodiment of the present application.

FIG. 4 is a schematic structural view of a separating net in the portable smokeless stove according to an embodiment of the present application.

FIG. 5 is a schematic structural view of a supporting bracket in the portable smokeless stove according to an embodiment of the present application.

FIG. 6 is a schematic structural view of a supporting bracket in the portable smokeless stove according to an embodiment of the present application.

[0016] The description of reference signs:

Reference sign	Name	Reference sign	Name
1	portable smokeless stove	16	supporting frame
11	combustion cylinder	161	supporting platform
11a	first ventilation hole	162	supporting leg
12	outer cylinder	1611	connecting column
12a	second ventilation hole	1621	connecting rod
121	supporting block	17	collecting base
13	cover	171	supporting wall
14	bracket	172	collecting bottom plate
15	separating net		

[0017] The realization of the objective, functional characteristics, and advantages of the present application are further described with reference to the accompanying drawings.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0018] The technical solutions of the embodiments of the present application will be described in more detail below with reference to the accompanying drawings. It is obvious that the embodiments to be described are only some rather than all of the embodiments of the present application. All other embodiments obtained by those skilled in the art based on the embodiments of the present application without creative efforts shall fall within the scope of the present application.

[0019] It should be noted that all directional indications (such as up, down, left, right, front, back, etc.) in the embodiments

of the present disclosure are only used to explain the relative positional relationship, the movement situation, etc. among various assemblies under a certain posture as shown in the drawings. If the specific posture changes, the directional indication also changes accordingly.

[0020] In addition, if there are descriptions related to "first", "second", etc. in the embodiments of the present application, the descriptions of "first", "second", etc. are only for the purpose of description, and should not be construed as indicating or implying relative importance or implicitly indicates the number of technical features indicated. Thus, a feature delimited with "first", "second" may expressly or implicitly include at least one of that feature. Besides, the meaning of "and/or" appearing in the application includes three parallel scenarios. For example, "A and/or B" includes only A, or only B, or both A and B. In addition, the technical solutions between the various embodiments can be combined with each other, but must be based on the realization by those skilled in the art. When the combination of technical solutions is contradictory or cannot be realized, it should be considered that the combination of such technical solutions does not exist or fall within the scope of protection claimed in the present application.

[0021] The present application provides a portable smokeless stove 1, as shown in FIG. 3, the portable smokeless stove 1 includes a combustion cylinder 11, a separating net 15, and first ventilation holes 11a. The combustion cylinder 11 is provided with an accommodating chamber with upper and lower openings, and the accommodating chamber is used to hold a fire source. The separating net 15 is provided in the accommodating chamber and is used to carry the fire source. The first ventilation holes 11a are provided at the upper and lower ends of the combustion cylinder 11, and each of the first ventilation holes 11a is distributed along a circumference of the combustion cylinder 11 and communicated with the accommodating chamber. The first ventilation hole 11a is provided under the separating net 15.

[0022] In an embodiment, the portable smokeless stove 1 is used for cooking on the table. The portable smokeless stove includes a combustion cylinder 11, a separating net 15, and first ventilation holes 11a. The upper and lower ends of the combustion cylinder 11 are provided with openings and are enclosed to form an accommodating chamber. A bottom of the accommodating chamber of the combustion cylinder 11 is provided with a separating net 15. The charcoals or other combustibles ignited are provided on the separating net 15 through the opening at the upper end. Since the first ventilation hole 11a of the combustion cylinder 11 is provided underneath the separating net 15, the air near the first ventilation hole 11a is quickly sucked in. Since the air around the separating net 15 in the chamber will expand during combustion and the air pressure will increase, the air will go up, and the smoke can be discharged through the first ventilation hole 11a at the upper end, thus forming an airflow direction, which can improve the combustion effect of the combustion material in the stove and reduce the smoke.

[0023] The combustion cylinder 11 is cylindrical with openings at the upper and lower ends and are enclosed to form the accommodating chamber, a supporting platform is bent outward at 90 degrees on a top of the combustion cylinder 11, and the accommodating chamber is mainly used for accommodating the heat source. It can be understood that the specific shape of the combustion cylinder 11 is not limited, and it can be cylindrical or square. For the convenience of portability, it is cylindrical in an embodiment. At the same time, the specific volume of the combustion cylinder 11 can be large or small. When used outdoors, an operable space is larger than a space used on the table. Therefore, appropriate adjustments made to the structure of the combustion cylinder 11 without any creative efforts by those skilled in the art is within the scope of the present application.

[0024] The separating net 15 can be detachably assembled with the combustion cylinder 11 through a pin or a boss structure. It can also be welded and fixed on an inner wall of the combustion cylinder. In consideration of the replacement of the separating net 15, in an embodiment, the pin structure is used for the detachable assembly of the separating net 15. When the pin structure is used, four through-holes are provided around the bottom of the combustion cylinder 11, two adjacent through-holes are provided at 90-degree, the four pins are respectively passed through the through-hole, then the separating net 15 is provided on the pin through the opening above the combustion cylinder 11 to be limited in the combustion cylinder 11. The method of using the boss structure is similar to that of the pin, and will be explained in detail later. It can be understood that, when the combustion cylinder 11 is cylindrical or in other shapes, the separating net 15 is provided to a corresponding shape so as to match the inner wall of the combustion cylinder 11 to the greatest extent for limit placement, and the shape is not limited here.

[0025] The upper and lower ends of the combustion cylinder 11 are provided with a plurality of first ventilation holes 11a communicated with the accommodating chamber along the circumference of the outer wall, and the first ventilation hole 11a at the lower end are lower than the separating net 15, so that charcoals or other combustibles can be exposed to the air. The first ventilation hole 11a at the lower end can cooperate with first ventilation hole 11a at the upper end to form an upward airflow in the cylinder, and the structure of the plurality of first ventilation holes 11a can improve the combustion efficiency of charcoals or other combustibles and make the combustion complete. It can be understood that the number and shape of the ventilation holes 11a are not limited, and the maximum ventilation area depends on the area of the wall of the combustion cylinder 11.

[0026] In an embodiment, as shown in FIG. 3, the portable smokeless stove 1 is provided with a cover 13 movably provided on the combustion cylinder 11 and is provided with a flame gathering port communicated with the chamber of the combustion cylinder 11.

[0027] In an embodiment, the portable smokeless stove 1 is provided with a circular cover 13, the cover 13 is hollow, and a periphery of the cover 13 can be provided on the supporting platform at the top of the combustion cylinder 11 bent outward at 90 degrees and bonded to each other. At the same time, the periphery of the upper cover 13 extends a protruding uniform guiding cover to the hollow, so that the flame gathering port is formed, which is used to gather the flame of the charcoals in the combustion cylinder 11, and improve the utilization rate of heat. It can be understood that a diameter of the cover 13 is suitable for matching with the combustion cylinder 11 without any specific limitation. At the same time, the degree of the uniform protrusion of the guiding cover is not specifically limited, as long as it serves as a guidance for the flame.

[0028] In an embodiment, as shown in FIG. 3, the portable smokeless stove 1 is provided with a bracket 14 movable on a side of the cover 13 facing away from the combustion cylinder 11.

[0029] In an embodiment, the bracket 14 is provided with three pallet hands, and every two adjacent pallet hands are separated by 120 degrees. The three pallet hands are connected by a circular hoop, and are integrally fixed by injection molding. The bracket 14 is stacked on the periphery of the cover 13 to press the matching contact between the cover 13 and the inner passage. At the same time, the cooking utensils are put on the pallet hand. Since three points form a surface, the cooking utensils can be stable without being affected. It can be understood that the shape and number of the pallet hands of the bracket 14 are not limited here, and the number of the pallet hands can be three or more. In consideration of economic cost, three pallet hands are enough to meet daily needs.

[0030] In an embodiment, as shown in FIG. 3, the portable smokeless stove 1 is provided with a supporting frame 16. The supporting frame 16 includes a supporting platform 161 and a supporting leg 162 movably provided on the supporting platform 161. One side of the supporting platform 161 facing away from the supporting leg 162 is connected to the side of the combustion cylinder 11 facing away from the bracket 14.

[0031] In an embodiment, the supporting frame 16 of the portable smokeless stove 1 includes one supporting platform 161 and three supporting legs 162. The combustion cylinder 11 is provided on the supporting platform 161, and the side of the supporting platform 161 facing away from the combustion cylinder 11 is provided with three detachable supporting legs 162. Every two adjacent supporting legs 162 are separated by 120 degrees. On the one hand, the supporting frame 16 can elongate the distance between the heat source on the separating net 15 and the table or other platforms to avoid damage. On the other hand, the supporting frame 16 can improve the stability of the entire stove even if it is placed on some uneven surfaces. It can be understood that the specific shape of the supporting frame 16 is not limited, as long as the combustion cylinder 11 can be stable on the supporting platform 161.

[0032] In an embodiment, as shown in FIG. 5, a connecting column 1611 is provided on the side of the supporting platform 161 facing away from the combustion cylinder 11, a connecting rod 1621 is provided at one end of the supporting leg 162, and the connecting rod 1621 is rotatably provided in the connecting column 1611.

[0033] The supporting frame has a storage state and a supporting state. In the storage state, the supporting legs 162 fit with the supporting platform 161, and a supporting angle formed between the supporting legs 162 and the supporting platform 161 is 0 degrees. In the supporting state, the free ends of the supporting legs 162 get away from the supporting platform 161, and the supporting angle formed between the supporting legs 162 and the supporting platform 161 is not 0 degrees.

[0034] In an embodiment, one side of the supporting platform 161 is provided with three pairs of protruding connecting columns 1611, and the connecting columns 1611 form a connecting channel. One end of each of the supporting legs 162 is provided with a pair of bent connecting rods 1621. The connecting rod 1621 is inserted into a pair of protruding connecting columns 1611, and the supporting leg 162 will be supported by the wall of the connecting column 1611 at the bend, so that the supporting leg 162 can rotate and fit with the supporting platform 161. In the storage state, the free ends of the three supporting legs 162 are gathered together by rotating and folding to fit with the back side of the supporting platform 161, and the supporting angle formed between the supporting legs 162 and the supporting platform 161 is 0 degree. In the supporting state, the free ends of three supporting legs 162 are respectively away from the supporting platform 161 spread outwards by rotating. The supporting angle formed between the supporting legs 162 and the supporting platform 161 is greater than 0 degree, which is used to stably support the entire combustion cylinder 11.

[0035] In an embodiment, as shown in FIG. 6, the supporting frame 16 includes a supporting platform 161 and a supporting leg 162. The supporting leg 162 is fixed on the side of the supporting platform 161 facing away from the combustion cylinder 11 through a hinged connection. The supporting frame 162 has a storage state and a supporting state. The storage state and the supporting state have been explained in detail above, and will not be repeated here. It can be understood that the supporting frame 16 includes but is not limited to the above-mentioned two implementations, and changes to the form of the supporting frame 16 by those skilled in the art without creative work will fall within the scope of the present application.

[0036] In an embodiment, as shown in FIG. 2, the portable smokeless stove 1 is provided with an outer cylinder 12 sleeved on the periphery of the combustion cylinder 11, and a bottom of the outer cylinder 12 is provided with supporting blocks 121 along a circumferential direction of the cylinder wall. The sidewall of the outer cylinder 12 is provided with a plurality of second ventilation holes 12a, and each of the second ventilation holes 12a is distributed along the circumferential direction of the outer cylinder 12 and communicated with the accommodating chamber.

[0037] In an embodiment, the portable stove also includes an outer cylinder 12, the upper and lower ends of the outer cylinder 12 are provided with an opening and are enclosed to form a large accommodating space, and the combustion cylinder 11 is suspended and fixed in the accommodating space of the outer cylinder 12 by welding. A plurality of second ventilation holes 12a are provided on the sidewall of the outer cylinder 12, and each of the second ventilation holes 12a is distributed along the circumferential direction of the outer cylinder 12 and communicated with the accommodating chamber. The second ventilation holes 12a are higher than the supporting platform 161 but lower than the separating net 15. At the same time, three supporting blocks 121 of the same shape extend downwards on the bottom wall of the outer cylinder 12, and every two adjacent supporting blocks 121 are separated by 120 degrees. Even if there is no supporting frame 16 or the supporting frame 16 cannot be used, the three support blocks 121 extending from the bottom wall can also form a supporting angle of less than 90 degrees with the plane carrying the portable smokeless stove 1, which can play a supporting role and have a stable supporting effect. It can be understood that the number and shape of the second ventilation holes 12a of the outer cylinder 12 and the shape and number of the supporting blocks 121 are not limited, as long as they meet the needs.

[0038] In an embodiment, as shown in FIG. 1, the upper opening of the outer cylinder 12 gradually expands toward the lower opening of the outer cylinder 12.

[0039] In an embodiment, the upper opening of the outer cylinder 12 gradually expands toward the lower opening of the outer cylinder 12 to form a round plane. In this way, the total area of the second ventilation holes 12a on the outer wall of the lower end of the outer cylinder 12 can be increased, so that more air can enter the accommodating chamber of the combustion cylinder 11 through the second ventilation holes 12a of the outer cylinder 12, which can improve the combustion efficiency of charcoal or other combustibles, and make the combustion complete.

[0040] In an embodiment, the inner wall of the combustion cylinder 11 is provided with a plurality of bosses integrally fixed on the inner wall of the combustion cylinder 11, and the separating net 15 is provided on the bosses.

[0041] In an embodiment, the inner wall of the combustion cylinder 11 is provided with four bosses, and every two adjacent bosses are separated by 90 degrees. The bosses are integrally welded and fixed on the inner wall of the combustion cylinder 11. The bosses are higher than the first ventilation hole 11a at the lower end of the cylinder 11, and the separating net 15 is provided on the boss through the opening above the combustion cylinder 11 and is limited in the combustion cylinder 11. It can be understood that the number and shape of the bosses are not limited, as long as they meet the needs of use.

[0042] In an embodiment, as shown in FIG. 2, the portable smokeless stove 1 includes a collecting base 17 movably provided on the side of the supporting platform 161 facing away from the supporting leg 162.

[0043] The collecting base 17 includes a supporting wall 171 and a collecting bottom plate 172 connected to the supporting wall 171, and one end of the supporting wall 171 away from the collecting bottom plate 172 is connected to the bottom of the combustion cylinder 11. The collecting bottom plate 172 is provided at the side of supporting wall 171 facing away from the supporting leg 162 side, and is used to collect soot and/or other combustion products.

[0044] In an embodiment, the portable smokeless stove 1 includes a collecting base 17, a bottom of an upper opening above the collecting base 17 is closed to present a bowl-shaped structure, which includes a supporting wall 171 and a collecting bottom plate 172. The supporting wall 171 gradually shrinks from top to bottom, the upper end of the supporting wall 171 is detachably connected to the bottom end of the combustion cylinder 11 through a hinged connection or a threaded connection, and the collecting bottom plate 172 is attached to the side of the supporting platform 161 of the supporting frame 16 facing away from the supporting leg 162, so that the combustion cylinder 11, the collecting base 17 and the supporting frame 16 are stacked in sequence from top to bottom in the stove, and the soot on the separating net 15 falls on the collecting bottom plate 172 to be collected. It can be understood that the supporting wall 171 can also gradually expand from top to bottom, but not larger than the supporting platform 161 of the supporting frame 16. In an embodiment, a circular hole is provided in the middle of the supporting platform 161 in the supporting frame 16, the supporting wall 171 of the collecting base 17 can pass through the circular hole of the supporting platform 161, and a collecting bottom plate 172 is arranged at the bottom of the supporting wall 171, so that the soot on the separating net 15 falls on the collecting bottom plate 172 to be collected.

[0045] The above descriptions are only embodiments of the present application, and are not intended to limit the scope of the present application. Under the inventive concept of the present application, any equivalent structural transformations made by using the contents of the description and drawings of the present application, or direct/indirect applications in other related technical fields are included in the scope of the present application.

Claims

1. A portable smokeless stove (1), **characterized by** comprising:

a combustion cylinder (11), wherein the combustion cylinder (11) is provided with an accommodating chamber

with upper and lower openings, and the accommodating chamber is configured to accommodate a fire source;
a separating net (15) provided in the accommodating chamber and configured to carry the fire source; and
first ventilation holes (1 1a) provided at upper and lower ends of the combustion cylinder (11), wherein each of the first ventilation holes (11a) is distributed along a circumferential direction of the combustion cylinder (11) and communicated with the accommodating chamber, and the first ventilation hole (11a) at the lower end is underneath the separating net (15).

2. The portable smokeless stove (1) according to claim 1, further comprising:

an cover (13) movably provided on the combustion cylinder (11);
wherein the cover (13) is provided with a flame gathering port communicated with the accommodating chamber of the combustion cylinder (11).

3. The portable smokeless stove (1) according to claim 2, further comprising a bracket (14) movably provided on one side of the cover (13) facing away from the combustion cylinder (11).

4. The portable smokeless stove (1) according to claim 3, further comprising:

a supporting frame (16);
wherein the supporting frame (16) comprises a supporting platform (161) and a supporting leg (162) movably provided on the supporting platform (161), and one side of the supporting platform (161) facing away from the supporting leg (162) is connected to one side of the combustion cylinder (11) facing away from the bracket (14).

5. The portable smokeless stove (1) according to claim 4, wherein a connecting column (1611) is provided on one side of the supporting platform (161) facing away from the combustion cylinder (11), and one end of the supporting leg (162) is provided with a connecting rod (1621) rotatably provided in the connecting column (1611); and
the supporting frame (16) is provided with a storage state and a supporting state; when in the storage state, the supporting leg (162) fits with the supporting platform (161), and a supporting angle formed between the supporting leg (162) and the supporting platform (161) is 0 degree; when in the supporting state, a free end of the supporting leg (162) is away from the supporting platform (161), and the supporting angle formed between the supporting leg (162) and the supporting platform (161) is not 0 degree.

6. The portable smokeless stove (1) according to claim 1, further comprising:

an outer cylinder (12) sleeved on a periphery of the combustion cylinder (11);
wherein a bottom of the outer cylinder (12) is provided with a supporting block (121) along a circumference of the cylinder wall, a sidewall of the outer cylinder (12) is provided with a plurality of second ventilation holes (12a), and each of the second ventilation holes (12a) is distributed along a circumference of the outer cylinder (12) and is communicated with the accommodating chamber.

7. The portable smokeless stove (1) according to claim 6, wherein an upper opening of the outer cylinder (12) gradually expands toward a lower opening of the outer cylinder (12).

8. The portable smokeless stove (1) according to claim 1, wherein an inner wall of the combustion cylinder (11) is provided with a plurality of bosses integrally fixed on the inner wall of the combustion cylinder (11), and the separating net (15) is provided on the bosses.

9. The portable smokeless stove (1) according to claim 4, further comprising:

a collecting base (17) movably provided on the side of the supporting platform (161) facing away from the supporting leg (162);
wherein the collecting base (17) comprises a supporting wall (171) and a collecting bottom plate (172) connected to the supporting wall (171), one end of the supporting wall (171) away from the collecting bottom plate (172) is connected to a bottom of the combustion cylinder (11), and the collecting bottom plate (172) is provided on the side of the supporting platform (161) facing away from the supporting leg (162) and is configured to collect a soot and/or other combustibles.

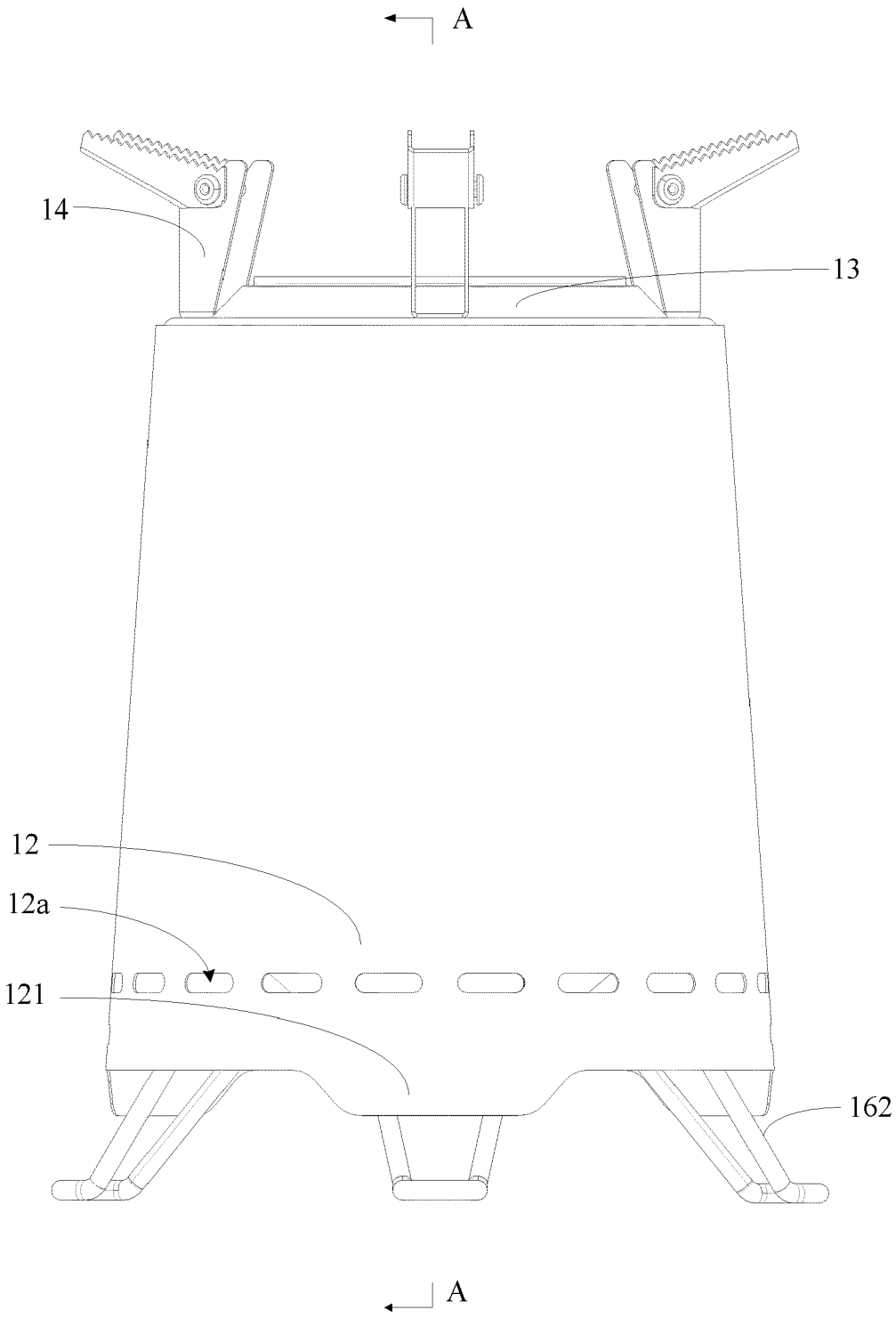

FIG. 1

A-A

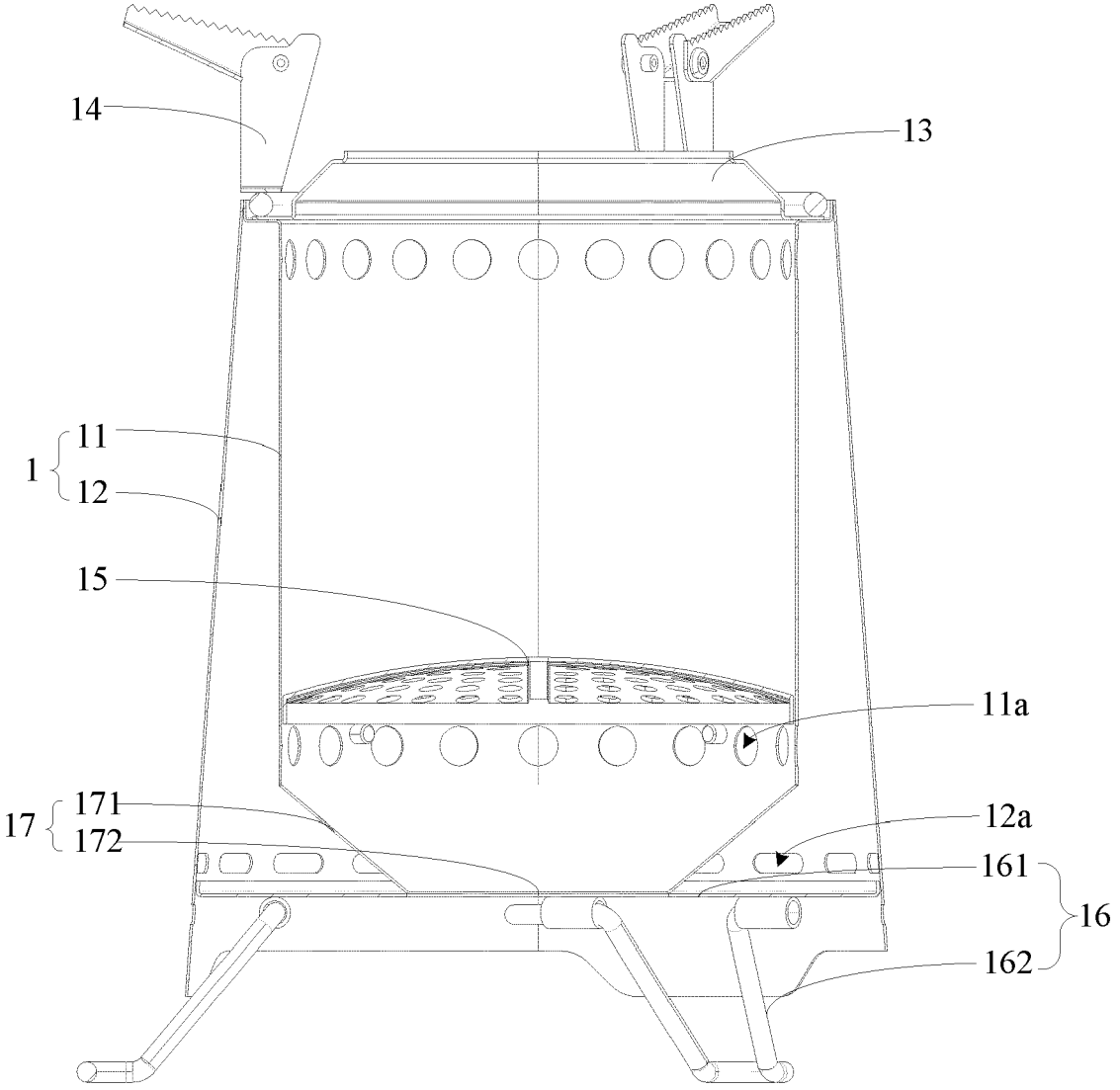

FIG. 2

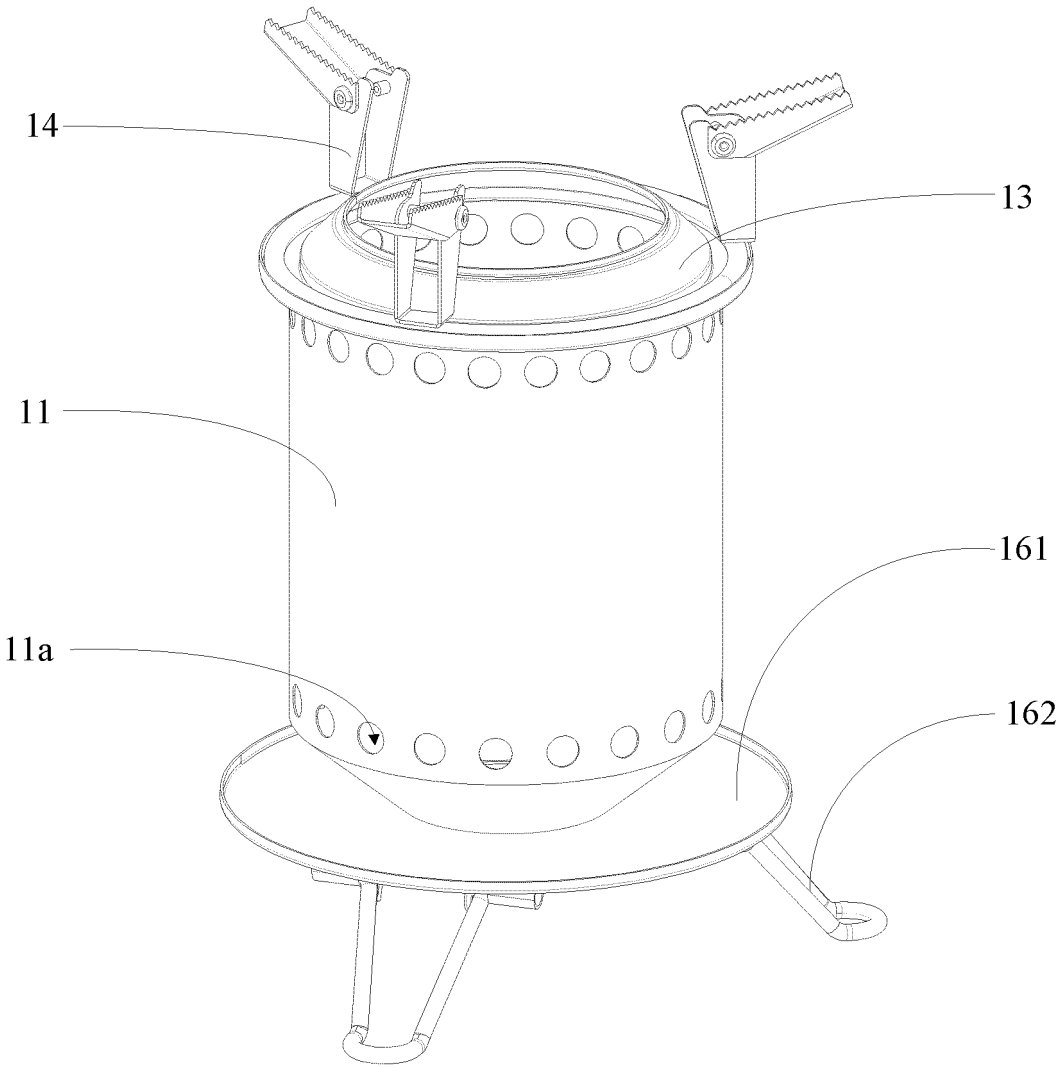

FIG. 3

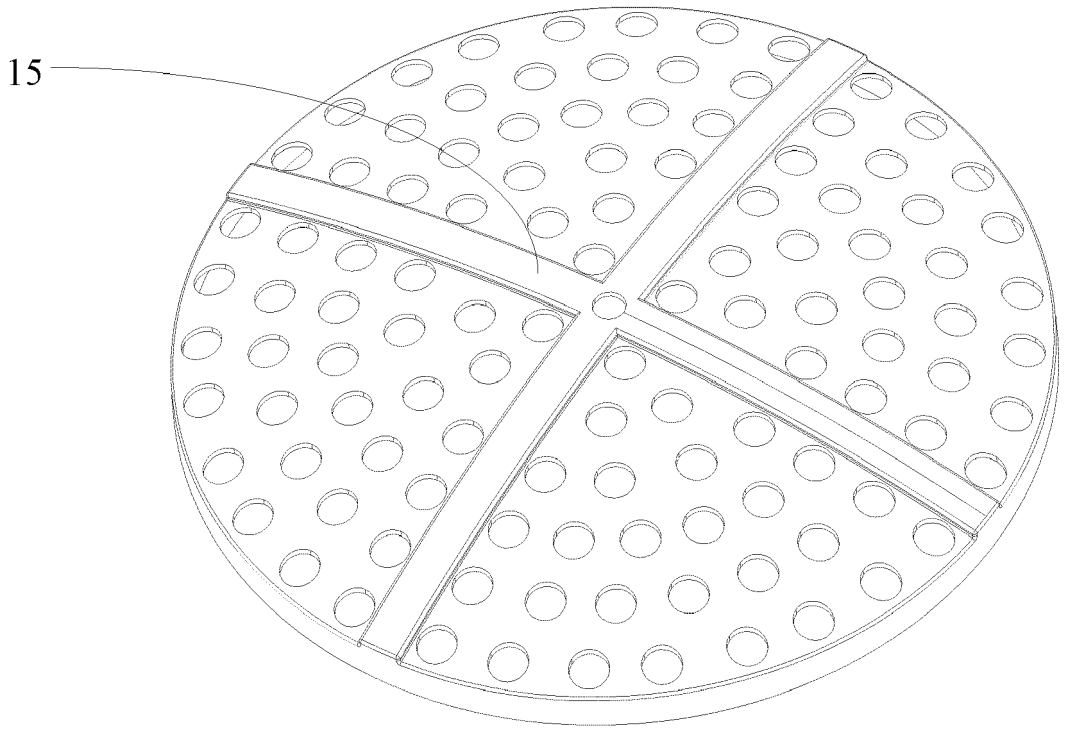

FIG. 4

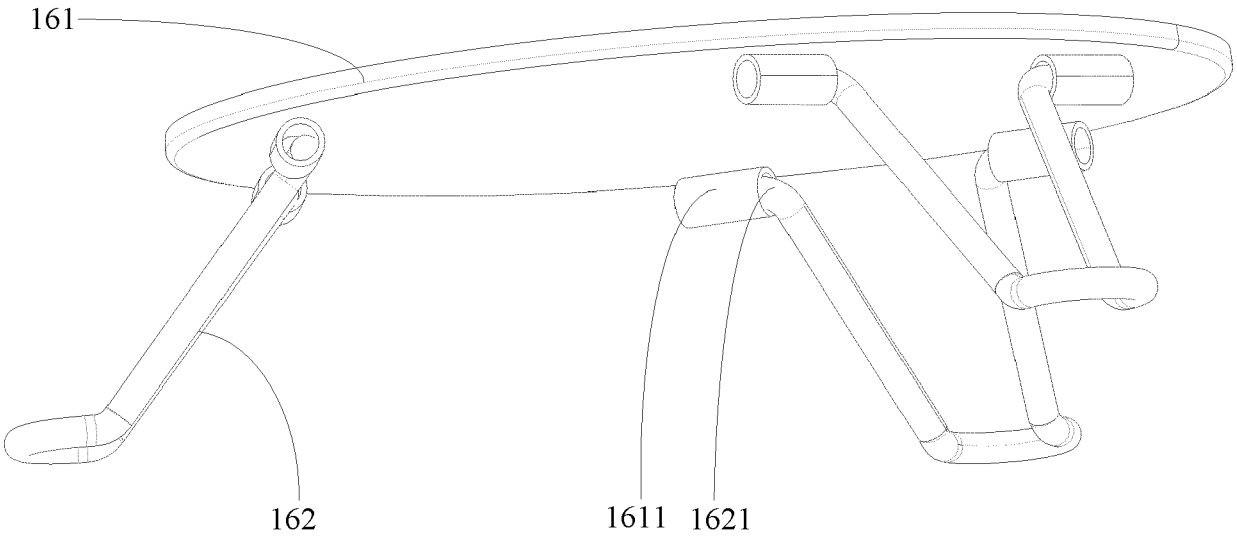

FIG. 5

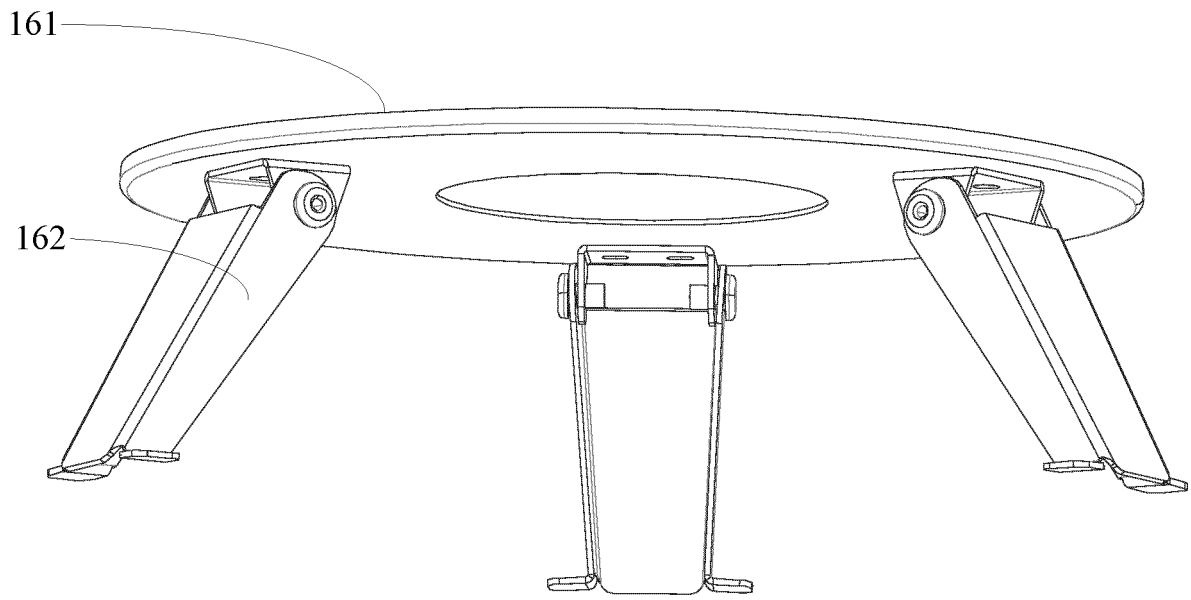

FIG. 6

Europäisches Patentamt
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EUROPEAN SEARCH REPORT

Application Number
EP 23 19 7397

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	US 4 909 235 A (BOETCKER RICHARD [US]) 20 March 1990 (1990-03-20) * column 1, line 5 - column 1, line 7 * * column 7, line 11 - column 7, line 15 * * figures 1, 2, 3, 4 * * column 4, line 30 - column 4, line 31 *	1,2,6-9 3-5	INV. F24B1/20
Y	WO 2017/050269 A1 (CHENGDU ORIGINAL ENERGY TECH CO LTD [CN]) 30 March 2017 (2017-03-30) * figures 1, 9, 16 *	3-5	

TECHNICAL FIELDS SEARCHED (IPC)

F24B

The present search report has been drawn up for all claims

1

Place of search	Date of completion of the search	Examiner
The Hague	6 February 2024	Jalal, Rashwan

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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